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RESEARCH ARTICLE

A STUDY ON THE PERFORMANCE OF COMMODITY FUTURES IN INDIA.

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Abstract

India is among the top producers of a number of commodities and has a long history of trading in commodity derivatives. Futures, as a derivative tool of risk management have existed in India. Major industries of its economy like sugar, textile, metal, energy etc. are based on various commodities. Today, India enjoys world ranking with respect to trading volume in certain commodities like Silver, Gold, Copper, Guar Seed etc.

So, far the financial returns are concerned commodity futures markets allow commercial producers and commercial consumers to offset the risk of adverse future price movements in the commodities that they are selling or buying besides the price discovery tool. So considering these points, an attempt has been made to study the performance of commodity futures trading in India.

Introduction:-

Commodity futures market is one of the most important and fastest growing markets of India. Since the time derivatives were introduced in the year 2003, their popularity has grown manifold. In the wake of globalization and surge in global uncertainties, the prices in commodity markets have shown wide fluctuations. Commodity price volatility is the most critical issue being faced by the producers of primary commodities. The instability in prices is largely originated by demand and supply discrepancies that stem from business cycles (as in case of metals, energy products and agricultural commodities) or political upheavals and unforeseen weather conditions.

A well-developed and effective commodity futures market, unlike physical market, facilitates offsetting the transactions without impacting on physical goods until the expiry of a contract. Futures market attracts hedgers who minimize their risks, and encourages competition from other traders who possess market information and price judgment. While hedgers have long-term perspective of the market, the traders, or arbitragers as they are often called, hold an immediate view of the market. A large number of different market players participate in buying and selling activities in the market based on diverse domestic and global information, such as price, demand and supply, climatic conditions and other market related information. All these factors put together result in efficient price discovery as a result of large number of buyers and sellers transacting in the futures market.

Futures market, as observed from the cross-country experience of active commodity futures markets, helps in efficient price discovery of the respective commodities and does not impair the long-run equilibrium price of commodities. At times, however, price behaviour of a commodity in the futures market might show some aberrations reacting to the element of speculation and ‘bandwagon effect’ inherent in any market, but it quickly reverts to long-run equilibrium price, as information flows in, reflecting fundamentals of the respective commodity.

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In futures market, speculators play a role in providing liquidity to the markets and may sometimes benefit from price movements, but do not have a systematic causal influence on prices. An effective architecture for regulation of trading and for ensuring transparency as well as timely flow of information to the market participants would enhance the utility of commodity exchanges in efficient price discovery and minimize price shocks triggered by unanticipated supply demand mismatches.

Objectives and Research Methodology:-

I. The objectives of this study are to review the performance of commodities futures market in India and to trace the trends in the commodities futures market. The study is based on secondary data. The data has been collected through various web sites of commodity exchanges, commodity market bulletins and SEBIhandbook of statistics.

Methodology:-

The study is organized into three sections. Section - I deals with the concept, advantages and disadvantages of commodity futures. Section - II discusses the statistical information (data). The last Section - III specifies summary and concluding remarks.

SECTION-I:-

A derivative is a contract between two or more parties whose value is based on an agreed-upon underlying financial asset, index or security. Common underlying instruments include: bonds, commodities, currencies, interest rates, market indexes and stocks.

Commodity derivative is an exchange traded derivative or over the counter derivative with an underlying reference based on nonfinancial commodities including chemicals, energy, base and precious metals, livestock, grains, and softs. a commodity derivative can be structured as a commodity future, commodity forward, commodity option, or commodity swap.

Future Contracts:-

A futures contract is an agreement between two parties – a buyer and a seller – to buy or sell something at a future date. The contact trades on a futures exchange and is subject to a daily settlement procedure. Future contracts evolved out of forward contracts and possess many of the same characteristics. Unlike forward contracts, futures contracts trade on organized exchanges, called future markets. Future contacts also differ from forward contacts in that they are subject to a daily settlement procedure. In the daily settlement, investors who incur losses pay them every day to investors who make profits.

Benefits of Commodity Futures:-

1. **Price risk management**: All participants in the commodity markets ecosystem across the value chain of different commodities are exposed to price risk. These participants buy and sell commodities and the time lag between subsequent transactions result in exposure to price risk. Commodity derivatives markets enable these participants to avoid price risk by utilizing hedging techniques.
2. **Price discovery:** This is the mechanism by which a "fair value price" is determined by the large number of participants in the commodities derivatives markets. This is the result of automation and electronic trading systems established on the commodities derivatives exchanges.
3. **High financial leverage:** This is possible in commodity markets. For example, trading in gold calls for only 4% initial margin. Thus, if one gold futures contract (each gold futures contract lot size is 1 kg) is valued at (Rs.30, 00,000) the investor is expected to deposit an initial margin of only (Rs.1, 20,000) to be able to trade. If the price of gold goes up by even 2%, the investor would make a profit of (Rs.60, 000) on a deposit of (Rs.1, 20,000) before the expiry of the contract. This is the benefit of leveraged trading transactions. With futures contracts, the investor trades in the expectation of the price at a later date. This is possible with a margin deposit, which is usually between 5% and 10% of the value of the commodity.
4. Commodities as an asset class for **diversification** of portfolio risk: Commodities have historically an inverse correlation of daily returns as compared to equities. The skewness of daily returns favours commodities, thereby indicating that in a given time period commodities have a greater probability of providing positive returns as compared to equities.
5. Control on **Prices manipulation**: Commodity derivatives markets are extremely transparent in the sense that the manipulation of prices of a commodity is extremely difficult due to globalization of economies, thereby

providing for prices benchmarked across different countries and continents. For example, gold, silver, crude oil, etc. are international commodities, whose prices in India are indicative of the global situation.

6. An **option for high net worth investors**: With the rapid spread of derivatives trading in commodities, the commodities route too has become an option for high net worth investors.
7. Useful to the p**roducer**: Commodity trade is useful to the producer because he can get an idea of the price likely to prevail on a future date and therefore can decide between various competing commodities, the best that suits him. Farmers, for instance, can get assured prices, thereby enabling them to decide on the crop that they want to grow. Since there is transparency in prices, the farmer can decide when and where to sell, so as to maximize his profits.
8. Useful for the **consumer:** Commodity trade is useful for the consumer because he gets an idea of the price at which the commodity would be available at a future point of time. He can do proper costing/financial planning and also cover his purchases by making forward contracts. Predictable pricing and transparency is an added advantage.
9. Hedging the risk **by Corporate**: Corporate entities can benefit by hedging their risks if they are using some of the commodities as their raw materials. They can hedge the risk even if the commodity traded does not meet their requirements of exact quality/technical specifications.
10. Useful to **exporters**: Futures trading is very useful to the exporters as it provides an advance indication of the price likely to prevail and thereby help the exporter in quoting a realistic price and thereby secure export contract in a competitive market.

Disadvantages of Commodities futures:-

1. **Leverage** is a double edged sword and you may end up losing huge amount of money because these contracts have specific maturities and on that date they get expired unlike cash market where you can hold on to stocks for long period of time.
2. **High on speculation** since its inception many critics have been blaming derivatives for huge fall which keeps happening frequently after the introduction of derivatives and many people say that it increases unnecessary speculation in the market which is not good for the small retail investors who are the backbone of stock market.
3. It is quite **complex and various strategies** of derivatives can be implemented only by an expert and therefore for a layman it is difficult to use this and therefore it limits its usefulness.

SECTION – II:-

Statistical data (Information): This section contains the statistical data about Indian derivatives markets (futures) for a period of 2010 to 2015 collected for three national commodity exchanges namely MCX, NCDEX and NMCE:

Table 1:- Trends in MCX COMDEX and DHAANYA Index

	MCX COMDEX Index					**DHAANYA Index**				
YEAR/ MONTH	**Open**	**High**	**Low**	**Close**	**Daily Volatility (percent)**	**Open**	**High**	**Low**	**Close**	**Daily Volatility (percent)**
2010-2011	2,694	3,603	2,567	3,504	0.71	1,000	1,189		1,106	0.71
2011-2012	3,532	4,006	3,286	3,926	0.92	1,105	2,404	1,102	2,357	0.82
2012-2013	3,924	4,069	3,578	3,789	0.60	2,361	2,906	2,307	2,352	0.77
2013-2014	3,789	4,799	3,352	3,925	0.93	2,353	2,627	2,120	2,602	0.66
2014-2015	3,925	4,046	2,775	2,915	0.80	2,604	2,785	2,379	2,479	0.69
Apr 14 – Dec 14	3,925	4,046	3,037	3,040	0.73	2,604	2,785	2,431	2,731	0.69
Apr 15 – Dec 15	2,915	3,290	2,483	2,591	0.94	2,481	3,043	2,479	2,913	0.82

Note:

Volatility is calculated as standard deviation of natural log of daily return in the Index for the respective period

Source: MCX, NCDEX

Table 2:-Trends in Commodity Futures at MCX

Year/ Month	No.of Trading days	Agriculture			Metals			Bullion		
		Volume ('000 tonnes)	Volume (Lots)	Turnover (crore)	Volume ('000 tonnes)	Volume (Lots)	Turn over (crore)	Volume ('000 tonnes)	Volume (Lots)	Turnover (crore)
2010-11	307	27241	39,67,369	1,14,152	1,24,163	7,41,49,730	25,08,858	710	7,65,08,289	51,69,268
2011-12	310	32,465	61,18,325	1,97,781	1,18,499	8,88,65,001	27,09,758	1,011	22,83,44,739	99,63,667
2012-13	305	32,926	76,30,359	2,70,295	1,51,396	11,39,43,114	31,40,109	723	16,22,79,284	78,07,063
2013-14	310	20,878	59,05,031	1,71,391	85,674	6,37,97,242	17,26,336	400	9,27,48,201	42,63,195
2014-15	255	13,504	33,71,516	1,10,268	62,083	4,73,52,037	12,74,213	240	4,62,94,585	21,53,427
Apr 15 - Dec 15	194	9,673	25,54,597	89,468	66,513	4,84,82,608	11,51,210	179	3,14,34,330	14,72,769

Year/ Month	Energy			Total			Open interest at the end of the period		
	Volume ('000 tonnes)	Volume (Lots)	Turnover (crore)	Volume ('000 tonnes)	Volume (Lots)	Turnover (crore)	Open Interest ('000 tonnes)	Open Interest (Lots)	Value (crore)
2010-11	6,31,869	5,81,72,478	20,49,224	7,83,984	21,27,97,866	98,41,502	682	2,73,364	12,180
2011-12	7,30,401	6,65,26,548	27,25,889	8,82,377	38,98,54,613	1,55,97,095	605	6,33,342	15,720
2012-13	8,16,377	9,11,92,784	36,63,589	10,01,423	37,50,45,541	1,48,81,057	1,141	6,52,817	21,908
2013-14	4,21,354	5,17,51,062	24,50,527	5,28,306	21,42,01,536	86,11,449	413	3,44,214	11,128
2014-15	4,04,556	5,15,57,804	16,45,799	4,80,383	14,85,75,942	51,83,707	561	311143	8715
Apr 15 - Dec 15	5,37,955	8,20,29,575	14,30,877	6,14,321	16,45,01,110	41,44,324	863	4,08,784	9,575

Notes:

1. Natural Gas volumes are in mmBTU, CFI volumes are in tons of CFI Units and is not included for computing the Total Volume and Total Open Interest in '000 tonnes

2. Conversion factors: Cotton (1 Bale=170 kg), Crude Oil (1 Tonne = 7.33Barrels), Heating Oil (42 Gallons = 100 barrels; 1Tonne = 7.5 Barrels), Gasoline (42 Gallons = 100 barrels; 1 Tonne = 8.45Barrels), ATF (1 Tonne = 7.8 Barrels)

Source: MCX

Table 3:- A summaries of Futures contracts at MCX

Year	Traded Contract(In Lots)	Quantity (In 000's)	Total Value (In Lakhs)
2010	197206801	178351805.75	869686959.57
2011	346192367	180347727.95	1493285201.99
2012	388751074	226773664.06	1489059632.74
2013	264627693	179830608.55	1073320439.67
2014	133751818	98449171.05	526149906.35
2015	216346961	119547861.94	555164431.85
2016	203691159	109641633.16	502805656.09

All segments including agro, metals, bullion and energy

Source: MCX

Table 4:-Trends in Commodity Futures at NCDEX

Year/ Month	No.of Trading days	Agriculture			Metals			Bullion		
		Volume ('000 tonnes)	Volume (Lots)	Turn over (crore)	Volume ('000 tonnes)	Volume (Lots)	Turnover(crore)	Volume ('000 tonnes)	Volume (Lots)	Turn over (crore)
2010-11	307	3,37,770	3,96,10,809	11,09,740	8,998	12,05,418	36,761	2	3,62,790	70,928
2011-12	310	3,86,759	4,41,73,798	16,64,095	4,182	8,31,959	30,422	2	1,43,742	29,438
2012-13	304	3,47,242	3,84,29,715	15,57,146	782	2,08,002	8,235	0	5,068	1,084
2013-14	309	2,74,282	3,36,46,539	11,38,862	3	1,349	58	0	32,620	6,233
2014-15	255	1,94,255	2,70,99,591	8,70,863	2	200	7	1	1,96,738	32,708
Apr 15 - Dec 15	194	1,76,261	2,37,72,230	8,25,872	0	0	0	1	78,939	16,652

Year/Month	Energy			Total			Open interest at the end of the period		
	Volume ('000 tonnes)	Volume (Lots)	Turnover (` crore)	Volume ('000 tonnes)	Volume (Lots)	Turnover (crore)	Open Interest ('000 tonnes)	Open Interest (Lots)	Value (crore)
2010-11	66,289	47,91,026	1,93,173	4,13,058	4,59,70,043	14,10,602	1,913	4,57,714	6,446
2011-12	26,651	19,47,870	86,248	4,17,594	4,70,97,599	18,10,204	1,813	2,35,906	7,558
2012-13	8,594	6,29,902	31,960	3,56,617	3,92,72,687	15,98,426	1,479	1,82,015	5,592
2013-14	257	18,862	1,175	2,74,544	3,36,99,370	11,46,328	1,703	2,46,169	7,486
2014-15	107	7,868	485	1,94,365	2,73,04,397	9,04,063	1433	1,95,950	6,087
Apr 15 - Dec 15	0	0	0	1,76,259	2,38,51,169	8,42,524	1,593	2,19,342	6,910

Table 5:-Trends in Commodity Futures at NMCE

Year/Month	No.of Trading days	Agriculture			Metals			Bullion		
		Volume ('000 tonnes)	Volume (Lots)	Turnover (crore)	Volume ('000 tonnes)	Volume (Lots)	Turnover (crore)	Volume ('000 tonnes)	Volume (Lots)	Turnover (crore)
2010-11	306	27,683	53,16,742	1,29,431	4,666	17,37,243	72,372	1	21,82,231	16,608
2011-12	309	27,852	42,62,296	1,33,636	6,965	27,09,065	1,11,318	0	48,78,460	23,396
2012-13	304	21,016	45,64,610	1,07,012	3,918	15,54,469	63,940	0	10,32,090	6,182
2013-14	310	30,255	57,76,429	1,32,447	827	3,72,385	13,927	0	12,49,561	6,445
2014-15	246	8,334	15,76,654	36,040	0	0	0	0	0	0
Apr 15 - Dec 15	184	4,694	6,30,058	23,059	0	0	0	0	0	0

Year/ Month	Total			Open interest at the end of the period		
	Volume('000 tonnes)	Volume (Lots)	Turnover (crore)	Open Interest ('000 tonnes)	Open Interest (Lots)	Value (crore)
2010-11	32,350	92,36,216	2,18,411	10	8521	209
2011-12	34,817	1,18,49,821	2,68,351	16	8556	**217**
2012-13	24,934	71,51,169	1,77,134	20	8556	**170**
2013-14	31,082	73,98,375	1,52,819	8	6355	101
2014-15	8,334	15,76,654	36,040	7	3072	46
Apr 15 - Dec 15	4,694	6,30,058	23,059	3	1809	27

Source: NMCE

Commodity Futures Market during the study period:-

Throughout the study period the commodity futures market has developed significantly in terms of both network and volume. At present, there is a two-tier structure for Commodity

Exchanges in India: Regional and Country-Wide. Regional exchanges are permitted to have only a limited number of contracts whose membership is local. Countywide national exchanges are multi-commodity electronic exchanges with a demutualized ownership pattern. Currently, there are three such exchanges, viz., MCX (Multi Commodity Exchange), NMCE (National Multi Commodity Exchange) and NCDEX (National Commodities and Derivatives Exchange).

MCX has evolved as the largest exchange in the country. MCX started its operations on November 10, 2003 and today it holds a market share of over 80 per cent of the Indian commodity futures market and has more than 2000 registered members operating through over 100,000 trader work stations across India. The exchange has also emerged as the sixth largest and amongst the fastest growing commodity futures exchange in the world, in terms of the number of contracts traded. MCX offers commodities across various segments such as bullion, ferrous and non-ferrous metals, and a number of agro-commodities on its platform. The Exchange is the world's largest exchange in silver, the second largest in gold, copper and natural gas and the third largest in crude oil futures, with respect to the number of futures contracts traded.

Even as reform initiatives are slowly taking shape, turnover in the Indian commodity futures market has increased many times over. The total value of trade in the Commodity Futures Market has risen substantially in the last few years (Table 2). MCX recorded the highest turnover in terms of value of trade from 2010 to 2015 followed by NCDEX and NMCE.

Total value of trading in the commodity futures market rose from Rs. 98,41,502crore in 2010 to Rs. 1,48,81,057 crore during 2012. The growth could be attributed to larger participation in the market, increase in global commodity prices, the advent of new commodity exchanges and the restoration of trade in some of the suspended agricultural commodities.

MCX: As is clearly indicated from the table that the commodity market is gaining its importance very significantly during the study period. During 2003, the numbers of traded

That keeps the market as efficient as possible, and keeps the traders on their toes to make sure no one gets the purchase or sale before they do. Since 2002, the commodities future market in India has experienced an unexpected boom in terms of modern exchanges, number of commodities allowed for derivatives trading as well as the value of futures trading in commodities, which crossed $ 1 trillion mark in 2006.

Conclusion:-

Indian commodity market have undergone a drastic changes since last two decades where the demand of metals, oil, coal etc. have increased tremendously with the increased pace of economic development. In the wake of globalisation and commodity derivatives reintroduction, commodity futures market has witnessed several developments since 2003. There has been tremendous growth in commodity futures market in terms of volume of trade, number of products on offer, participants and technology. Commodity futures are diversified asset class they do not boost resources for firms to invest, rather they allow producers to gain insurance for the future value of their outputs.

Commodity futures perform two vital functions of the economy i.e. price discovery and riskmanagement. Futures markets provide liquidity and facilitates to hedge against future pricerisk. It helps buyers and sellers of agricultural products to quickly manage their trade at a fairprice. Commodity trading also offers a chance for financial leverage to hedgers, speculators and other traders. The growth of Commodity derivatives market of India will lead to further development in the field of electronic warehouse receipts which may facilitate seamless nationwide commodity spot market. It would strengthen the Indian economy to face the challenge of globalization.

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