



## A STUDY ON THE PERFORMANCE OF MULTI COMMODITY EXCHANGE IN ENERGY PRODUCTS

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### Introduction

“The civilization of human started with the invention of fire”. From this says, it has indicated that the development of the society depends on the availability of energy resources. As evidence, the economic progress of the past decade has seen millions of people enjoy in their material well being, and these changes have been particularly remarkable in the emerging economy. It is understood how globalization and market liberalization have under pinned these developments. But we cannot lose consideration of the crucial enabling role played by the energy sector. Without heat, light and power you cannot build or run the factories, cities that provide goods, jobs and homes nor enjoy the amenities that make more life comfortable and enjoyable. Hence, Energy is the “oxygen” of the economy and life blood of growth.

The development of the standard of living of the people is determined by the infrastructure facilities such as roads, bridges, dams, transportation facilities, availability of educational institutions, hospitals, industrial sectors etc., The proper supply of energy products is essential to improve the infrastructure facilities in the nation. Thus, the availability and easy accessibility of energy resources are able to bring tremendous changes in the development of the economy.

The flawless supply and accessibility of energy products had been brought down in India after the introduction of commodity exchanges and with proper regulations by FMC. Now a day, there are 21 Commodity Exchanges in India, 5 are National Exchanges and 16 are Regional Exchanges. 5 national commodity exchanges dominate the commodity futures market i.e. Multi Commodity Exchange Limited (MCX), National Multi Commodity Exchange (NMCE), National Commodity and Derivative Exchange (NCDEX), Indian Commodity Exchange Limited (ICEX) and Commodity and Derivative Exchanges (ACE). These exchanges together accounted for 99.7% market share as of Nov’12 (FY12: 99.7%). MCX continues to dominate and remains market leader with 87% share in total exchange measured in the way of Quantity traded, turnover and the number of contracts traded, additionally evaluated in terms of commodities traded, bullion (gold and silver), and energy and metal constitute 88% of total turnover traded on the exchanges.

Multi Commodity Exchange of India Limited (MCX) is a de-mutualized commodities derivatives exchange. It was incorporated in 2002, began commercial operations in November 2003, and listed on the Bombay Stock Exchange on 9 March 2012 under the control of the forward market commission (FMC). In terms of market share, MCX remains a dominant exchange with a market share of 87%, followed by NCDEX (11%) and ACE 1%. MCX also dominates 5 commodities namely silver, gold, crude oil, natural gas and copper with market share in excess of 97%. From such information, it has understood that the MCX plays a predominant role in energy products trading activities in India, which stimulate the researcher to undertake the study to observe the actual performance of MCX towards energy products.

- Crisil Research "Multi Commodity Exchange of India Limited" 15-June, 2011.
- Dr. Dharambeer & Mr. Barinder Singh "Indian Commodity Market Growth and Prospects" July-2011.
- IHS CERA “Energy for Economic Growth” 2012.
- Takeshi "Market Efficiency of Commodity Futures in India" Oct-2012.

### Need for the Study

In this dynamic economy, the prices of the energy products such as diesel, petrol, crude oil, natural gas and gasoline, etc. are always fluctuating in the market. The domestic price of the energy product is mostly determined by the actual international market situation. Even though, the price fluctuations in energy products, the consumption of energy products are essential to the economic development. So, the study mainly focuses on Energy products' performance in multi commodity exchange based on its history of performance for past a decade. Hence the study helps to predict the future market condition and it helps the participants to improve their trading activities towards energy products.

### Literature Review

In this portion, tried to investigate of the existing literature reveals that no specific work has been carried out to examine the energy commodities traded on a multi commodity exchange in India for the period of 2004 to 2013. There are various studies that have been discovered in the similar associated topics, but for expressive the accurate presentation of multi commodity exchange in energy products we involve early reviews and those literatures keep up with this project. This helps demonstrate the performance growth of energy products for past 10 years in MCX in India.



**Dale C and Zyren J (1996)<sup>1</sup>** One can perform the same exercise for the entire non-commercial category, as in Dale and Zyren (1996), but interpretation is problematic as this category has become contaminated over recent years by the growth of index trading.

**Kaufmann R K (1995)<sup>2</sup>** Proposes a Project Link model to describe the world oil market for the period of 1954- 1989. He investigates the effects of economic, geological, and political events on oil prices. In this model, world oil price is a function of market conditions and the strategic behavior of OPEC. The key factors are OPEC and non-OPEC capacity utilization, OPEC capacity, the OPEC share of world oil production, and the OECD inventory level. The OPEC quota and the 1974 oil shock are included as dummy variables. The results indicate that the model has good power to describe the world oil market.

**Kolos Sergey P and Ehud I Ronn (2008)<sup>3</sup>** Found that the futures prices are biased predictors of spot energy prices, indicating a non-zero risk price with the sign likely dependent upon the relative balance of hedging investors that are either long or short. Far fewer studies have tested the more general ICAPM framework of risk pricing with commodities.

**Lamon Rutten (2009)<sup>4</sup>** As per his study on a commodity futures contract, global commodities traded on the Indian exchange such as bullion, metals like copper, aluminium, steel, etc. and energy product like crude oil, natural gas, etc., Accounts for more than 80% of their average daily turnover. These commodities are largely linked with global market as their imports and exports are allowed subject to a marginal tariff incidence. Obviously, most of these commodities are largely governed by their fundamentals (the supply and demand condition) at the global level & partly by the development on the domestic front. Therefore, it is necessary for the users of these commodities to take a position on a future platform with global linkages in order to hedge their risk. For globally traded commodities, particularly metals and crude oil, the price discovered on MCX has very high correlation (96% on an average) with the international benchmarks. This also shows that the prices of MCX' S futures on globally traded commodity follows efficiently and in tandem the combined force of domestic and international fundamentals and this makes the domestic online exchanges a cost effective and superior alternative to their international counterparts.

**Mantu Kumar Mahalik, Debashis Acharya and Suresh Babu M (2009)<sup>5</sup>** Studied on "Price discovery and volatility spillovers in the futures and spot commodity markets: Some empirical evidence from India" which revealed that Indian commodity futures markets registered 373% growth during 2005-06. Despite this growth rate, there is skepticism about the effect of commodity futures on its underlying assets in India. In this context, the study examines price discovery and volatility spillovers in Indian spot-futures commodity markets by using co-integration (Johansen, 1991), VECM and the vicariate EGARCH (Nelson, 1991) model. This study has used four futures and spot indices of Multi-Commodity Exchange (MCX), Mumbai that employs daily data spanning over 12th June 2005 to 31st December 2008. The Vector Error Correction model shows that commodity futures markets like natural logarithm of agriculture future price index (LAGRIFP), energy future price index (LENERGYFP), and aggregate commodity index (LCOMDEXFP) effectively serves the price discovery function in the spot market implying that there is a flow of information from future to spot commodity markets but the reverse causality does not exist while there is no co-integrating relationship between metal future price index (LMETALFP) a metal spot price index (LMETALSP). Besides the bivariate GARCH model indicates although the innovations in one market can predict the volatility in another market, volatility spillovers from the future to the spot market are dominant in the case of LENERG and LCOMDEX index while LAGRISP acts as a source of volatility towards the agricultural futures market.

**Sadorsky P (2006)<sup>6</sup>** compares different types of forecasting models, including the random walk, historical mean, moving average, exponential smoothing, linear regression models, autoregressive models, and various GARCH models to forecast petroleum prices. Sadorsky uses WTI daily futures prices of crude oil, heating oil #2, and unleaded gasoline covering the period from February 5, 1988 to January 31, 2003 (natural gas data covers the period of April 3, 1990 to January 31, 2003).

**Shaun K Roache (2008)<sup>7</sup>** Investigated in deals with commodity and the market price of risk. He found that commodity futures offer some macro risk exposure. But the exposures various across the asset class Energy metals, copper's and energy perhaps the commodity most traded by financial investors or influenced by interest rate and currency movements, agricultural commodity trend to be less sensitive.

**Soros G (2008)<sup>8</sup>** In June 2008 testimony to the U.S. Congress, George Soros asserted that the investment in instruments linked to commodity indices had become the "elephant in the room" and argued that investment in commodity futures might exaggerate price rises (Soros, 2008).

**Sushismita Bose (2008)<sup>9</sup>** Studied about some important characteristics of the Indian commodity futures market in few products which have higher exposure to metals and energy products, with clear and efficient price dissemination in national



and international markets, Agricultural indices on the other hand do not exhibit such features very clearly. The results also help to build a case for opening up of parts of the Indian agricultural futures market.

**Trostle R Global Agricultural Supply and Demand (2008)**<sup>10</sup> Argued that surging energy costs are linked with the price escalation of foods. Trostle specifically indicated that prices of all commodities (food and nonfood) have increased along with the price of oil. The variables which will follow will show that increasing oil prices are not only affecting the transportation costs but are also affected in the different ways the wheat prices.

### **Gaps in the Literature**

Most of the research studies have been focused only on Price volatility, Future price and predictor, Global commodity product and price performance, Price discovery and volatility spillovers in the futures and spot commodity markets, different types of forecasting models, market price of risk, price dissemination in national and international markets, different types of price. From these literature studies, we understood that there were no studies argued in commodity performance of energy related products. Hence, the study is taken up.

### **Objectives of the Study**

The objectives of the study are as follows:

- To have an overview of energy products traded on a multi commodity exchange in India (MCX) for past 10 years.
- To find out the product wise, segment wise and year wise growth performance of multi commodity exchange (MCX) in energy products.

### **Hypothesis**

A hypothesis is a perception of informational usefulness and pass on to the market's skill to process information into occurrence actions. The suggestion of the well organized market hypothesis emerged as early as the beginning of the twentieth century in the theoretical contribution of review references.

Hypothesis 1: The estimated values of trade always growing trend on every year.

Hypothesis 2: There is a fluctuation in the trade quantity and no of trade contracts on every year, but in every year values are getting growing trend so we have taken all references to find solutions only from trading values.

### **Research Methodology**

This research study is carried out to offer information to the participants, investor, trade brokers and stakeholder awareness towards multi commodity exchange performance in energy products. The main objective of the study is to identify the energy products traded obviously through the multi commodity exchange in India (MCX) for past 10 years. The data for this paper is secondary in actually, which is collected the entire data's from forward market commission (FMC) and Multi commodity exchange (MCX). The data was not available for the certain period as for that period the commodity was taken out from the trading by the government. The percentage analysis is carried out using normal calculation without using any software related package.

**Sources of Data:** The necessitated and appropriate data are collected from secondary sources like, books, journals and website like FMC, FIA and MCX.

**Primary Data:** This topic purely related to secondary data's and for the reason primary data's were not collected in a methodical manner by visiting the existing investors, participants, formers in commodity market & other individuals. Secondary data were used for the purpose of the study by the researcher. The research is aimed to obtain the data mainly through secondary sources. Collected additional data's from the previous research books, journals and articles and the same has been used to obtain information.

**Secondary Data:** This title entirely depends on secondary source data and the data's were collected from multi commodity exchange, forward market commission and other commodities related to official websites, [www.fmc.gov.in](http://www.fmc.gov.in), [www.fia.org](http://www.fia.org) and [www.mcxindia.com](http://www.mcxindia.com).

**The Period of the Study:** .The Researcher has taken a year for complete the research work. Three months were used for reviewing the existing literature to ensure the reliability of current study. Four months have been taken to collect data from secondary sources and converted it in to suitable form for further research study. The rest of the periods were utilized for analyse and conclude the research work.



**Analysis and Discussion**

**Year over Year Growth Percentage Analysis:** The percentage analysis is utilized as the method of data analysis in this paper. In order to calculate the performance of multi commodity exchange in energy products, traded values of energy products have been used. Yearly data on energy product values of individual commodities were obtained from the Commodities Research Bureau (CRB) for know the commodities traded on the Multi Commodity Exchange. Percentage analysis is performed to study and investigate the year wise growth trend from the year 2004 to 2013.

**Table 1.1: Energy Product Wise and Year Wise Performance in Multi Commodity Exchange**

<b>Crude Oil</b>	<b>Year</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>
	<b>Trade Value (Rs.In Lakhs)</b>	13770886	13032562	42113266	85947249	121020965	150743390	242044737	289229240	220009453
	<b>Year Over Year Growth</b>	-	-5%	223%	104%	41%	25%	61%	19%	-24%
<b>Brent Crude Oil</b>	<b>Year</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	
	<b>Trade Value (Rs.In Lakhs)</b>	115493	245714	427	182	8208	11980	778491	350787	
	<b>Year Over Year Growth</b>	-	113%	-100%	-57%	4420%	46%	6398%	-55%	
<b>Natural Gas</b>	<b>Year</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	
	<b>Trade Value (Rs.In Lakhs)</b>	3262519	2586980	3002186	27497924	27919328	23293744	54440421	63916587	
	<b>Year Over Year Growth</b>	-	-21%	16%	816%	2%	-17%	134%	17%	
<b>Gasoline</b>	<b>Year</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>					
	<b>Trade Value (Rs.In Lakhs)</b>	205935	3512	108	124					
	<b>Year Over Year Growth</b>	-	-98%	-97%	15%					
<b>Thermal Coal</b>	<b>Year</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>					
	<b>Trade Value (Rs.In Lakhs)</b>	585	9	123	50					
	<b>Year Over Year Growth</b>	-	-99%	1323%						



	Year	2009	2010	2011
Heating Oil	Trade Value (Rs.In Lakhs)	154891	2377	139
	Year Over Year Growth	-	-98.47%	-94.14%

Source: Data From MCX Website: <http://www.mcxindia.com>; Note: Valuation as of 08/03/2016.

### Inference

The above table 1.1 represents the percentage analysis of the Energy products' performance of multi commodity exchange. From the year 2004 to 2012 had a tremendous growing trend in crude oil, Brent crude oil and natural gas. It indicates that maximum percentage of crude oil 223% in the year 2007, Brent crude oil 6398% in the year 2012 and natural gas 816% in the year 2009 respectively when compared to past a decade. However, from the year 2004 to 2013, the Energy products of MCX had declining trends slightly in some commodities. It is found that MCX had played the vital role in the trade of crude oil, Brent crude oil, and natural gas when compare to gasoline, thermal coal and heating oil. There were the lesser participation on gasoline, thermal coal and heating oil for a past a decade due to the reasons such as new policies of government, Industrial growth, financial crisis and Economic policies at the global level.

### Findings

- Taken as a whole performance of multi commodity exchange in energy products in a decade, it has proved the trade value of crude oil is greater than the other energy products such as Brent crude oil, natural gas and gasoline. Hence, it is concluded that the crude oil trade competed a chief position in the performance of multi commodity exchange.
- It has found that highest traded value percentage of crude oil is 223% in the year 2007, Brent crude oil is 6398% in the year 2012 and natural gas is 816% in the year 2009. It is concluded that the profit might be maximized in the year of 2007, 2009 and 2012 in multi commodity exchange when compared among past ten years.
- It has been observed that multi commodity exchange where traded six products in energy product segments. From that, it has observed that most of the participants were highly involved only in three products like crude oil, Brent crude oil and natural gas products trade when compared to other energy products trade.
- It has examined that the lesser traded value product's highest growth percentage such as gasoline is 15% in the year 2012, thermal coal is 585% in the year 2009 and heating oil is -94.14% in the year 2011. All these three products were traded only a few years, it indicates that all participants are willing to trade only on highly profitable products.
- In energy products, the lesser traded value of a single product did not affect the overall growth stability of MCX because of the traded value of remaining product lead to sustain the growth level of multi commodity exchange in energy products where it was not possible in all commodity segments.

### Conclusions

Multi Commodity Exchange of India (MCX) performance is reflecting the pant response of all commodity market participants in the various segments of commodities like Agricultural products, Environmental products, Energy products, ferrous products and various Metal products. The analysis of the data reveals that the markets are efficient in the yearly performance of energy products. Most of the participants are involved in the energy products such as Crude oil, Brent crude oil, and Natural gas due to permanent growth stability. Therefore, it has proved that there were remarkable involvement of the participants who were profit oriented and high risk takers.

Most of the energy products are imported from the global market which can be taken into account for determined the Gross national product of our nation. So, the energy products play the vital role in national development. We used percentage analysis to find the variations on every year performances and we found a positive trend on every year with some fluctuations in few years. The discussion based on various parameters of the commodity market as a whole show that the researchers have a mixed view. There is no defined viewpoint on any of the variables selected. This clearly shows the uncertainty prevailing in the market, which forms the basis of the research.

In the overall observation, the Growth of MCX in energy Products was a positive trend range in the past a decade. Hence, the study confirmed that the MCX had contributed to the development of Indian economy significantly. There is also a scope of earning maximum profit by the participants in the future through the Multi Commodity Exchange.



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