Economic Utility of Commodity Exchanges and the Role of MCX in Improving Market Infrastructure

Joseph Massey
Dy.Managing Director
Multi Commodity Exchange of India Ltd.

"I am convinced that if it (the market system) were the result of deliberate human design, and if the people guided by the price changes understood that their decisions have significance far beyond their immediate aim, this mechanism would have been acclaimed as one of the greatest triumphs of the human mind".

-Friedrich Hayek, Nobel Laurette

This is an excerpts from his *"The use of knowledge in society,"* published in American Economic Review in September 1945. And, it seems that he was quite convinced as to the decision making of the people according to price changes has a larger significance than their immediate aim which is most appropriate for commodities which are produced seasonally and are consumed throughout the year. That way, the organized market for derivatives as obvious must be recognized as the greatest triumphs of human mind, if we see the set up of Commodity exchanges today and their economic utility in the ecosystem.

Economics is in simpler terms, the study of how human beings allocate scarce resources to produce various commodities and how those commodities are distributed for consumption among various players in the economy. The essence of economics lies in the fact that resources are scarce, or at least limited, and that not all human needs and desires can be met with the available resources. How to distribute these resources in the most optimal manner remains the crux of all economies that decides their efficiency.

Production, distribution and consumption are basic economic activities. Production in economics is the creation of utility, by adding value to raw material to satisfy human needs and wants. Consumption pertains to the direct utilization of goods and services by consumers while, marketing is all about that is concerned with the flow of goods and services from producer to consumer. Goods are produced in one region and most of the times are consumed in all or some other regions of the nation/world and moreover produced in a season of the year and are consumer either in the same or some other season of the year or through out the year. Hence, it leads to the need for optimal allocation of commodities that plays symphony between supply and demand of these commodities and thereby deciding the prices in the market. Markets are thus the most important link between producers and consumers.

Market and Marketing Efficiency

A market is basically a social arrangement that allows buyers and sellers to carry out a voluntary exchange of goods or services often relating to a common scale i.e. monetary terms based on the discovered information about the supply and demand of those goods and services. The function of a market requires, at a minimum, that both parties expect to be better off as a result of the transaction. Markets are efficient when the price of a good or service attracts exactly as much demand as the market can currently supply. The chief function of a market, then, is to adjust prices to accommodate fluctuations in supply and demand in order to achieve allocative efficiency in any economy. In other words, a market is a mechanism which allows people to trade, normally governed by the theory of supply and demand, so that those willing to pay a price for something meet those willing to sell for it. An efficient market depends on efficient infrastructure.

Thus marketing efficiency becomes a function of better roads, warehouses, cold storages,standards for commodities, quality testing labs, electronic flow of prices and price related information etc. Infrastructure facilities lead to reduction in marketing costs and post harvest losses which are crucial for increasing the realization of producers and reducing the costs to the consumer thereby improving the marketing efficiency. Market infrastructure is important not only for the performance of various marketing functions, but also for the transfer of appropriate price signals leading to improved marketing efficiency. The function of transfe r of prices and price related information is brought about by the commodity exchanges which are existent and operational throughout the year and the nation allowing all the players to take a position on the exchange.

Commodity Exchanges (Futures market) emerging as new organized markets

Commodity exchanges are organized market for the purchase and sale of enforceable contracts to deliver a particular quality of the commodity (such as wheat, gold, or natural gas) at some future date at a pre-determined place as per the terms and conditions of the contract. Such contracts are known as derivatives as they derive their value from the underlying commodities. Futures contracts detail the quality and quantity of the underlying asset, delivery place and date; the y are standardized to facilitate trading on a futures exchange. Some futures contracts may call for physical delivery of the asset, while others are settled in cash. Buyers use these to avoid the risks associated with the price fluctuations of the product or the raw material, while sellers try to lock in a price for their products. A particular contract is traded according to exchange designated contract specifications and trading laws. Delivery and settlement is also decided by the exchange. The prices are determined in this market by the pure market fundamentals of demand and supply. Futures market thus operates under transparent system in which the information percolates to all the stakeholders. The trading is based on real time data and the identity of participants is not disclosed reducing the chances of manipulation. An efficient and well organized commodities futures market is generally acknowledged to be helpful in price discovery for the traded commodities with the use of information that is often unbiased.

A well-developed and effective commodity futures market, unlike physical market,facilitates offsetting transactions without impacting on physical goods until the expiry of a contract. Futures market attracts hedgers who minimise their risks, and encourages competition from other traders who possess market information and price judgment. While hedgers have a long-term perspective of the market, the traders, or arbitragers or an investor, each would hold a different time period 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 emanating from a large number of buyers and sellers transacting in the futures market efficiently converge on an exchange platform to result in efficient *price discovery*.

Basic economic functions and benefits of Futures markets

While the spot or the cash market is a place to buy or sell commodity for instant purchase or sale, the futures market are markets used for initially fixing the price to buy or sell and then decide to either take delivery on a fixed expiration period of the contact or to close out the contact by a reverse transaction so that procurement of the commodity is done in the cash market due to flexibility of time, delivery condition, payment terms, quality of commodity etc which is present in cash market and not in futures market.

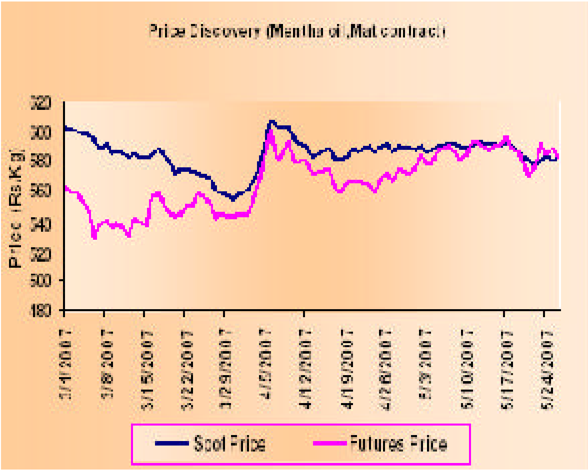
As said above, Futures trading performs two important functions of price discovery and price risk management with reference to the given commodity. This also provides effective platform for price risk management for all segments of players ranging from producers, traders, food processors, exporters/importers and the end users of the commodity. It is useful to producer because he can get idea about likely prices at some future date and can decide upon his crop- mix for a particular season. It is useful to the exporters as the availability of futures prices can help them quote a realistic price and thereby secure export contract in the competitive global markets. Having entered into an export contract, it enables him to hedge his risk by operating in futures market. At the extreme end, it enables the consumer get an idea of the price at which the commodity would be available at a future point of time. Other benefits of futures trading are price stabilization (the amplitude of price variation is reduced); creating integrated price structure throughout the country; facilitation of price risk management in lengthy and complex production and manufacturing activities; helping to balance the supply and demand position throughout the year. The trading in futures market is monitored by trading and surveillance division so that nothing illegal; may happen in the market.

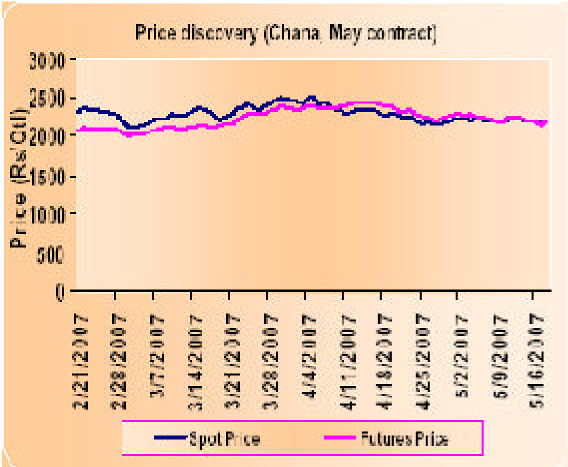
MCX and its economic benefits to the ecosystem

Multi Commodity Exchange of India (MCX) is one of the three national commodity exchanges as approved by Government of India in 2003. Today the exchange trades in agricultural commodities including cereals, pulses, oilseeds, spices, plantations, fibre crops etc, metals (aluminum, tin, nickel and, copper), bullion (gold and silver), crude oil, natural gas and polymer, among others. MCX stands first in silver, second in natural gas and copper, third in crude oil and remains the fourth largest in gold in the world in terms of contracts traded. MCX also accounts for about 70% of the turnover on Indian commodity exchanges (National/Regional).

Futures trading through MCX had facilitated many direct and indirect benefits in the commodity ecosystem. Farmers are directly benefited by locking in prices at the time of sowing itself or at the time of harvesting. MCX provides them a direct access to the price risk –hedging instrument. Better price signals due to efficient price discovery strengthens the decision making at farmer's level by overcoming the cobb- web effect and helping them to decide the best time for selling the harvested produce. Exchange also helps in better integration of fragmented spot markets as the price signals sent across acts as the reference price for spot and vice versa. Therefore, futures market reinforces the need of efficient & transparent spot markets to accurately decide the base demand-supply scenario and pronouncing the need of better storage and quality certifying infrastructure and thus also helps in establishing appropriate value chain of any commodity. It smoothens the fluctuations in prices by rationalizing the demand scenario throughout the year. It improves the quality consciousness at the producers level. Under this changed scenario, similar practices are followed by the traditional mandi agents. It increases competitiveness in the international markets by overcoming the poor-quality trade and helps in improved flow of credit for better irrigation facilities, high cost inputs & modernization of agriculture by attracting financial institutions. It stimulates the growth of quality infrastructure.

Efficiency of price discovery in a commodity market depends upon the credibility and completeness of the information that flows about the fundamentals of the commodities into the market using which the players arrive at a price indicative of the investment and consumption demand in those commodities. To be credible, the market assimilates all the available information after adjusting for the source and its likely bias. On the other hand, the market ensures participation of all the players of the ecosystem ranging from producers to end-consumers to ensure flow of information on the fundamentals from all of them. Figures below show the efficient price discovery at MCX taking Mentha oil and Chana as one of the many commodities being traded on exchange





The prices that thus discovered on the exchange platform are better and fair. It can also be confirmed by having a look into the correlation coefficient between the spot and futures prices of major commodties traded on the exchange. Table below provides data on correlation coefficients and it reveals that two market prices are significantly correlated in case of all the commodities. It can be said that Futures market also helps in deciding the prices in the spot market in the same way as spot market helps in deciding futures price. It thus helps in creating more efficient and developed markets.

Table: Correlation between spot and futures prices of major commodities at MCX

Commodity	Correlation between
Mentha oil	96.00%
Potato	80.00%
Cardamom	97.64%
Refined soy oil	99.20%
Chana	99.09%
Gold	99.00%
Silver	99.00%
Crude oil	97.93%
Natural gas	92.76%

It is observed in agri commodities that their price fall abruptly during harvest season. This is because of the expectation of new arrivals in the market. As futures help in disseminating the prices at a certain future date, it can help the farmers to control mismatch between demand and supply at any given point in time and thereby preventing the prices against abrupt seasonal falls. If the farmers could know the future prices, it can help in their decision making and they can allocate their land as per the predicated demand. Thus the futures market helps in releasing the demand supply pressure by sending price signals across to the farmers to help them optimally allocate their land among different crops.

MCX has played a key role in bringing about financial stability among the stakeholders of many commodities. Mentha oil, cardamom and potato futures are one of the many success stories written by futures trading on the MCX platform when it comes to the economic utility of commodity exchanges to the stakeholders.

In case of Mentha oil, production, and area had increased by 200% and 150% respectively since the commencement of futures trading and prices have increased approximately by 65%. There is also improvement in quality standards in terms of setting up of GLC labs (significant increase to 40-45 labs compared with 5 Pre-MCX), scientific warehouses (5 MCX approved warehouses with a capacity of 3000 MT). The number of intermediaries had reduced now (village level local pooling agents that use to manipulate the prices by their own wish have almost vanished) thus reducing the price spread in the marketing channel. Pre-MCX total margin in the channel was 11-12%, which had reduced to 7.5-10.5%. Post-MCX Sources of price information had improved with the start of futures trading on Mentha Oil contracts. Now farmers could use mobile phones and public booth to get appropriate price information. Other than that MCX terminals (more than 300 access terminal including 77 member terminals in the Mentha production region) and news channels are also disseminating the prices. The peak season (December-February) average price had increased to Rs 664 per Kg in 2005 (post futures). The corresponding figures prior to the launch of futures were Rs 392 and Rs 304 respectively for 2004 and 2003. As a result of better price realization, the income levels of the growers had gone up. Participants are also getting benefits of warehouse receipt financing. It can be noted here that during pre MCX (2004) spot prices in peak demand season (Dec-mid Feb) were quite lower (Rs378.83/Kg) than the average export prices (Rs 382.00/Kg) throughout the season while the same has increased (Rs 663.77/qtl while export prices were Rs 548.00/ Kg) after the futures have been introduced (since 2005). This clearly shows that spot market of Mentha oil has strengthened post the introduction of futures. Mentha oil has come out to be a big success story whe n it comes to the benefits of Futures trading percolating to the farm level. The greatest impact of all, however, took place at the national level, as India had become the world's biggest producer of an important crop for a number of major industries. This has boosted farmers enthusiasm for and interest in mentha crop and made India to achieve what CIMAP was striving for the last two decades in just two years of coming into being of futures trading.

In case of Cardamom too, futures have helped to stabilize prices in the spot market. Planters are getting improved prices from intermediaries as well as auction centers as there are futures prices available as reference prices and with increasing grading centers being set up in the growing regions these have led to selling of graded cardamom unlike more ungraded lots sold in these auction centers. Planters have started keeping track of the futures prices on the exchanges to help in their marketing decisions. Stakeholders have started using futures as a hedging tool for their price risk management. Futures have provided a platform to the exporters where they can readily get export quality cardamom. The 7mm of cardamom variety traded on MCX platform is premium quality that has a high international demand. Planters are indirectly benefited from the improved price at auction centers or from the traders. Spot prices have also increased by approximately 70% since the inception of futures due to the increased transparency brought about by the futures trading that is happening at MCX. As the income realization is high there is increased spending by the planters on Pre & Post Harvest Practices. Further, it has also led to increased demand from the north Indian traders. As the cardamom futures integrate all the market partic ipants from all over India, it helps in more efficient price discovery and the price dissemination efforts of the exchange has brought about more transparency in physical market transactions leading to increased marketing efficiency. The participants in this value chain are satisfied with the warehouse facilities provided by the exchange. Surely it is an evolving process and has a long way to go.

Potato is the fourth most important staple crop after wheat, rice, and maize. On an average India produces about 24.5 million tons of potato from an area of about 1.35 million hectares. Uttar Pradesh, West Bengal, and Bihar are the major potato producing states. Uttar Pradesh produces around 40% of country's total production. The major potato producing districts include Agra, Hathras, Aligarh, Mathura and Firozabad. The district of Agra alone produces around 11.5 to 12 lakh tons of potato annually. It was found out that now farmers have become more aware of the prices disseminated by MCX. They were found attentive to the price signals emanating from the MCX and are no more restricting themselves to the local middlemen for the price signals. It has thus reduced the number of intermediaries in the marketing channel as well. Potato futures at MCX has provided good opportunities of hedging and investment According to a few investors, returns in case of potato vary from 2% to 3% in general and may sometimes be more than 5%. Some large farmers were also found hedging their risk on the MCX. Farmers can now sell their produce and buyers such as the retail giants and the food processors can get the produce of standardized quality at right price delivered on the exchange platform. More recently, retailers have also started buying potato futures on MCX to get delivery of high quality spuds certified by the exchange.

In some of the commodities like copper, silver, gold, crude oil and natural gas markets react more to the global price signals. Keeping this in mind MCX had introduced contracts in such commodities that are settled on benchmark international prices. The trading is done along with the international trade hours and this helps stakeholders in hedging their risk immediately as the need arises. Earlier when it was not there, people had no relevant market information and there was a risk of huge loss. International prices also affect trading in some agricultural commodities too like coffee, rubber and refined soy oil. So futures trading through MCX has thus facilitated global linkages in many commodity ecosystems. Now with maturing market and expected legislative changes, emergence of trading in options and indices are also expected to provide hedgers with facility for locking in their margins. With anticipated approvals from their respective regulatory bodies and the legislative changes, markets are likely to attract the entry of banks, funds, and institutional investors who would bring in the necessary depth and vibrancy in the markets. Futures markets and their attendant benefits are also expected to encourage segments like financial institutions for infrastructutre investment, WR financing; retail chain networks by ensuring the availability of quality with convenience

Conclusions

Commodity exchanges have come a long way in infusing efficiency in to the existing physical markets of commodities traded on the exchange platform thereby strengthening the economy besides helping in improving the market infrastructure. Futures trading and MCX contracts have created landmarks, writing many success stories within three years of its presence in the system among which Mentha oil, Potato, and Cardamom futures are few strong examples as discussed above. Commodity futures trading had created transparent markets with greater participation from a large number of stakeholders of value chain. It has successfully disseminated better price information and has also helped in breaking the year long domination by intermediaries in the value chain of commodities, who had done no value addition earning hefty margins. Better price realization at both the ends (producer/exporter) of the value chain had not only led to increased demand for those commodities but also led to better returns to the producers and hence infusing efficiency into the economy. Up above, these markets have increased the purchasing power of the farmers and thus helping them to invest in increasing their productivity. Slowly but steadily market oriented reforms led by futures trading in India would likely pave way for the next green revolution in the country taking the benefits of economic growth back to the rural areas to which agriculture belongs to.