Studies in Operational Issues of Multi-Commodity Exchanges In India

ABSTRACT

Introduction
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, one buys or sells commodities. These commodities are agricultural products and other raw materials like wheat, barley, sugar, maize, cotton, cocoa, coffee, milk products, pork bellies etc.; metals like copper, aluminum, steel, gold, silver, etc.; and energy commodities like natural gas, oil, electricity etc. Other sophisticated products include interest rates, environmental instruments, swaps, weather derivatives, or ocean freight contracts.

An ‘exchange’ is a regulated organization, association or group which provides or maintains a marketplace where securities or commodities can be traded and which is accompanied by standard procedures for settling trades. Commodity exchanges are essentially institutions that are adjunct to the physical market, and are supposed to perform complementary functions to improve commodity transactions in the various nodes of the value chain. At present, more than 100 commodities are traded on the exchanges.

The commodities market exists in two distinct forms namely the Over the Counter (OTC) market and the exchange based market. The physical markets for commodities deal in either cash or spot contract for ready delivery. Unlike the physical markets, futures markets trade in futures contracts which are primarily used for risk management (hedging) on commodity stocks or forward (physical market) purchases and sales. Futures contracts are mostly offset before their maturity and, therefore, scarcely end in deliveries. Futures contracts are exchange-traded derivatives.

Futures contract in the commodities market, similar to equity derivatives segment, will facilitate the activities of speculation, hedging and arbitrage to all class of investors. Main participants of a commodity exchange are farmers/ producers, merchandisers/ traders, importers, exporters, consumers, financers, credit agencies, and corporate houses.
The two major economic functions of a commodity futures market are price risk management and price discovery. However, while a commodity exchange reduces market inefficiencies, it does not override the market – it cannot be a tool for any group to impose certain price levels.

The development of bourses and exchanges was not limited to England and Europe. Similar markets were formed in Japan and the U.S. Although the first recorded instance of futures trading appears to have occurred for rice in 17th century Japan, some reports indicate that rice was traded in China 6000 years ago. Be that as it may, merchants in Japan who stored rice in warehouses sold the warehouse receipts to raise money. These warehouse receipts were known as “rice tickets”, were treated like negotiable instruments, and rules were developed to standardize trading in them. These rules were reported to be similar to the current rules of futures trading.

Global commodity futures and options trading have continued to grow at a healthy rate. Recent years have seen the rapid creation of new commodity exchanges and the continuing expansion of existing ones. At present, there are successful commodity futures exchanges in over 20 countries, including the United States, China, Japan, the United Kingdom, India, South Africa, Malaysia and Brazil.

For decades, Indian commodity exchanges have remained shackled in regulations. India’s dominance in agri-production makes trading in it only natural. India does not have a large nation-wide commodity market, but isolated regional commodity markets. Traditionally commodity exchanges in India have been product specific.

The Government of India issued notifications on April 1, 2003 permitting futures trading in commodities. By 2003, there were 21 regional commodity exchanges. However, recurring bans on futures trading and fragmented liquidity across regional exchanges suppressed industry growth. With the issue of these notifications, futures trading was not prohibited in any commodity. Options trading in commodities is, however, presently
prohibited. Since then, the country has six national level electronic exchanges and eighteen regional exchanges for trading commodity derivatives.

The first three national exchanges operating in the Indian commodity futures market were the Multi-Commodity Exchange of India (MCX), National Commodity and Derivative Exchange of India (NCDEX) and National Multi Commodity Exchange of India (NMCE). One new national exchange, International Multi Commodity Exchange (ICEX) has been given permission in 2009 to start and another regional exchange Ace Commodity Exchange (ACE) has been permitted to upgrade to a national exchange. Universal Commodity Exchange is the newest exchange to start its operations.

Indian exchanges offer trade in contracts for more commodities than any other commodity exchange in the world. Many of these contracts have been launched for the first time in India. Moreover, contracts that have struggled to gain liquidity elsewhere – such as steel or potato – have often been launched with some degree of success in India. This brings the benefits of commodity futures markets to numerous commodity sectors and producer communities. More than 100 commodities have been allowed for derivatives trading.

The Central Government – Department of Consumer Affairs, Ministry of Consumer Affairs, Food and Public Distribution – is the ultimate regulatory authority for commodity exchanges. Forward Market Commission (FMC) headquartered at Mumbai, is the regulatory authority which is overseen by the Ministry of Consumer Affairs, Food and Public Distribution, Govt. of India.

Warehousing is an emerging business in India with the public sector and the private sector having a significant presence. However, as an industry, the Government of India and the State Governments are the dominant players. Private sector warehousing amounts to just about 21 percent of total storage capacity available, is highly fragmented, lacks scale, and is unorganized and geographically scattered. An estimated annual loss is about Rs 60,000 crores due to lack of required warehouse facilities.
Warehouse Receipts that are negotiable instruments backed by the underlying commodities form integral part of the marketing and financial system of most industrialized countries. However, in India, these Warehouse Receipts are still non-negotiable instruments for trading on the commodity exchanges.

Having undergone a swift evolution and leveraging the strong US$320 billion physical commodities market (valued at 45 percent of India’s GDP), Indian commodity derivative exchanges have finally overridden structural inefficiencies and are heading towards growth and scale. The Indian commodity exchanges segment has seen a 40 times growth in turnover over the first five years of their inception in 2003 with traded values increasing to US$1.1 trillion in FY 09-10. However while global benchmarks of commodity derivatives to physicals stand at 30-40 times, Indian commodity exchanges growing just 3 times is markedly under-penetrated. On the back of this, we expect commodity exchanges to grow four-fold to US$4 trillion by FY 14-15 and believe key regulatory reforms (options and intangibles yet to be permitted) would add to momentum.

**Justification of the study**

Traditionally commodity exchanges in India have been product specific. However, the need for a national multi-commodity exchange is now well articulated and accepted. But the mere setting up of a multi commodity exchange has not resulted in a vibrant and liquid commodities derivatives market. There are a host of issues which need to be addressed along with the setting up of multi commodity exchange in order to develop the markets.

Of the many ‘facilitating issues’ facing a multi commodity exchange, the ‘warehousing issues’ and ‘standardization and grading of commodities’ enjoy the top two positions. For commodity markets to work efficiently it is essential to have a sophisticated, cost-effective, reliable and convenient warehousing system in the country. A lack of quantity and quality warehouses is a major drawback in Indian commodity markets. There are less than 200 warehouses in the country affiliated to the multi commodity exchanges and the facilities available for storage and gradation are very poor.
Commodity exchanges will be required to significantly enhance the scope, efficiency and transparency of the commodity derivatives markets in order to enhance participation and bring liquidity. Some of the key issues that will need to be addressed relate to (a) putting in place appropriate and efficient market structures such as a demutualised exchange, nation-wide automated trading system, (b) work to strengthen related market structures such as spot market and info dissemination, quality standards and assurances, certified warehouses and (c) work towards replacing physical settlements with warehouse receipts based settlement systems.

This research attempts to understand the operational aspects of national multi commodity exchanges of India and the operational hiccups faced by our commodity exchanges especially during physical deliveries. It also goes deep into the warehousing aspect of commodity exchanges. Further it analyzes the acceptability and adequacy of the existing facilities; explores options to improve and enhance the physical deliveries on these exchanges and the benefits it could provide to the users of the exchanges.

The study also focuses on the current satisfaction level and expectations of potential users of the exchanges with the objective of making recommendations to realize the ultimate goal of participants, administrators and banks in enhancing the overall working efficiency of the national multi commodity exchanges of India.

**Objectives of the Study**

The objectives of this study are as follows:

1. Study the current working of the national commodity exchanges of India and analyze the effectiveness of delivery settlements against cash settlement of contracts.
2. Study the adequacy and quality of existing warehouses in the country.
3. Study the present system of quality control and gradation/standardization available in the futures markets in India and to critically comment on the same.
4. Study the feasibility of the Warehouse Receipts (WR) System in commodities.
5. Study the perception of participants with respect to working of commodity exchanges of India.
Scope of the Study
This study covers the following areas:
1. Existing operational facilities of commodity exchanges of India.
2. Existing operations of warehouses.
3. Extent of utilization of warehousing facilities by the futures markets in India.
4. Role played by banks in promoting the use of Warehouse Receipts in India.
5. Role of inspection agencies.

Research Methodology
Since no public data was available on research topic, necessary data for this study had to be collected. Primary data has been collected through the use of a structured questionnaire. The questionnaire was administered to three different groups of respondents. This was also followed by an in-depth interview with few respondents as well as researcher’s personal visits to the commodity exchanges and warehouses in the NCR, Mumbai and Chennai area.

Therefore the methodology is a mix of quantitative and qualitative techniques with the survey and interviews generating simple qualitative data.

Research Hypotheses
The following twenty hypotheses were designed for the testing for this research study:

H₀₁: There is no significant difference in the mean value of certain basic facilities enjoyed by the farmers across the three groups of respondents.

H₀₂: There is no significant difference in the mean value of issues in hedging of commodities across the three groups of respondents.

H₀₃: There is no significant difference in the mean value of activities suggested for resolution of issues regarding hedging of commodities across the three groups of respondents.
H₀4: There is no significant difference in the mean value for commodity exchange to provide efficient trading platforms across the three groups of respondents.

H₀5: There is no significant difference in the mean value of necessity of a nation-wide trading facility across the three groups of respondents.

H₀6: There is no significant difference in the mean value of issues faced in physical settlement of commodities across the three groups of respondents.

H₀7: There is no significant difference in the mean value of reasons for not opting for physical deliveries across the three groups of respondents.

H₀8: There is no significant difference in the mean value of existence of uniformity in settlement procedures across the three groups of respondents.

H₀9: There is no significant difference in the mean value of physical delivery as the hallmark of a robust futures market in commodities across the three groups of respondents.

H₀10: There is no significant difference in the mean value of physical delivery of goods being inconsiderable and make the futures market unstable across the three groups of respondents.

H₀11: There is no significant difference in the mean value of need for efficient settlement process across the three groups of respondents.

H₀12: There is no significant difference in the mean value of agreement that cash settlement overcomes issues faced in physical settlements across the three groups of respondents.

H₀13: There is no significant difference in the mean value of benefits of warehousing across the three groups of respondents.
H₀14: There is no significant difference in the mean value of types of subsidiary services provided by warehouses across the three groups of respondents.

H₀15: There is no significant difference in the mean value of function of Warehouse Receipt System and its financing across the three groups of respondents.

H₀16: There is no significant difference in the mean value of better services and infrastructure offered by Government warehouses across the three groups of respondents.

H₀17: There is no significant difference in the mean value of requirement for national commodity exchanges to follow stringent quality norms for storage across the three groups of respondents.

H₀18: There is no significant difference in the mean value of prerequisite of warehouse receipts to a futures contract across the three groups of respondents.

H₀19: There is no significant difference in the mean value of requirement of standard and quality assurance/certification procedure across the three groups of respondents.

H₀20: There is no significant difference in the mean value of existence of uniform standards for grading and quality specifications across the three groups of respondents.

**Research Design**

The Research is descriptive in nature. Since there is a lack of literature with respect to operational aspects of Indian multi commodity exchanges, the qualitative technique of survey research methodology was adopted for this study.
Procedure for Selecting population

All the participants who are associated with the working and functioning of a commodity exchange formed the population for this study. These participants were classified into three groups, they being:

Group A: Participants, which included:
1. National commodity exchanges of India
2. Industry experts, economists and members of Forward Market Commission

Group B: Administration, which included:
1. Warehouse owners/managers of:
   1. Warehouses of the exchanges
   2. Warehouses of private parties
   3. Public/Government warehouses
2. Clearing Agents
3. Quality and inspection agents

Group C: Banks

Procedure for Selecting Sample

The process of selection of sample for this research design from each of the three groups mentioned above was sequential and in two stages.

Sample selection for Participants:
1. National commodity exchanges of India: In the first phase, the five (5) commodity exchanges which have been granted a national status were identified – MCX, NCDEX, NMCE, ACE, ICEX. The sampling in this phase was judgmental. In the second phase, four (4) respondents from each of these commodity exchanges were selected from the top management executives,
operational desk heads, customer service heads. The sampling in this phase was convenience.

2. Industry experts, economists and members of Forward Market Commission:
From various journals, news articles, reports and periodicals, ten (10) industry experts and economists and five (5) members of the FMC were identified and selected for the survey. The sampling was based on convenience.

3. Commodity producers/end consumers/traders/hedgers/speculators/industrials:
The exact population of this sub-group was difficult to identify as no specific information was available for this group either on the commodity exchanges or on various websites. Thus based on convenience 250 respondents were selected for this survey.

Sample Selection for Administrators:
Sample for the Administrators group was formed by selecting respondents from the following three sub-groups. The methodology adopted for their selection was as follows:

1. Warehouse owners/managers: In the first phase, the major warehouses which were linked to the five commodity exchanges were identified. Twenty Five (25) warehouses of the commodity exchanges, twenty (20) warehouses of private agencies, and fifty (50) warehouses of public or government agencies were identified. This formed the population. In the second stage, based on convenience, a target number of warehouses were selected for the survey. They were fifteen (15) from the warehouses of the commodity exchanges, all twenty (20) warehouses of private agencies and twenty (20) warehouses of public/government agencies. In phase two, one respondent was selected based on convenience from each of the fifty-five (55) warehouses identified.

2. Clearing Agents: In the first phase, it was identified that each commodity exchange had its own panel of clearing agents. From the panel, ten (10) top clearing agents were identified based on opinion about their performance from the Participants group. In phase two, one respondent from each of these ten clearing and forwarding agents was selected. The sampling was judgmental since
respondents selected were of managerial level and were directly associated with the clearing activities on the commodity exchanges.

3. Quality and inspection agents: The first phase identified the top five assayers working for these commodity exchanges and in the second phase, three (3) respondents from each of these five assayers were selected based on the judgment that there should be one respondent from each of the related activities of an assayer of quality check, weighment check and warehouse inspection.

Sample Selection for Banks:
In the first phase six banks were selected based on convenience for this survey. In the second phase, four respondents from each bank were selected also based on convenience.

Sample Size:
Main purpose of sampling is to reduce the error with smallest sample size of the population without losing usability as well as increasing the reliability at the same time. The minimum sample size was taken as per the thumb rule given below (Gupta, 2003):

\[ \text{Min sample size required} = \text{four times the number of question items} \]

This sample size must be the representation of the population for the response required to achieve the objectives of this research work. From this sample frame, the conclusions and inferences can be drawn after analyzing the data using proper tools. As there are sixty three (63) question items in the questionnaire developed for this research work, a minimum of 252 respondents are essentially required, as per the above stated thumb rule. On the basis of the above explained procedure for selection of sample, the questionnaire was administered to a total of 389 respondents, thus adhering to the thumb rule on sample size and ensuring that sample size is adequate enough for analysis of data to achieve the objectives of this research work.

Development of the Questionnaire

A three (3) stage process below illustrates how the questionnaire items were developed before conducting the final survey:-
1. Identification of the dimensions:

Questions were based on findings of previous researches and studies. After the
identification of the problem, an extensive review of literature was done for
identifying the scales for measures relevant to this study.

2. In-depth interviews:

In-depth interviews and exchange of views over electronic mails with select
industry experts; members of the commodity exchanges; members of the leading
warehouse management service providers like NBHC, NCMSL, CWC and
members of the regulatory institutions of the Government of India were
conducted to gain broader knowledge about the problem statement and to
evaluate the content validity and wordings of individual scale items for the
formation of the pilot questionnaire.

3. Pre-Testing of questionnaire:

Items pertaining to a questionnaire were pre-tested, including layout, length,
response format, sequence, meaning of words and questions difficulty. After
completing the questionnaire each respondent was asked to comment whether the
instructions were precise and whether any ambiguity or difficulty occurred in
answering any of the questions. According to the respondents, few questions
needed better phrasing. Final versions were generated after minor modifications
to the suggested questions.

Structure of the Questionnaire

The questionnaire was structured and undisguised. It had a mix of dichotomous, 5 point
Likert scales, multiple choice and also some open-ended questions. The aim was to
collect data on the opinion of respondents about the current working of our national
commodity exchanges, the operational performance of the exchanges, the present and
future status of warehousing in commodity exchanges, changes required to be brought in
especially in warehousing and physical deliveries, to make India a global commodity
trading hub.

The questionnaire was divided into two (2) sections:
Section A dealt with collecting the demographic information of respondents; Section B dealt with specific questions on the research and was further divided into seven sub-sections to collect information on specific issues. They were:

A. General information and views: Eleven (11) questions
B. Issues, hedging and risk: Nine (9) questions
C. Settlement and delivery: Sixteen (16) questions
D. Warehousing and Warehouse Receipts: Seventeen (17) questions
E. Inspection and quality: Six (6) questions
F. Regulation: Three (3) questions
G. Snapshot which contained one (1) question seeking their opinion about the performance of the commodity exchanges on various parameters.

All these questions were coded for computer tabulation.

Content Validity of the Questionnaire

For carrying out the Content Validity of the questionnaire, the questionnaire was developed and pre-tested with specific groups to ensure that measures were in line with the common understanding of the concepts.

Questionnaire Administration

A mix of various methods was employed for administering the questionnaire. They were personal visits and interview.

Personal Visits: The researcher personally visited the commodity exchanges MCX, NCDEX and ACE as well as government and private warehouses in and around National Capital Region (NCR), Mumbai and Chennai. This was done to get first hand information on the exact working of the exchanges as well as to collect information on warehousing facilities provided by these exchanges, value and volume of contracts.
physically settled and impact of electronic warehousing receipts on the deliveries on these exchanges.

**Interviews:** In-depth interviews were conducted on a one-on-one basis with the industry experts, top management of the three commodity exchanges, few top participants on these exchanges and various warehouse in-charges. The interview was unstructured and direct for duration of about 30 minutes to 1 hour.

Apart from the above two methods, data was also collected by mailing the questionnaire to the target sample. This was followed by random telephonic calls to the respondents to ensure that the respondents were able to understand and fill the questionnaires.

A total of 285 questionnaires were distributed to the Group A of Participants out of which 108 responses were received. After going through the data, we found 87 usable questionnaires, which have been considered for this study. Therefore, the response rate is 30.5 percent which is acceptable. A response rate of 25 percent is considered desirable for survey findings (Yu and Cooper, 1983; Malhotra and Grover, 1998).

The questionnaire was also distributed to 80 respondents of Group B of Administrators and 44 questionnaires duly filled-in were received. The response rate is 55 percent which is acceptable.

For Group C, consisting of Banks, 24 questionnaires were distributed and 13 responses were received. The response rate was 54 percent which is acceptable.

**Tools of Analysis**

The statistical techniques used were:

1. Descriptive analysis: Pictorial depiction and calculation of frequency and mean values.
2. Hypothesis testing: The hypothesis was tested using one-way ANOVA - Analysis of variance (ANOVA) provides a statistical test of whether or not the means of
several groups are all equal, and therefore generalizes $t$-test to more than two
groups. ANOVAs are useful in comparing two, three, or more means. A
statistical hypothesis test is a method of making decisions using data. A test result
(calculated from the null hypothesis and the sample) is called statistically
significant if it is deemed unlikely to have occurred, assuming the truth of the
null hypothesis. A statistically significant result (when a probability (p-value) is
less than a threshold (significance level)) justifies the rejection of the null
hypothesis. For this study, since there are three groups of respondents (more than
two), use of ANOVA was justified.

Key Findings/conclusions across the three groups of respondents

The major findings and conclusions across the three groups of respondents has been
grouped under the headings general information and views; issues, hedging and risk;
settlement & delivery; warehousing & warehouse receipts; Inspection and quality; and
regulation.

General Information and Views:
Hedgers emerged as the topmost players of a derivative market followed by Speculators.
Chana emerged out to be the top agri-commodity followed by cardamom. Gold and
silver were the top two precious metals traded on the Indian commodity exchanges.
Crude oil and natural gas were the leading commodities traded apart from agri, base
metals and precious metals. Factors of success of national commodity exchanges were
‘trade in multiple commodities’, ‘presence of a dynamic team’, and ‘confidentiality’.
There is a difference with respect to opinion of the respondents on the basic facilities
enjoyed by the farmers.

B. Issues, Hedging & Risk:
Market Risk was the most dominant factor in the derivatives markets. However, credit
risk and liquidity risk were also important while legal risk was not a dominant risk.
Hedging is very complicated in the Indian commodity exchange. It was observed that
exchanges mostly carried out surveillance, risk management, MTM and trade monitoring,
closely followed by clearing and settlement. There is no uniformity in the opinion of
respondents with respect to issues faced in hedging of commodities. The activities suggested for resolution of issues regarding hedging of commodities are in agreement with the respondents. Commodity exchanges should provide efficient trading platforms. There is a necessity of a nation-wide trading facility.

C. Settlement & Delivery:
There is no uniformity in settlement procedures. Cash settlement is the most preferred mode of settlement on the Indian commodity exchanges. Compulsory delivery was the most preferred mechanism for final settlement on any commodity exchange. Cash settlement is the most common mechanism for goods being traded on Indian commodity exchange. Delivery is not mandatory in commodity futures contract trading. Respondents face issues during physical settlement of commodities. There is no uniformity in the reasons cited by the respondents for not opting for physical deliveries across three groups of respondents. There is no uniformity in settlement procedures on the commodity exchanges. Physical delivery is the hallmark of a robust futures market in commodities. Physical delivery of goods is insignificant on Indian exchanges and make the futures market unstable. An efficient settlement process is required for Indian commodity exchanges. Cash settlement overcomes issues faced in physical settlements.

D. Warehousing & Warehouse Receipts:
Agricultural commodities emerged as the top commodity with requirement of warehousing as they have a huge risk of getting affected if not stored properly. CWC/SWC were the most popular choice among warehouses. Respondents were not satisfied with the warehousing facilities provided by commodity exchanges. Major services offered by warehouses are environmental protection, separate storage for hazardous goods, proximity to weighbridge and proper segregation of cargo, apart from physical inspection and inventory maintenance. There is no uniformity among the respondents regarding benefits of warehousing. Many subsidiary services are provided by warehouses. There is a lack of consensus among respondents for the importance of Warehouse Receipt System and its’ financing. Better services and infrastructure are not offered by Government warehouses. National commodity exchanges should follow
stringent quality norms for storage. Warehouse receipts are a prerequisite to a futures contract.

E. Inspection & Quality:
Assessment of quality of commodity being traded is done through Exchange Contracts. The inspection of cargo is carried out monthly. Third party pre-shipment verification services are required to ensure that physical commodities settled are of desired grade/specification and helps reduce post settlement disputes, if any. Commodity exchange should institute a system where designated surveyors could inspect and certify deliveries to reduce any settlement disputes. All parties agree with the importance of delivery mechanism for Indian commodity exchanges. Standard and quality assurance/certification procedure is required in the commodity exchanges. Uniform standards for grading and quality specifications do not exist in the Indian commodity exchanges

F. Regulation:
Commodity exchanges should be regulated by the Government. Study suggests that though all the active players are satisfied with the delivery mechanism of the commodity exchange they would need the mechanism to be upgrade. Warehousing is a very important factor in the commodity exchange and should be made mandatory. It was concluded that overall the respondents are satisfied with the services being provided currently by the commodity exchange.

Recommendations

Based on analysis of the study undertaken, a set of recommendations were made:

The commodity exchanges should review the commodities being traded and make efforts in improving the trade conditions for the top commodities identified in order to enhance their volumes. Also, exchanges should ensure that multiple commodities are traded on the exchange platform. Exchanges should make efforts to minimize market risk for participants, should have contract sizes which are within the reach of average farmer,
should undertake awareness programs about the benefits and risks of hedging, and should draft norms for brokers to maintain loyalty and confidentiality.

There should be uniformity in the settlement procedures across all commodities and all exchanges. Exchanges should make physical delivery mandatory for commodities where possible. There is a need for uniform grading/certification system to ensure uniform quality of goods being delivered. Exchanges should get third party pre-inspection of goods before accepting physical deliveries.

Warehousing facilities provided by the exchanges need to in close proximity to the agricultural producing lands and provide more sophisticated warehousing services. Private warehousing sector should be developed. CWC, SWC and other government warehouses should work on centrally linking their warehouses. Exchanges should encourage warehouses to get them accredited to the exchanges. Warehouses should also be encouraged to provide quality certificates using either in-house labs or from professionally licensed graders. Warehouse Receipts should be made fully tradable and negotiable and exchanges should make use of Warehouse receipts compulsory.

Focus should be on developing regulatory skills of FMC; should lay down procedures to manage national commodity exchanges. Government should ease the restrictions on inter-state movement of commodities to encourage physical storage and delivery of goods. Government should develop a framework of regulations for promoting and supporting the warehouse receipt system in futures markets in India.

**Implications of the study**

The major implications for the industry were that it has thrown open areas where working of Indian commodity exchanges need to be improved and how working of commodity exchanges can be made efficient. Commodity exchanges should regulate the trades and extend full support to participants, work in close environment with warehouses, banks, financial institutions, supervision agencies and the government.
The role of warehousing industry in improving the availability and condition of warehouses in the country would lead to more participants opting for physical deliveries which in turn would lead to better price discovery of the commodities and better realization.

Banks and their participation on the Indian commodity exchanges would result in availability of credit facilities, negotiability of warehouse receipts and boost the confidence of the participants. It would also help in attracting farmers directly to the exchange for trading, thus removing the need for middlemen and contributing to a better price discovery of commodities.

The study has also helped identify the role that government can play in regulating the trading on these exchanges along with overseeing the working of the exchanges themselves. The government also would be required to identify the ways and means of improving inter-state movement of commodities without any significant increase to the cost of commodities. Amendments to Essential Commodities Act and more unified tax regime would enable movement of commodities across states, which would facilitate easier trading in commodities. Up-gradation and empowerment of FMC would be required to provide effective and efficient leadership for the development and regulation of the market.