



A Study on the "Commodity Derivatives Market and Development In India-Towards Sustainability"

Dr. (Mrs.) N. V. Kavitha^{1st}
HOD Commerce Department,
St. Ann's College for Women,
Mehdipatnam, Hyderabad (India)

Mrs. N. Suma Reddy^{2nd}
Lecturer-Commerce Department,
St. Ann's College for Women,
Mehdipatnam, Hyderabad (India)

Abstract: *The commodity derivative markets remained virtually absent for four decades from 1966 and it made the restart only in early 2000 in India, though the history of commodity derivative market in India dates back to the ancient times, the first organized market was established in 1875.. Since its reintroduction it is thriving and the current trend shows strong growth potential of the market, although, the actual growth trajectory will depend upon the attitude of the policy makers and the efficiency of the regulatory mechanism. The present study explores the Indian commodity derivatives market and examines its sustainability. The study also discusses the evolution of the market, its present status and the various issues relating to the development of commodity derivative markets in India.*

Since its resumption, however, the market has been growing at a very high pace. The growth is evident in the spread of market network as well as in volume of trade. Earlier there were only regional exchanges in the country. Now there are national level bourses, namely, MCX, NCDEX and NMCE which dominate the market. Almost 100 commodities (agricultural and non-agricultural) are traded in different exchanges. The volume of trade has increased from Rs. 34, 84,485 crore in 2006 to Rs. 94, 94,725 crore in 2010. This shows that the market has strong growth potential. In liberalized regime we should treat the commodity derivative market as an integral part of the economy. Derivatives provide hedging opportunities and also help in price discovery. The ill effect of the market, if any, arises from improper regulation and the market as such cannot be blamed for that. The prospect of the market therefore hinges on the efficacy of the regulator.

Keywords: *Commodity Derivatives, Commodity Exchange Markets, Issues, Regulations*

I. INTRODUCTION

"Derivatives are financial weapons of mass destruction" -Warren Buffett

Derivatives are one of the most intricate instruments. Trading in derivatives first commenced to protect farmers from the risk of values of their cost prices and their products. Derivatives contracts were offered on various agricultural products like cotton, rice, coffee, wheat, and pepper etc., the first structured exchange, the Chicago board of trade (CBOT) with standardized contracts on varied commodities initiated in 1848. In 1874, the Chicago produce exchange named now as Chicago mercantile exchange (CME). CBOT and CME are two of the largest commodity derivatives exchanges in the world.

In India, Commodity derivatives have a long presence and been functioning since 19th century with organized trading in cotton by establishing cotton trade association in 1875. Over the years there have been various bans, suspensions and regulatory doctrines on various contracts. Presently 25 commodity derivative exchanges in India operate with 100 commodities for trade. National Commodity and Derivatives Exchange (NCDEX) is the largest commodity derivatives exchange. Four national commodity exchanges became operational; National Multi- Commodity Exchange of India (NMCE), National Board Of Trade (NBOT), National Commodity And Derivatives Exchange (NCDEX) and Multi Commodity Exchange (MCX). The onset of these exchanges and the introduction of future contracts on new commodities by the forwards market commission have triggered significant levels of trades and now the commodities future trading in India is all set to match the volumes on the capital markets. With the Impact of globalization and upwelling in global uncertainties, financial establishments around the world are developing methods and instruments to cover the price risk that these uncertainties bring. Commodity derivatives are financial instruments devised to attain price risk management by basing the value of security on the value of an underlying commodity.

Strategic and consistent growth not only assures ample returns to its producers but also provide supply to consumers at desired prices. Commodity derivatives or futures market safeguard the producers and trade functionaries from fluctuating prices of commodities.

Derivatives markets in India act as price barometer towards economy by bringing balance between demand and supply and work towards sustainability instead of boosting competition.

Commodity markets facilitate price discovery and in the process contributes to clambering risk related to agricultural lending which enhances flow of credit to agriculture with the use of warehouse receipts the needs for collaterals is avoided, which has resulted in substantial flow of agriculture credit. A Robust, vigorous and well developed commodity exchanges is vital in the wake of globalization of international trade by adopting competitive pricing. The implementation of WTO regime made the



derivatives trading significant to face the challenges and foresee the variations in world commodity prices. This paper explores to study on regulations of commodity derivatives in India and also investigates the unresolved issues.

II. HISTORY

Organized trading in commodity derivatives was initiated in India with the setup of Bombay Cotton Trade Association Ltd in 1875. Later Gujarati Vyapari Mandali was set up in 1900 to carry out futures trading in groundnut, castor seed and cotton. Forward trading in Raw Jute and Jute Goods began in Calcutta with the establishment of the Calcutta Hessian Exchange Ltd., in 1919 and East Indian Jute Association Ltd. was set up in 1927 for organizing futures trading in Raw Jute. These two associations were amalgamated in 1945 to form the present East India Jute & Hessian Ltd., to conduct organized trading in both Raw Jute and Jute goods. In case of wheat, futures markets were in existence at several centers at Punjab and U.P. The most notable amongst them was the Chamber of Commerce at Hapur, which was established in 1913. Futures market in Bullion began at Mumbai in 1920 and later similar markets came up at Rajkot, Jaipur, Jamnagar, Kanpur, Delhi and Calcutta.

During Second World War Futures trading was prohibited, later the Constitution of India brought the subject of "Stock Exchanges and futures markets" in the Union list after independence. As a result, the responsibility for regulation of commodity futures markets devolved on Government of India and in December 1952 Forward Contracts (Regulation) Act, 1952, was enacted.

- An association recognized by the Government of India on the recommendation of Forward Markets Commission,
- The Forward Markets Commission was set up in (September 1953) and
- The Central Government.
- The Act divides the commodities into 3 categories with reference to extent of regulation, viz:
- The commodities in which futures trading can be organized
- The Commodities in which futures trading is prohibited.
- Free commodities are required to obtain the Certificate of Registration from the Forward Markets Commission.

Commodities allowed for futures trading in India

Forward Market Commission (FMC) has more than 25 exchanges, are in operation carrying out futures trading activities in a wide variety of commodity items under 8 major categories.

1. Vegetable oilseeds , oils and meals
2. Pulses
3. Cereals
4. Spices
5. Metals
6. Energy products
7. Fibers
8. Other

III. LITERATURE REVIEW

The performance of commodities futures market can be quantitatively measured using certain parameters. The review of literature survey is an empirical evidence to identify the issues that can form the basis of this study.

Gopal and Sudhir (2001) - Identified that very few commodity markets are efficient among all, where they lack hedgers participations and the volume of trading being low.

KG (2002) pointed out, the inefficiency of commodity future market by observing the difference between future and spot prices in terms of facilitating hedge against price risk.

Narrender (2006): Emphasized on the enormous progress of Indian commodity markets and the increased number of commodity exchanges which is modern, transparent. The volume and value of commodity trade has depicted significant mark which is due to the market forces, active encouragement of Government by changing policy concerning commodity derivatives.

Dr. L.C Gupta committee (March 1998): Initiated suitable regulatory framework for derivatives trading in India. International organization of securities commissions also observed that, the successful regulatory system can bring steadiness.

RBI- SEBI standing committee (2009) drafted policy and trading guideline for exchange traded currency future and interest rate future.

Kamal (2007)- highlighted that commodity future market achieved magnificent growth in turnover. He discovered various factors that need to be considered for making commodity market as an efficient instrument for risk management and price discovery. Policy makers should consider agricultural commodities marketing exports and processing.



K. Lakshmi (2007)- deliberated the implications on the approval to foreign institutional investors, mutual funds and banks in commodity derivative markets which will boost the liquidity and volume of trade in commodity market and seek more opportunities for their portfolio diversification.

Brajesh and party (2013) investigated market efficiency of Indian commodity futures market with respect to short run and long run agricultural and even-Nonagricultural commodities for market efficiency and was unbiasedness. The result confirmed the long run efficiency of commodity futures prices and inefficiency of future prices in short run.

Nair (2004) initiated that "the major stumbling block for the development of commodity futures markets in India is the fragmented physical/spot market". He barbed out that government laws and various taxes hamper the free movement of commodities.

Lokare (2007) analysed the development of commodity markets in India in the wake of globalization. He endeavored to test the efficacy and performance of commodity derivatives in steering price risk management. He concluded that liquidity in respect of primary commodities was found to be high only in few commodities such as castor seed, soya bean oil while in the case of others it was thin. These markets in India are thus yet to achieve minimum critical liquidity that can generate greater economies of scale, minimum transaction costs and wider participation.

Vipul (2006): Article investigates the changes in volatility in the Indian stock market after the introduction of derivatives. There is strong evidence of a reduction in the volatility of the underlying shares after the introduction of derivatives.

Takeshi Inoue (2012): The paper is aimed at examining the market efficiency of the commodity futures market in India. Author estimated the long run equilibrium relationship between the multi commodity futures and spot prices and then tested for market efficiency in a weak form sense by applying DOLS and FMOLS methods. The results indicated that a co-integrating relationships is found between these indices and commodity futures market are efficient only during the more recent sub sample period and not the whole sample period.

IV. RESEARCH METHODOLOGY

Research methodology used in this paper is based on "Empirical Research" where the data is retrieved from SEBI, NSE, Publications, RBI and other related websites linked to commodity derivatives. Data is also extracted from various financial books, journals and articles.

V. OBJECTIVES

- To examine the commodity derivatives markets and its sustainability.
- To Study the Regulations and developments of commodity derivatives in India.
- To Study the Issues pertaining to commodity derivatives.

VI. NEED FOR DERIVATIVE MARKETS IN INDIA

India being the highest producer in maximum number of commodities and ranks amongst the top-5 producers in most of the commodities and additionally being a major consumer of bullion and energy products, it is vital to know why commodity derivatives are essential to play a role in risk management as the prices of commodities, metals, shares and currencies oscillate over period of time. The possibility, if adverse price changes in future created risk for businesses. Derivatives are used to diminish or eradicate price risk rising from unexpected price changes. A derivative is a financial contract whose price depends on, or is derived from, the price of another asset.

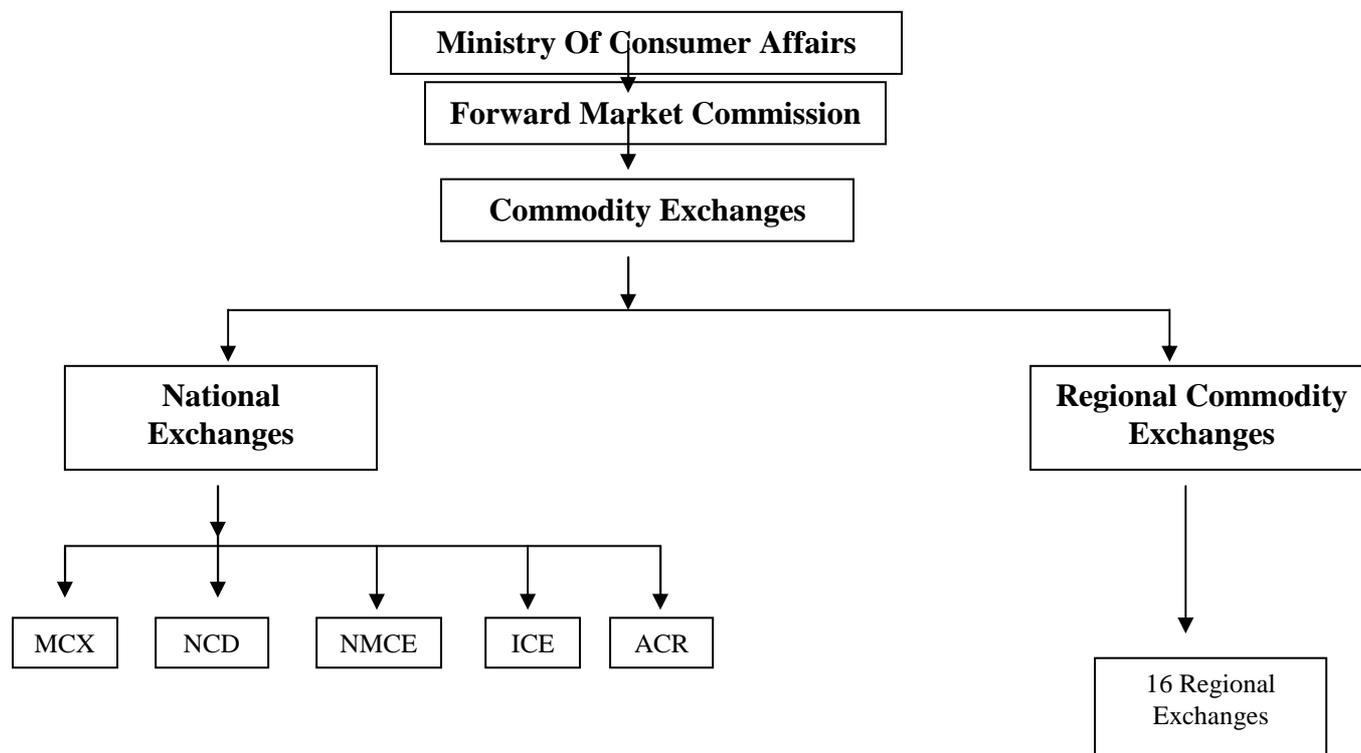
Derivative was suspected of creating too much speculation that would be to the detriment of the healthy growth of the markets and the farmers. Such suspicious might normally arise due to a misunderstanding of the characteristics and role of derivatives product. The Two important derivatives are futures and options.

VII. COMMODITY DERIVATIVES AND REGULATIONS

THE NEED FOR REGULATION-arises on account of the fact that the benefits of futures markets accrue in competitive conditions. In the absence of regulation, unscrupulous participants could use these leveraged contracts for manipulating prices. This could have undesirable influence on the spot prices, thereby affecting interests of society at large. Regulation is also needed to ensure that the market has appropriate risk management system. In the absence of such system, a major default could create a chain reaction. The resultant- financial crisis in a futures market could create systematic risk. Regulation is also needed to ensure fairness and transparency in trading, clearing settlement and management of the exchange so as to protect and promote the interest of various stakeholders, particularly non-member users of the market.

VIII. REGULATORY FRAMEWORK OF FUTURE TRADING

Three tier regulatory structure of future trading in India i.e. Government of India, Forward Market Commission and Commodity Exchanges



Government of India: The Central Government formulates policies regarding the forward trading in commodities and presently, The Ministry of Consumer Affairs, Food and Public Distribution.

Forward Market Commission: The commission came into existence in 1953 under the provisions of Forward Contract (Regulation) Act, 1952. As a statutory body it functions under the administrative control of The Ministry of Consumer Affairs, as per section 4 of the FC(R) Act, 1952, the commission performs the following roles:

To advise the central government on the subject of assigning or withdrawal of recognition from any commodity exchange.

IX. REGULATION FOR DERIVATIVE TRADING- TOO MUCH OR TOO LITTLE..???

The Exchanges are regulated by SEBI, FMC and Government. SEBI created a 24 member committee under the guidance of Dr. L.C. Gupta for a effective regulatory framework for derivatives trading in India. The recommendation of this committee by SEBI was introduced on 11th May 1998 and sanctioned the segment introduction of derivatives trading in India commencing with stock index future. The necessities in Securities Contracts (Regulation) Act, 1956 SC(R)A and regulatory frame work established there under supervise over trading in securities and modification to include derivatives within the frame work of that Act.

Derivative regulation from Dr. L.C Gupta committee recommendation

- ✓ Any exchange in India, interested to start derivative trading have to fulfil the eligible criteria and apply SEBI for the purpose of approval for derivative trading under section 4 of SC(R)A 1956.
- ✓ Derivative trading or clearing member should have a limit to maximum of 40% of total member council and the particular exchange should have separate governing council.
- ✓ The exchange should have to obtain prior approval of SEBI before starting of trading in any derivative contract or product and would have to regulate the sales practices of its members.
- ✓ The exchange has a limit up to 50 members.
- ✓ The member of an active segment would not become the member of derivative segment automatically. Every existing segment member should take approval of SEBI and also fulfil L.C Gupta committee criteria to start derivative trading.
- ✓ Clearing and any settlement of derivative contract or trade should be undertaken by SEBI approved clearing corporation or houses which fulfills the criteria of L. C. Gupta committee and also take approval for SEBI to start clearing and settlement process.



- ✓ Every brokers, dealers and clearing members of derivative market should take approval along with registration in SEBI to start new derivative product.
- ✓ Least amount of net-worth of clearing member of derivative clearing corporation or houses shall be Rs. 3 Cr.
- ✓ The maximum contract value shall not exceed Rs. 2 lakh;
- ✓ Exchange should have submitted details of the futures contract they intend to introduce.
- ✓ The Initial margins, obligations and introductions limit ought be linked to capital adequacy and marginal demands related to risk of loss which will be approved by SEBI time to time on position.
- ✓ L.C. Gupta committee emphasized on 'know your customer' rule and precondition that every client shall be registered with the derivatives broker.
- ✓ The members of derivative segment required to be aware of their client contract which generate alertness to customer or client about derivative losses
- ✓ Every trading member must be qualified as per SEBI requirement and also cleared certification program approved by SEBI.

Forward Market Commission (FMC)

The Forwards Market Commission (FMC) is an independent body involved with the regulation of all commodity exchanges. The National Exchanges employ advanced technology for trading and contributed 99.71% of the total value of the commodities traded in 2012-13.

The trading of commodity derivatives on the NCDEX is regulated by Forward Markets Commission (FMC). In terms of section 15 of the Forward Contracts (regulation) Act 1952, Forward Markets commission provides regulatory oversight in order to ensure market integrity and to protect and promote interest of customer/non-members. Some of the regulatory measures by Forward Markets Commission include;

- ✓ Limit on net open positions as on the close of the trading hours. Sometimes limit is also imposed on intraday net open position. These limits are imposed member wise and client wise.
- ✓ Circuit filters or limit on price fluctuations to allow cooling of market in the event of abrupt upswing on downswing in prices.
- ✓ Special margin deposit to be collected on outstanding purchased or sales when price proves up or down sharply above or below the previous day closing price.
- ✓ Circuit breakers or maximum prices are prescribed to prevent futures prices from falling below as rising above not warranted by prospective supply and demand factors.
- ✓ Stopping trading in certain derivatives of the contract closing the market for a specified period and even closing out the contract. These extreme measures are taken only in emergency situations.

X. ISSUES AND CONCERNS

Even though the derivatives market has shown good progress in the last few years, the real issues facing the future of the market have not yet been resolved. The number of products allowed for derivative trading has increased and the volume and value of business has zoomed, but the objectives of setting up different derivative exchanges may not be achieved and the growth rates witnessed may not be sustainable unless these real issues are sorted out as soon as possible. Commodity derivative markets have traditionally been a contentious issue at various policy forums across the world, particularly with the imbroglgio created by allegations from various corners that they encourage excessive speculation and are therefore responsible for the recent commodity price escalation.

Commodity Options

Futures and option trading which is essential for the healthy growth of the market was banned since 1952 while futures contract helps the farmers to hedge against price risk with respect to this there is an urgency to bring about the necessary legal and regulatory changes to introduce commodity options.

The warehousing and standardization

For Commodity derivatives market to work efficiently it is necessary to have a sophisticated, cost effective reliable and convenient warehousing system in the country. To resolve this problem Rural warehousing plan has introduced to erect new and expand the existing rural godown. Large-scale privatization of state warehouses needs to be focused.

Cash versus physical settlement

Due to inefficiencies existing in the present warehousing system only 1% to 5% of the total commodity derivatives trade in the country are settled in physical delivery. Warehousing problem has to resolve as a good delivery system, which is the backbone of any commodity trade. Another difficult problem is cash settlement of outstanding contracts at maturity not allowed. So there is a need to modify law to bring it closer to the widespread practice and save the participants from un-necessary hassles.

Lack of Economy of scale

In 3 National level and 21 regional commodity exchanges only 80 commodities are allowed for derivatives trading. Trading is depicted only on a few exchanges which splits volume and some exchanges are unviable. This issue can be resolved by consolidating some exchanges. With regard to this Government of India announced that the convergence of securities and commodities derivatives market would bring in economies of scale.

Regulator

With the robust increase in volumes displayed in market activities, the market requires strong and independent regulator like SEBI to regulate the securities markets. Government should grant more powers to Forward Market Commission which is under the department of consumer Affairs.

Tax and Legal bottlenecks

At present lot of restrictions are imposed on the movement of goods from one state to another. Restrictions should be completely removed to set up a National Market for commodities and derivatives. Regulatory changes become mandatory to be made in order to bring uniformity in Octroi, sales Taxes etc. There are also legal bottlenecks to be resolved where there is gradual withdrawal by the government in the post liberalization era -the need has been felt that various operators in the commodities market be provided with hedging mechanism.

XI. DEVELOPMENT AND GROWTH OF COMMODITY DERIVATIVES

The development of the commodity derivatives market in India like many other countries has been hindered by policy reversals on concerns regarding its effect on prices and supplies of essential commodities. This apart, integration of spot and futures market is cited as a critical factor for further growth of commodity futures in India. According to Nair (2004), the major stumbling block for the development of commodity futures markets in India is the fragmented physical/spot market with government laws and various taxes that hinder the free movement of commodities. Thomas (2003) in a similar critique draws attention to the prevalence of bilateral deals in local exchanges, the lack of price transparency both in the fragmented futures and spot markets for many commodities and the absence of certified warehouses.

Table-1
Value of Trade in Commodities in India 2004-13(Rs. Lakh Crore)

| Commodity Groups | 2004-05 | 2005-06 | 2006-07 | 2007-08 | 2009-10 | 2010-11 | 2011-12 | 2012-13 |
|--------------------------|---------|---------|---------|---------|---------|---------|---------|----------|
| Bullion and other Metals | 1.8 | 7.79 | 21.29 | 26.24 | 49.66 | 81.82 | 130.79 | 111.2273 |
| Agriculture | 3.9 | 11.92 | 13.17 | 9.41 | 12.18 | 14.56 | 21.96 | 21.557 |
| Energy | 0.02 | 1.82 | 2.31 | 5 | 15.78 | 23.11 | 28.51 | 37.68409 |
| Others | 0 | 0.02 | 0.001 | 0 | 0.03 | 0 | 0 | 1.28E-05 |
| Total | 5.72 | 21.55 | 36.77 | 40.65 | 77.65 | 119.49 | 181.26 | 170.4684 |

Source: For period 2004-05, data has been taken from Sahoo and Kumar (2008) and for period 2008-12, data has been taken from FMC Annual Reports, 2009-10, 2010-11, 2011-12 and 2012-13.

Note: Table 1 does not contain data on year 2008-09 as it is not available.

Table-2
Share of different commodity exchanges to the total volumes traded of commodities during 2011-12

| Exchange | Value of trade (In Cr) | % Share |
|-----------------|------------------------|---------|
| MCX, Mumbai | 15597095.47 | 86.05% |
| NCDEX, Mumbai | 1810210.1 | 9.99% |
| NMCX, Ahmadabad | 268350.95 | 1.48% |
| ICEX, Mumbai | 258105.67 | 1.42% |
| ACE, Ahmadabad | 138654.61 | 0.76% |
| Others | 53687.0 | 0.30% |

XII. CONCLUSION

Commodity derivatives trading in India after a phase of long and turbulent historical sojourn, witnessed a massive spurt in the recent period. The new and pioneering derivative products have developed over the time to meet the various requirements of diverse investors. Government has initiated far-reaching reforms in the commodities market with regard to price risk management



and pricing which is the basis behind stimulating and reassuring future markets for commodities. As the present paper explored the regulations of DR. L.C Gupta but still our Indian derivative markets are in nascent stage when compared to the developing countries like US and China. Though the derivative market is burgeoning with its divergent products there are many issues to resolved. India being a developing country where majority of population is still dependent on the agriculture, modern commodities exchanges can be used as tool to improve the life of such people by making commodities market more efficient. There are many challenges ahead, legal challenges, regulatory challenges, infrastructural challenges and other challenges regarding trading faced by the Indian commodity markets currently. Risk management through commodity derivatives will give stability to the economic activities of the country. Therefore broad research is required in this area to continuously resolve, which is the need of the hour for the growth, development and sustainability of commodities market. Exposure of Indian banks, need of an independent regulator etc., key to boost the investor confidence in the Indian derivative market will contribute to overall development and sustainability in varied segments of this market.

XIII. RECOMMENDATIONS

From the purely regulatory angle, a separate exchange for futures trading seems to be a neater arrangement. However, considering the constraints in infrastructure facilities, the existing stock exchanges having cash trading may also be permitted to trade derivatives provided they meet the minimum eligibility conditions as indicated below:

- ✓ The trading should take place through an online screen-based trading system, which also has a disaster recovery site. The per-half-hour capacity of the computers and the network should be at least 4 to 5 times of the anticipated peak load in any half hour, or of the actual peak load seen in any half-hour during the preceding six months. This shall be reviewed from time to time on the basis of experience.
- ✓ The clearing of the derivatives market should be done by an independent clearing corporation, which satisfies the conditions listed in a later chapter of this report.
- ✓ The exchange must have an online surveillance capability which monitors positions, prices and volumes in realtime so as to deter market manipulation. Price and position limits should be used for improving market quality.
- ✓ Information about trades, quantities, and quotes should be disseminated by the exchange in realtime over at least two information vending networks which are accessible to investors in the country.
- ✓ The Exchange should have at least 50 members to start derivatives trading.
- ✓ If a derivative trading is to take place at an existing cash market, it should be done in a separate segment with a separate membership; i.e., all members of the existing cash market would not automatically become members of the derivatives market.
- ✓ The derivatives market should have a separate governing council which shall not have representation of trading/clearing members of the derivatives Exchange beyond whatever percentage SEBI may prescribe after reviewing the working of the present governance system of exchanges.
- ✓ The Chairman of the Governing Council of the Derivative Division/Exchange shall be a member of the Governing Council. If the Chairman is a Broker/Dealer, then, he shall not carry on any Broking or Dealing Business on any Exchange during his tenure as Chairman.
- ✓ The exchange should have arbitration and investor grievances redressal mechanism operative from all the four areas/regions of the country.
- ✓ The exchange should have an adequate inspection capability.
- ✓ No trading/clearing member should be allowed simultaneously to be on the governing council of both the derivatives market and the cash market.
- ✓ If already existing, the Exchange should have a satisfactory record of monitoring its members, handling investor complaints and preventing irregularities in trading.

REFERENCES

1. Ahuja, Narender L. (2006), "Commodity Derivatives market in India; Development, Regulation and Future Prospective", *International Research Journal of Finance and Economics*. Vol 1 No.2, pp.153-162
2. Dr Anil Kothari , Ms Pallavi Kudal; *Commodity Derivatives-An Effective Tool for Hedging-A study of Indian Market:a systematic review*, Tirpude's National Journal of Business Research (TNBJR)
3. CKG Nair; "Commodity Futures Markets in India-Ready for Take Off"
4. Forwards market commission (2011) Ministry of consumer Affairs, fund and public distribution, department of consumer Affair, Annual report 2011-12
5. Ghosh Nilanjan (2009); *Issues and concerns of commodities Derivatives Markets in India: An agenda for further research*, Working paper No 5
6. Gupta L.C (March 1998, "Suggestive bye Laws for regulation and control of trading and settlement of derivative contract", the SEBI committee on derivatives trading in India
7. Harwinder Pal Kaur, Dr. Bimal Anjum, *Commodity Derivatives Market in India; International Research Journal of Business and Management –IRJBM*



8. K. Lakshmi (2007), “Institutional Investors in Indian Commodity Derivative Market-Prospicive for the Futures”, working paper series, electronic copy available on SSRN; <http://ssrn.com/abstract=077129> (accessed 30 September 2012)
9. Kumar, Brajesh and Pandey, Ajay (2013),” Market Efficiency in Indian Commodity Futures Markets.” *Journal of Indian Business Research*, Vol.5 No.2,pp101-121
10. Karvy comtrade limited
11. Lokare,S.M. (2007), “Commodity Derivatives and price Risk Management: An Empirical Anecdote from India”, *Reserve Bank of India occasional papers*, Vol 28 No.2,pp 27-77
12. Matloob Ullah Khan, Dr Ambrish Gupta and Dr Sadaf Siraj, Regulation and Accounting Treatment of Future and Option in Indian Derivative Market; *International Journal of Scientific and Research Publications*, Volume 2, Issue 6, June 2012
13. Meenakshi Malhotra; “Commodity Derivatives Market in India-The road travelled and challenges Ahead”
14. Naik, Gopal, and Sudhir Kumar (2001), “Efficiency and Unbiasedness of Indian commodity Futures Markets”, *Indian Journal of Agricultural Economics*, Vol 56 No2,pp 185-197
15. Nilanjan Ghosh, Senior vice president Takshashila Academia of economic research limited “Issues and concerns of commodity derivative markets in India- An Agenda for research”
16. Sushismita Bose; *Commodity Futures Market in India ; A study of Trends in the Notional Multi-commodity Indices*, Money and Finance May 2008
17. Saon Ray Nehamalik (ICRIER) “Impart of transaction taxes on commodity derivative trading in India”
18. Report of derivative market review committee form by SEBI (December 2008)
19. Regulatory perspectives on derivatives markets in India-RBI
20. Vipul (2008), Mispricing, volume, volatility and open interest: Evidence from Indian Futures Market, *Journal of Emerging Market Finance*, 7:3,263-92
21. VR Narasimhan, Director Ace derivatives and commodity exchange; “Commodity Markets ; an effective regulation needed to help producers and users”
22. <http://www.sebi.gov.in>
23. <http://www.nseindia.com>
24. <http://www.rediff/money/derivatives>
25. <http://www.derivativeindia.com>
26. <http://www.icai.org/publications.html>