

**REPORT OF THE COMMITTEE  
ON HEDGING THROUGH  
INTERNATIONAL COMMODITY EXCHANGES**



**RESERVE BANK OF INDIA  
MUMBAI**

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Price : In India Rs. 100/- (inclusive of postage)  
Abroad US \$ 50 (inclusive of Registered  
Air Mail Book Post Charges)

First Published : 21st November 1997

Published by Shri. Khizer Ahmed, Chief General Manager, Exchange Control Department for the Reserve Bank of India, Mumbai 400 001 and Printed by him at M/s Prabha Agencies (Bom.) Pvt. Ltd., 227, P.D'Mello Road, Near GPO, Mumbai 400 001. Tel. : 261 3754, 263 2173 Telefax : 266 6045.



भारतीय रिज़र्व बैंक

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केन्द्रीय कार्यालय,  
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**RESERVE BANK OF INDIA**

EXCHANGE CONTROL DEPARTMENT.  
CENTRAL OFFICE,  
MUMBAI - 400 001.


21st November 1997

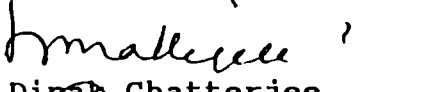
The Governor  
Reserve Bank of India  
Mumbai


Dear Sir,

We submit herewith the Report of the Committee on  
Hedging Through International Commodity Exchanges.


Yours faithfully,

  
R. V. Gupta  
Chairman


  
Dipak Chatterjee


  
P. R. Suresh

  
S. N. Sawaikar

  
Lester Pereira

  
Kamal Kishore

  
S. D. Kapur

  
Pavan Sukhdev

  
Jamal Macklai

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# **Chapter I**

## **Introduction**

1.1 Exposure of Indian entities to commodity price risks has been accentuated by the growing integration of the Indian economy with the rest of the world and increasing volumes of cross border trade. In order to examine the various issues relating to hedging against price risk through International Commodity Exchanges, The Reserve Bank of India appointed a committee on "Hedging through International Commodity Exchanges", with the following terms of reference:

- (A) To identify important import/export commodity groups where price volatility affects Indian corporates, and where such risks can be hedged through recognised International Commodity Exchanges,
- (B) To carry out a review of the financial instruments available on the said Commodity Exchanges, and examine their appropriateness with reference to the stated objective of risk reduction, attendant costs and constraints associated with internal control systems and position-tracking,
- (C) To examine/identify the important facets of an appropriate corporate-level Risk Management policy/strategy and make suitable recommendations, examine the extent to which 'ex ante' and 'ex post' scrutiny/verification can be undertaken by the regulatory authorities, and finally suggest a set of operational parameters with reference to which the use of such financial instruments can be regulated/ overseen.
- (D) To examine the nature and extent of legal impediments, if any, which bar the recourse of Indian entities to international commodity exchanges, and the steps that need to be taken in this behalf.

The memorandum constituting the committee is given at Annex I.

1.2 The members of the Committee were as follows:

- 1) **Shri R.V. Gupta** **Chairman**  
**Deputy Governor, RBI**

- |    |   |        |
|----|---|--------|
| 2) | Shri Dipak Chatterjee<br>Additional Secretary, Ministry of Commerce                                   | Member |
| 3) | Shri Kamal Kishore,<br>Economic Adviser,<br>Ministry of Food & Consumer Affairs                       | Member |
| 4) | Shri P. R. Suresh,<br>Officer on Special Duty, Ministry of Finance,<br>Department of Economic Affairs | Member |
| 5) | Shri S.D. Kapur<br>Director, MMTC, New Delhi  | Member |
| 6) | Shri S.N. Sawaikar,<br>Dy. Managing Director,<br>State Bank of India, Mumbai                          | Member |
| 7) | Shri Pavan Sukhdev,<br>Head of Treasury,<br>Deutsche Bank, Mumbai                                     | Member |
| 8) | Shri Lester Periera<br>Director – Treasury,<br>Barclays Bank PLC, Mumbai                              | Member |
| 9) | Shri Jamal Macklai, Partner<br>Macklai & Macklai, Mumbai  | Member |

Shri A. K. Batra, Additional Chief General Manager, Exchange Control Department, Reserve Bank of India, was the secretary of the committee who together with Shri N. H. Siddiqui, General Manager, Exchange Control Department, Shri V. S. Sharma, Dy.General Manager, ECD, Smt.K.T.P. Nambiar, Asst.General Manager, ECD and Shri Sujan Hajra, Research Officer, Department of Economic Analysis and Policy formed the secretariat.

1.3 The committee held six meetings between August and November 1997. In order to benefit from the views of the user-groups the following presentations were arranged:

- (i) Birla Copper Ltd.: Hedging Copper Price Risks
- (ii) Coats Viyella India Ltd.: Hedging Cotton Price Risks
- (iii) Su-Raj Diamonds: Hedging Gold Price Risks

- (iv) Reliance Industries Ltd.: Hedging Commodity Risk - Crude Oil, Refined and Petroleum Products.
- (v) Barclays Bank, BZW, Metals & Energy Group London: Hedging through London Metal Exchange.
- (vi) Prudential Bache Securities Ltd. London: Risk Management through Commodity Exchanges.
- (vii) Morgan Stanley, Singapore: Energy Risks Products with special reference to Asian markets.

Chairman, Forward Markets Commission, Shri V.K. Agarwal, also made a presentation on the existing state of Forward Markets in the country.

1.4 Shri C. Harikumar, Executive Director, Reserve Bank of India and Shri Khizer Ahmed, Chief General Manager, Reserve Bank of India, participated in the deliberations of the Committee and made valuable contributions. The Committee would like to make a special mention of the contributions made by the Secretary, Shri A. K. Batra, both at the stage of deliberations of the Committee and in drafting the Report. The Committee received valuable support from Shri Sujana Hajra, Research Officer, who carried out the necessary research work and actively participated in the finalisation of the Report.



## Chapter II

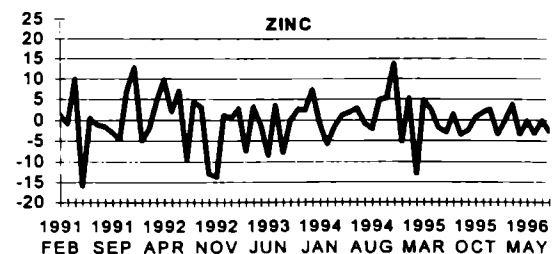
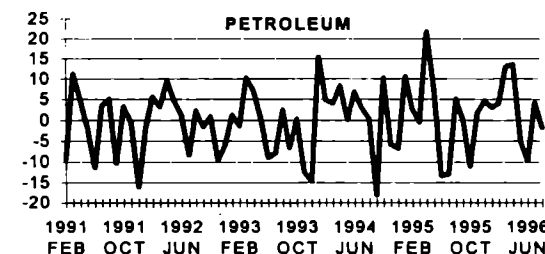
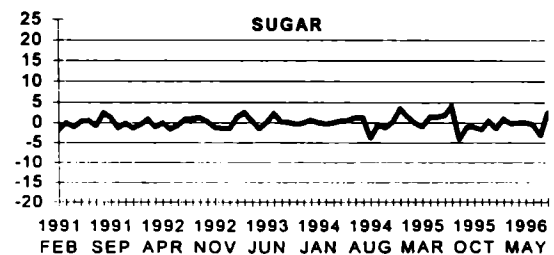
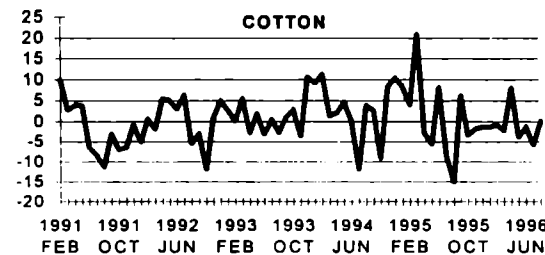
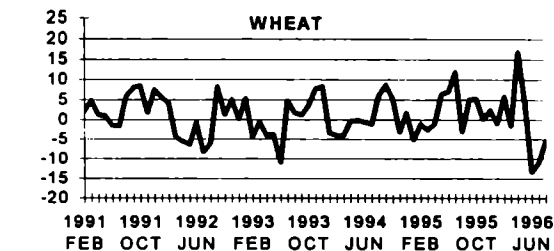
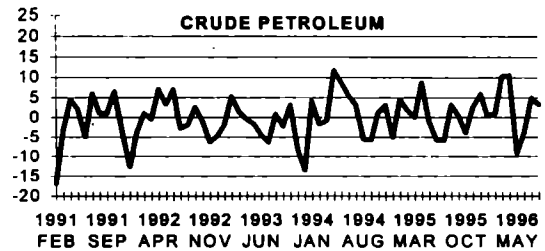
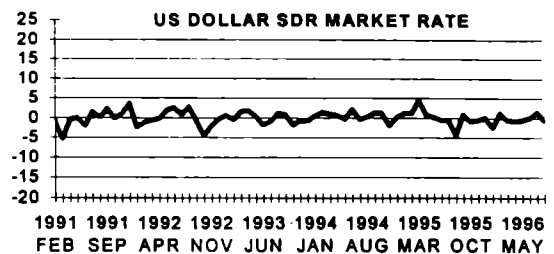
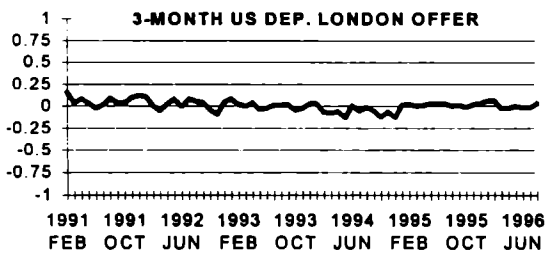
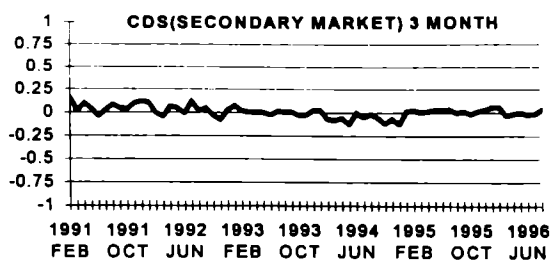
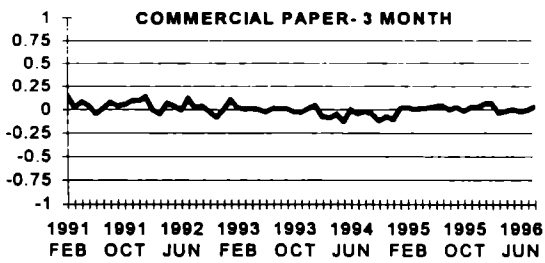
### Commodity Futures: An Overview

#### Futures Commodity Exchanges: A Perspective

2.1 Price risk arising from fluctuations in asset prices is nothing new; nor is the concern to manage such risk on the part of economic agents who find themselves thus exposed. In some form or the other, and with varying degree of effectiveness, hedging or risk transference has been practiced for centuries. The instruments for price risk management generally do not have any role in influencing the variability of the underlying asset prices. However, they play an important role in minimising the impact of such price fluctuations on the cash flow and profitability positions of the economic agents who deal in such assets. Therefore, the larger the volatility of the underlying asset price, greater is the need for the market participant to access the instruments of risk management. Temporally as well as across the world, primary commodities are known for frequent and sharp variability in their prices. More often than not, price volatility in commodity markets exceed that of other markets such as bond or currency markets.

2.2 Graph 1 shows price volatility in different segments of financial as well commodity markets in the United States. Data pertains to monthly prices of these assets for the period between January 1991 and August 1996. It may be observed that during the sample period, with one exception (i.e. sugar *vis-à-vis* US dollar - SDR exchange rate) commodities have witnessed much more volatile price situations than the prices in the market for financial instruments. While this example is purely demonstrative, it does show that in most cases economic agents associated with commodity trade are in greater need to hedge against price risk than their counterparts in other markets. Perhaps this realisation about inherently unstable price situations in the commodity markets remained one of the major reason for which instruments of price risk management were initially devised.

**Graph 1: Price Variability of Selected Financial Instruments and Commodities in the US Market**  
(per cent change over the previous month)



Note: Commodity prices used here are quotes from the following sources Crude Petroleum - Texas (Spot), Wheat - DLR /Bush NI HRW US/Gulf, Cotton - US 12 Market, Sugar - US Import Prices, Petroleum - Gulf Coast, regular unleaded, Zinc - New York. Source: International Financial Statistics, International Monetary Fund.

### *The Early Futures Commodity Exchanges*

2.3 Emergence of exchanges dealing with commodity futures preceded the initiation of trade in financial futures by about three hundred years. The development of the variants of forward and futures market in most countries, at least during the early days of their evolution, acted as an extension of spot trade. In course of time these markets evolved into independent entities with norms quite different from those in spot markets.

2.4 In the United States of America, forward contracts came in vogue during the middle of the nineteenth century. By the middle of 1850s, a group of traders came forward who were interested in forward trade without any inclination to take physical delivery. New York Produce Exchange<sup>1</sup> was incorporated in 1862. In spite of primarily being a spot market, this exchange also dealt in forward contracts, mainly in grains, and thereby paved the way towards the development of futures market in America. The incorporation of Chicago Board of Trade in 1859 was another important landmark in the development of futures market in the country. Today this exchange is the world's oldest active commodity futures exchange. During the period of Civil War (1861-1865) the US government entered into contracts for futures trade in pork through this exchange. The aftermath of civil war saw a sharp jump in commodity trade within the US as well as her international trade with the rest-of-the-world. This provided stimulus to futures trade in commodities and various commodity exchanges were founded and incorporated in the US. Similar types of developments took place in the continental Europe as well as in the East, most notably in Japan. Annex Tables 1 - 3 provide information about some futures and options exchanges that are operating in various parts of the world.

## **Present Trends in Commodity Risk Management**

### *Instruments Available for Commodity Risk Management*

2.5 Though futures and options trade in commodities remained the only form of such trade till the start of the 1970s, since its initiation, trade in financial futures has grown at a fast pace. By the early-'nineties only about 40 per cent of the total

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<sup>1</sup> . It was founded in New York as Commercial Exchange in 1850.

transactions in futures exchanges were on account of commodities and the rest involved financial futures and options.<sup>2</sup> In spite of the decline in relative share, the trade volume of commodity futures has also increased sizably over the last twenty-five years. There has also been considerable enhancement in the number of instruments offered by the commodity exchanges and intermediaries in the market for commodity risk management. Further, there are numerous variants within each category of such instruments.

2.6 From the point of institutional set up governing the trading process, instruments of commodity risk management can be classified into two categories - over-the-counter (OTC) products and exchange-traded products. In its simplest form, OTC instruments represent a direct interaction between a final user such as an exporter, an importer, a farmer or a manufacturer and an intermediary such as a bank, a trading house or a brokerage firm. It is common for OTC products to have direct link with physical transactions. OTC products can be innovative and tailor-made in accordance with the need of the user while the exchange-traded products that are generally highly standardised.

#### Over-the-Counter Derivatives

2.7 The higher level of flexibility of OTC instruments can be in terms of period of maturity and the underlying commodity along with other terms and conditions governing the contract. Exchange-traded products have particular and predetermined dates for settlement or cancellation of contract that cannot be changed by either the seller or the buyer of the instrument. However, in the case of OTC products, this date can be fixed keeping the need of the buyer of the instrument in mind. Further, while organised exchanges offer commodity risk management instrument for a limited number of commodities, OTC products can be offered even for commodities which are not exchange-traded.

2.8 In the absence of the channelisation of contracts through organised exchanges and clearinghouses, OTC transactions involve considerable credit risk exposure. That

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<sup>2</sup>. See, for example, UNCTAD Secretariat (1994): *A Survey of Commodity Risk Management Instruments*, United Nations Conference on Trade and Development, UNCTAD/COM/15/Rev. 1, (December).

is why it is essential for the contracting parties to know each other. These instruments are 'made' by the intermediaries and therefore they determine the details of specifications about the instruments and their prices which the buyer can either accept or reject. In general, there is a lack of competitive bids for OTC instruments and this makes these instruments less liquid than exchange-traded instruments. The most advance form of OTC market is constituted by forwards markets of various fuel products.<sup>3</sup> These markets are quite similar to the futures markets. The intermediaries, that is, sellers or 'makers' of the OTC products, are themselves risk-aversers and therefore in order to limit their own risk exposure they take measures to enter into off-setting transactions, either in OTC markets, on futures exchanges or in physical trade. In the process they limit their own risks but still earn a margin by 'making' these instruments. As competition reduces their margin, intermediaries try to constantly improvise so that they can earn equivalents of a monopoly-rent.

2.9 The OTC markets offer a wide range of products including forwards, options, swaps, commodity-linked loans and commodity bonds. Many of these products are available in organised commodity exchanges as well. However, some of these products are more frequently transacted in OTC markets than in organised exchanges and *vice versa*.<sup>4</sup> It is important to point out that since OTC products are sold by the 'makers' of such products, the buyers need to have high level of expertise and sophistication to evaluate the quality of the OTC products. In the absence of such skills on the part of the buyer, OTC products can in fact increase rather than reduce the very risk that the buyer would like to hedge against. This is one of the major reasons for which various countries have showed larger levels of willingness to allow the use of exchange-traded, as opposed to OTC instruments for risk management during the initial years of introduction of such products to the domestic participants.

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<sup>3</sup> . Such as brent oil, naphtha, heating oil, gas oil, heavy fuel oil, etc. It may be noted that some of these products are off-exchange items.

<sup>4</sup> . For example, commodity bonds are generally available in OTC markets as in most of the cases these contracts have to be tailor made keeping the need of the hedger in view. However, New York Futures Exchange offers futures and options on CRB futures price index that is similar to commodity bonds. Yield under this index depends on the price of 21 commodities. Similarly while forwards are offered by OTC markets, some developing country commodity exchanges such as Nanfang Non-ferrous Metals Exchange, China, Indonesian Commodity Exchange Board, Indonesia, etc. offer forwards contracts.

## Exchange -Traded Derivatives

2.10 Different commodity risk management instruments have distinct characteristics. Depending upon the underlying risk perceptions and the resultant structure of risk management strategy, entrepreneurs choose from these instruments. As far as hedging of commodity price risk through international commodity exchanges is considered, futures and options are two main alternatives. In the OTC markets, forwards and options can be used for the same purpose. Swap transactions are useful if the user needs a longer-term hedge or the market participant wants to execute price hedging associated with financial deals. Table 2 in the Annex provides the list of major international futures and options exchanges and their trade volumes.

### *Commodity Coverage of the Futures Exchanges*

2.11 Composition of exchange-traded commodities has changed over the years. For example, rice which during the initial days was the most important exchange traded commodity in Japan, has presently gone almost off-exchange. Eggs were one of the early exchange-traded commodity in America, but they are no longer traded in futures exchanges. Given the present level of availability, commodities that are traded in futures and options exchanges can be classified in four broad categories. These are:

1. Agricultural and allied commodities,
2. Energy related products,
3. Metal and metal products, and
4. Other commodities.

2.12 Agricultural and allied products consist of agricultural and plantation products, meat and dairy products, textile related products and other commodities. Similarly metal and metal products can be subdivided into precious metal and industrial metal categories. Table 1 in the Annex provides a detailed classification of exchange-traded commodities and the major exchanges where they are available. However, it is important to mention that there are considerable differences in terms of grade and contract specification of each of these individual products and only certain specific varieties are traded within the organised exchanges. It may be noted that some of the

commodities listed in Table 1 are traded in a very small number of exchanges.<sup>5</sup> In many cases, markets for such single exchange traded commodities are not sufficiently deep and liquid.

2.13 Historically the futures and options trade started with agriculture and allied products and these products remained the backbone of the futures trade for a long time. However, over the last couple of decades, the share of these commodities in the overall trade volume of the futures trade has decreased substantially. Further, the trade volumes of these commodities show wide year-to-year and seasonal fluctuations.<sup>6</sup> The present trend in commodity exchanges shows that among the exchange-traded commodities the volume of energy products is generally the highest followed by metals. Agricultural commodities come as a distant third.<sup>7</sup>

#### ***Dimensions of Regulation in Futures Exchanges***

2.14 The need for regulation of the markets arises when such regulations increase the allocative efficiency of these markets from what would prevail under no regulation at all. Allocative efficiency of the futures and options markets is reflected by the ability of these markets to perform their price discovery and risk shifting functions efficiently. In the intertemporal sense, the efficiency of such a market depends on its ability to innovate new products and improvise the current facilities by preempting the needs of the players associated with such markets. Another dimension of an efficient market is reflected by its capacity to minimise the transaction cost. Therefore, a case for market intervention or regulation by government or any other authority arises only when there is a failure on the part of the free market to achieve the desired level of efficiency.<sup>8</sup>

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<sup>5</sup> . For example, butter is traded in Chicago Mercantile Exchange only. Likewise, Cheese and Dry milk are traded in Coffee, Sugar and Cocoa Exchange only.

<sup>6</sup> . These fluctuations are most marked for soft commodities such as coffee, cocoa, cotton and sugar.

<sup>7</sup> . See, for example, UNCTAD Secretariat (1994), *ibid*.

<sup>8</sup> . This is a necessary but not sufficient condition for market intervention or initiation of regulatory measures. Any intervention measure or regulatory mechanism has certain costs associated with them such as the cost of maintenance of regulatory bureaucracy, costs that can result from perverting effects of regulation on private managers, etc. Therefore, a regulatory mechanism or market intervention measure makes economic sense when the incremental efficiency gain under such a system surpasses the costs associated with it. This implies that the net welfare effect of any intervention or regulatory measures should be positive.

2.15 There are reasons to claim that lack of government intervention and regulation in the futures market may result in market imperfection. It has been argued frequently in almost all countries that unregulated or insufficiently regulated futures and options markets lead to excessive and destabilising speculations and malpractice. Both these situations would result in efficiency loss of the market. Therefore, with the caveat that regulation should result in net efficiency gains, such situations call for regulations and market intervention by the authorities. Another important objective for government regulation of the futures market has been the need to protect the consumers.

2.16 As against off-exchange trading in futures, governments generally prefer such trade through organised futures exchanges. However, given this preference, these exchanges and players associated with them enjoy a level of monopolistic advantage.<sup>9</sup> This raises the possibility of malpractice by these players and thereby represents a strong reason for authorities to enact regulations to guard against such practices. However, it is likely that such malpractice and manipulation would discourage market participation and trading volume. With the existence of competitive exchanges, such irregularities would adversely affect the long-run interest of the very players who are likely to indulge in such practices.

2.17 Futures and options trade has some specific characteristic which, it is interesting to note, are found useful by both hedgers and speculators (profit-seekers). While physical market is made of interactions that result in the delivery of goods, this need not be so for the futures market. In the main, delivery does not happen on the futures market: futures contracts are usually cancelled out by an equal and opposite contract (buy/sell). This reduces the market participants' requirement for capital. This is attractive to genuine hedgers from a cash-flow point of view, but this very feature is attractive to profit-seekers as well. There is therefore a perception that these markets can be more prone to speculative activities than most of the other forms of markets.

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<sup>9</sup> . A centralised agency in the form of futures exchange is generally the preferred form of futures trade as it results in greater liquidity, lesser transaction cost and reduced price volatility. Government regulations by supporting such a system reduce the competition from off-exchange competing future instruments and thereby create a form of natural monopoly. Further, to avert the "free-rider" from misusing the facilities and guarantees extended by the exchanges and other organisations associated with them such as clearinghouses, these facilities are generally open to members only. Since the



However, there is little theoretical as well as empirical evidence that speculation against the underlying market fundamentals would benefit the speculators in the medium- to long-run. It has been argued that by increasing the price volatility the speculators can gain as the risk premium and thereby their earnings would increase under such a situation. This is an empirical point and available literature often provides results in contrary to this presumption.<sup>10</sup> Further, there is no conclusive evidence, either theoretical or empirical, supporting the view that speculation has destabilising effect on the effective functioning of futures markets in general and futures prices in particular.<sup>11</sup>

### Policies which Affect the Derivatives Markets

2.18 Broadly speaking there are two types of regulations or norms that shape the functions of the futures and options markets. The first set of norms is self-regulating measures devised and adopted by the exchanges and other related parties themselves. These are measures that aim to inculcate orderliness in the functioning of the exchanges through the standardisation of the trade practices within the exchange. Such standardisations are likely to reduce transaction cost, counter-party risks and risk innate in the fluctuations in commodity prices. The other form of regulations come from the government because it assumes the role of apex regulator and the supervisor of commodity exchanges situated within its territory. These measures generally try to ensure the maintenance of minimum safety standards, transparency and functioning of the exchanges in the directions which are considered as desired by the society at large.

2.19 Prior to the second decade of the twentieth century, most of the futures and options commodity exchanges were largely self-regulated. These exchanges and other institutions and individuals associated with these trading processes such as clearinghouses, brokers, etc. had well-defined norms and regulations to abide by. Government measures in the direction of direct regulation of these exchanges were

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membership to such a body comes with sizable price tags and other conditions, such memberships are scarce and privileged. This also can give rise to a degree of monopolistic advantage.

<sup>10</sup>. See, for example, Edwards, F.R. and C. W. Maa (1992): *Futures and Options*, McGraw-Hill International Edition, Singapore.

rather limited. However, general measures of the government aiming at the maintenance of food security and sufficient supply of essential commodities often affected the operations of the commodity exchanges.

2.20 The general interest in futures markets has increased substantially since the 1970s. There has been significant change in the regulatory regime as well. Notwithstanding the increasing levels of globalisation in the derivatives market, there is no global regulatory authority dealing with these issues.<sup>12</sup> Salient features of the regulatory measures adopted by various countries have been outlined in Chapter III of this Report.

2.21 It may be observed from these country studies that almost all industrialised and some developing countries have established commodity exchanges. However, most of the countries, including the developing countries, irrespective of whether they have their own commodity exchanges or not, allow their domestic entrepreneurs to access offshore commodity futures exchanges. Many developing countries, however, have shown greater levels of restraints in allowing domestic parties to access offshore OTC markets.

2.22 Though there is no uniform universal framework for regulation of the futures exchanges, such framework in countries which have their own international futures exchanges generally try to establish a transparent and rule based system and take steps to guard against manipulative practices and excessive speculation. The main emphasis of these measures is to assign specific duties, responsibilities and privileges to certain institutions and players and thereby create a system which minimises the chances of generalised market failure. Most of these measures are applied on macro entities such as exchanges, clearinghouses, futures commission merchants. These entities are supervised by the government designated agencies and macro agents, in turn, are responsible for maintaining the conduct of prudential disciplines while dealing with

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<sup>11</sup> . See, for example, Maddala, G. S. and J. Yoo (1991): "Risk Premia and Volatility in Futures Markets, *The Journal of Futures Markets*, (April).

<sup>12</sup> . However, there has been some bilateral agreements between countries to exchange their expertise on the regulation of futures markets. Such an agreement between China and Hong Kong is currently in effect. Individual exchanges across countries have also taken steps towards larger coordination and cooperation. Agreements between the SFE, Australia and the NYMEX, New York is an important example in this direction.

retail customers. Countries which allow their entrepreneurs to access offshore international commodity exchanges cannot directly influence the functioning of those exchanges. Many of them do not impose too many restrictions on the operations of domestic firms in international futures exchanges. In some cases, however, government sets certain norms on the conduct of such operations. For example, these regulations set the criterion for players who can access international markets, the instruments they can use, the exchanges where they can conduct their business, commodities for which use of futures market instruments is allowed, etc. Further, most of these countries supervise the operations of their domestic players in the international markets on a *post facto* basis.

1

## **Chapter III**

### **Contemporary Regulations in Futures Markets: Evidence from Selected Countries**

#### United States of America

3.1 Most of the important commodity exchanges are situated in the US. Apart from exchange-traded derivatives, the US authorities allow a limited category of off-exchange commodity options as well. All segments of the futures markets in this country conduct their operations on the basis of self-regulation. Further, on behalf of the federal authorities the Commodity Futures Trading Commission (CFTC) regulates and oversees such operations. The legislative provisions on the operations of derivatives markets come under the authority of Commodity Exchange Act (CEA) and the CFTC is the sole designated agency to administer these regulations. The CFTC has regulatory authority over all players involved in the operations of the derivatives market. In spite of this broad jurisdiction, the CFTC generally does not conduct supervision at the retail trade level. Through the supervision of the conduct of the broader entities like the exchanges, clearinghouses, etc. the CFTC ensures the maintenance of the regulatory provisions. The focus of the CFTC is three fold - (i) prevention of market manipulation, (ii) prevention of fraud and (iii) maintenance of financial soundness of clearing associations and futures commission merchants.

3.2 Each commodity exchange needs to obtain license from the CFTC and each of them needs to maintain certain minimum standards. They evolve their own rules on conduct and ensure the implementation of those norms by their members. Before introducing any new futures contract, exchanges need to obtain clearance from the CFTC. The CFTC, in turn, ensures that such contracts satisfy certain economic characteristics. The National Futures Association (NFA) as well as CFTC make it mandatory for the futures commission merchants (FCMs) to follow certain prudential norms, which are periodically audited by the CFTC and the NFA.

3.3 Manipulation of the futures prices is considered as a crime in the US and accordingly, if the same can be proved in a court of law, it invites severe penal

measures. Further, the CEA prohibits fraudulent and noncompetitive trade practices and thereby tries to ensure that customer orders are executed fairly and under competitive market conditions.

3.4 In nutshell, through elaborate self-regulation by the designated agencies (like commodity exchanges, clearing associations, the NFA) and direct regulation, supervision and periodic auditing, the CFTC tries to ensure that through fair and competitive conduct the futures exchanges act as efficient means for price discovery and risk shifting.<sup>13</sup>

#### Japan

3.5 Japan has the most diversified commodity futures trading framework in the Asia and the Pacific region. However, the contract duplication between the exchanges often results in low levels of liquidates in some of these markets. Japan is an important center for OTC energy products as well. Further, Japanese commodity-linked bonds are often floated in European markets.

3.6 Regulation of different forms of derivatives within the country is divided in separate segments. The commodity futures and options are regulated by the Commodity Exchange Act while OTC transactions are governed by rules established by the National Federation of Bankers Association. Membership in Japanese Exchanges is divided into two categories - FCMs and general members. The FCMs have to obtain license from the Ministry for International Trade and Industry (MITI) on an annual basis and they can trade on their own as well as on their clients' accounts. Associate members have to execute their transactions through the FCMs. Japanese laws on OTC products are generally comprehensive but unlike the regulations in other industrialised countries, Japanese law does not require signed documentation to make it legally binding. However, parties to the transaction have to be licensed.

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<sup>13</sup> . The basic objectives of regulatory measures and their broad *modus operandi* are quite similar across countries. Therefore, details about these have not been repeated for other countries. Special country-specific features and marked aberrations of the operations of future exchanges of a country from the general trend have been discussed in the remaining part of the present section.

## Singapore

3.7 Prior to 1983, futures market in Singapore was not well regulated and incidence of trading abuse was not uncommon. However, since then the country has taken active measures to set up a well regulated internationally-oriented derivatives market. As a result of such efforts Singapore has developed as a major international center for both exchange traded and OTC derivatives products.

3.8 The Futures Trading Act (FTA) and Singapore Trade Development Board have authority over the regulation and supervision of different segments of the listed commodity futures market in the country. Monetary Authority of Singapore regulates the OTC derivatives.

## Australia

3.9 There are two apex authorities in Australia, regulating and supervising the operations of the futures and OTC markets in the country. The Australian Securities Commission (ASC) administers the Corporations Law (CL) and the Securities Law, while the Reserve Bank of Australia, the central bank of the country, monitors all forms of operations by the banks in the country including their dealings in derivatives. The futures exchanges in Australia are private bodies with delegated regulatory functions. It is mandatory for all forms of service providers and intermediaries in the Australian futures markets including those with advisory roles to obtain license for their operations. The CL exempts futures contracts from gambling and wagering laws which might otherwise render such contracts legally unenforceable. The ASC is aiming to increasingly align their domestic regulatory provisions in line with the international standards and practices.

3.10 The participants in Australian derivatives market can take part in domestically listed derivatives and can list and trade in commodity warrants. Through an agreement with the New York Mercantile Exchange (NYMEX), the Sydney Futures Exchange (SFE) allows its members to trade in the energy products of the NYMEX directly through the SFE. Apart from domestic OTC commodity forwards and swaps, generally executed through foreign institutions as hedging instrument, Australian parties are allowed to access the overseas futures exchanges and OTC markets. Cross-

hedging by Australian parties in overseas listed and OTC markets is also quite common.

3.11 Providers of derivatives in Australia either acting directly or through licensed entities have to register under Financial Corporation Act to avail certain exemptions in their dealing with OTC derivatives. Various OTC derivatives are exempted from futures regulations if an authorised financial institution such as a registered bank or a merchant bank is a party to such transactions. However, availing of this exemption requires no intermediate trade in these instruments.

### China

3.12 In spite of the absence of domestic futures exchanges, for several decades, Chinese state owned enterprises, particularly those with marked import- or export-orientation, have actively accessed international futures markets for hedging commodity price risk. However, decentralisation of agricultural distribution and processing during the late-1980s and the '90s has provided major thrusts towards the establishment of futures commodity exchanges in the country mainly under the aegis of provincial governments.<sup>14</sup> Unlike the futures exchanges in the industrialised countries, these exchanges in China have developed rapidly in the absence of uniform, liquid and well established cash markets. These factors have given distinct regional characters to many of these exchanges and often there has been substantial duplication of contracts among the various segments. Unlike futures exchanges in most other countries, foreigners cannot directly access Chinese futures markets.

3.13 Agencies which are designated to regulate futures market in China include China Securities Regulatory Commission (CSRC), the People's Bank of China and the Securities Commission of State Council. The CSRC has the main responsibility for the regulation and supervision of the domestic futures market.<sup>15</sup> In the background of the uneven developments in the Chinese futures market, since 1993 the CSRC, along with the China Securities Supervisory Administrative Committee, has initiated

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<sup>14</sup> . Between 1990 and the middle of 1994 about 40 "futures exchanges" has been established in China. However, most of them acted as spot markets.

<sup>15</sup> . The China Securities Supervisory Administrative Committee along with the CSRC has been entrusted the task of supervision of the domestic futures market.

steps to reorganise the Chinese futures markets. To this end, they have made it mandatory for futures brokers to register with designated authorities. As a prerequisite for registration, brokers have to fulfill certain norms including a minimum capital requirement. Trading of certain commodities under “excessive speculation” were banned temporarily. These measures also include moratorium on establishment of new exchanges. Relicensing of existing exchanges has been made contingent upon satisfaction of certain conditions.<sup>16</sup> Bans have been imposed on foreign owned/joint venture brokers and speculative transactions by state-owned enterprises. Though profit-making enterprises are allowed to access international futures markets for the purpose of hedging, they need to get prior approval for these purposes and they have been made subject to periodic audits. In order to improve the regulatory framework for futures exchanges in China, in mid-1995, the CSRC has entered into an agreement with the Hong Kong Securities and Futures Commission and the same would remain in force till the end of 1997.

### Hong Kong

3.14 Although Hong Kong has a long tradition of being the center of commodity trade, Commodity Trading Ordinance, the first official trade regulatory body for the colony was established in 1975. This was closely followed by the establishment of Hong Kong Commodity Exchange (HKCE), the first futures exchange of the country. However, by the early -'90s, mainly because of the lack of participation, much of the futures commodity trade had been discontinued in the country.<sup>17</sup> As in the case of listed derivatives, OTC market for commodities is also not well established in the country.

3.15 Hong Kong has maintained strict regulations for trade in derivatives in the recent past. Securities and Futures Commission (SFC) and Hong Kong Monetary Authority (HKMA) are the main regulating authorities of these markets. The SFC, under the Commodity Trading Ordinance (CTO), has been empowered with wide ranging regulatory authority over the derivatives market. Until 1993, most of the

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<sup>16</sup> . These conditions try to ensure that these exchanges are truly active and competitive futures exchanges with sufficient expertise and facilities. In late 1995, all the exchanges have been made non-profit membership organisations.



contracts in the OTC market were not legally enforceable under the Gambling Ordinance. However, since then these provisions have been amended to make a major part of these contracts legally enforceable.

### Malaysia

3.16 Malaysia is a major producer and exporter of primary commodities including crude oil. The necessity for hedging against price risks associated with such trade led to the development of commodity futures in the country. With the passing of Commodity Trading Act (CTA) in 1985, trade in commodity futures have gained considerable momentum. Malaysian entrepreneurs also actively participate in domestic and offshore OTC markets.

3.17 The central Bank of Malaysia, Bank Negara Malaysia (BNM), and Commodity Trading Council (CTC) are the nodal agencies for regulation and supervision of the domestic futures market. The country has very strict rules for membership to the clearinghouse and there are specific regulations to face emergency situations. In 1995, Malaysia has adopted strict rules to regulate onshore OTC derivatives which require permission from the BNM for all such products and these can be used for the purpose of hedging only.

### South Korea

3.18 Until recently, South Korea has shown a greater level of conservatism in allowing the domestic entrepreneurs to participate in the futures market. The country is in the process of opening up domestic commodity futures exchange. However, since 1990 the Office of Supply (OSROK) has eased restrictions on Korean companies to access international futures commodity exchanges for the purpose of hedging. The same regulations have also substantially widened the list of commodities for which these companies can participate in the offshore OTC markets.

### Indonesia

3.19 Indonesia did not have listed futures till mid-1990s. However, about a decade back the country started trading in standardised forwards and there are plans to convert these into futures trade. Further, entrepreneurs from the country are allowed to

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<sup>17</sup>. In spite of non-existent volume of trade, gold contracts have remained listed in the country.

avail international futures exchanges and off-shore OTC markets.<sup>18</sup> In the absence of well-developed organised derivatives market in country the main form of regulation is by the Ministry of Finance and BAPEPAM, the regulatory authority for capital market, which has been issuing warnings to make use of the OTC products in a prudent manner.

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<sup>18</sup> . Domestic OTC contracts are also mainly executed through offshore markets.

## Chapter IV

### Hedging through International Futures Commodity Exchanges: An Indian Perspective

#### Futures Commodity Exchanges and India: An Overview

##### *State of Commodity Futures Trade in India*

4.1 Commodity futures markets have a long tradition in India. The first organised exchange of the country, Cotton Exchange of Bombay, was established in 1921. Five years later Seed Traders Association Ltd., Bombay, was established. Apart from futures, these exchanges traded in options as well. However, options trade was banned in 1939. As a part of remedial measures to control the quick rise in commodity prices, government adopted various price control measures during the 1940s and these measures resulted in *de facto* closure of the futures markets in the country. This impasse was broken by the Forward Contracts (Regulation) Act (FCRA), 1952. Till date the FCRA governs the functioning of the derivatives market in India. In its initial form the FCRA allowed for trade in derivatives for a large number of commodities.<sup>19</sup> The Act provided self-regulating powers to the forwards and futures markets. Subsequently the Forward Markets Commission (FMC) was formed to supervise and regulate the derivatives markets and these markets gradually lost most of the power for self-regulation.

4.2 Over the years the scope for derivatives trade has been increasingly limited and more and more commodities have been removed from the scope of derivatives markets. The perception that excessive speculative activities in these exchanges had resulted in increased prices of commodities remained the major factor behind such restrictive measures. This trend was reversed, *albeit* partially, during the late-'70s when futures trade in a limited number of commodities was allowed. This list has been somewhat broadened through subsequent measures. In spite of active futures

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<sup>19</sup> . Trade in derivatives was not allowed for “essential” commodities such as foodgrains and sugar.

trade of commodities for which the same is allowed,<sup>20</sup> the scope of derivatives trade in commodities has remained quite limited. Further, as a matter of general rule, Indian entities cannot access the offshore futures exchanges and OTC markets even for the purpose of hedging. It is interesting to note that successive committees appointed by the government to recommend measures in the context of domestic derivatives markets have, without exception, urged the need to increase the commodity coverage of the futures market in India.

4.3 India has initiated an economic reform programme since the early 1990s and under this process the country has substantially liberalised the rules governing commercial policy. There has been significant reduction in quantitative restrictions including enlargement of the Open General License and decannalisation of certain group of imports. Tariff rates have also been reduced considerably. Indian entrepreneurs have been allowed to access certain types of instruments at offshore futures exchanges for the purpose of their financial risk management. However, these policies do not include permission to Indian entrepreneurs to utilise offshore exchanges for the purpose of commodity risk management.

4.4 India's foreign trade in commodities constitutes a small proportion of world trade. Further, there has been decline in the world share of many of India's commodity exports and imports between 1970 and 1993. However, these exports and imports, though small by international standards, constitute a substantial proportion of India's overall foreign trade.<sup>21</sup> Text Table 1 provides the composition of India's exports and imports between 1970 and 1996. It can be observed that in spite of the decline in relative share of primary exports and imports over time in total foreign trade by India, they still account for a considerable proportion of the country's overall international trade. Further, for many of India's principle exports, agricultural and metallurgical products constitute a major part of input requirements. For example, textile exports which contribute about one-fourth of India's total exports, are heavily dependent on

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<sup>20</sup> . Commodities for which futures markets exist in India include pepper, turmeric, jaggery and jute.

<sup>21</sup> . In spite of considerable decline, commodity exports still account for well over 20 per cent of India's total exports. Among the imports, petroleum and related imports alone account for around 20 per cent of the country's total imports. The share of other commodity imports, taken together, is around 10 per cent of the total imports.

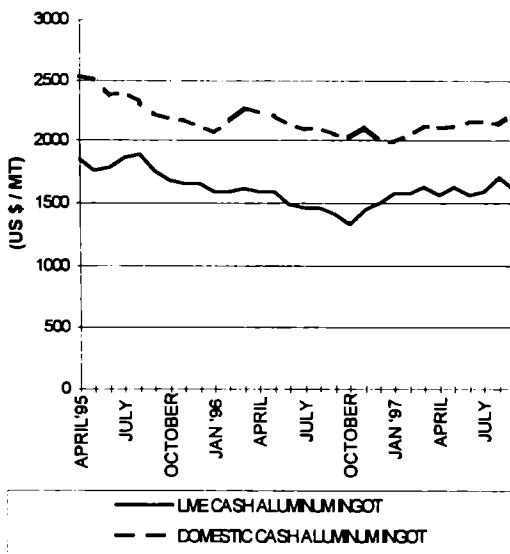
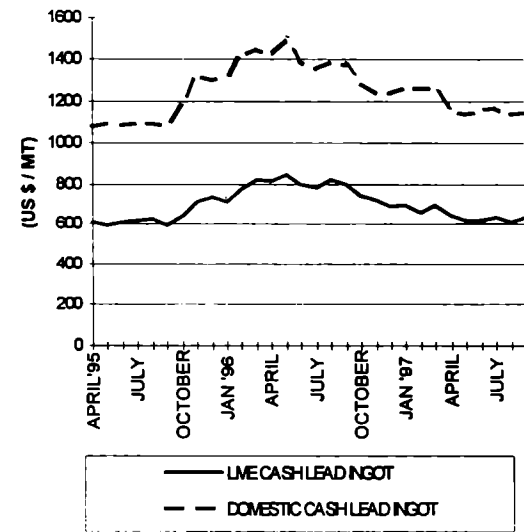
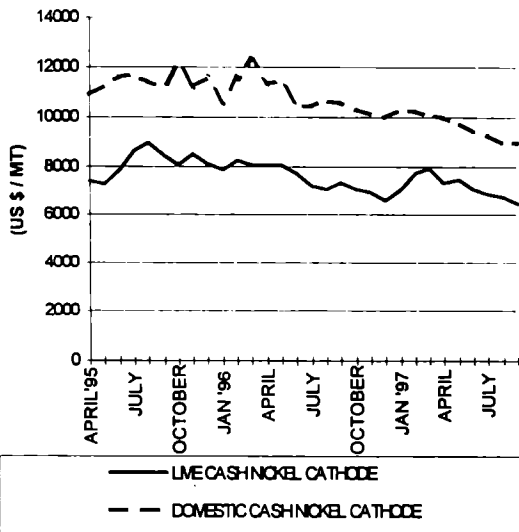
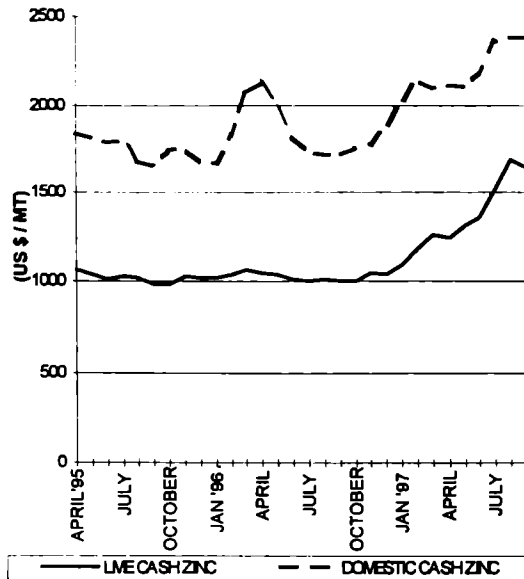
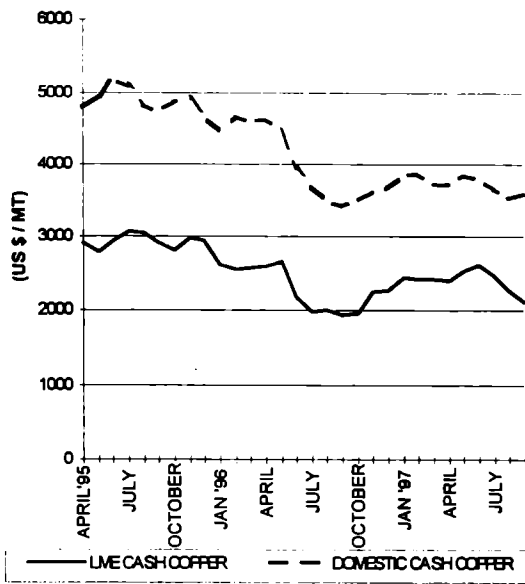
agriculture and related raw materials such as cotton and wool. Likewise, gems and jewellery and engineering exports extensively use metals for their production.

**Text Table 1: India's International Trade in Commodities 1970 – 1996**

<b>ABSOLUTE VALUES</b>					
<b>(IN US DOLLAR MILLION)</b>					
	<b>1970-71</b>	<b>1980-81</b>	<b>1985-86</b>	<b>1990-91</b>	<b>1996-97</b>
<b>I. Exports</b>					
<b>Agriculture and Allied</b>	644	2601	2467	3521	6757
<b>Ores and Minerals</b>	164	523	641	834	1146
<b>Mineral Fuels</b>	17	35	535	528	482
<b>II. Imports</b>					
<b>Food Items</b>	321	481	698		
<b>Metals</b>	352	1682	1583	1792	2574
<b>Mineral Fuels</b>	180	6656	4078	6028	10067
<b>SHARE IN INDIA'S TOTAL FOREIGN TRADE</b>					
<b>(PERCENTAGE)</b>					
	<b>1970-71</b>	<b>1980-81</b>	<b>1985-86</b>	<b>1990-91</b>	<b>1996-97</b>
<b>I. Exports</b>					
<b>Agriculture and Allied</b>	31.7	30.7	27.7	19.4	20.4
<b>Ores and Minerals</b>	8.1	6.2	7.2	4.6	3.5
<b>Mineral Fuels</b>	0.8	0.4	6.0	2.9	1.5
<b>II. Imports</b>					
<b>Food Items</b>	15.6	3.0	4.3		
<b>Metals</b>	17.1	10.6	9.9	7.4	6.7
<b>Mineral Fuels</b>	8.7	41.9	25.4	25.0	26.1

Source: Directorate General of Commercial Intelligence and Statistics.

**Graph 2: Relation between International and Domestic Prices for Selected Commodities**



**Text Table 2: Correlation between the LME and the Domestic Prices (with one-month lag in domestic prices)**

	Correlation Coefficient
Copper	0.896715
Zinc	0.876514
Nickel Cathode	0.767696
Lead Ingot	0.969173
Aluminum Ingot	0.767974

Note : LME - London Metal Exchange.

- (1) All the prices refer to monthly average spot prices.
- (2) Domestic prices relate to prices in the Mumbai markets, except for Nickel Cathode for which prices relate to the Delhi market prices.
- (3) Domestic dollar prices have been derived by using monthly average rupee-US dollar exchange rates to the monthly average rupee price.
- (4) In order to capture the time lag due to transportation, domestic prices have been expressed in one-month lag.

4.5 It has been shown in Graph 1 that world prices of many commodities are characterised by sharp and frequent fluctuations. Further, in spite of the relatively higher rates of tariffs and quantitative restrictions imposed by the country on imports, prices of a large number of primary products in India broadly follow the movements in international prices. This can be observed from the trends in international and domestic prices for selected commodities depicted in Graph 2. The high correlation between these prices reported Text Table 2 also indicates close alignment between Indian and international prices. In the absence of access to commodity derivatives, marked price fluctuations introduce an uncertainty factor which affects the operational efficiency of corporates.

4.6 In recent years, there have been definite moves by the countries to remove impediments to national, regional and international trade. A large number of developing countries have initiated economic liberalisation measures since the late-'seventies and these moves have gathered considerable momentum during the 'eighties and the 'nineties. Formation of regional blocks such as the European Union (EU), the North Atlantic Free Trade Association (NAFTA), the Association of South East Asian Nations (ASEAN) have liberalised regional trade. In order to maintain their international market share, traders are working with small profit margins. Under such a situation, it is essential for them to have a level of certainty about the near future cash-flow and profit positions. It is in this context that access to international derivatives market for commodities becomes crucial for the survival of the entrepreneurs particularly those with marked export- and import-orientation.<sup>22</sup>

4.7 One of the basic objectives of the ongoing economic reform process in the country is to make the Indian producers more efficient and thereby enable them to

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<sup>22</sup> . Even when an entrepreneur is using (either totally or mainly) indigenously produced inputs and selling the products predominantly in the domestic markets, international commodity price movements are likely to affect such an entrepreneur also. This can happen for at least two reasons. In the first place, even with sizable domestic protection, international prices affect the domestic prices. Secondly, in recent times multinational companies are getting increasing access to the domestic markets of developing countries. Since they have the option to use international markets for both procuring a major part of their inputs and selling their outputs, they have the advantage of using the price differentials between domestic and international markets. Further, the parent body of such companies can carry on notional hedging operations overseas for its Indian subsidiary. This would put the Indian company in disadvantageous position. Therefore, while the impact of international price movements would be more

compete in the international market. Sustained and rapid increase in country's export earning remains a *sine qua non* for India to embark into a high growth trajectory. Further, increased access to imported materials remains crucial for export competitiveness and up-gradation of overall production structure in the country. Access of the domestic producers/traders to international derivatives markets for commodities remains important so as to reduce uncertainty about cash-flow and profitability position.

### ***International Commodity Exchanges and Indian Enterprises***

#### **Legal Constraints for Indian Parties to Access the International Futures Exchanges**

4.8 Limitations and restrictions imposed by the FCRA, 1952, is the legal constraint for Indian parties to participate in international commodity exchanges for the purpose of price risk management. It is important to point out that the FCRA, 1952, is applicable for forwards and options contracts with respect to "goods" which for the purpose of the Act means every kind of moveable properties including gold coin and bullion but does not include securities, monies or actionable claims. It should further be pointed out that the provisions of the FCRA, 1952, have intra-territorial jurisdiction, that is they are applicable to contracts executed within the Indian territory. Even so, the locus of the party who is entering into the contract is also crucial for this purpose. If an Indian entity wants to enter into futures and options contracts, *albeit* in offshore commodity exchanges, this has additionally to be consistent with the provisions of the FCRA, 1952.

4.9 Articles 15 and 17 of the Act specify the restrictions that the Government can impose under the Act on forward contracts in commodities. While under Article 15, through a notification Government can ban forward contracts in commodities specified in the notification, a notification issued under Article 17 of the Act can ban forward contracts across-the-board. In the context of options, Article 19 Section IV of the Act has put a blanket prohibition on any such transaction. However, irrespective of other provisions of the FCRA, 1952, Article 27 Section VI of the Act empowers the Central Government to exempt, subject to such conditions as may be specified, any

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direct and more pronounced on export- and import-oriented units domestically oriented units would also get affected by these policies.



contract or class of contracts from operation of all or any of the provisions of the Act. Therefore, through a notification in a Gazette under Article 27 of the FCRA, 1952, the Central Government can allow Indian entities access to offshore futures/options products.

4.10 Apart from FCRA, 1952, provisions of the Foreign Exchange Regulation Act (FERA), 1973, can pose constraints to the Indian parties in their bid to access the international commodity exchanges. However, by issuing of appropriate exemptions/approvals under the FERA, 1973, these impediments can be removed.

#### Other Constraints

4.11 Apart from the legal constraints, there are other type of restraints as well such as domestic administered prices and other price control measures, frameworks related to import licenses, certain quantitative restrictions on exports, etc. which restrict the access of the Indian players to the international commodity exchanges.

4.12 India has administered prices and other price control measures for a number of commodities. For major foodgrains like rice and wheat and certain cash crops like jute, cotton, sugar cane, etc. government provides a procurement/support price. Some of the essential commodities like rice, wheat, sugar, etc. are distributed through public distribution system at subsidised rates. Further, there are certain restrictions on physical movement of various commodities across the states and regions. For a large range of petroleum, oil and lubricant (POL) products India has administered prices. All these measures affect the domestic prices of these commodities and thereby distort the relation between their domestic and international prices. Under such situations, parties which either export these products or source such products through imports cannot fully utilise the facilities offered by the international futures exchanges for the purpose of price risk hedging. Exporters can only lock-in their selling price and importers their purchase price through such hedging exercise. However, because of non-alignment between domestic and international prices, exporters cannot hedge against purchase price risk and importers against selling price risk.<sup>23</sup>

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<sup>23</sup> . If the importer is having monopolistic power in the domestic market, such as in case of most of POL products, the selling price risk can be averted by fixation price at appropriate levels. However, if

4.13 The ongoing reform process in the country has removed many of the price control measures. For example, prices of some of the energy products have been decontrolled. Minimum export prices for most of the commodity exports have been removed. There are indications that more of such measures are on the cards. It is true that till prices of all commodities are decontrolled, international futures commodity exchanges cannot be used optimally by the Indian parties. However, access to such exchanges would enable the exporters and importers to at least guard against fluctuations in either selling or purchase price.

4.14 In India certain types of imports are under the provision of canalisation. There are Restricted Lists of commodities which either cannot be exported/imported at all or can be done only under special licensing norms. Stringency of physical restrictions can adversely affect the use of commodity derivatives in two ways. In the first place, the ability of the Indian exporters and importers to access futures markets would depend on the time spread between issuance of licenses and the actual sale or purchase of the commodity. This introduces the time of issuance of license as an additional constraint for the exporters and importers while taking their purchase, sale and risk management decisions. Further, licensing means a system of rationing and thereby it creates a level of uncertainty about whether a particular licensing application would be granted within a stipulated time frame. Secondly, norms relating to the licensing such as transferability of licenses to the counter-party, the time span for which a license is valid, etc. can adversely affect the perception about counter-party risk. Therefore, prevalence of quantitative restrictions in India on certain commodities can put the Indian foreign traders associated with such commodities in a disadvantageous position in the international futures market. However, it can be observed that the Government has initiated significant steps to reduce the number of items under quantitative restrictions. As regards the remaining restricted items, the approach is to allow relaxation in a phased manner through the special licensing

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the controversy on the rise in administered prices of POL products is a pointer, there are some strong constraints in upward revision of selling prices of such imports as well.

scheme. Implementation of these measures would enhance the effectiveness of the international derivatives instruments for the Indian entrepreneurs.

## Chapter V

### **Hedging by Indian Corporates– An Operational Framework**

#### **Risk Identification and Hedge Rationale**

5.1 Sensitivity of corporates (Importers and Exporters) to price risks is a function of the extent to which they are price-takers and not price-makers (input/output prices being exogenously given), and the extent to which such prices are volatile. Authentic price-risk exists if these three elements are present. If input prices can be controlled by the producer he is not exposed to substantive price risk even if output prices are volatile and exogenously given. Likewise, if output prices can be controlled or manipulated, volatility of input prices does not per se lead to price insecurity. Finally, even if both input/output prices are exogenously given, but are not volatile, it follows that price risk is minimal. On the basis of this approach, it is not difficult to identify Indian Importer/Exporter Groups and others exposed to genuine price risk.

5.2 Given the on-going integration of the Indian economy with the rest of the world, exposure to price risks has been increasing and will continue to increase. Number of Importer and Exporter categories exposed to price-risks and who would therefore like to hedge is on the increase. Importers of base metals form probably the most important constituent of corporates whose cash-flows are significantly vulnerable to price changes. There will be other commodities as well where price-volatility leads to risks. Among exporters, coffee is an agriculture commodity whose volatility is only too well-known. Typically, coffee is bought/sold under medium/long term contracts, leading inevitably to price mismatches. For certain categories of textile exports as well, price mismatches arise and these can adversely impact the sellers' revenues. Price-risk affecting importers of Gold and sellers of Gold jewellery is too well-known to require elaboration. Interestingly, even in our oil sector - currently dominated by Indian Oil Corporation and administered prices - there are emerging pockets (consequential to partial de-canalisation) where Importers have perhaps to contend with price-risks. In fact, progressive deregulation, reduced relevance of price influencing State interventions and the consequential greater role of

market forces, has meant more uncertainty in asset prices. Viewed thus, giving freedom to hedge against price risks is an integral part of the process of economic reform and liberalisation. A firm that is exposed to price-risk can be expected to try and limit the uncertainty factor and thus work towards making costs and profits more predictable. To the extent this objective is achieved there is gain in competitive efficiency. It follows therefore that firms exposed to price-insecurity must necessarily have the choice to hedge or not to hedge. Any ban on hedging, however imposed for whatever reason, would circumscribe that choice and result in efficiency-loss. The group of firms that is deprived of this choice is in a position of competitive disadvantage vis-a-vis groups which have this choice.

5.3 Hedging is thus a legitimate part of corporate risk management strategy. Once this is accepted, we must aim at a logically consistent policy-stance which does not differentiate among different risks, permitting hedging against some types of risks while forbidding hedging against other types of risks. Subject to well-defined parameters, relative freedom has already been given to Indian companies to hedge against risks associated with exchange rates and interest rates. However, with reference to risks arising from the price-volatility affecting certain categories of import-goods and export-goods, companies facing this type of price risk are currently precluded from hedging their exposures by recourse to financial instruments available overseas. Conceptually, if companies can access off-shore financial markets for hedging interest/currency risks, similar access to off-shore derivative products should be permitted to those seeking to reduce commodity price risk.

5.4 It is worthwhile to refer here to what is known as the regulator's dilemma. In seeking to foster development of forwards/futures markets, irrespective of whether these are for commodities, equities or currencies, a fine line has to be drawn between regulation that is too light and that which is too tight. Interests of both hedgers and traders/speculators have to be accommodated. Interdependence between these two sets of players has to be recognised while also recognising their different objectives. If traders/speculators are absent or if they are held on too tight a leash, there will be insufficient liquidity, inefficient price discovery, and hence ineffective hedging. If rules are too loose, the risk is of market manipulations, destabilisation and consequential loss of investor confidence. If rules are too tight, the risk is of poor

liquidity, choking off creativity, and driving business into unregulated markets. These precisely are the concerns and considerations that have been kept in view by the Regulators in India while regulating the development of forward forex markets, equity markets, as also domestic commodity futures markets. It needs to be appreciated, however, that in the specific context of permitting Indian corporates to hedge on off-shore commodity exchanges, most of these concerns are not relevant to the Indian regulating authorities. The development-cum-surveillance of off-shore commodity markets is the responsibility of the regulators in countries where such markets are domiciled, hence our area of concern will not extend beyond ensuring orderly use of select derivative products for the purpose of risk management.

## **Modalities**

5.5 Hedging involves taking on a new risk/exposure that offsets an existing or anticipated risk in some part of the underlying business. Hedge transactions on the international commodity exchanges are designed to protect normal business profits from adverse price fluctuation. It is clear that successful hedging requires that two pre-conditions must be satisfied - (a) the new position assumed on the commodity exchange seeks to address a genuine/authentic underlying risk, and (b) the hedge transaction is correctly executed and monitored. In the event either or both these conditions are not met, hedging will acquire a speculative hue and may in the process increase the firm's exposure to risk. There is some truth in the proposition that hedging is a potentially complex subject based on very simple principles. It would be useful to look at three basic types of Hedge Operations<sup>1</sup> which Indian corporates are likely to use.

### (A) Offset-Hedge

5.6 An offset hedge is the simplest to execute and monitor. It is designed to nullify price risk that has arisen from a physical contract. The physical exposure precedes or is co-terminus with the financial exposure assumed on the futures market. The hedger is thus maintaining a balanced book, each physical transaction being offset by a futures transaction. Profit/Loss on the physical side is counterbalanced or offset by loss/profit on the futures market. The hedger has resultantly fenced-in or protected his 'normal' profit margin. An example will make this clear.

An Aluminium extruder agrees to sell profiles for window frames which will consume 100 tonnes of aluminium. The customer wants delivery in six weeks time. Production lead time is two weeks. The contract to the customer is to be based on today's LME aluminium price. What are the choices available to the producer in executing this contract ? These are - (a) to physically buy metal immediately and store it. This would mean stocks for four weeks have to be financed and held in store for the same period; (b) to wait four weeks and then buy the metal. There is a risk that price may rise - which is acceptable only if the producer operates on cost-plus basis pricing. With increasing competition, buyers may insist on fixed-price contracts; (c) to hedge by taking an opposite position on LME futures. Assume that Day 1 is 15th May, and the following prices prevail on this day.

Cash \$1,291

June 14th \$1,288 = \$3 backwardation (future price less than cash/spot price)

The extruder's position, leaving out the hedge, is as follows:

May 15th Sold 100 tonnes Aluminium @ \$1291 (+production costs) The hedge action is to buy 100 tonnes of aluminium for June 14th @ \$1288. On June 12th, the physical intake of aluminium is priced at the prevailing LME official price. Assuming the price has risen since May 15th to \$1310 per tonne, the unwinding of the hedge will look like this :-

<b>LME</b>	<b>Physical</b>
May 15 Bought 100t (4 lots) for June 14th @ \$1,288/t	Sold 100t aluminium @ \$1,291/t
June 12 (Sold 100t (4 lots) cash @\$1,310/t	Bought 100t aluminium @\$1,310/t
Profit \$22/t	Loss \$19/t

If there had been no hedge, there would have been a loss of \$19/t on the purchase.

It may be seen that the profit of \$3/t is equal to the backwardation prevailing at the time the hedge was placed. Once the hedge is unwound the extruder need do nothing more than fabricate the aluminium, since the pricing operation is completed

and there is no longer any risk.

Suppose the price history was different and that instead of a backwardation a contango prevailed, and that instead of rising, prices fell. With prevailing prices on May 15th looking like this :-

Cash \$1,291

June 14 \$1,295 = \$4 contango and a cash price on June 12th of \$1280

The same scenario as detailed above would unfold as follows :-

<b>LME</b>	<b>Physical</b>
May 15th : Bought 100t (4 lots) for June 14th @ \$1,295/t	Sold 100t aluminium @ \$1,291/t
June 12th: Sold 100t (4 lots) cash @ \$1,280/t	Bought 100t aluminium @ \$1,280/t
Loss \$15/t	Profit \$11/t

The net financial position is a loss of \$4/t on the aluminium purchase against the price quoted for aluminium to the customer.

That loss is equal to the contango prevailing at the time the hedge was placed - and was a known quantity from the outset. If the extruder had not been hedged there would have been a profit of \$11/t - being the amount the market fell between the time of quoting and buying the aluminium.

Clearly the extruder has forfeited an extra profit opportunity. But the reasons for doing so are :

- (1) The extruder is in the business of fabricating, not speculating.
- (2) The effect on the profit was known on day 1 and the extruder was prepared to accept this in order to eliminate the fear of a rising market.

#### (B) Price-Fixing Hedge

5.7 A price fix hedge is essentially an opportunist action designed to lock-in an attractive price-level, either as buyer or as seller. Hedgers are not balancing their



books against physical contracts but are securing (protecting) profits on anticipated business. Prima facie, this may seem speculative, as although the firm enters the futures market at attractive prices, they are presuming these prices will not get better. As against this, it can be said that the firm is removing the speculative element from its business by buying or selling goods at prices that will allow them to make profits given their own business circumstances.

The difference between the above two types of hedging, on account of differing implications for risk management and internal controls, is rather important. An example will help to make this clear. Assume a producer who uses zinc (a Galvaniser) and has part of his production capacity for the coming year unsold against long term contracts i.e., part of future sales are not tied-up. However, he considers the forward prices for zinc (on the commodity market i.e., London Metal Exchange) to be attractive and is worried that in case the price of zinc goes up during the coming year, this could cut into profits or force him to raise prices. By buying zinc futures on LME, he can protect himself against anticipated rises. But there is an element of risk here which is not present in the first type of hedge. It is assumed that the level of estimated operation or capacity utilisation will be achieved. There could be shortfall in orders and this will leave the galvaniser with an open position on LME to be closed out by a sell-back with no physical offset. This risk arises from the danger of being overhedged. A second aspect of Price-Fixing hedge is that by hedge-buying the raw materials (as in this example) the galvaniser has in effect locked in a selling price. If there is a fall in zinc price, then the galvanizer's selling prices may become less attractive than a competitor's. The galvaniser may then choose to hedge only a percentage of future purchases in order to retain some flexibility in the pricing structure. Companies will have to frame definite policies on the matter of overhedging or underhedging as both are a form of speculation, and clear procedures have to be laid down as to how to get out of the situation. If the firm is overhedged, it should perhaps get out of the overhedge as fast as possible, even if the market is currently moving in the firm's favour.

5.8 The above example underscores the important point that there is often a thin dividing line between hedging and speculation. Situation of over/under hedging can arise if hedging is not on the basis of actual or crystallised physical exposures but on

the basis of anticipated or presumptive physical exposures. 'Spread trading' in futures is a variant of price-fixing hedge. This can be described as the simultaneous purchase and sale of futures contracts with the intention of profiting from a rise/fall in prices but at the same time limiting the potential loss if this expectation is wrong. In a contango situation (rising market), this is accomplished by buying the nearby delivery and selling the deferred. In a backwardation situation (declining market), this can be accomplished by selling the nearby delivery and buying the deferred. A simple example will clarify :-

**Example (A): Copper**

Without Spread Trading	When spread trading is not used in advance with backwardation at time of starting physical transaction.
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Day	Physical	LME
Day 1	No transaction	No transaction (No spread trading) Market is in contango of \$40(3-M to 6-M)
3-Month Day 90	Buy at Spot \$2500/MT	Sell 3-Month forward at \$2500-100 = \$2400/MT (\$100 being backwardation)
6-Month Day 180	Sell at spot \$2000/MT	Buy at spot \$2000/MT
	Loss = \$500/MT	Profit = \$400/MT
	Net Loss = \$100/MT = Loss of backwardation	

This loss could be eliminated through spread trading on Day 1 when market was in contango.

## Example (B) : Copper

### Example (with spread trading)

Day	Physical	LME
Day 1	No transaction	<u>Spread Trading</u> Buy copper 3-Month forward at \$2300/MT Sell 6-Months forward at \$2340/MT (Contango \$40)
3-Month Day 90	Buy at spot 2500/MT	Sell copper cash at \$2500/MT (whatever may be market structure contango or backwardation)
6-Month	Sell at spot \$2000/MT Loss = \$500/MT	Buy at spot \$2000/MT Profit = (2500-2300)+(2340-2000) = 200 + 340 = \$540/MT
	Net Profit = \$540-500 = \$40/MT - Profit of contango locked in on day 1.	

To sum up, there can be categories of Importers/Exporters who find it either necessary or would prefer to hedge on the basis of anticipated physical exposures. So long as anticipated physical exposure-levels appear prima facie to be reasonable, it would be unduly restrictive to bar the concerned firms from price fixing hedge operations.

### (C) Options

5.9 In contrast to Futures, Forwards or Swaps, all of which entail an obligation to perform, an option gives the Purchaser the right, should it be his advantage, to buy or sell at the given strike price, at some time in the future, depending on whether a Call or a Put Option was purchased. Since a Right is being purchased by the Option-Buyer, he has to pay a premium to the Option-Seller. The premium or the value of the contract is determined by - (i) strike price vs. the current market price, (ii) the declaration date, (iii) interest rates and (iv) the option supply/demand factor.

5.10 Option trading is sometimes viewed with scepticism as being a high risk venture. This need not be so, provided risk management is developed as a core skill by the user-firms and there are adequate internal control systems that enable Managers to know instantly that risk management strategy decided at the top is in fact being implemented - so that what is described as hedging is not in fact speculation. It is true that Options possess an element of flexibility which straight futures hedge do not have - which is why an up-front price has to be paid. However, it is important to note that the superior flexibility of options in commodity hedging lies in enabling the user to capitalise on profitable market movements. In other words, for risk-reduction per se, options do not provide protection that is superior to futures : the advantage of the former is that the potential increase in profit is not forfeited. The distinctive features of these two instruments i.e., Options and Futures, may be set out very briefly as under:

- (i) If focus (to start with) is only on risk-reduction, then futures are no less efficient than options;
- (ii) Futures contracts have an important collateral advantage of prudential nature inasmuch as credit limits have to be negotiated by the user with Brokerage firms operating on the Exchange. This involves, (a) independent appraisal of user - firm's credit worthiness, (b) computation of credit limit in relation to the firm's risk management strategy. An exercise of this type serves an important cross verification control function, both for the company's Management and regulatory authorities because credit limits can<sup>1</sup> be matched with underlying physicals.
- (iii) In the immediate run, options is a relatively 'costlier' instrument because the buyer retains the right to make a profit from favourable price movement, while protecting his downside, and for that privilege an upfront price has to be paid to the option-seller.
- (iv) Options provide the Buyer with greater opportunity to take a 'view' on future market prices - subjective assessment will play a role in the selection of strike price.
- (v) Options are somewhat more complex than Futures contracts; and need to be

thoroughly understood by end-user.

5.11 To sum up, there seems to be a clear justification on balance for regulatory focus to remain firmly fixed on helping Indian corporates with authentic price exposures to achieve risk-reduction, and NOT potential price participation with a view to making extra profits. This need be so only for the initial period of about one year or so. In due course, as corporates develop core risk management skills, acquire some experience and in-house expertise, they can be permitted access to a more sophisticated hedging strategy combining use of futures and options. To start with, the Indian user could make a beginning with a simple, relatively inexpensive, hedging strategy relying on standard futures contracts on reputed exchanges aimed only at risk-reduction.

5.12 Future contracts on International Commodity Exchange have the following features :-

- (a) Contracts are standardised with reference to quantity, quality and settlement,
- (b) Financial performance/due settlement among clearing members is guaranteed by the Exchange. In particular, there is minimal counterparty risk and transactional simplicity if the user opens account with a firm of Brokers which is a clearing member, and establishes 'execution only' facilities with other Exchange clearing members.
- (c) Trading rules are governed by the Exchange. Among the more important Exchange rules and regulations are those governing position and price limits, margin requirements and delivery procedures. These rules and regulations allow the Exchange to maintain fair and orderly markets. Enforcement rests with the Exchange's compliance department, which performs three functions. Trade surveillance focusses on floor trading activity; market surveillance reviews large trader data and surveys physical activity in the various contract markets; financial surveillance monitors the fiscal suitability of participants in the Exchange's markets and conducts periodic audits of certain member firms.

5.13 None of the above features apply to non-standardised over-the-counter contracts. Futures contracts on Exchanges are additionally easy to transact, reflect

widely disseminated transparent prices, cost of participation is low and there is assured convenience of moving in and out of market. Against the above background, the initial access of Indian users can be limited to standard futures contracts issued by brokerage firms which must be clearing members of the Exchange. The prudential advantages that accrue from the requirement are; firstly, user's contractual obligations will be with financially sound counterparties and secondly, there will be transactional simplicity. A brokerage firm that is a clearing member of a Commodities Exchange has to meet stricter financial requirements than those applicable to non-clearing brokers, and are subject to capital-based position limits in the Exchange's contract markets. Clearing members accept primary financial responsibility for all trades cleared through them, and ultimately share secondary responsibility for the liquidity of exchange clearing operations.

5.14 In the foregoing paragraphs, discussion has centered around Exchange-traded risk management products. As stated, these have advantages of standardisation, liquidity, simplicity and transparency. OTC (Over The Counter) instruments are customised products structured by the seller to take care of the buyer's requirements. These are principal to principal contracts and hence counterparty credit risk is present. By their very nature/structure, OTC products are more flexible and can be tailored to suit the Buyer's precise risk configuration - which means that basis risks can be eliminated to an extent which may not be possible for exchange traded products. Being non-standardised, efficient and risk free use of OTC products is predicated upon the user-firm possessing a measure of sophisticated understanding of the product and the nature of risk cover it affords.

5.15 It would be wrong to assume that in every risk management situation OTC and exchange traded products are perfect substitutes. For certain types of commodity price risks, effective hedging may not be possible with the help of exchange traded instruments. For instance, price risks associated with crude oil and oil products are currently hedged by recourse to OTC as also exchange traded instruments. But Asian energy markets currently lack liquid exchange based contracts. Resultantly, most crude and products derivatives in Asia are traded on OTC basis.

5.16 A practical cum prudent approach would appear to suggest that, during the

initial phase, user-firms should ordinarily be permitted access to exchange traded risk management products, while OTC products can be availed of where either exchange traded products are not available or efficient hedging is demonstrably not possible if reliance is solely on exchange traded products. However, the relative OTC markets must necessarily have some depth, liquidity, transparency and equitable access. During this phase, use of OTC products can be restricted to vanilla swaps. OTC-options can be permitted in Phase-II.

### **Hedging Costs and Exchange Control**

5.17 From the exchange control angle, the following items constitute the 'cost' of hedging and will have to be permitted:

- (a) Initial margin, paid at the time the hedge is placed,
- (b) Maintenance or variation margin, paid if necessary during the life of the contract in accordance with marked-to-market valuations. Initial margins/variation margins are often covered by Bank Guarantees/LCs - to that extent there may be no upfront forex outflow. Moreover, as per normal trade practice, Brokers extend credit facilities to their clients (which may or may not be fully backed by Bank Guarantees/LCs) taking into account the volume of business, client's credit rating and country-risk.
- (c) Commission (Brokerage etc.) and transaction costs,
- (d) 'Loss'; on closing out the futures contract on the settlement date. There can be either 'loss' (outflow) or 'profit' (inflow) on settlement - however, if the hedge has been correctly executed, losses/profits on futures will be offset by profits/losses on the physical side. The hedging strategy is evaluated not by looking at futures position in isolation but in conjunction with the physical positions. The above payments as also issuance of BGs etc. by banks in India will have to be permitted as an integral part of hedging by Indian users on International Commodity Exchanges.

### ***Structure of Exchanges and Trading Risks***

5.18 Trades in international commodity exchanges are influenced and driven by three parties:- (1) the Exchange (2) the Regulators and (3) Users. The Exchange

provides the tools for the client's business while additionally enforcing rules/regulations to ensure orderly use thereof, and it is the Regulator's role to make sure that the Exchange and brokerage community act within the scope of their responsibilities, that their dealings are above board and they comply with regulations. It is plain that where hedging is conducted on off-shore commodity Exchanges, the Indian regulatory authorities have no role of any nature vis-a-vis these Exchanges which function under the jurisdictional authority of their own regulators. How trade is conducted on such Exchanges and how it is overseen cannot be queried or become a matter of enquiry by India or any third country regulator. The latter of course has the 'negative' right to 'not participate' i.e., forbid access to the domestic users.

5.19 Before focussing on the most important party i.e., the Indian end-user of the market, it is pertinent to mention that while most users of derivatives no doubt achieve their objectives, whether by hedging exposures successfully or trading profitably, it is also true that some of the users have learnt to their cost that derivatives can and do generate high losses. When measured against the enormous volume of business undertaken in derivatives worldwide, these losses have been comparatively few in number. The fact remains, however, that the size of the losses have been unacceptably high and in some cases, unforeseen. Among factors which have commonly contributed to these losses are excessive position taking in high risk instruments, ineffective internal risk management procedures and operational controls, inadequacies in corporate policy regarding use of derivatives and, not least, insufficient understanding of the nature and risks of derivatives.

5.20 Some conclusions can be drawn and these need to be carefully noted :-

- (a) The 'Negligence' factor or the rogue trader phenomenon - a lone trader runs up unauthorised positions and hides them; eventual liquidation of positions inflicts heavy losses. This happens when internal controls are lax and the company management either does not understand derivatives or does not monitor their use or does not bother to ask the right questions,
- (b) The 'Greed' factor - many companies and financial houses come to rely on derivatives and proprietary trading for a significant proportion of their profits. There is always a risk of straying into an area where top managements and



supervisors simply do not understand what they are dealing in.

- (c) The 'Creativity' factor - There is a temptation, in respect of OTC products in particular, to use sophisticated instruments. The basic purpose of instrument may well be to achieve risk-reduction. However, the value of a derivative is based on a number of assumptions and there is scope here for subjective valuation and creativity. If suppositions involved in valuation do not hold good, consequences can be disastrous. This underscores the dangers of straying from the use of plain vanilla products without thorough understanding.

5.21 There is no clear-cut single answer or remedy. Indeed, despite markedly increased awareness today about the need to exercise constant vigil, occurrence of such mistakes in future cannot be ruled out. But about one thing there is unanimity; senior managements need to know a lot more about the risks that their dealers/traders are taking and need to take pains to see that effective internal controls are in position and in use, on an on-going basis.

5.22 At the slight risk of oversimplification, it can be stated that the recent record of the use of futures and options - from 1970's onwards - suggests that while in the main there have proved to be powerful tools to manage risks (for hedgers) and to generate trading profits (for profit-seekers/traders), it is equally clear that there does exist an imbalance between the development/availability of such fairly sophisticated instruments and the capacity of end-users to fully understand and employ the same without collateral financial damage. This imbalance has been gradually narrowing in the west, in part because of the growing experience of corporates, lessons drawn from past losses, better understanding of risk management and internal control techniques together with higher standards in accounts and risk evaluation. This finds reflection also in the realisation that in-depth multi-layered participation of boards of directors is a sine qua non for successful hedging.

5.23 It is against this backdrop that we have to revert to the prospective end-user in India. It is only recognising the obvious to say that during the initial 'transitional' period, the aforesaid imbalance in respect of the Indian-user (wholly new to this type of activity) could prove to be a source of concern. Given this context, it does not

seem appropriate to opt for an approach that wholly dispenses with any form or type of 'ex-ante' scrutiny and relies upon corporates to formulate, implement, and oversee prudent hedge strategies. Even if some general parameters of operational nature could be set-out for the guidance of end-users (there is anyhow an abundance of information on commodity hedging and concomitant safeguards which can be readily accessed) it would not be advisable to assume that Indian corporates interested in hedging overseas will be either sufficiently knowledgeable or sufficiently careful. Indeed, it is not unlikely that many corporates may have only impressionistic estimates of the underlying risk and no clear strategy of how to hedge and how to exercise control. It seems prudent to proceed on the premise that a brief period of transition/acclimatisation is necessary wherein the company boards and senior managements get an opportunity to internalise risk management techniques.

5.24 Some related considerations too are pertinent. As has also been emphasised elsewhere in the Report, empirical data is available to show that near-term volatility is far more in commodity prices than in financial assets. While, on the one hand, this reinforces the rationale for hedging against commodity price risk; on the other hand, this means that potential losses can be far more if negligent or unauthorised trading takes place in commodity markets, as compared to currency markets. This is borne out in terms of actual experience. There is also greater opportunity and incentive to 'play' the commodity markets in order to realise extra profits: correspondingly, there is greater need for boards of directors and senior managements to play a substantive supervisory role by laying down very clear hedge policies and exercising strict surveillance. An extremely significant point that has to be taken note of is that, in forward currency markets, the counterparts for Indian corporates are Indian banks. The latter act in the dual capacity of counterparts Authorised Dealers. Indian banks are thus well-placed to ensure that the corporates seek to cover only genuine underlying exposures. Even otherwise, forward forex contracts are the simplest and most standardised of all such products. In commodity trading, Indian banks/ADs would have virtually no role to play - beyond acting as conduits for outflow/inflow of forex representing costs/losses/profits arising from hedge operations. Irrespective of whether commodity price hedging is by means of exchange-traded instruments or OTC products, there will be principal to principal contracts between Indian users and off-shore entities, and the

latter are not directly concerned about the nature of the underlying.

5.25 A quick comparison with the hedge-modalities of foreign currency loan exposures also provides interesting insight. Again, ADs have a more direct role to play in offering hedge products, and even when transactions are booked off-shore these may usually be with branches/offices of the concerned AD; it is also extremely easy to ensure the existence of the underlying by referring to the loan-approval of GOI/RBI. Finally, as is obvious, the number of such hedge transactions per-corporate and per-FCL would be very small in number. As against this, hedging commodity price risk would be an on-going process so long as actual or anticipated physical exposures continue. Formulating and overseeing a successful commodity risk management strategy therefore calls for considerably greater understanding and care on the part of the end-users.

5.26 Considerations detailed in the foregoing paragraphs provide the substantive rationale for hedge-freedom to be given to Indian end-users in two distinct Phases; Phase-I, which can be for one year (up to end 1998), and Phase-II commencing from the January 1999. Phase-I, the period of acclimitisation, has to provide for a modicum of regulatory oversight to see that genuine underlying exists, the proposed hedge instruments are appropriate in relation to the stated objectives, and risk management process is/will be in place. We may emphasise here that the regulatory input in Phase-I will be neither intrusive nor transaction-specific. Indeed, transaction-specific oversight is simply out of the question. Regulatory sights have to be set at modest levels, and the scope of regulatory input during Phase-I can be said to consist of - (i) a simple diligence exercise at pre-eligibility stage to see that the concerned corporate has authentic underlying exposure, (a format as per Annex B spells out the information under different heads which may require to be submitted), a clear-cut Board-approved risk management policy has been formulated, and the corporate is prepared to put in place a well-designed system of internal controls and ensure periodic oversight by the Company Board on an on-going basis, (ii) periodic scrutiny of actual hedge operations based principally on Review reports put up to the Board, supplemented by Chartered Accountant Certificates about the adequacy or otherwise of the company's internal controls and accounting systems.

5.27 During Phase-II, stage (i) can be dispensed with, while stage (ii) can continue which consists only of periodic ex-post scrutiny of actual hedge-operations. During Phase-I, corporates can be permitted access to exchange traded futures and select commodity OTC derivatives, if warranted. Exchange-traded options and select commodity OTC options can be permitted in Phase-II.

***Overview of Operational and Control Issues***

5.28 The easiest part of a Hedge strategy is the decision to hedge; effective operationalisation is far more difficult and can tax the capabilities of even well-managed corporates. Indian commercial entities, being late entrants, will have the inestimable advantage of drawing upon the documented experience of companies in other countries which have learnt by a process of trial and error - with accompanying losses. Some of the leading Commodity and Financial Futures Exchanges too have made active efforts to develop practical Guides to the system of controls appropriate for hedge transactions. The commendable objective being to build up the confidence - levels of market participants.

5.29 Most of the practical Guides/Programmes have emphasised the need to - (a) keep track of the adequacy of accounting systems and procedures to record, summarise and report the results of hedging operations, (b) monitor the financial statement effects of realised and unrealised gains and losses, (c) determine the extent to which internal operational and accounting controls can be relied upon to prevent unauthorised trading.

5.30 It is extremely important for boards of directors (or its equivalent) the senior management to be actively involved in hedge operations and to accept in writing certain specific responsibilities in connection therewith.

5.31 The responsibility content can be briefly described as under :-

- (A) The board of directors (or its equivalent) should establish and approve an effective policy for the use of derivatives which is consistent with the strategy, commercial objectives and risk appetite of the organisation and should approve the instruments to be used, and how they are to be used,
- (B) Senior management should establish clear written procedures for

implementing the derivatives policy set by the Board, covering such matters as dealing authority, reporting lines, risk limits, counterparty and documentation approvals and valuation procedures, and should regularly review their operation and effectiveness under report to the board of directors.

- (C) Senior management to ensure that derivative activities are properly supervised and are subject to an effective framework of internal controls and audits to ensure that transactions are in compliance with both external regulations (including the capacity to enter into such transactions) and internal policy (including procedures for the execution, confirmation recording, processing and settlement of transactions).
- (D) Senior management should establish a sound risk management function - a framework of reporting, monitoring and controlling all aspects of risk, valuing exposures, assessing performance, monitoring, enforcing position and other limits, stress testing and contingency planning.
- (E) Procedures should be in place to provide for a full analysis of credit risk to which organisation is exposed.

5.32 The above are the five core principles for managing derivatives risk, and practical steps have to be taken by corporates interested in hedging their price exposures.

5.33 Some further details about control issues are given in Annex A. These guidelines have been culled from the Futures and Options Association (1995) *Managing Derivatives Risk*, United Kingdom, (December). A simple format on the basis of which Indian companies can apply for approval to hedge commodity risk (during Phase-I) has also been prepared and is furnished in Annex - B.

## **Annex - A**

### **Guidelines for End-Users - Some Suggestions**

#### **The Role of the Board of Directors**

A.1 The board of directors (or the ultimate decision making body in a non-corporate organisation) is responsible for ensuring that the organisation has the requisite power to use derivatives. It should approve the use of derivatives and determine the overall objectives for their use consistent with the level of expertise and financial position of the organisation. Such approval should take place in advance of derivative transactions being executed for the first time. The objectives should :

- be consistent with the strategy, commercial objectives and risk appetite of the underlying business;
- include a list of the types of derivatives approved by the board of directors for use by the organisation;
- identify and measure the risks to be managed, modified or created by the use of derivatives and specify why and how particular types of derivatives are to be used; and
- take into account any applicable legal or regulatory constraints.

The board of directors should review the objectives. It should approve detailed policies and procedures to ensure that the objectives are being complied with. It should also approve overall and specific limits for derivatives use.

#### ***Involvement***

A.2 In many organisations, the majority of the members of the board of directors may not have a detailed understanding of derivatives but, at a minimum, the board of directors must be responsible for approving the objectives and internal controls to be adopted by the organisation in using derivatives. This will help ensure that board policy is directing the use of derivatives in a way consistent with the strategy, commercial objectives and appetite for risk of the underlying business.

A.3 While an individual director may have a good understanding of derivatives, approval for the use of derivatives should be a matter for the board as a whole. It may be desirable for a sub-committee, or at least two individual directors, to be nominated as being responsible for monitoring and reporting to the board on risk exposure and derivative activity. Any such delegation should be reviewed on a regular basis. If the board of directors has insufficient knowledge of derivatives, then the nature and risks of derivatives being used should be fully explained. In such circumstances the range of approved transactions should be restricted to those whose risks are properly appreciated by the board of directors.

### ***Training***

A.4 Appropriate training and education programmes aimed at increasing awareness of the risks associated with derivatives should be made available for the board of directors as a whole before derivatives are used and as derivatives of greater complexity are considered. At a minimum, individual directors or the sub-committee nominated as being responsible for derivative activity should undergo appropriate training in derivatives and the fundamentals of risk management. As a practical matter, such training should focus on enabling directors to understand risk management concepts rather than gaining a detailed understanding of particular derivative products. The board of directors should ensure that senior management and key personnel are suitably trained (and, where appropriate, qualified) and that ongoing training is given as necessary. Members of senior management who are directly responsible for the use of derivatives must be sufficiently knowledgeable as to be able to control the transactions adequately, ensuring that derivatives are only used in an approved manner and that risks are properly monitored.

### ***Analysis of risk***

A.5 The board of directors should approve the use of derivatives on the basis of a full analysis of the risks. The objective of such an analysis is to ensure that the board of directors is fully aware of any adverse effects which could result from each use of a derivative. The analysis should identify all of the risks and should be reviewed independently to those responsible for using derivatives. Controls and procedures should be in place to mitigate, limit and monitor the risks identified. The analysis of

risks should be regularly reviewed and updated.

### ***Purpose and usage of derivatives***

A.6 An organisation may enter into transactions to manage its exposure to market risk, usually referred to as hedging. However, only some of these transactions will result in a reduction in that risk and others, while often considered to be hedging transactions, may only modify the organisation's risk exposure. For example, an interest rate swap transaction which, in effect, converts a fixed rate obligation into a floating rate obligation does not reduce the organisation's exposure to interest rate risk but merely modifies its exposure to interest rates. Some positions undertaken to hedge potential exposure can create risk and it is vital to understand exactly what risks are being taken when hedging. For example, where anticipated transactions are being hedged (such as anticipated sales/purchases), what level of exposure is being created if some or all of the anticipated transactions do not materialise?

### ***Reporting and internal control systems***

A.7 The board of directors must ensure that the reporting and internal control systems of the organisation are such that they can monitor that derivatives are being used in accordance with the stated objectives and strategy and, where applicable, legal and regulatory requirements. While detailed day-to-day monitoring can be delegated to senior management, the board of directors must receive regular information on risk exposure and derivative usage in a form which is understood by them and which permits them to make informed judgements as to the level of risk. The board of directors must ensure that the internal controls include an adequate division of responsibilities between execution, confirmation and settlement of transactions. Where transactions are proposed to be entered into for hedging purposes, the board of directors must ensure that the underlying instrument or commodity whose exposure to price movements is being hedged is identified.

### ***Suggested Action Points***

- Before any derivative transactions are entered into the board of directors should review the proposed purpose and use of derivatives to ensure that :
  - the organisation has the power to use derivatives;
  - they are consistent with management capabilities, financial position,



strategy, commercial objectives and appetite for risk of the underlying business;

- there is an approved list of derivatives (including the purposes for their use);
  - senior management have developed, documented and the board of directors has approved appropriate policies and control procedures; and
  - the risks and rewards have been assessed, documented and reviewed by persons independent of those responsible for using derivatives.
- The board of directors should consider establishing a sub-committee of the board or nominating two or more individual directors to be responsible for derivatives.
  - The board of directors should establish a method for the regular review of actual derivative usage against the documentation described in the first action point above.
  - The board of directors should ensure that the management information presented to it is in a form that is readily understandable, complete and a sound basis from which to make informed judgements.
  - The board of directors should consider whether there is a requirement for its own education (for example, training courses, presentations). It should ensure that key personnel are adequately trained on an ongoing basis in order to keep up to date with market developments.
  - The board of directors should review its existing remuneration policies to ensure that they are consistent with the purpose for which derivatives are used by the organisation.

## **Policies and Procedures**

A.8 Senior management should establish clear written policies and procedures relating to the use of derivatives, consistent with the objectives determined by the board of directors, and should regularly review their operation and effectiveness. The policies and procedures should also be consistent with and, as far as practicable, form part of the organisation's standard policies and procedures. The policy document

should assign clear responsibility for the use and control of derivatives and should be approved by the board of directors, who will retain ultimate responsibility for the operation of the policies and procedures.

A.9 While the content of policies and procedures will be different for each organisation, at a minimum the following areas should be included.

- Overall reasons for the use of derivatives
- Purpose for which particular types of derivatives are to be used.
- Procedures for seeking approval for the usage of new types of derivatives
- Details of who is authorised to negotiate, approve, execute and review account and transaction documentation and within what limits
- Details of who is authorised to enter into derivative transactions
- Procedures for management oversight and supervision of activities, including a description of the continuing role of the board of directors.
- Limit structure covering both market and credit risk
- How transactions are to be valued and by whom
- Accounting policies and taxation considerations.

***Suggested Action Points***

- Appoint senior manager to be responsible for developing policies and procedures.
- Prepare a matrix of how and in what circumstances derivatives can be used.
- Design and document limits for market and credit risk which are consistent with the commercial objectives of the organisation.
- Determine a policy for obtaining valuations of derivative transactions (including who should supply valuations and the frequency of valuation).
- Clarify any relationships with providers of valuations and, in particular, understand and document the basis on which the valuations are requested.
- Design and document procedures for the authorisation of new products to include analysis of risk as well as all relevant approvals.

- Design and document procedures for approving brokers or counterparties to be used.
- Ensure that accounting policies have been properly thought through and that they have been fully documented.
- Ensure that all the taxation implications of derivatives have been considered.

### **Supervision of Activities**

A.10 Senior management should ensure that derivative activities are properly supervised and that transactions have been entered into only in accordance with the organisation's authorised policies and procedures.

A.11 In order to ensure that activities are properly supervised, it will be necessary for both those authorised to enter into transactions and those responsible for recording and controlling transactions to be suitably experienced. As with all transactions, internal controls will be required and, in particular, proper segregation of duties between different functions. In the case of derivative transactions, it will be particularly important to ensure that procedures for recording and confirmation of transactions are properly established together with appropriate risk management procedures. Procedures and controls should be subject to regular review as well as appropriate tests by internal and external audit and, in a regulated organisation, by the compliance function.

#### ***Professional expertise***

A.12 If derivative activities are to be properly supervised, it is important to ensure that those involved (including those who transact and manage the risks as well as their supervisors and those responsible for assessing, reporting, controlling and auditing the activity) are appropriately trained and have the appropriate degree of knowledge. This is consistent with G30's recommendations which note that "derivative support functions are technical and generally require a level of expertise higher than for other financial instruments or activities".

A.13 G30's recommendations also note that there is a danger in relying on a few specialists and that it is essential for managers to understand not only derivatives but the broader business context. The level of expertise of the managers and supervisors

should, therefore, be regularly reviewed by the board of directors (or a sub-committee) to satisfy themselves that there is no undue reliance on a few specialists, or even a sole specialist.

### ***Internal controls***

A.14 Detailed internal control procedures should be designed and implemented for derivative activities. While the extent and nature of internal controls adopted by each organisation will be different, the following should be considered and, if appropriate, should be implemented:

- Controls over deal tickets to ensure that each is properly prepared, time stamped and included in the trading and accounting records, possibly by the use of prenumbered tickets.
- Audible recording or telephone conversations of those persons engaged in executing derivative transactions.
- Reconciliations between any trading system and the settlements and accounting systems. These reconciliations should be carried out at an appropriate intervals which will depend on the level of derivative activity. As a guide, organisations which actively use derivatives should carry out reconciliations daily.
- Procedures to ensure that restrictions (if any) on the power of both parties to enter into any particular derivative transaction are observed. To achieve this, it is essential that there is close and regular communication with those responsible for legal and documentation issues in the organisation.
- Procedures to ensure that both parties to the transaction agree with the terms of the deal. In the case of derivative transactions, it is important that confirmations are sent, received and checked for each transaction as quickly as is practicable. Many transactions will not result in any cash movements for some time and, if confirmation procedures are weak, it may be some considerable time before discrepancies are identified. It is important that procedures for promptly sending, receiving and matching confirmations should be entirely independent of the dealing function. There should be procedures to deal with difference arising from confirmations and follow up of discrepancies and missing items.

- Procedures to insure reconciliation of positions reported by brokers carrying exchange-traded positions.
- The use of standard settlement instructions. These should be used whenever possible. Settlement instructions should be confirmed prior to payment. There should be procedures to ensure that any changes to standard settlement instructions are properly verified.
- Procedures to ensure that late payments or late receipts properly identified and follow up.
- A requirement that at least two authorised individuals should be required to initiate any payment (subject to de minimis limits). Any payments to third parties should be separately authorised.
- Procedures to ensure that any resetting of rates or prices is checked.
- The preparation of bank reconciliations on a frequent basis independent of those involved in the settlement and trading process.
- Procedures to monitor any derivative transaction which requires specific action (such as exercise of an option) or which contemplates delivery of an underlying instrument or commodity so as to ensure that the transaction will either be closed out or that the organisation will be in a position to make or take delivery.

***Reporting on and monitoring derivatives activity***

A.15 There should be regular and timely reports produced of derivative activity covering the following areas:

- commentary on derivative activity in the period and the relevant period end position;
- details of the positions and, if relevant, underlying transactions being hedged, by type of product;
- an analysis of credit exposures by counterparty taking into account, where appropriate, the mark to market value of derivatives;
- details of any regulatory or internal limits breached in the period and actions taken in the relation thereto;

□ details of likely future activity, particularly in relation to hedging and anticipated transactions.

A.16 Reporting should be prepared in a manner which can be understood by the intended recipient. They should not be highly technical, should explain the position in clearly understandable terms and include quantitative and qualitative information. Reports regarding exposures and positions should be produced on at least a daily basis for senior management purposes and upward reporting information should be prepared on at least a monthly basis for the board of directors or the sub-committee (or the relevant directors) responsible for derivatives. The reports should be prepared or checked by competent persons not involved in derivative dealing.

A.17 There should be specifically designated personnel responsible for supervising the day-to-day transaction of derivative activity. These supervisors should as far as possible be located physically alongside those responsible for such transactions but should not execute derivative transactions themselves.

#### ***System approval***

A.18 Computer systems used for recording derivative transactions should be subject to the same procedures and controls as for other systems used by the organisation (including contingency plans and back up). In particular, the pricing models and trade recording systems should be properly controlled to ensure that only authorised amendments or overrides are made. Derivative systems should be reviewed to ensure that they integrate properly into the organisation's normal reporting systems, that they are sufficiently robust to be able to continue to operate as the number of transactions increases, and that they comply with any applicable regulatory requirements.

#### ***Role of external or internal audit and compliance***

A.19 Derivative operations should be subject to periodic reviews by the organisation's internal audit function (or if such a function does not exist, an appropriately qualified external professional). The frequency of such reviews will depend upon the nature of the activities and, in particular, the complexity of products used, the number of derivative transactions and the speed with which new products are used. In a regulated organisation, the compliance function should also periodically review derivative operations to ensure compliance with the organisation's regulatory

obligations.

A.20 The board should ensure that internal audit and compliance are staffed with personnel with sufficient skill and expertise to undertake reviews. Internal audit and compliance should develop appropriate procedures and programmes of work to cover derivative operations. In the case of internal audit, the work should at least cover documentation, the operation of limits, processing of transactions, payments and receipts with counterparties, valuation of position, accounting and taxation. The work should also include a review of the credit procedure, credit limits and the operation of the credit limit policy. It may be useful to obtain a quality control check by outside auditors of the adequacy of the internal audit function.

#### ***Suggested Action Points***

- Review the level of derivative expertise in the organisation to ensure that there is no undue reliance on a few specialists.
- Carry out an independent review of the internal controls operated to ensure that they comply with best practice.
- Review management reports on derivatives to ensure that they are distributed to the appropriate senior managers/directors on a timely basis and contain relevant, reliable and comprehensible information.
- Examine computer systems to ensure that they are adequate and robust and have been independently reviewed and that controls over the amendments to programmes in adequate.
- Establish/enhance internal audit function (and, where relevant, compliance function) or arrange for audits by external professionals.

#### **Risk Management Organisation**

A.21 A formal organisational structure should be established to monitor and manage the risk inherent in any investment activity undertaken by the organisation. Risks arising from the use of derivatives should be monitored and managed in an integrated manner with the risks of a similar kind that arise out of an organisation's non-derivative activity. The precise organisational structure established to deal with risk

management will vary from organisation to organisation depending on the volume and complexity of the activity and whether the organisation is engaged in derivatives trading for its own account (for example, a financial institution) or is simply hedging an underlying risk exposure. However, it is that each organisation has the ability to monitor risks independently of the people responsible for managing and taking those risks. The organisational structure should assign to appropriate staff clear responsibilities for monitoring and managing all aspects of risks.

### ***Types of risks***

A.22 The types of risk requiring monitoring and managing in the course of using derivatives typically include the following, many of which would also arise from other investment activity.

#### **Market risk**

The risk of losses due to adverse movements in market rates.

#### **Credit risk**

The risk of losses due to counterparty default.

#### **Liquidity risk**

The risk of losses due to a derivative market becoming illiquid or, for customised products, of reliance on a sole provider, making it difficult or costly to close the derivative position.

#### **Cash-flow risk**

The risk that the organisation will have insufficient cash to meet its obligations under derivative contracts. For example, cash-flow risk arises where realised losses are offset by unrealised profits.

#### **Basis risk**

The risk of loss due to a divergence in the difference between two rates or prices. For example, basis risk will exist if short dated derivative contracts are used to hedge long dated transactions as the difference between short term and long term rates or prices may change over time.

#### **Legal risk**

The risk that derivative contracts may be unenforceable in certain circumstances, for



example where a party has no power to use derivatives or the law of the relevant jurisdiction renders such contracts unenforceable.

#### Operational risk

The risk that loss may occur through errors or omissions in the processing and settlement of derivatives. Internal controls to address this risk have already been discussed.

#### ***Suggested Action Points***

- Prepare regularly a detailed analysis of the risk profile of any existing derivatives and ensure that all risks are fully controlled.
- Allocate clear responsibility for the different aspects of derivatives risk management to individuals with the ability to monitor these risks. Such responsibilities should be incorporated into organisation charts and job descriptions.
- Adopt market risk measurement and valuation techniques which are consistent with both the size of the risks being run and the extent of the activity undertaken. If required, employ people with the necessary mathematical skills to validate complex valuation methodologies.
- Monitor compliance with risk policies and limits on a basis that is frequent enough to identify non-compliance before significant losses can be incurred. In many cases, this will involve some form of daily monitoring.
- Ensure that all significant limit excesses are reported periodically to the board of directors.
- Perform stress testing to assess the effect of abnormal market movements and establish procedures to manage such situations effectively.
- Formulate and document contingency plans to ensure that derivative activity can continue in the event of a counterparty or broker ceasing to trade. Review such plans at least on an annual basis and ensure that appropriate steps are taken to ensure that the contingency plans are capable of implementation.

## **Credit Risk**

A.23 An organisation undertaking any investment activity should develop a full analysis of all of the credit risks to which it is exposed as a result of that activity. In the case of derivatives, this analysis should consider not only the credit risks directly associated with over-the-counter derivative activity (which include market contingent credit risk and settlement risk discussed below), but also the less apparent credit risks associated with exchange traded activities. Where possible, steps should be taken to minimise credit risk through the use of collateral or other credit support arrangements. Credit risk arising out of derivative transactions should be aggregated with all other credit exposures for a particular counterparty and this aggregate exposure should be managed through the use of credit limits.

### Credit risk on over-the-counter derivatives

A.24 Credit risk exists in some form in most types of financial transactions and derivatives are no exception. In the case of over-the-counter derivatives, two types of credit risk arise :

- Market contingent credit risk - where a counterparty defaults prior to settlement and hence is unable to perform on the derivative contract. The amount of credit loss in these circumstances is determined by the cost of replacing the contract which, in turn, will be determined by price movements since the inception of the contract. This risk exists throughout the life of the derivative.
- Settlement risk - where a counterparty defaults during the settlement process so that an organisation makes the settlement payments but fails to receive the settlement receipts on the derivative. The amount of the credit loss in these circumstances is the full value of the money not received, albeit that the risk exists only for a relatively short period of time.

A.25 Generally settlement risk is monitored and controlled separately from market contingent credit risk which should be aggregated with other credit exposures to the same counterparty. To achieve this, methods need to be developed which allow the credit risk inherent in a derivative to be stated on a basis that is equivalent to the credit risk inherent in a lending transaction.

### Credit risk on exchange traded derivative transactions

A.26 It is a common perception that exchange traded derivatives carry no credit risk. In practice, this will depend on the way in which trading is undertaken. While the transparency of an exchange's pricing mechanism, coupled with daily marking to market of positions, may reduce risk, organisations should understand that this does not eliminate credit risk.

A.27 If an organisation itself enters into a derivative transaction directly on a futures or options exchange, then the exchange or its clearing house will generally stand behind that transaction (either as counterparty to it once the transaction is cleared or by some other "guarantee" arrangement). The risk management provided by a central clearing house through its monitoring and margining procedures is an important benefit to the market as a whole. However, typically organisations gain access to derivative exchanges through one or more brokers. The liabilities and responsibilities of any broker to its clients will depend upon the rules of the relevant exchange, the laws and regulations applicable to the broker, the broker's account documentation and the broker's contractual capacity (for example, whether he contracts as a principal or as an agent). In the case of some markets, the benefit of the exchange or clearing house "guarantee" may also extend to a broker's customers.

A.28 Where the broker carries out client trading in a segregated account and segregates client money under legal arrangements which ensure that the money is protected in the event of the broker's insolvency (for example, under the UK's client money rules under the Financial Services Act 1986), the organisation may be insulated from the financial condition of the broker. However, where the broker mixes client trades in the same account as its own trades and client money in the same account as its own money (which is not permitted in the UK except with the client's consent), the organisation is generally at risk to a failure of the broker.

A.29 The credit risks inherent in a exchange traded derivatives may not be immediately apparent to an organisation entering into such activity and it may be necessary for that organisation to hold detailed discussions with its broker or to take independent professional advice before it can properly understand the nature and extent of the credit risks it faces when using such derivatives.

### Minimising credit risk

A.30 Having analysed and measured the credit risk associated with derivatives, organisations should take all practical steps to minimise those risks through the use of netting agreements, margin, collateral or other credit enhancement techniques (such as the taking of guarantees or letters of credit).

### Managing credit risk

A.31 Credit risk should be controlled by establishing a list of parties to whom an organisation is willing to have credit exposure together with a credit limit for each of these parties. Such a list should include :

- Counterparties
- Brokers
- Banks with whom margin monies are placed
- Clearing houses

A.32 Such limits should be reviewed and revised periodically on an individual basis and procedures should be developed for achieving this.

A.33 As with other limits, procedures need to be developed for monitoring and authorising credit limit excess. However, since credit risk on derivatives is not static but moves as market prices move, it is necessary for these procedures to cover excesses caused by the effect of price movements as well as those caused by new transactions.

### ***Suggested Action Points***

- Analyse fully the credit risk inherent in derivatives activity including that inherent in exchange traded activity. Such an analysis may involve detailed discussions with brokers and advice from appropriate professional advisers.
- Establish credit risk measures which allow credit risk to be aggregated across products and which are appropriate to the size and nature of the activity.
- Take all practical steps to minimise credit risk through the use of netting agreements, collateral and other credit enhancement techniques.
- Establish limits for all types of credit risk including settlement risk.

- Establish procedures for authorising credit limit excesses. Ensure that all credit limit excesses are reported periodically to the board of directors.
- Establish policies and procedures to be followed in the event that a counterparty or broker becomes insolvent.

## **Annex B**

### **FORMAT OF APPLICATION FORM SEEKING APPROVAL TO HEDGE COMMODITY PRICE RISK**

1. Name and Address of Organisation :
2. A brief description of hedging to be undertaken :
  - a) Nature of risk and reasons for that risk arising through a brief description of business activity.
  - b) Instruments proposed to be used for hedging.
  - c) Exchanges and brokers intended to be used.
  - d) Size/Average tenure of exposure.
  - e) Is the hedging to be done based on board approved limits and if so, how are these limits intended to be set.
3. Copy of a board approved Risk Management Policy covering :
  - a) risk measurement
  - b) guidelines and procedures to be followed with respect to revaluation/monitoring.
  - c) names of officials within the organisation who are designated to undertake hedging transactions and upto what extent.
  - d) accounting procedure to be adopted.
4. Any other information.

## **Chapter VI**

### **Conclusions and Summary of Recommendations**

6.1 Due to the inherent volatility of the commodity markets, more often than not, entities associated with these markets are in greater need to hedge against price risk than their counterparts in other markets including those dealing in financial instruments. This realisation was perhaps one of the major reasons for which instruments of price risk management were initially devised exclusively for these markets (paragraph 2.2).

6.2 According to the institutional set up governing the trading process, instruments of commodity risk management can be classified into two categories - over-the-counter (OTC) products and exchange-traded products. While the OTC products can be innovative and tailor-made in accordance with the need of the user, most of these products face the problems of limited liquidity and large counter-party risks. In comparison exchange-traded products are generally highly standardised (paragraph 2.6).

6.3 Composition of exchange-traded commodities has changed over the years. Given the present level of availability, commodities that are traded in futures and options exchanges can be classified in four broad categories. These are: (i) agricultural and allied commodities, (ii) energy related products, (iii) metal and metal products, and (iv) other commodities (paragraph 2.11). The current trend in commodity exchanges shows that among the exchange-traded commodities the volume of energy products is generally the highest followed by metals. Agricultural commodities come as a distant third (paragraph 2.13).

6.4 Broadly speaking there are two types of regulations or norms that shape the functions of the futures and options markets. The first set of norms is self-regulating measures devised and adopted by the exchanges and other related parties themselves. The other form of regulations come from the government because it assumes the role of apex regulator and the supervisor of commodity exchanges situated within its territory (paragraph 2.18). Though there is no uniform universal framework for

regulation of the futures exchanges, such framework in countries which have their own international futures exchanges generally try to establish a transparent and rule based system and take steps to guard against manipulative practices and excessive speculation. Most of the countries, including the developing countries, irrespective of whether they have their own commodity exchanges or not, allow their domestic entrepreneurs to access offshore commodity futures exchanges (paragraph 2.22).

6.5 In spite of the relatively higher rates of tariffs and quantitative restrictions imposed in India on imports, prices of a large number of primary products broadly follow the movements in international prices. In the absence of access to commodity derivatives, marked price fluctuations introduce an uncertainty factor which affects the operational efficiency of corporates (paragraph 4.5).

6.6 Limitations and restrictions imposed by the Forward Contracts (Regulation) Act (FCRA), 1952, the Act governing the regulation of the commodity derivative markets in the country, is the legal constraint for Indian parties to participate in international commodity exchanges for the purpose of price risk management. It should be pointed out that the provisions of the FCRA, 1952, have intra-territorial jurisdiction, that is they are applicable to contracts executed within the Indian territory. Even so, the locus of the party who is entering into the contract is also crucial for this purpose. If an Indian entity wants to enter into futures and options contracts, *albeit* in offshore commodity exchanges, this has additionally to be consistent with the provisions of the FCRA, 1952 (paragraph 4.8).

6.7 Articles 15 and 17 of the Act specify the restrictions that the Government can impose under the Act on forward contracts in commodities. In the context of options, Article 19 Section IV of the Act has put a blanket prohibition on any such transaction. However, irrespective of other provisions of the FCRA, 1952, Article 27 Section VI of the Act empowers the Central Government to exempt, subject to such conditions as may be specified, any contract or class of contracts from operation of all or any of the provisions of the Act. Therefore, through a notification in a Gazette under Article 27 of the FCRA, 1952, the Central Government can allow Indian entities access to offshore futures/options products (paragraph 4.9).



6.8 Price-risk is a function of the extent to which corporates are price takers and the extent to which input/output prices are volatile. On this basis, groups of Indian Importers/corporates exposed to price risk can be identified. Progressive deregulation, reduced relevance of price influencing state interventions and the consequential greater role of market forces, has meant more uncertainty in asset prices. Viewed thus, giving freedom to hedge against price risks is an integral part of the process of economic reform and liberalisation (paragraphs 5.1 and 5.2).

6.9 A consistent policy-stance on risk management should not differentiate among different types of risk. If companies can access off-shore financial markets for hedging interest/currency risks, similar access to off-shore derivative products should be permitted to those seeking to reduce commodity price risk. Hedgers and speculators (traders) as participants on futures markets have different objectives; there is, however, a measure of interdependence between these two sets of players which has to be recognised. Regulation of futures markets should strike a balance between the interests of these two players. Regulation of overseas futures markets and exchanges is, however, the responsibility of the countries where such markets are domiciled. Indian regulator's area of concern will not extend beyond ensuring orderly use of select derivative products for the purpose of risk management only (paragraphs 5.3 and 5.4).

6.10 Successful hedging requires that two pre-conditions must be satisfied - (a) the new position assumed on the commodity exchange seeks to address a genuine/authentic underlying risk, and (b) the hedge transaction is correctly executed and monitored. In the event either or both these conditions are not met, hedging will acquire a speculative hue and in the process may increase the firm's exposure to risk. Three basic types of Hedge operations which Indian corporates are likely to use would be - (A) Offset Hedge, (B) Price-Fixing Hedge, and (C) Options. In offset hedge, the physical exposure precedes or is co-terminus with the financial exposure assumed on the futures market. Price-fixing Hedge arises when hedgers are not balancing their books against physical contracts but are securing (protecting) profits on anticipated business. In the process the firm tries to remove the uncertain element from its business by buying or selling goods at prices that will allow them to make profits given their own business circumstances. It has to be recognised that if physical

exposure to the anticipated extent does not materialise, the firm would effectively be overhedged/underhedged. There is sometimes a thin dividing line between hedging and speculation. Companies will have to frame definite policies on the matter of overhedging or underhedging as both are a form of speculation, and clear procedures have to be laid down as to how to get out of the situation (paragraphs 5.5 to 5.8).

6.11 The superior flexibility of options in commodity hedging lies in enabling the user to capitalise on profitable market movements. For risk-reduction per se, options do not provide protection that is superior to futures : the advantage of the former is that the potential increase in profit is not forfeited. There seems to be a clear justification on balance for regulatory focus to remain firmly fixed on helping Indian corporates with authentic price exposures to achieve risk-reduction, and NOT potential price participation with a view to making extra profits. This need be so only for the initial period of about one year or so, which could be termed as Phase-I. In due course, as corporates develop core risk management skills, acquire some experience and in-house expertise, they can be permitted access to a more sophisticated hedging strategy combining use of futures and options (paragraphs 5.9 to 5.11).

6.12 Futures contracts on Exchanges are standardised, easy to transact, reflect widely disseminated transparent prices, cost of participation is low and there is assured convenience of moving in and out of market. The initial access of Indian users can be limited to standard futures contracts issued by broker-firms which must be clearing members of the Exchange. A broker firm that is a clearing member of a commodities Exchange has to meet stricter financial requirements than those applicable to non-clearing brokers, and are subject to capital-based position limits in the Exchange's contract markets. OTC products are more flexible and can be tailored to suit the Buyer's precise risk configuration - which means that basis risks can be eliminated to an extent which may not be possible for exchange traded products. Being non-standardised, efficient and risk free use of OTC products is predicated upon the user-firm possessing a measure of sophisticated understanding of the product and the nature of risk cover it affords. For certain types of commodity price risks, effective hedging may not be possible with the help of exchange traded instruments. During Phase-I, user-firms should ordinarily be permitted access to exchange traded risk management products, while OTC products can be availed of where either

exchange traded products are not available or efficient hedging is demonstrably not possible if reliance is solely on exchange traded products. However, the relative OTC markets must necessarily have some depth, liquidity, transparency and equitable access. During Phase I, use of OTC products can be restricted to vanilla swaps. OTC-options can be permitted in Phase-II (paragraphs 5.12 to 5.16).

6.13 Hedging in off-shore futures markets involves certain costs. From exchange control angle, these costs and related foreign exchange outflows will have to be permitted. Cost of hedging can consist of margin requirements, or guarantees/standby LCs in lieu thereof, or negotiation of credit-limits with Broker-firms operating on commodity Exchanges, transaction costs including commission, and losses on closing out the futures contracts on settlement dates (paragraph 5.17).

6.14 Where hedging is conducted on off-shore commodity Exchanges, the Indian regulatory authorities have no role of any nature vis-a-vis these Exchanges which function under the jurisdictional authority of their own regulators. Indian regulatory authorities do possess the 'negative' right to 'not participate' i.e., forbid access to the domestic users (paragraph 5.18).

6.15 Derivatives can sometimes generate high losses. When measured against the enormous volume of business undertaken in derivatives worldwide, these losses have been comparatively few in number. Among factors which have commonly contributed to these losses are excessive position taking in high risk instruments, ineffective internal risk management procedures and operational controls, inadequacies in corporate policy regarding use of derivatives and, not least, insufficient understanding of the nature and risks of derivatives. There does exist an imbalance between the development/availability of such fairly sophisticated instruments and the capacity of end-users to fully understand and employ the same without collateral financial damage. During the initial 'transitional' period, the said imbalance in respect of the Indian-user (wholly new to this type of activity) could prove to be a source of concern. Given this context, it does not seem appropriate to opt for an approach that wholly dispenses with any form or type of 'ex-ante' scrutiny and relies upon corporates to formulate, implement, and oversee prudent hedge strategies. Even if some general parameters of operational nature could be set-out for

the guidance of end-users it would not be advisable to assume that Indian corporates interested in hedging overseas will be either sufficiently knowledgeable or sufficiently careful. A brief period of transition/acclimitisation is necessary wherein the company boards and senior management get an opportunity to internalise risk management techniques (paragraph 5.19 to 5.25).

6.16 There is substantive rationale for hedge-freedom to be given to Indian end-users in two distinct Phases; Phase-I, which can be for one year (up to end 1998), and Phase II commencing from the January 1999. Phase-I, the period of acclimitisation, has to provide for a modicum of regulatory oversight to see that genuine underlying exists, the proposed hedge instruments are appropriate in relation to the stated objectives, and risk management process is/will be in place. The regulatory input in Phase-I will be neither intrusive nor transaction-specific. The scope of regulatory input during Phase-I can be said to consist of - (i) a simple diligence exercise at pre-eligibility stage to see that the concerned corporate has authentic underlying exposure, a clear-cut Board-approved risk management policy has been formulated, and the corporate is prepared to put in place a well-designed system of internal controls and ensure periodic oversight by the Company Board on an on-going basis, (ii) periodic scrutiny of actual hedge operations based principally on Review reports put up to the Board, supplemented by Chartered Accountant Certificates about the adequacy or otherwise of the company's internal controls and accounting systems. During Phase-II, stage (i) can be dispensed with, while stage (ii) can continue which consists only of periodic ex-post scrutiny of actual hedge-operations. During Phase-I, corporates can be permitted access to exchange traded futures and select commodity OTC derivatives, if warranted. Exchange-traded options and select commodity OTC options can be permitted in Phase-II (paragraphs 5.26 to 5.27).

6.17 Operationalisation of hedge strategy requires end-users to - (a) keep track of the adequacy of accounting systems and procedures to record, summarise and report the results of hedging operations, (b) monitor the financial statement effects of realised and unrealised gains and losses, (c) determine the extent to which internal operational and accounting controls can be relied upon to prevent unauthorised trading. Board of Directors (or its equivalent) and the senior management have to be actively involved in hedge operations and to accept in writing certain specific

responsibilities in connection therewith. There are five important core principles for managing derivatives risk. These are:

- (A) The board of directors (or its equivalent) should establish and approve an effective policy for the use of derivatives which is consistent with the strategy, commercial objectives and risk appetite of the organisation and should approve the instruments to be used, and how they are to be used,
- (B) Senior management should establish clear written procedures for implementing the derivatives policy set by the Board, covering such matters as dealing authority, reporting lines, risk limits, counterparty and documentation approvals and valuation procedures, and should regularly review their operation and effectiveness under report to the board of directors.
- (C) Senior management to ensure that derivative activities are properly supervised and are subject to an effective framework of internal controls and audits to ensure that transactions are in compliance with both external regulations (including the capacity to enter into such transactions) and internal policy (including procedures for the execution, confirmation recording, processing and settlement of transactions).
- (D) Senior management should establish a sound risk management function - a framework of reporting, monitoring and controlling all aspects of risk, valuing exposures, assessing performance, monitoring, enforcing position and other limits, stress testing and contingency planning.
- (E) Procedures should be in place to provide for a full analysis of credit risk to which organisation is exposed.

Practical steps should be taken to implement these in a form suitable to the precise circumstances of the user, including the size, frequency and purpose of transactions (Paragraphs 5.28 to 5.32).

## **Annex - I**

### **RESERVE BANK OF INDIA CENTRAL OFFICE MUMBAI 400 001**

#### **Memorandum**

1. With a view to examining the various issues relating to hedging against price-risk through International Commodity Exchanges, Reserve Bank of India appoints a Committee on Hedging through International Commodity Exchanges.

2. The Committee consists of the following members :

- |    |   |          |
|----|---|----------|
| 1) | Shri R.V. Gupta<br>Deputy Governor, RBI   | Chairman |
| 2) | Shri Dipak Chatterjee<br>Additional Secretary, Ministry of Commerce                                   | Member   |
| 3) | Shri Kamal Kishore,<br>Economic Adviser,<br>Ministry of Food & Consumer Affairs                       | Member   |
| 4) | Shri P. R. Suresh,<br>Officer on Special Duty, Ministry of Finance,<br>Department of Economic Affairs | Member   |
| 5) | Shri S.D. Kapur<br>Director, MMTC, New Delhi  | Member   |
| 6) | Shri S.N. Sawaikar,<br>Dy. Managing Director,<br>State Bank of India, Mumbai                          | Member   |
| 7) | Shri Pavan Sukhdev,<br>Head of Treasury,<br>Deutsche Bank, Mumbai                                     | Member   |
| 8) | Shri Lester Periera<br>Director – Treasury,<br>Barclays Bank PLc, Mumbai                              | Member   |

9) Shri Jamal Macklai, Partner  
Macklai & Macklai, Mumbai

Member

3. The terms of reference of the Committee will be as follows :

- (A) To identify important import/export commodity groups where price volatility affects Indian corporates, and where such risks can be hedged through recognised International Commodity Exchanges.
  - (B) To carry out a review of the financial instruments available on the said Commodity Exchanges, and examine their appropriateness with reference to the stated objective of risk reduction, attendant costs and constraints associated with internal control systems and position-tracking.
  - (C) To examine/identify the important facets of an appropriate corporate-level Risk Management policy/strategy and make suitable recommendations, examine the extent to which 'ex ante' and 'ex post' scrutiny/verification can be undertaken by the regulatory authorities, and finally, suggest a set of operational parameters with reference to which the use of such financial instruments can be regulated/overseen.
  - (D) To examine the nature and extent of legal impediments, if any, which bar the recourse of Indian entities to international commodity exchanges, and the steps that need to be taken in this behalf
4. The Committee will adopt its own work procedures and meet as often as necessary.
5. The Committee is expected to submit its Report by 30<sup>th</sup> November 1997.
6. The Secretariat for the Committee will be provided by the Reserve Bank of India.

Sd/-

**(C. Rangarajan)**

**Governor**

23.7.1997

**Table 1: Exchange-Traded Commodities: Exchanges of Availability**

Products	Exchange of Availability
<b>I. Agriculture and Allied Products</b>	
<b>A. Agriculture and Plantation Products</b>	
1. Barley	<ul style="list-style-type: none"> <li>* London International Futures &amp; Options Exchange</li> <li>* Minneapolis Grain Exchange</li> <li>China Commodity Future Exchange at Hainan</li> <li>Shenyang Commodity Exchange</li> <li>Minneapolis Grain Exchange</li> </ul>
2. Beans	<ul style="list-style-type: none"> <li>China Commodity Future Exchange at Hainan</li> <li>China Zhengzhou Commodity Exchange</li> <li>Dalian Commodity Exchange</li> <li>Hokkaido Grain Exchange</li> <li>Nagoya Grain and Sugar Exchange</li> <li>Shanghai Cereals and Oils Exchange</li> <li>Suzhou Commodity Exchange</li> <li>Tianjin United Futures Exchange</li> <li>Beijing Commodity Exchange</li> <li>Chubu Commodity Exchange</li> <li>Kanmom Commodity Exchange</li> <li>Kansei Agricultural Commodities Exchange</li> <li>Tokyo Grain Exchange</li> </ul>
3. Cocoa	<ul style="list-style-type: none"> <li>* Coffee Sugar &amp; Cocoa Exchange Inc.</li> <li>China Commodity Future Exchange at Hainan</li> <li>Coffee Sugar &amp; Cocoa Exchange Inc.</li> <li>Kuala Lumpur Commodity Exchange</li> </ul>
4. Coffee	<ul style="list-style-type: none"> <li>\$ Indonesian Commodity Exchange Board</li> <li>* Bolsa de Mercadoris &amp; Futuros</li> <li>* Coffee Sugar &amp; Cocoa Exchange Inc.</li> <li>Bolsa de Mercadoris &amp; Futuros</li> <li>China Commodity Future Exchange at Hainan</li> <li>Coffee Sugar &amp; Cocoa Exchange Inc.</li> <li>Manila International Futures Exchange Inc.</li> <li>Marche a Terme International de France</li> <li>Singapore Commodity Exchange Ltd.</li> </ul>
5. Copra	<ul style="list-style-type: none"> <li>Manila International Futures Exchange Inc.</li> </ul>
6. Corn	<ul style="list-style-type: none"> <li>* Chicago Board of Trade</li> <li>* Mid America Commodity Exchange</li> <li>Beijing Commodity Exchange</li> <li>Bolsa de Mercadoris &amp; Futuros</li> <li>Changchun United Commodities Futures Exchange</li> <li>Chicago Board of Trade</li> <li>China Zhengzhou Commodity Exchange</li> <li>Dalian Commodity Exchange</li> <li>Guangdong United Futures Exchange</li> <li>Mid America Commodity Exchange</li> <li>Shanghai Cereals and Oils Exchange</li> </ul>



**Table 1: Exchange-Traded Commodities: Exchanges of Availability**

<b>Products</b>	<b>Exchange of Availability</b>
	Tianjin United Futures Exchange Tokyo Grain Exchange Kanmom Commodity Exchange
7. Cotton	* New York Exchange Bolsa de Mercadoris & Futuros New York Exchange
8. Oats	* Chicago Board of Trade Chicago Board of Trade Mid America Commodity Exchange
9. Orange Juice	* New York Cotton Exchange New York Cotton Exchange
10. Palm Oil	Kuala Lumpur Commodity Exchange China Commodity Future Exchange at Hainan
11. Peanut Kernel	Beijing Commodity Exchange Shenyang Commodity Exchange
12. Potato	* New York Cotton Exchange Agricultural Futures Market Amsterdam Marche a Terme International de France New York Cotton Exchange * London International Futures & Options Exchange
13. Potato Starch	Chubu Commodity Exchange Kanmom Commodity Exchange Nagoya Grain and Sugar Exchange Hokkaido Grain Exchange
14. Rice	* Chicago Board of Trade Beijing Commodity Exchange Chicago Board of Trade Dalian Commodity Exchange Guangdong United Futures Exchange Shanghai Cereals and Oils Exchange
15. Rubber	\$ Indonesian Commodity Exchange Board Beijing Commodity Exchange China Commodity Future Exchange at Hainan # Singapore Commodity Exchange Ltd. \$ Kobe Rubber Exchange Kobe Rubber Exchange Kuala Lumpur Commodity Exchange Shanghai Commodity Exchange Singapore Commodity Exchange Ltd. Tokyo Commodity Exchange
16. Sorghum	Shenyang Commodity Exchange
17. Soybeans	* Chicago Board of Trade

**Table 1: Exchange-Traded Commodities: Exchanges of Availability**

Products	Exchange of Availability
	<ul style="list-style-type: none"> <li>* Mid America Commodity Exchange</li> <li>* Tokyo Grain Exchange</li> <li>Bolsa de Mercadoris &amp; Futuros</li> <li>Chicago Board of Trade</li> <li>Chubu Commodity Exchange</li> <li>Kanmom Commodity Exchange</li> <li>Kansei Agricultural Commodities Exchange</li> <li>Mid America Commodity Exchange</li> <li>Tokyo Grain Exchange</li> <li>China Zhengzhou Commodity Exchange</li> <li>Dalian Commodity Exchange</li> <li>Guangdong United Futures Exchange</li> <li>Hokkaido Grain Exchange</li> <li>Manila International Futures Exchange Inc.</li> <li>Nagoya Grain and Sugar Exchange</li> <li>Shanghai Cereals and Oils Exchange</li> <li>Tianjin United Futures Exchange</li> <li>Beijing Commodity Exchange</li> <li>Changchun United Commodities Futures Exchange</li> </ul>
<b>18. Soybean Meal</b>	<ul style="list-style-type: none"> <li>China Zhengzhou Commodity Exchange</li> <li>* Chicago Board of Trade</li> <li>Chicago Board of Trade</li> <li>Mid America Commodity Exchange</li> <li>Beijing Commodity Exchange</li> <li>Changchun United Commodities Futures Exchange</li> <li>Dalian Commodity Exchange</li> <li>Guangdong United Futures Exchange</li> <li>Tianjin United Futures Exchange</li> </ul>
<b>19. Soybean Oil</b>	<ul style="list-style-type: none"> <li>* Chicago Board of Trade</li> <li>* Mid America Commodity Exchange</li> <li>Chicago Board of Trade</li> <li>Mid America Commodity Exchange</li> <li>Beijing Commodity Exchange</li> <li>Dalian Commodity Exchange</li> </ul>
<b>20. Sugar</b>	<ul style="list-style-type: none"> <li>* Coffee Sugar &amp; Cocoa Exchange Inc.</li> <li>* Tokyo Grain Exchange</li> <li>* Kansei Agricultural Commodities Exchange</li> <li>Bolsa de Mercadoris &amp; Futuros</li> <li>Coffee Sugar &amp; Cocoa Exchange Inc.</li> <li>Kanmom Commodity Exchange</li> <li>Kansei Agricultural Commodities Exchange</li> <li>Manila International Futures Exchange Inc.</li> <li>Tokyo Grain Exchange</li> <li>Marche a Terme International de France</li> <li>Nagoya Grain and Sugar Exchange</li> </ul>
<b>21. Wheat</b>	<ul style="list-style-type: none"> <li>* Chicago Board of Trade</li> <li>* Kansas City Board of Trade</li> <li>* London International Futures &amp; Options Exchange</li> <li>* Mid America Commodity Exchange</li> </ul>

**Table 1: Exchange-Traded Commodities: Exchanges of Availability**

Products	Exchange of Availability
	* Minneapolis Grain Exchange Agricultural Futures Market Amsterdam Beijing Commodity Exchange Changchun United Commodities Futures Exchange Chicago Board of Trade China Zhengzhou Commodity Exchange Kansas City Board of Trade Mid America Commodity Exchange Minneapolis Grain Exchange Dalian Commodity Exchange Shanghai Cereals and Oils Exchange
<b>B. Meat and Dairy Products</b>	
1. Butter	* Chicago Mercantile Exchange Chicago Mercantile Exchange
2. Cheese	* Coffee Sugar & Cocoa Exchange Inc.A17 Coffee Sugar & Cocoa Exchange Inc.
3. Dry Milk	* Coffee Sugar & Cocoa Exchange Inc. Coffee Sugar & Cocoa Exchange Inc.
4. Feeder Cattle	* Chicago Mercantile Exchange Bolsa de Mercadoris & Futuros Chicago Mercantile Exchange
5. Fluid Milk	* Chicago Mercantile Exchange Chicago Mercantile Exchange * Coffee Sugar & Cocoa Exchange Inc. Coffee Sugar & Cocoa Exchange Inc.
6. Live Hogs	Mid America Commodity Exchange * Chicago Mercantile Exchange Agricultural Futures Market Amsterdam Chicago Mercantile Exchange
7. Live Cattle	Mid America Commodity Exchange * Bolsa de Mercadoris & Futuros * Chicago Mercantile Exchange Bolsa de Mercadoris & Futuros Chicago Mercantile Exchange
8. Piglets	Agricultural Futures Market Amsterdam
9. Pork Bellies	* Chicago Mercantile Exchange Chicago Mercantile Exchange
10. Shrimp	* Minneapolis Grain Exchange Minneapolis Grain Exchange
<b>C. Textile related Products</b>	

**Table 1: Exchange-Traded Commodities: Exchanges of Availability**

Products	Exchange of Availability
1. Cotton Yarn	China Zhengzhou Commodity Exchange Chubu Commodity Exchange Nagoya Textile Exchange Osaka Textile Exchange Tokyo Commodity Exchange
2. Dried Cocoon	Toyohashi Dried Cocoon Exchange Chubu Commodity Exchange Manila International Futures Exchange Inc. Maebashi Dried Cocoon Exchange
3. Raw Silk	Kobe Raw Silk Exchange Yokohama Raw Silk Exchange
4. Staple Fiber Yarn	Chubu Commodity Exchange Osaka Textile Exchange Nagoya Textile Exchange
5. Wool	Sydney Futures Exchange New Zealand Futures & Options Exchange Ltd.
6. Woollen Yarn	Chubu Commodity Exchange Nagoya Textile Exchange Tokyo Commodity Exchange Osaka Textile Exchange
<b>D. Other related Products</b>	
1. Commodity Index	# New York Futures Exchange *# New York Futures Exchange
2. Commodity Warrant	Australian Stock Exchange
3. Plywood	Beijing Commodity Exchange China Commodity Future Exchange at Hainan Shanghai Commodity Exchange Shenyang Commodity Exchange Suzhou Commodity Exchange
4. Lumber	* Chicago Mercantile Exchange
5. Wood	Shenyang Commodity Exchange
<b>II. Energy Products</b>	
1. Crude Oil	International Petroleum Exchange * International Petroleum Exchange * New York Mercantile Exchange New York Mercantile Exchange Singapore International Monetary Exchange Ltd.

**Table 1: Exchange-Traded Commodities: Exchanges of Availability**

Products	Exchange of Availability
2. Gasoline	Singapore International Monetary Exchange Ltd. * International Petroleum Exchange Guangdong United Futures Exchange International Petroleum Exchange Nanjing Petroleum Exchange * New York Mercantile Exchange Guangdong United Futures Exchange New York Mercantile Exchange * New York Mercantile Exchange Nanjing Petroleum Exchange
3. Heating Oil	* New York Mercantile Exchange * New York Mercantile Exchange New York Mercantile Exchange
4. Natural Gas	* Kansas City Board of Trade * New York Mercantile Exchange International Petroleum Exchange Kansas City Board of Trade New York Mercantile Exchange
5. Propane	New York Mercantile Exchange
<b>III. Metal and Metal Products</b>	
<b>A. Industrial Metals</b>	
1. Aluminium	\$ Nanfang Non-ferrous Metals Exchange * London Metal Exchange Beijing Commodity Exchange China Zhengzhou Commodity Exchange Guangdong United Futures Exchange London Metal Exchange Shanghai Metals Exchange Shenyang Commodity Exchange Shenzhen Metal and United Futures Exchange
2. Antimony	\$ Shenzhen Metal and United Futures Exchange
3. Copper	\$ Nanfang Non-ferrous Metals Exchange * London Metal Exchange * New York Mercantile Exchange Beijing Commodity Exchange London Metal Exchange New York Mercantile Exchange Shanghai Metals Exchange Shenzhen Metal and United Futures Exchange Guangdong United Futures Exchange Shenyang Commodity Exchange
4. Lead	\$ Shenzhen Metal and United Futures Exchange * London Metal Exchange

**Table 1: Exchange-Traded Commodities: Exchanges of Availability**

Products	Exchange of Availability
5. Magnesium	London Metal Exchange Shanghai Metals Exchange \$ Shenzhen Metal and United Futures Exchange
6. Nickel	* London Metal Exchange London Metal Exchange Shanghai Metals Exchange Shenzhen Metal and United Futures Exchange
7. Palladium	New York Mercantile Exchange Tokyo Commodity Exchange
8. Tin	* London Metal Exchange London Metal Exchange Shanghai Metals Exchange Shenzhen Metal and United Futures Exchange Kuala Lumpur Commodity Exchange
9. Zinc	* London Metal Exchange London Metal Exchange Shenzhen Metal and United Futures Exchange Shanghai Metals Exchange
<b>B. Precious Metals</b>	
1. Gold	* European Options Exchange * Bolsa de Mercadoris & Futuros * Mid America Commodity Exchange * New York Mercantile Exchange Bolsa de Mercadoris & Futuros # Singapore International Monetary Exchange Ltd. Chicago Board of Trade # South African Futures Exchange * Belgian Futures & Options Exchange @ Bolsa Brasileira de Futuros Mid America Commodity Exchange New York Mercantile Exchange Singapore International Monetary Exchange Ltd. Tokyo Commodity Exchange Hong Kong Futures Exchange Ltd.
2. Platinum	* New York Mercantile Exchange Mid America Commodity Exchange New York Mercantile Exchange Tokyo Commodity Exchange
3. Silver	* Chicago Board of Trade * European Options Exchange * New York Mercantile Exchange Chicago Board of Trade Mid America Commodity Exchange

**Table 1: Exchange-Traded Commodities: Exchanges of Availability**

Products	Exchange of Availability
<b>IV. Others</b>	New York Mercantile Exchange Tokyo Commodity Exchange
1. Anhydrous Ammonia	Chicago Board of Trade
2. Diammonium Phosphate	Chicago Board of Trade
3. Polypropylene	Beijing Commodity Exchange
4. Polyvinyl Chloride	Beijing Commodity Exchange Shanghai Commodity Exchange
5. Rod Coil	Suzhou Commodity Exchange
6. Sodium Carbonate	Beijing Commodity Exchange
7. Ware Rod	Shenyang Commodity Exchange Beijing Commodity Exchange

**Note:** \* - Options @ - Swaps # - Commodity Bonds or index \$ - Forwards  
No mark indicates futures  
This list is indicative rather than exhaustive.

**Table 2: Trade Volume of Selected International  
Futures and Options Exchanges**

(Number of contracts)

Name of the Exchange	1995 Volume	1996 Volume
Chicago Board of Trade, USA	210,673,044	222,438,505
BM & F, Brazil *	148,055,778	134,609,876
New York Mercantile Exchange, USA	73,472,340	75,799,292
London Metal Exchange, UK	47,150,330	47,487,007
Tokyo Grain Exchange, Japan	14,643,162	27,509,275
International Petroleum Exchange, UK	14,955,371	15,520,910
New York Cotton Exchange, USA	6,348,309	6,228,285
Kanmon Commodity Exchange, Japan	3,259,972	4,962,838
London Commodity Exchange, UK	3,801,363	3,875,329
Kobe Rubber Exchange, Japan	3,984,347	2,606,706

**Note:** \* - These exchanges deal mainly in financial futures and options.

(1) Data excludes options on individual equities.

(2) Some of the major futures and options exchanges such as the LIFFE, London, the BBF, Brazil, etc. have been excluded because they either totally or almost exclusively deal in financial futures and options.



**Table 3: International Futures and Options Exchanges: Selected Information**

Country, Exchange Name and Address	Phone and Fax No.	Products Offered	Other Information
<b>AUSTRALIA</b>			
<ul style="list-style-type: none"> <li>Australian Stock Exchange (ASX), 20 Bond Street, Sydney, NSW 2000, Australia.</li> <li>Sydney Futures Exchange (SFE) 30-32 Grosvenor Street, Sydney, NSW 2000, Australia.</li> </ul>	Ph: 61 2 227 0000 Fax: 61 2 251 5525 Ph: 61 2 9256 0555 Fax: 61 2 9256 0666	<b>Commodity Warrants</b>  <b>Futures:</b> Wool. Via NYMEX Link the following futures are available: Heating oil, Unladed gas, Natural gas, Propane, Crude oil.	Regional stock exchanges were merged to form ASX in 1987. Operating since 1960, the SFE is the tenth-largest futures exchange in the world in terms of trading volume in 1993.
<b>AUSTRIA</b>			
<ul style="list-style-type: none"> <li>Austrian Futures &amp; Options Exchange (OTOB) Strauchgase 1-3, A-1014 Vienna, Austria.</li> </ul>	Ph: 43 1 531 65 0 Fax: 43 1 532 97 40		
<b>BELGIUM</b>			
<ul style="list-style-type: none"> <li>Belgian Futures &amp; Options Exchange (BELFOX) Palais de la Bourse Rue Henry Maus, 2, 1000 Brussels, Belgium.</li> </ul>	Ph: 32 2 512 80 40 Fax: 32 2 513 83 42	<b>Options:</b> Gold Index	Established in 1991, deals predominantly in futures and options on Belgian bonds, equities, interest rate futures and fixed income options.
<b>BRAZIL</b>			
<ul style="list-style-type: none"> <li>Bolsa Brasileira de Futuros, Praca XV de novembro, 20-6th floor, 20010-010 Rio de Janeiro RJ, Brazil</li> <li>Bolsa de Mercadoris &amp; Futuros (BM&amp;F) The Commodities &amp; Futures Exchange, Praca Antonio Prado, 48, Sao Paulo, SP, Brazil 01010-901.</li> </ul>	Ph: 55 21 271 1086 Fax: 55 21 224 5718  Ph: 55 11 232 5454 Fax: 55 11 232 7565	<b>Swaps:</b> Gold index  <b>Futures:</b> Gold, Live cattle, Coffee, Cotton, Feeder cattle, Soybeans, Sugar, Corn. <b>Options:</b> Gold, coffee, Live Cattle.	Established in 1986 and merged with Sao Paulo Commodities Exchange, founded in 1917 as the first Brazilian exchange for forward trading. This is the sixth-largest futures and options exchange in the world, measured by volume, in 1993.
<b>CANADA</b>			
<ul style="list-style-type: none"> <li>Montreal Exchange (ME) The Stock Exchange Tower, PO Box 61, 800 Victoria Square, Montreal, Quebec, H4Z 1A9 Canada</li> </ul>	Ph: 514 871 2424 Fax: 514 871 3531		

**Table 3: International Futures and Options Exchanges: Selected Information**

Country, Exchange Name and Address	Phone and Fax No.	Products Offered	Other Information
<ul style="list-style-type: none"> <li>Toronto Futures Exchange (TFE) Two First Canadian Place, The Exchange Tower, Toronto, Ontario, MSX 1J2 Canada</li> </ul>	Ph: 416 947 4487 Fax: 416 947 4272		
<ul style="list-style-type: none"> <li>Toronto Stock Exchange (TSE) 2 First Canadian Place, The Exchange Tower, Toronto, Ontario MSX 1J2 Canada</li> </ul>	Ph: 416 947 4700 Fax: 416 947 4662		
<ul style="list-style-type: none"> <li>Vancouver Stock Exchange (VSE) 609 Granville St., Stock Exchange Tower, Vancouver, BC, V7Y 1H1 Canada</li> </ul>	Ph: 604 689 3334 Fax: 604 688 6051		
<ul style="list-style-type: none"> <li>Winnipeg Commodity Exchange (WCE) 500 Commodity Exchange Tower, 360 Main St., Winnipeg, Manitoba, R3C 3Z4 Canada</li> </ul>	Ph: 204 925 5000 Fax: 204 943 5448		
<b>CHILE</b>			
<ul style="list-style-type: none"> <li>Santiago Stock Exchange La Bolsa 64, Casilla 123D, Santiago, Chile</li> </ul>	Ph: 56 2 695 8077 Fax: 56 2 672 8046		
<b>CHINA</b>			
<ul style="list-style-type: none"> <li>Beijing Commodity Exchange (BCE) 306 Chonyun Building, No. 8 Beichen East Road, Chaoyang District Beijing 100101 China</li> </ul>	Ph: 86 1 6492 8347 Fax: 86 1 6499 3365	<b>Futures:</b> Corn, Beans, Soybeans, Soybean meal, Soybean oil, Wheat, Rice, Peanut kernel, Plywood, Rubber, Polyvinyl chloride, Polypropylene, Sodium carbonate, Copper, Aluminum, Wire rod.	Established in 1993, it is the largest futures and options exchange in China.
<ul style="list-style-type: none"> <li>Changchun United Commodities Futures Exchange</li> </ul>		<b>Futures:</b> Corn, Soybeans, Soybean meal, Wheat.	Created in 1995.
<ul style="list-style-type: none"> <li>China Commodity Future Exchange at Hainan</li> </ul>		<b>Futures:</b> Palm olein, Bean, Barley, Coffee, Cocoa, Rubber, Plywood.	Established in 1993.
<ul style="list-style-type: none"> <li>China Zhengzhou Commodity Exchange</li> </ul>		<b>Futures:</b> Wheat, Corn, Soybean, Soybean meal, Bean, Cotton yarn, Aluminum.	Established in 1993.
<ul style="list-style-type: none"> <li>Dalian Commodity Exchange</li> </ul>		<b>Futures:</b> Corn, Bean, Rice, Soybean, Soybean meal, Soybean oil, Wheat.	
<ul style="list-style-type: none"> <li>Guangdong United Futures Exchange</li> </ul>		<b>Futures:</b> Soybean, Soybean	Established in 1994.

**Table 3: International Futures and Options Exchanges: Selected Information**

Country, Exchange Name and Address	Phone and Fax No.	Products Offered	Other Information
<ul style="list-style-type: none"> <li>• Nanfang Non-ferrous Metals Exchange</li> <li>• Nanjing Petroleum Exchange</li> <li>• Shanghai Cereals and Oils Exchange</li>   <li>• Shanghai Commodity Exchange</li>   <li>• Shanghai Metals Exchange</li>   <li>• Shenyang Commodity Exchange</li>   <li>• Shenzhen Metal and United Futures Exchange</li>   <li>• Suzhou Commodity Exchange</li>   <li>• Tianjin United Futures Exchange</li> </ul>		<p>meal, Corn, Rice, Gasoline, Gas oil, Aluminum, Copper.  <b>Forwards:</b> Aluminum, Copper.  <b>Futures:</b> Gas oil, Gasoline.  <b>Futures:</b> Corn, Bean, Rice, Soybean, Wheat.  <b>Futures:</b> Plywood, Rubber, Polyvinyl chloride.  <b>Futures:</b> Copper, Aluminum, Lead, Nickel, Tin, Zinc.  <b>Futures:</b> Barley, Sorghum, Peanut Kernel, Plywood, Wood, Aluminum, Copper, Ware rod.  <b>Futures:</b> Aluminum, Copper, Nickel, Tin, Zinc. <b>Forwards:</b> Antimony, Lead, Magnesium.  <b>Futures:</b> Plywood, bean, Rod coil.  <b>Futures:</b> Corn, Bean, Soybean, Soybean meals.</p>	<p>Became operational in 1995. Created in 1992.</p> <p>Established in 1995.</p> <p>Created in 1992.</p>
<b>DENMARK</b>			
<ul style="list-style-type: none"> <li>• Futop Market Copenhagen Stock Exchange, Nikolaj Plads 6, Box 1040, DK-1007 Copenhagen, Denmark</li> <li>• Guarantee Fund for Danish Options and Futures (FUTOP), Kompagnistraede 15, Box 2017,DK-1012 Copenhagen K, Denmark.</li> </ul>	<p>Ph: 45 33 93 3366            Fax:45 33 12 8613</p> <p>Ph: 45 33 93 33 11            Fax: 45 33 93 49 80</p>		
<b>FINLAND</b>			
<ul style="list-style-type: none"> <li>• Finnish Options Exchange Erottajankatu 11, SF-00130, Helsinki, Finland</li> <li>• Finnish Securities and Derivatives Exchange Keskuskatu 7, POB 926, FIN 00101 Helsinki, Finland</li> <li>• Finnish Options Market (FOM), Keskuskatu</li> </ul>	<p>Ph: 358 9 680 3410.            Fax:358 9 604 442</p> <p>Ph: 358 0 13 12 11            Fax: 358 0 13 12 12            11</p> <p>Tel 358 0 131211,</p>		

**Table 3: International Futures and Options Exchanges: Selected Information**

Country, Exchange Name and Address	Phone and Fax No.	Products Offered	Other Information
7, 3rd Floor, Box 926, SF 00101, Helsinki, Finland, <b>FRANCE</b>	Fax:358 0 13121211		
• Marche a Terme International de France (MATIF) 115 rue Reaumur, 75002 Paris, France	Ph: 33 1 40 28 82 82 Fax:33 1 40 28 80 01	<b>Futures:</b> Potato, Coffee, Sugar.	Marche a Terme des Instruments Financiers, 1986 and Bourse de Commerce were united under a single clearing house in 1987. <b>The MATIF is the forth-largest futures and options exchange in the world according to volume in 1993.</b> Opened in 1987 and trades equity and index contracts.
• Marche des Options Negociables de Paris (MONEP) S.C.M.C., 39, rue Cambon, 75001 Paris, France	Ph: 33 149 27 18 00 Fax:33 149 27 18 23		
<b>GERMANY</b>			
• Deutsche Terminbörse (DTB) Börsenplatz 7-11, D-60313 Frankfurt, Germany	Ph: 49 69 2101 0 Fax:49 69 2101 2005		Opened in 1990, leading exchange in Europe for financial options trade. <b>According to the 1993 volume, DTB is the seventh-largest futures and options exchange in the world.</b>
• DTB Deutsche Terminbörse, Gruneburgweg 102, Postfach 17 -2 -3, D-6000, Frankfurt am Main 1, Germany,	Tel 49 69 15303 201, Fax:49 69 557492		
<b>HONG KONG</b>			
• Hong Kong Futures Exchange Ltd. (HKFE) 5/F, Asia Pacific Finance Tower, City Bank Plaza, 3 Garden Road, Hong Kong	Ph: 852 2531 5056 Fax:852 2824 4438	<b>Futures:</b> Gold.	Founded in 1975 as the Hong Kong Commodity Exchange. Earlier HKFE used to trade in commodities such as cotton, sugar and soybeans.
<b>HUNGARY</b>			
• Budapest Commodity Exchange H-1373, PO Box 495, 1134 Budapest, Hungary	Ph: 36 1 269 8571 Fax:36 1 269 8575		
<b>INDONESIA</b>			
• Indonesian Commodity Exchange Board		<b>Forwards:</b> Coffee, Rubber.	Established in 1985.

**Table 3: International Futures and Options Exchanges: Selected Information**

Country, Exchange Name and Address	Phone and Fax No.	Products Offered	Other Information
<b>ISRAEL</b>			
• The Tel Aviv Stock Exchange Ltd. (TASE) 54 Ahad Haam St., Tel Aviv, 65202, Israel	Ph:972 3 567 7411 Fax:972 3 510 5379		
<b>ITALY</b>			
• Italian Stock Exchange Piazza Degli Affari, 6, I-20123, Milan, Italy	Ph: 39 2 724261 Fax:39 2 72004333		
<b>JAPAN</b>			
• Chubu Commodity Exchange, 3-2-15 Nisiki Kaka-ku, Nagoya 460, Japan.	Ph: 81 52 951 2170 Fax: 81 52 961 1044	<b>Futures:</b> Cotton yarn, woollen yarn, Staple fiber yarn, beans, Soybeans, potato starch, Dried cocoon	
• Hokkaido Grain Exchange (HGE), 3 Odori Nishi 50chome, Chuo-ku, Sapporo, Hokkaido 060, Japan,	Ph: 81 11 221 9131, Fax: 81 11 221 4964	<b>Futures:</b> Soybean, Bean, Potato starch.	Established as Otaru Rice, Herring and Fertilizer Exchange in 1893, reopened in 1951 as Agricultural and Fishery Products Exchange and merged with Tokyo Grain exchange in 1995. Originally established as Konmon Grain Exchange in 1805 and restructured in 1953.
• Kanmom Commodity Exchange (KCE), 1-5, Nabecho, Shimonoseki-shi, Yamaguchi 750 Japan,	Ph: 81 832 31 1313, Fax: 81 832 23 1947	<b>Futures:</b> Sugar, beans, Soybeans, Potato starch, Corn.	Established in 1993 through the merger of three historic exchanges - Osaka Grain Exchange, Kobe Grain Exchange and Osaka Sugar Exchange..
• Kansei Agricultural Commodities Exchange (KANEX) 1-10-14 Awaza, Nishi-ku, Osaka 550, Japan	Ph: 81 6 531 7931 Fax:81 6 541 9343	<b>Futures:</b> Beans, Soybeans, Sugar. <b>Options :</b> Sugar.	
• Kobe Grain Exchange (KGE), 2-4-16 Honmachi, Hyogo-ku, Kobe 652 Japan,	Ph: 81 78 671 2901, Fax: 81 78 671 3937		
• Kobe Raw Silk Exchange (KSE) 126 Higashimachi, Chuo-ku, Kobe 650, Japan	Ph: 81 78 331 7141 Fax:81 78 331 7145	<b>Futures:</b> Raw silk	
• Kobe Rubber Exchange (KRE), 49 Harima- cho, Chuo-ku, Kobe 650 Japan,	Ph: 81 78 331 4211, Fax:81 78 332 1622	<b>Futures:</b> Rubber, Rubber index.	
• Maebashi Dried Cocoon Exchange, 1-49-1 Furuichi-machi 1-chome, Maebashi, 3 71 Japan,	Ph: 81 272 521401, Fax:81 272 518270	<b>Futures:</b> Dried cocoon.	
• Nagoya Grain and Sugar Exchange (NGSE), 2-3-2 Meieki-Minami, Nakamura-ku, Nagoya 450 Japan,	Ph: 81 52 571 8161, Fax: 81 52 581 4653	<b>Futures:</b> Bean, Soybean, Potato starch, Sugar.	

**Table 3: International Futures and Options Exchanges: Selected Information**

Country, Exchange Name and Address	Phone and Fax No.	Products Offered	Other Information
<ul style="list-style-type: none"> <li>• Nagoya Stock Exchange (NSE) 3-17 Sakae, 3-chome, Naka-ku, Nagoya 460, Japan</li> <li>• Nagoya Textile Exchange (NTE), 2-1-5 Nishiki 3, Nakaku, Nagoya 460, Japan,</li> <li>• Osaka Grain Exchange (OGE), 1-10-14 Awaza, Nishi-ku, Osaka 550 Japan,</li> <li>• Osaka Securities Exchange (OSE) 8-16, Kitahama, I-chome, Chuo-ku, Osaka 541, Japan</li> </ul>	<p>Ph:81 52 262 3172            Fax:81 52 241 1527            Ph: 81 52 951 2171,            Fax: 81 52 961 6407            Ph: : 81 6 531 7931,            Fax: 81 6 541 9343            Ph: 81 6 229 8643            Fax:81 6 231 2639</p>	<p><b>Futures:</b> Cotton yarn, Woollen Yarn, Staple fiber yarn.</p>	<p>The OSE is the successor of Osaka Stock Exchange, founded in 1878. The OSE deals in futures and options of Nikkei Stock Index. <b>In terms of 1993 trade volume, the OSE is the 15th-largest futures and options exchange in the world.</b></p>
<ul style="list-style-type: none"> <li>• Osaka Sugar Exchange (OSuE), 2-5-28 Kyutaro-machi, Chuo-ku, Osaka 541 Japan,</li> <li>• Osaka Textile Exchange (OTE), 2-5-28 Kyutaro-machi Chuo-ku, Osaka 541, Japan,</li> <li>• Tokyo Commodity Exchange (TOCOM) 10-8 Nihonbashi Horidomecho, 1-chome, Chuo-ku, Tokyo 103, Japan</li> <li>• Tokyo Grain Exchange (TGE) 12-5 Nihonbashi Kakigara-cho, 1-Chome, Chuo-ku, Tokyo 103, Japan</li> <li>• Tokyo International Financial Futures Exchange (TIFFE) 1-3-1 Marunouchi, Chiyoda-ku, Tokyo 100, Japan</li> </ul>	<p>Ph: 81 6 245 2266,            Fax: 81 6 245 2264            Ph: 81 6 253 0031,            Fax: 81 6 253 0034            Ph: 81 3 3661 9191            Fax:81 3 3661 7568            Ph: 81 3 3668 9321            Fax:81 3 3661 4564            Ph: 81 3 5223 2400            Fax:81 3 5223 2450</p>	<p><b>Futures:</b> Cotton yarn, Staple fiber yarn, Woollen yarn.  <b>Futures:</b> Cotton yarn, Woollen yarn, Gold, Platinum, Silver, Palladium, Rubber.  <b>Futures:</b> Soybeans, Beans, Corn, Sugar. <b>Options:</b> Soybeans, Sugar.</p>	<p>Established in 1989, deals mostly in three-month European future. <b>According to the 1993 volume, TIFFE is the eighth-largest futures and options exchange in the world.</b>            Started dealing in financial futures in 1985. <b>According to the 1993 trade volume, TSE is the 11th-largest futures and options exchange in the world.</b></p>
<ul style="list-style-type: none"> <li>• Tokyo Stock Exchange (TSE) 2-1 Nihombashi-Kabuto-Cho, Chuo-ku, Tokyo 103, Japan</li> </ul>	<p>Ph: 81 3 3666 0141            Fax:81 3 3663 0625</p>		

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<ul style="list-style-type: none"> <li>• Tokyo Sugar Exchange (TSuE), 9-4 Koami-cho, Nihonbashi, Chuo-ku, Tokyo, 10 3 Japan,</li> <li>• Toyohashi Dried Cocoon Exchange, 52-2 Ekimae odori, Toyohashi 440 Japan,</li> <li>• Yokohama Raw Silk Exchange, Silk Center, 1 Yamashita-cho, Naka-ku, Yokoha ma 231 Japan,</li> </ul>	<p>Ph: 81 3 3666 0201, Fax: 81 3 3666 4564</p> <p>Ph: 81 532 526231, Fax: 81 532 551529</p> <p>Ph: 81 45 641 1341, Fax: 81 45 641 1346</p>	<p><b>Futures:</b> Dried cocoon.</p> <p><b>Futures:</b> Raw silk.</p>	
<b>MALAYSIA</b>			
<ul style="list-style-type: none"> <li>• Kuala Lumpur Commodity Exchange (KLCE) Fourth Floor, Citypoint, Komplex Dayabumi Jalan Sultan Hishamuddin, PO Box 11260, 50740 Kuala Lumpur, Malaysia</li> </ul>	<p>Ph: 603 293 6822 Fax:603 274 2215</p>	<p><b>Futures:</b> Palm oil, Rubber, Cocoa, Tin.</p>	
<b>NETHERLANDS</b>			
<ul style="list-style-type: none"> <li>• Agricultural Futures Market Amsterdam, Postbus 529, 1000 AM Amsterdam.</li> <li>• European Options Exchange (EOE) Rokin 65, 1012 KK Amsterdam, The Netherlands</li> </ul>	<p>Ph: 31 20 638 2258 Fax: 31 20 626 5459</p> <p>Ph: 31 20 550 4550 Fax:31 20 623 0012</p>	<p><b>Futures:</b> Live hogs, Potato, Piglets, Wheat.</p> <p><b>Options:</b> Gold, Silver.</p>	<p>As the first European derivatives exchange the EOE started operations in 1978. The EOE also trades in special products such as index, oil and bond warrants.</p>
<ul style="list-style-type: none"> <li>• Financiele Termijnmarkt Amsterdam (Financial Futures Market Amsterdam) NV (FTA) Nes 49, 1012 KD Amsterdam, The Netherlands</li> </ul>	<p>Ph: 31 20 550 4550 Fax:31 20 623 0012</p>		
<b>NEW ZEALAND</b>			
<ul style="list-style-type: none"> <li>• New Zealand Futures &amp; Options Exchange Ltd. (NZFOE) PO Box 6734, Wellesley St., 10th Level, Stock Exchange Center Auckland, New Zealand</li> </ul>	<p>Ph: 64 9 309 8308 Fax:64 9 309 8817</p>	<p><b>Futures:</b> Wool.</p>	
<b>NORWAY</b>			
<p>Oslo Stock Exchange (OSLO) PO Box 460, Sentrum, N-0105 Oslo, Norway</p>	<p>Ph: 47 22 34 1700 Fax:47 22 41 6590</p>		
<b>PHILIPPINES</b>			
<ul style="list-style-type: none"> <li>• Manila International Futures Exchange, Inc.</li> </ul>	<p>Ph: 63 2 8185496,</p>	<p><b>Futures:</b> Coffee, Copra, Sugar,</p>	

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(MIFE),7th Floor, Producers Bank Center, Paseo de Roxas, Makati,Metro Manila 1200 Philippines,	Fax: 63 2 8185529	Soybean, Cried Cocoon.	
<b>ROMANIA</b>			
• The Maritime and Commodities Exchange of Constantza, B-dul 1 Decembrie 19 18 nr.2, 8700 - Constanza, ROMANIA	Tel: 40 41 639609, Fax: 40 41 639062,		
<b>RUSSIA</b>			
• The Russian Exchange, Saint-Petersburg Futures Exchange, 274, Ligovski av., 196084, S-Petersburg, Russia,	Ph: 7 812 294 15 12, Fax: 7 812 327 90 38,		
<b>SINGAPORE</b>			
• Singapore Commodity Exchange Ltd. 111 North Bridge Road #23-04/05, Peninsula Plaza, Singapore	Ph: 0617 65 338 5600 Fax:65 338 9116 Ph: 0104 65 535 7382	<b>Futures:</b> Rubber, Rubber index, Coffee.	
• Singapore International Monetary Exchange Ltd. (SIMEX) 1 Raffles Place, No. 07-00, OUB Center, Singapore	Fax:65 535 7282	<b>Futures:</b> Gold, Gold bond, Fuel oil, Crude oil.	Started trading in 1984. According to the 1993 trading volume the SIMEX is the 14th-largest futures and options exchange in the world
<b>SLOVENIA</b>			
• Commodity Exchange of Ljubljana, martinska 152, 1 530 Ljubljana, Slovenia,	Ph: 386 61 1855 100, Fax: 386 61 1855 101		
<b>SOUTH AFRICA</b>			
• South African Futures Exchange (SAFEX) 105 Central Street, Houghton Estate 2198, PO Box 4406 Johannesburg, 2000, Republic of South Africa	Ph: 27 11 728 5960 Fax:27 1 1 728 5970	<b>Futures:</b> Gold index.	
<b>SPAIN</b>			
• Mercado do Opciones y Futuros, Financieros, Via Laietana, 58, 08003 Barcelona, Spain,	Ph: 34 3 412 11 28, Fax: 34 3 268 47 69		
• MEFF Sociedad Rectora de Productos, Financieros Derivados de Renta Variab le, Torre Picasso, Pl 26, 28020 Madrid, Spain,	Tel: 34 1 585 08 00, Fax: 34 1 571 95 42,		



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<b>SWEDEN</b>			
<ul style="list-style-type: none"> <li>• OM Stockholm AB (OMS) Brunkebergstorg 2, Box 16305, S-10326 Stockholm, Sweden</li> </ul>	Ph: 46 8 700 0600 Fax: 46 8 723 1092		
<b>SWITZERLAND</b>			
<ul style="list-style-type: none"> <li>• Swiss Options &amp; Financial Futures Exchange (SOFFEX) Selnaustrasse 32, CH-8021 Zurich, Switzerland</li> </ul>	Ph: 41 1 229 2111 Fax: 41 1 229 2233		Established in 1986. Trades in financial futures and options. <b>According to the 1993 volume, SOFFEX is the 20th-largest futures and options exchange in the world.</b>
<ul style="list-style-type: none"> <li>• Swiss Options and Financial Futures Exchange Ag, Neumattstrasse 7, CH-8953 Dietikon, Zurich Switzerland,</li> </ul>	Ph: 41 1 740 3020, Fax: 41 1 740 1776		
<b>UNITED KINGDOM</b>			
<ul style="list-style-type: none"> <li>• International Petroleum Exchange (IPE) International House, 1 St. Katharine's Way, London E1 9UN</li> </ul>	Ph: 44 171 481 0643 Fax: 44 171 481 8485	<b>Futures:</b> Gas oil, Brent crude, Natural gas. <b>Options:</b> Gas oil, Brent crude.	Incorporated in 1980, <b>IPE is the 16th-largest futures and options exchange in the world, measured in terms of trading volume in 1993.</b>
<ul style="list-style-type: none"> <li>• London Commodity Exchange, 1 Commodity Quay, St. Katharine Docks, London, E1 9AX England,</li> </ul>	Ph: 44 71 481 2080, Fax: 44 71 588 3624		
<ul style="list-style-type: none"> <li>• London International Futures &amp; Options Exchange (LIFFE) Cannon Bridge, London EC4R 3XX</li> </ul>	Ph: 44 171 623 0444 Fax: 44 171 588 3624	<b>Options:</b> Wheat, Barley, Potato.	Established in 1992 by the merger of London International Financial Futures Exchange and London Traded Options Market. <b>LIFFE is the third-largest futures and options exchange in the world, based on 1993 volume, and the largest in Europe.</b>
<ul style="list-style-type: none"> <li>• London Metal Exchange (LME) Wing, 4th Floor, Plantation House, Fenchurch Street, London EC3M 3AP England,</li> </ul>	Ph: 44 71 626 3311, Fax: 44 71 626 1 703	<b>Futures:</b> Aluminum, Lead, Copper, Nickel, Tin, Zinc. <b>Options:</b> Aluminum, Lead, Copper, Nickel, Tin, Zinc.	Established in 1877, LME started trading futures in the 1980s.
<ul style="list-style-type: none"> <li>• OMLX The London Securities and</li> </ul>	Ph: 4 171 283 0678		

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Country, Exchange Name and Address	Phone and Fax No.	Products Offered	Other Information
Derivatives Exchange 107 Cannon St, London EC4N 5AD	Fax: 44 171 815 8508		
<b>UNITED STATES</b>			
<ul style="list-style-type: none"> <li>American Stock Exchange (AMEX) Derivative Securities, 86 Trinity Place, New York, NY 10006</li> </ul>	Ph: 212 306 1000 Fax: 212 306 1802		Launched in 1978, trades predominantly in stock index contracts and interest rate futures. Established in 1973, <b>the largest options exchange in the world measured by contract volume.</b> Formed in 1848, <b>the largest futures exchange in the world.</b> Options on commodities were added in 1983.
<ul style="list-style-type: none"> <li>Chicago Board Options Exchange (CBOE) 400 S. LaSalle St. Chicago IL, 60605</li> </ul>	Ph: 312 786 5600 800 678 4667 Fax: 312 786 7413	<b>Futures:</b> Corn, Oats, Soybeans, Soybean oil, Soybean meal, Wheat, Rice, Gold, Silver, Anhydrous ammonia, Diammonium phosphate.	
<ul style="list-style-type: none"> <li>Chicago Board of Trade (CBOT) 141 W Jackson Blvd., Chicago, IL 60604-2994</li> </ul>	Ph: 312 435 3500 Fax: 312 341 3306	<b>Options:</b> Corn, Oats, Soybeans, Soybean oil, Soybean meal, Wheat, Rice, Silver.	
<ul style="list-style-type: none"> <li>Chicago Stock Exchange (CHX) One Financial Place, 440 S. LaSalle St., Chicago, IL. 60605-1070</li> </ul>	Ph: 312 663 2222 Fax: 312 663 2396		
<ul style="list-style-type: none"> <li>Chicago Mercantile Exchange (CME) 30 S. Wacker Drive, Chicago, IL 60606</li> </ul>	Ph: 312 930 1000 Fax: 312 930 3439	<b>Futures:</b> Pork bellies, Live cattle, Feeder cattle, Live hogs, Fluid milk, Butter. <b>Options:</b> Pork bellies, Live cattle, Feeder cattle, Live hogs, Fluid milk, Butter, Lumber.	Chicago Produce Exchange, 1874, gave birth to Butter and Egg Board in 1898 and this was incorporated as CME in 1919. Trading in commodity options started in 1982.
<ul style="list-style-type: none"> <li>Coffee, Sugar &amp; Cocoa Exchange Inc. (CSCE) Four World Trade Center, New York, NY 10048</li> </ul>	Ph: 212 742 6000 800 433 4348 Fax: 212 748 4321	<b>Futures:</b> Coffee, Cocoa, Sugar, Dry milk, Milk, Cheese. <b>Options:</b> Coffee, Cocoa, Sugar, Dry milk, Milk, Cheese.	Opened in 1882 as the Coffee Exchange of the City of New York. In 1982, this exchange introduced the first options contract in commodity futures in the US. <b>The CSCE ranks as the 18th largest futures and options exchange in the world by volume in 1993.</b>

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Country, Exchange Name and Address	Phone and Fax No.	Products Offered	Other Information
<ul style="list-style-type: none"> <li>• Kansas City Board of Trade (KCBT) 4800 Main St., Suite 303, Kansas City, MO 64112</li> </ul>	Ph: 816 753 7500 800 821 5228 Fax: 816 753 3944	<b>Futures:</b> Wheat, Natural Gas. <b>Options:</b> Wheat, Natural Gas.	
<ul style="list-style-type: none"> <li>• Mid America Commodity Exchange (MIDAM) 141 W. Jackson Blvd., Chicago, IL 60604</li> </ul>	Ph: 312 341 3000 Fax: 312 341 3027	<b>Futures:</b> Corn, Oats, Soybeans, Soybean oil, Soybean meal, Wheat, Cattle, Hogs, Gold, Silver, Platinum. <b>Options:</b> Corn, Soybeans, Soybean oil, Wheat, Gold.	
<ul style="list-style-type: none"> <li>• Minneapolis Grain Exchange (MGE) 400 S. Fourth St., Minneapolis, MN 55415</li> </ul>	Ph: 612 321 67101 Fax: 612 339 1155	<b>Futures:</b> Wheat, Shrimp, Barley. <b>Options:</b> Wheat, Shrimp, Barley.	
<ul style="list-style-type: none"> <li>• New York Cotton Exchange (NYCE) 4 World Trade Center, New York, NY 10048</li> </ul>	Ph: 212 742 5050 Fax: 212 748 1241	<b>Futures:</b> Cotton, Orange juice, Potato. <b>Options:</b> Cotton, Orange juice, Potato.	
<ul style="list-style-type: none"> <li>• New York Futures Exchange, 20 Broad Street, 10th Floor, New York, NY 100 05,</li> </ul>	Ph: 212 748 1248 Fax: 212 742 5026	<b>Futures:</b> CRB Futures Price Index. <b>Options:</b> CRB Futures Price Index.	Began Trading in 1979. <b>The NYFE offers CRB Futures Price Index which is an index of 21 commodity prices</b> (live cattle, cocoa, coffee, copper, corn, cotton, crude oil, gold, heating oil, live hogs, limber, orange juice, platinum, pork bellies, silver, soybeans, soybean meal, soybean oil, sugar, unladed gasoline and wheat). NYMEX in its original form was established as Butter and Cheese Exchange of New York in 1872. In 1994 it has been merged with Commodities Exchange (COMEX) of New York, 1933. <b>According to 1993 trade volume</b>
<ul style="list-style-type: none"> <li>• New York Mercantile Exchange (NYMEX) 4 World Trade Center, New York, NY 10048</li> </ul>	Ph: 212 748 3000 Fax: 212 742 5263	<b>Futures:</b> Heating oil, Gasoline, Propane, Light sweet, Sour Crude, Natural gas, Platinum, Palladium. <b>Options:</b> Crude oil, Heating oil, Gasoline, Natural gas, Platinum, Gasoline-Crude crack spread, Heating oil -	

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Country, Exchange Name and Address	Phone and Fax No.	Products Offered	Other Information
New York Mercantile Exchange (COMEX)		Crude crack spread. Futures: Copper, Gold, Silver. Options: Copper, Gold, Silver.	<b>NYMEX and COMEX are the fifth-largest and 12th-largest futures and options exchanges in the world. These two, put together, is the fourth-largest futures and options exchange in the world, just ahead of MATIF.</b> Established at the end of the 18th century, <b>the NYSE is the largest exchange in the US.</b> It also trades in stock index futures and options and interest rate, currency and bond futures.
<ul style="list-style-type: none"> <li>New York Stock Exchange (NYSE) 11 Wall St., New York, NY 10005</li> </ul>	Ph: 212 656 2804 Fax: 212 656 6973		
<ul style="list-style-type: none"> <li>Pacific Stock Exchange (PSE) 301 Pine St., San Francisco, CA 94104</li> </ul>	Ph: 415 393 4000 Fax: 415 393 4202		
<ul style="list-style-type: none"> <li>Philadelphia Board of Trade, 1900 Market Street, Philadelphia Stock Exchange Bldg. Philadelphia, PA 19103,</li> </ul>			
<ul style="list-style-type: none"> <li>Philadelphia Stock Exchange (PHLX) 1900 Market St. Philadelphia, PA 19103</li> </ul>	Ph: 215 496 5000 800 843 7459 Fax: 215 496 5653		Established in 1790, the PHLX started trading in stock options in 1975.

**Note:** This list is indicative rather than exhaustive.