

SEBI Advisory Committee on Derivatives

**Report on
Development and Regulation of Derivative Markets in India**

**Submitted to
Securities and Exchange Board of India**

September 2002

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1 Background

The SEBI Board in its meeting on June 24, 2002 considered some important issues relating to the derivative markets including:

- Physical settlement of stock options and stock futures contracts.
- Review of the eligibility criteria of stocks on which derivative products are permitted.
- Use of sub-brokers in the derivative markets.
- Norms for use of derivatives by mutual funds

The recommendations of the Advisory Committee on Derivatives on some of these issues were also placed before the SEBI Board. The Board desired that these issues be reconsidered by the Advisory Committee on Derivatives (ACD) and requested a detailed report on the aforesaid issues for the consideration of the Board.

In the meantime, several other important issues like the issue of minimum contract size, the segregation of the cash and derivative segments of the exchange and the surveillance issues in the derivatives market were also placed before the ACD for its consideration. The Advisory Committee therefore decided to take this opportunity to present a comprehensive report on the development and regulation of derivative markets including a review of the recommendations of the L. C. Gupta Committee (LCGC).

Four years have elapsed since the LCGC Report of March 1998. During this period there have been several significant changes in the structure of the Indian Capital Markets which include, dematerialisation of shares, rolling settlement on a T+3 basis, client level and Value at Risk (VaR) based margining in both the derivative and cash markets and proposed demutualization of Exchanges. Equity derivative markets have now been in existence for two years and the markets have grown in size and diversity of products. This therefore appears to be an appropriate time for a comprehensive review of the development and regulation of derivative markets.

2 Regulatory Objectives

The LCGC outlined the goals of regulation admirably well in Paragraph 3.1 of its report. We endorse these regulatory principles completely and base our recommendations also on these same principles. We therefore reproduce this paragraph of the LCGC Report:

“The Committee believes that regulation should be designed to achieve specific, well-defined goals. It is inclined towards positive regulation designed to encourage healthy activity and behaviour. It has been guided by the following objectives:

- (a) **Investor Protection:** Attention needs to be given to the following four aspects:
 - (i) **Fairness and Transparency:** The trading rules should ensure that trading is conducted in a fair and transparent manner. Experience in other countries shows that in many cases, derivatives brokers/dealers failed to disclose potential risk to the clients. In this context, sales practices adopted by dealers for derivatives would require specific regulation. In some of the most widely reported mishaps in the derivatives market elsewhere, the underlying reason was inadequate internal control system at the user-firm itself so that overall exposure was not controlled and the use of derivatives was for speculation rather than for risk hedging. These experiences provide useful lessons for us for designing regulations.
 - (ii) **Safeguard for clients’ moneys:** Moneys and securities deposited by clients with the trading members should not only be kept in a separate clients’ account but should also not be attachable for meeting the broker’s own debts. It should be ensured that trading by dealers on own account is totally segregated from that for clients.
 - (iii) **Competent and honest service:** The eligibility criteria for trading members should be designed to encourage competent and qualified personnel so that investors/clients are served well. This makes it necessary to prescribe qualification for derivatives brokers/dealers and the sales persons appointed by them in terms of a knowledge base.
 - (iv) **Market integrity:** The trading system should ensure that the market’s integrity is safeguarded by minimising the possibility of defaults. This requires framing appropriate rules about capital adequacy, margins, clearing corporation, etc.
- (b) **Quality of markets:** The concept of “Quality of Markets” goes well beyond market integrity and aims at enhancing important market qualities, such as cost-efficiency, price-continuity, and price-discovery. This is a much broader objective than market integrity.
- (c) **Innovation:** While curbing any undesirable tendencies, the regulatory framework should not stifle innovation which is the source of all economic progress, more so because financial derivatives represent a new rapidly developing area, aided by advancements in information technology.”

3 Derivative Products

3.1 Interest and Currency Futures

The LCGC stated in Paragraph 1.24:

“There are inter-connections among the various kinds of financial futures, mentioned above [equity, interest rate and currency], because the various financial markets are closely inter-linked, as the recent financial market turmoil in East and South-East Asian countries has shown. The basic principles underlying the running of futures markets and their regulation are the same. Having a common trading infrastructure will have important advantages. The Committee, therefore, feels that the attempt should be to develop an integrated market structure.”

We agree with this assessment. Currently, in the country, there is a vibrant currency forward market, and negligible activity in currency options and in interest-rate derivatives. These markets are non-transparent telephone markets.

We now have the institutions and technology at hand, to bring these markets onto the transparent exchange platform. This would bring the advantages of price-time priority, transparency, risk management at a central counterparty, nationwide reach, etc. to these important markets. Hence, SEBI and RBI should move on with trading in futures, options and swaps using a variety of underlyings, such as (a) the INR-USD rate, (b) the short-end interest rate, (c) the long-end interest rate, (d) MIBOR, etc.

3.2 Single Stock Derivatives

3.2.1 Introduction of Single Stock Derivatives

The LCGC advocated a phased introduction of different equity derivatives in India in Paragraph 2.17 of its report:

“The consensus in the Committee was that stock index futures would be the best starting point for equity derivatives in India. The Committee has arrived at this conclusion after careful examination of all aspects of the problem, including the survey findings and regulatory preparedness. The Committee would favour the introduction of other types of equity derivatives also, as the derivatives market grows and the market players acquire familiarity with its operations. Other equity derivatives include options on stock index or on individual stocks. There may also be room for more than one stock index futures. It is bound to be a gradual process, shaped by market forces under the over-all supervision of SEBI.”

This phased approach was adopted in India with index futures being introduced in June 2000, index options in June 2001 and individual stock options in July 2001.

The LCGC was not much inclined towards the fourth type of equity derivatives (individual stock futures) given its then limited popularity globally:

“The fourth type, viz. individual stock futures, was favoured much less. It is pertinent to note that the U.S.A. does not permit individual stock futures. Only one or two countries in the world are known to have futures on individual stocks.”
(Paragraph 2.3)

Since the time of the LCGC report, the world has changed a great deal. Towards the end of 2000, the United States passed the Commodity Futures Modernization Act that demarcated the jurisdiction of the CFTC and the SEC and thereby removed the regulatory obstacle to single stock futures in that country. Single stock futures are expected to start trading in the United States later this year with the major derivatives exchanges coming together in a joint venture (OneChicago) for this purpose and Nasdaq teaming up with Liffe in a rival alliance. The list of countries trading single stock futures has expanded substantially during 2001 to include¹ the United Kingdom, Greece, Mexico, Canada, Singapore, Hong Kong, Netherlands, Spain, Australia, Sweden, Finland, Denmark, Portugal, Hungary and South Africa. Liffe in London trades single stock futures on a range of stocks from around the world including the United States.

In India, the regulatory debate on single stock futures intensified when SEBI started work in early 2000 on adapting the carry-forward system to the rolling settlement regime. A dissent note in the report of the committee² appointed for this purpose recommended that carry forward system should be swiftly replaced by single stock futures.

“The weekly carry forward system under rolling settlements is conceptually very close to a futures contract on individual stocks with five different futures contracts (with maturities of 1, 2, 3, 4, and 5 trading days) open for trading on any day. Moreover, the risk management of a proper futures contract is much better understood. As such, Dr. Patil and Prof. Varma recommend that the weekly carry forward product should swiftly migrate to a full fledged futures contract in individual stocks. When this is done, the product will cease to be regulated as a carry forward product and will be regulated exclusively as a derivatives contract.”

The majority view at that time preferred the carry forward product on the ground that the market would find that product easier to understand and use. A year later when SEBI began working on moving the entire market to rolling settlement, the view on this had changed. The developments in the cash and derivative markets during 2000 led to a view that carry forward system may not be any easier to understand and use than a single stock future. The superior risk containment model for derivatives swayed the thinking of the

¹ This list is derived from Table 8 in Lascelles, D. (2002), “Single stock futures, the ultimate derivative”, Centre for the Study of Financial Innovation, Paper No 52, February 2002, available online at <http://www.liffe.com/products/equities/publications/csfi-ssf.pdf>

² “Report of the Committee on Carry Forward under Rolling Settlements”, Securities and Exchange Board of India, January 2000.

Committee and led to a recommendation to abolish carry forward completely and replace it with single stock futures³.

Accordingly all deferral products like the carry forward system, ALBM and BLESS were abolished in July 2001. Stock futures started trading in November 2001. Thereafter, there has been a continuing debate on single stock futures in the press and elsewhere. In December 2001, the ACD discussed a note from former office bearers of the BSE stating that the regulatory regime for single stock futures was more liberal than that for the erstwhile carry forward system as well as that for the cash market. In its meeting in August 2002, the ACD's attention was drawn to several press reports making similar arguments.

The ACD therefore considers it necessary to explain why the regulatory regimes for single stock futures and for the carry forward system are so radically different particularly in relation to position limits and margins. Further discussion of risk containment systems in derivatives is presented in 4 below

3.2.2 Position Limits

While institutions were prohibited by regulation from participating in the carry forward system, the derivatives markets are expected to have large institutional participation⁴. A market open to institutional trading cannot have arbitrary monetary limits on the size of individual trades or positions of the kind that existed in the carry forward market. For example, a large mutual fund that wants to hedge its exposure to a large stock might need to take a position of a billion rupees or more in the derivative markets. The position limits in single stock futures are therefore more complex:

- The aggregate positions of all players in the market put together in a single stock cannot exceed 10% of the free float of that stock. There was no such limit at all in the carry forward market and it was possible for total positions to be very large in relation to the free float particularly for small stocks. There have been occasions in the past year where this aggregate limit was approached and the exchanges took corrective action to prevent it from being breached.
- The aggregate positions cannot also exceed 30 times the average number of shares traded daily, during the previous calendar month, in the cash segment. This further limits the aggregate positions for less liquid stocks.

³ "Report of the Committee on Deferral Products under Rolling Settlements", Securities and Exchange Board of India, April 2001.

⁴ India and Korea are perhaps the only exceptions to a global tendency for derivative markets to be dominated by institutional players. In India also institutional participation is expected to grow in future with increased clarity in the regulatory regime that applies to them.

- No single client is allowed to take a position exceeding 1% of the free float of that stock. Except for the top rung of stocks with very large market capitalization, this position limit is quite modest. The carry forward system did not have any such limit at all as it applied limits only at the broker level rather than the client level. A single client could take large positions by operating through several brokers.
- To reduce concentration risk, no broker should account for a large fraction of the positions in any stock. An individual broker is not allowed to account for more than 7.5% of the aggregate positions in any stock. But there has to be an exception where the aggregate position itself is quite small. The first trade that is done on any stock would automatically give the two trading brokers a 50% share of the aggregate positions. To allow the initial trades to be executed to build the positions up to a reasonable size, a broker is allowed to have a position of up to Rs 0.5 billion even if that accounts for more than 7.5% of the aggregate positions. This limit is much bigger than it was in the carry forward system. The principal reason is that the carry forward system did not have limits at the customer level and had to impose tighter limits at the broker level. A second reason is that now the broker could be dealing for a number of large institutions and the limits that applied to the carry forward system would be totally inappropriate. Particularly in the context of the recommendation regarding extending stock derivatives to a larger number of stocks (see 3.3 below), the Committee is of the view that the Rs 0.5 billion limit would be too high for smaller stocks. The majority view of the Committee is that the member wise position limit should be as follows:
 - 20% of the market wide position limit in the stock, where the market wide position limit is less than or equal to Rs 2.5 billion. This would ensure that when the open interest in the scrip is large (close to the market wide limit) it is distributed over at least five members with no member holding more than a fifth of the open interest.
 - Rs 0.5 billion plus 7.5% of the excess of the market wide position limit over Rs 2.5 billion where the market wide position limit exceeds Rs 2.5 billion. This would mean that the larger the stock, the larger the number of members over whom a large open interest (close to the market wide limit) would have to be distributed. For example, if a stock has a market wide position limit of Rs 15 billion, each member would be limited to less than one-tenth of this.

The majority view of the Committee is that taken in totality the position limits in single stock futures (modified as above) are more stringent and effective than they were in the carry forward system.

Mr. Tahir and Mr. Vaidyanath do not agree with the majority view on member wise position limits and are of the view that the trading member position limit ought to be reduced. Mr. Tahir's view is that:

“The position limit of Rs 0.5 billion (more than Rs 0.5 billion in certain situations) per broker per scrip per exchange in respect of individual stock futures seems to be on the high side and therefore risky. Apparently, the limit has no relationship with the capital of a broker. The above limit of Rs 0.5 billion may be appropriately brought down.

No aggregate position limit seems to have been envisaged for all the scrips taken together. Theoretically, this might lead to building up of huge positions (Rs 0.5 billion x Number of scrips x Number of exchanges) by individual brokers without reference to their capital. An aggregate position limit for each member for all stocks put together may be introduced.

In due course, an aggregate limit per member in both the segments (cash and derivatives) put together and an aggregate limit per member for both the stock exchanges put together may be thought of.”

Mr. Vaidyanath is of the view that:

“The statement is made in the report ‘A market open to institutional trading cannot have arbitrary monetary limits on the size of individual trades or positions of the kind that existed in the carry forward market.’

The carry forward system had limits per broker (per weekly settlement) and there existed no client wise limits on the size of the individual trades or position. The system had in place a broker wise limit and a stringent limit for each scrip, which can be more easily monitored and regulated by the exchanges. Although we have a client wise limits in the derivatives segment the same cannot be a justification for higher broker wise position limits. Monitoring of client wise positions across several brokers is an area of concern from the risk management perspective.

The statement that in the carry forward system a single client could take large positions by operating through several brokers in different names would be as much true for the derivatives market.

A member wise position limits does not affect institutional participation. A statement is made that lower position limits on Trading Members would act as a hindrance for the large Institutional participation. The trades done by any institution gets transferred online to a Custodian Clearing Member. It therefore falls outside the purview of the trading member wise position limits Thus a lower broker wise position limits does not act as a hindrance for an Institution to take a large position.

It would be pertinent to mention that on the regulatory side the exchange has powers to regulate the member brokers and not over their clients.

Currently there exists a cap on the maximum amount of business that an institution / mutual Fund can put through a single broking entity. The limit is around 5% of the total turnover of the mutual fund or institution. It would be pertinent to mention that

such limits also exist in respect of transactions in government securities that are undertaken by various banks and financial institutions

Diversification of positions across scrips and members is essential as an important tool for risk reduction and better risk management. For encouraging institutional participation a differential treatment could be considered. A higher limit of Rs 0.5 billion could probably have been justified in the initial stages for the development of the derivatives market in India. However, currently there exists a need to encourage for proliferation across scrips and members.

There is a very strong need to take a fresh look at the member wise position limits. A lower limit will definitely not act as hindrance for institutional participation as explained earlier. However a lower limit with the stringent onus on the exchanges in respect of monitoring the same will ensure wider and broader participation concomitant with reduction of risk. A lower limit also acts as a strong deterrent for client manipulations. It should also be borne in mind that the exchanges have regulatory powers over the brokers and have no jurisdiction over the clients of member brokers.

With the limits proposed in the draft report a trading member without any net worth criteria can take positions across scrips up to Rs 9 billion in each exchange in the equity derivatives contracts. A trading member can take a position of Rs 0.5 billion in an underlying with an actual outflow of just Rs 15 million, offering a high degree of leverage.

It is important to note that currently the risk management systems deployed by the exchanges for margin computation is based on VAR. However, VAR as a means of risk cover addresses volatility and not the risk arising out of concentration of position. Historically, it is observed that it is concentration scrip wise or member wise which has caused market turbulence.

The Exchange appreciates the norm of market wide limits at 10% of the free float of the stock. However, in respect of the broker wise position limits it is suggested that we have a scrip wise limit and an overall cap in respect of the position across various equity based derivatives contracts. The proposed limits are as under

- Scrip wise limit (for equity based derivatives contracts): Up to Market Wide Open Interest of Rs 0.5 billion the limit applicable is proposed at Rs 50 million. When Market Wide Open Interest crosses Rs 0.5 billion, the limit applicable is proposed as the lower of 10% of the Market Wide Open Interest or Rs 200 million.
- Overall member wise limits across all equity based derivatives contracts: It is proposed that we fix a limit of Rs 0.75 billion.”

Prof. Varma on the other hand wishes to place on record his strong support for the majority view that member level position limits should be linked to the market wide

limits and his strong opposition to the minority view that there should be an absolute monetary limit. His view is that:

“Position limits are designed to deal with market integrity and not with risk containment. Historically, there was an unfortunate tendency in the erstwhile deferral products to view position limits as a substitute for sound risk management. It is important to ensure that this tendency is not imported into the derivatives markets. When position limits are seen as a market integrity issue, it is evident that they have nothing to do with capital adequacy. (The threat to market integrity is, if anything, higher when a highly capitalized entity takes a large position.)

It is for this reason that the position limit is applied at the trading member level rather than the clearing member level while most of the risk management is applied at the clearing member level.

For the same reason, it does not make sense to have a position limit on the position of a member aggregated across all scrips. The threat to market integrity arises when there is a large position in a single scrip and not when a large aggregate position is composed of small positions in several scrips.

Mr. Vaidyanath asserts that ‘The trades done by any institution gets transferred online to a Custodian Clearing Member. It therefore falls outside the purview of the trading member wise position limits’. From a market integrity point of view, this practice, if it does prevail, is absolutely unacceptable and highly pernicious. Global experience highlights instances where large, well capitalized and highly regulated entities have been at the very forefront of alleged or attempted market manipulation in financial derivative markets. There is absolutely no justification for excluding the institutional trades from the purview of member wise position limits. If any exchange is doing so on its own, it must stop the practice forthwith and if SEBI itself has permitted or condoned this relaxation, it must act quickly to withdraw the relaxation.”

3.2.3 Margins

The minimum margins in the carry forward system were only 10%. This was beefed up by a complex tier of concentration and volatility margins as well as ad hoc margins. The Value at Risk (VaR) based margins in the derivative markets automatically and dynamically adjust the margins to the risk characteristics of the stock. There have been occasions where the margins on single stock futures have reached 57%. At the same time, the margins for low volatility stocks are much lower.

The margins in the derivative market are collected up front. The margin is paid before the trade is executed. This is a level of protection that never existed in the carry forward system and does not exist in the cash market even today. Similarly, the mark to market losses and other margin calls that arise every day have to be paid before trading begins the next day unlike in the cash market where it is paid a day later. Thus in the cash segment, the exchange is exposed to the price risk for twice as long as it is in the

derivatives segment. The differences in margin collection dates are the principal reasons for the difference in margin levels between the two segments. If the cash segment could also migrate to the derivative market practices, it should be possible to harmonize the margin levels between the two markets.

The speedy collection of margins as well as its high degree of responsiveness to market conditions makes the derivative markets considerably safer than the erstwhile carry forward system.

3.3 Eligibility Requirements

Globally, the choice of stocks on which derivative contracts (stock futures or stock options) are traded is left to the exchanges. However, when the decision to introduce stock options in India was taken, the Indian markets were just emerging from the acute market turbulence of March-April 2001. Under these conditions, it was thought fit to limit the list of stocks to a small number where the threat of market manipulation was low and where there were no significant risk containment issues. Large cap, well traded stocks with a large free float were chosen to limit the possibility of market manipulation. In the backdrop of the intense market turbulence that had been witnessed in March 2001, it was also decided to exclude highly volatile stocks. The following criteria were therefore adopted:

- Stock should figure in the list of top 200 scrips, on the basis of average market capitalization, during the last six months and average free float market capitalization should not be less than Rs. 7.5 billion. and
- Stock should appear in the list of top 200 scrips, based on the average daily volume, during the last six months. Further, average daily volume should not be less than Rs. 50 million in the underlying cash market; and
- Stock should be traded at least on 90% of the trading days, during the last six months; and
- Non promoters holding in the company should be at least 30%; and
- Ratio of daily volatility of the stock vis-à-vis daily volatility of index should not be more than 4, at any time during the previous six months.

These criteria were intended to be highly restrictive under the presumption that they would be reviewed after six months with a view to expanding the list.

The ACD has revisited the issue of eligibility criteria several times during the last few months and come to the conclusion that SEBI should now lay down only broad eligibility criteria and the Exchanges should be free to decide on the stocks and indices on which

futures and options could be permitted⁵. The committee took into account the concern that the competitive dynamics of the Indian markets may push exchanges to choose low quality stocks and that this may impact the safety and integrity of the markets. The new broad eligibility criteria should therefore focus on the issues of risk containment and manipulability. Manipulability in turn is related to the liquidity of the stock as well as its size (market capitalization). Risk containment is also partly related to liquidity. At the same time, the ACD is conscious of the need to permit derivative contracts on a wider range of stocks. The Indian equity market suffers from a serious problem, in the form of a severe dropoff in liquidity when we go from the largest stocks to the second- and third-tier stocks. To the extent that a larger set of stocks have trading of stock options and futures, the universe of 'highly liquid' stocks is likely to become larger.

Hence, we need a balance between the goal of improving broad-based liquidity of the market, and the risk of suffering an episode of market misconduct involving derivatives on a highly illiquid underlying.

The ACD was of the view that the order book snapshots contain a lot of valuable information about the liquidity and manipulability of the stock, and requested the NSE and BSE to carry out an empirical study in this regard. Accordingly, the NSE presented the results of an exercise that looked at four daily snapshots of the order book in the past six months. Based on these snapshots, they computed the order size (value) required to cause a change in the stock price equal to one-quarter of a standard deviation. This is referred to below as the quarter-sigma order size. The NSE also presented data on impact costs for various order sizes on the basis of the same snapshots.

The ACD believes that the impact cost provides a good measure of liquidity while the quarter-sigma order size is a useful direct measure of the manipulability of the stock.

On the basis of this empirical study and on the basis of extensive discussions, the ACD recommends the following broad eligibility criteria:

- The stock should be among the top 500 stocks in terms of market capitalisation and average daily volumes.
- The median quarter-sigma order size over the last six months should be at least Rs 0.5 million.

The stocks that meet the above broad eligibility criteria would include some that are less liquid or more volatile or smaller (in terms of market capitalization) than the current list of 31 stocks on which derivatives are traded. To deal with these stocks, the committee proposes some changes in the risk containment system:

⁵ The role of SEBI in approving derivative contracts under paragraph 4.10 of the LCGC report is discussed later in this section.

- If a stock is illiquid, the exchange may not be able to close out a position on the same day as assumed in the VaR calculations. To deal with close-out risk, the margins need to be adjusted to account for the longer close-out time (say three days). Accordingly if the mean value of the impact cost (for an order size of Rs. 0.5 million) exceeds 1%, the price scanning range would be scaled up by the square root of three ($\sqrt{3} \approx 1.73$) to cover the close-out risk. Scaling up the price scanning range scales up the margins for futures by the same ratio, while margins for options are impacted in a non linear fashion.
- As far as volatility is concerned, there is no problem with the VaR computations themselves as they are based on stock specific volatility. The only problem is regarding the second line of defence (the exposure limit) and this problem is easily addressed by linking that also to the volatility of the underlying stock. The second line of defence is currently set at 5%. This would be changed to the higher of 5% or 1.5 standard deviations. Accordingly, the exchanges would be required to ensure that for a particular stock, the higher of 5% or 1.5 standard deviations times the notional value of gross open position in futures and option contracts on that particular stock is collected /adjusted from the liquid net worth of a member on a real time basis. The rationale for the multiplier of 1.5 is explained in 4.1 below.
- As far as small cap stocks are concerned, there are no problems regarding the position limits that are stated in terms of market cap or trading volume. The only problem would have been with the absolute amount of Rs 0.5 billion that is currently used in the definition of the member level position limit. However, as discussed in 3.2.2 above, the majority view of the committee recommends that this limit be linked to the market wide position limit.

The universe of eligible stocks would vary from month to month as the impact cost and the quarter-sigma order size are calculated every month on a rolling basis considering the previous six months. It is therefore necessary to lay down the procedure for introducing and dropping stocks:

- Options and futures contracts may be introduced on new stocks when they meet the eligibility criteria. Mr. Vaidyanath is of the view that contracts should be introduced on new stocks only when they meet the eligibility criteria for three months in succession.
- If a stock fails to meet the aforesaid eligibility criteria for three months consecutively then no fresh month contracts should be issued on that stock. However, the existing unexpired contracts may be permitted to trade till expiry and new strikes may also be introduced in the existing contract months.
- However, the Exchanges should be empowered to compulsorily close out all derivative contract positions in a particular underlying when that underlying has ceased to satisfy the new eligibility criteria and the exchanges are of the view that

continuance of derivative contracts on these stocks would pose a threat to market integrity and safety.

- If the impact cost for a stock moves from less than or equal to 1% to more than 1%, the price scan range in such stock should be scaled up by $\sqrt{3}$ and the scaling should be dropped when the impact cost drops to 1% or below. Such changes should be applicable on all existing open position in the underlying from a pre specified date.
- For the purpose of computing 1.5 standard deviations, the standard deviation of the daily logarithmic returns of prices in the scrip during the last six months would be computed. This value would be applicable for a month and would be re-calculated at the end of the month by once again taking price data on a rolling basis for the past six months.

The Committee would like to lay down some guidelines on the actual computation of impact cost and quarter sigma order size:

- Impact cost and the quarter sigma order size should be calculated by taking four snapshots in a day from the order book in the past six months. These four snapshots should be at times randomly chosen from within four fixed ten-minute windows spread through the day. The Exchanges should work together and use a common methodology for carrying out the calculations. Further, for a stock, lowest impact cost across any exchange in India would be considered.
- The details of calculation methodology and relevant data should be made available to the public at large through the web sites of the exchanges.

The committee feels that when an unlisted company come out with a large initial public offering (IPO), it may be desirable to have derivative contracts trade on these stocks from the very first day of their listing to assist in efficient price discovery. The committee therefore proposes that in such cases if net public offer in the IPO is greater than or equal to Rs 5 billion then the exchanges may consider introducing stock options and stock futures contracts on such stocks at the time of their listing in the cash market. In this regard the exchanges may submit their proposal to SEBI for approval on a case by case basis. As regard the risk containment measures, the price scan range could be a multiple of the volatility indices. Subsequently, after sometime the volatility and the impact cost of the underlying stock could be used when price and order book data is available.

The recommendation that SEBI should only lay down the broad eligibility criteria for stock derivatives needs to be reconciled with the role of SEBI in approving derivative contracts under paragraph 4.10 of the LCGC report:

“The Committee suggests that before starting trading in a new derivatives product, the derivatives exchange should submit the proposal for SEBI's approval, giving (a) full details of the proposed derivatives contract to be traded (b) the economic purposes it is intended to serve (c) its likely contribution to the market's development

and (d) the safeguards incorporated to ensure protection of investors/clients and fair trading. SEBI officers should be in a position to provide effective supervision and constructive guidance in this regard.”

Properly interpreted, there is no contradiction here. What is being said in this report is that SEBI should take a view that stock futures and options contracts on stocks meeting the broad eligibility criteria would normally meet the tests laid down in paragraph 4.10 of the LCGC report and it would not be necessary for SEBI to apply its mind *ab initio* to each such contract that is proposed by an exchange. However, SEBI would retain the right under exceptional situations to deny permission for a contract that meets the eligibility conditions if it has particular reason to believe that clause (d) of paragraph 4.10 would not be met in that particular case.

3.4 Contracts on New Indices

The eligibility criteria laid down above for single stock derivatives can be extended to the case of narrow stock indices as well. A stock index would normally be eligible for derivatives trading if most of the weightage in the index (say 90%) is accounted for by constituent stocks that are themselves eligible for derivatives trading. This would also of course be subject to the right of SEBI to refuse permission in exceptional cases under paragraph 4.10 of the LCGC report.

The ACD also endorses futures and options on dollar-denominated indexes, which are cash-settled in rupees provided the index meets the above eligibility criteria.

3.5 Minimum Contract Size

The LCGC Report did not make any recommendation regarding minimum contract size. However, the Standing Committee on Finance of Parliament while considering the amendment to SC(R)A pertaining to derivatives recommended that the threshold limit of the derivative transactions should be pegged not below Rs. 0.2 million. Based on this recommendation SEBI has specified that the value of a derivative contract should not be less than Rs. 0.2 million at the time of introducing the contract in the market.

SEBI has been receiving various representations on the issue of minimum contract size. The following reasons have been cited for withdrawing the stipulation of minimum contract size:-

- At the time when the decision to stipulate a minimum contract size of Rs. 0.2 million was taken, there were other products/systems like, Badla, ALBM, BLESS available to investors through which they could take a long term view on the markets. However, in the present scenario, with rolling settlement in place, investors can take a long term view only through derivative products. The stipulation of minimum contract size of Rs. 0.2 million is a deterrent for many investors to participate in the derivative market, as the cost of entering the derivative markets is high.

- Derivative products provide investors with an efficient and a cost-effective tool for risk management and hedging the market risk on their portfolio. However, the minimum contract size of Rs. 0.2 million may not match with the size of the portfolio of every investor.
- One of the economic purposes of the Derivative markets is that they provide an efficient mechanism for future price discovery. Price is arrived on the basis of the collective perception of all players in the market who have diversified views on the market. A large cross section of persons participating in the market would increase the diversity of the views expressed, which would lead to fair price discovery. The stipulation of minimum contract size may act as a deterrent to many investors and may exclude them for expressing their views in the mechanism of price discovery.

The Committee sees merit in some of these arguments. More importantly, it recognizes that globally the contract size is determined by the exchanges without any intervention from the regulators. The environment under which the Rs 0.2 million limit was introduced has undergone a dramatic change and the time has now come to do away with the minimum contract size in value terms.

3.6 Adjustment for Corporate Actions

At the time of recommending introduction of stock options, SEBI laid down procedures for adjustment in derivative contracts at the time of corporate action in line with international best practices. It was decided that the adjustment for corporate action on the same underlying should be uniform across markets and should be based on the following principles:

- The basis for any adjustment for corporate action shall be such that the value of the position of the market participants on cum and ex-date for corporate action shall continue to remain the same as far as possible. This will facilitate in retaining the relative status of positions viz. in-the-money, at-the-money and out-of-money. This will also address issues related to exercise and assignments.
- Any adjustment for corporate actions shall be carried out on the last day on which a security is traded on a cum basis in the underlying cash market.
- Adjustments may be carried out by modifying the Strike Price, Position or Market Lot / Multiplier. The adjustments shall be carried out on any or all of the above based on the nature of the corporate action.
- The adjustments for corporate actions shall be carried out on all open, exercised as well as assigned positions.

The adjustment methodology for certain corporate actions like rights, bonus, and stock split was also laid down at that time. At the same time a group was set up comprising NSE, BSE and other knowledgeable persons which would decide a uniform course of

action for adjusting stock option contracts on corporate actions, taking into account best practices followed internationally, where a uniform criterion was not already laid down. The detailed adjustment methodology laid down by SEBI as well as the decisions taken by the sub-group are summarized in the Appendix.

On the basis of the experience accumulated so far, the ACD is of the view that the task of deciding on adjustments for corporate action should now be left to the exchanges with the stipulation that:

- The basis for any adjustment for corporate action shall be such that the value of the position of the market participants on cum and ex-date for corporate action shall continue to remain the same as far as possible.
- The exchanges should take into account best practices followed internationally.
- The exchanges must act consistent with SEBI's circular on adjustment for corporate actions as well as the decisions of the erstwhile subgroup on corporate actions.
- The Exchanges must consider the circumstances of the particular case and the general interest of investors in the market

4 Risk Containment

4.1 VaR Framework

The LCGC Report laid down the fundamental principle of 99% VaR based margins:

“The level of initial margin required on a position should be related to the risk of loss on the position. The concept of “value at risk” should be used in calculating required levels of initial margin. The initial margin should be large enough to cover the one-day loss that can be encountered on the position on 99% of the days.” (Paragraph 6.13(3)).

“Since market volatility changes over time, the Committee feels that the Clearing Corporation should continuously analyse this problem and may modify the margin requirements to safeguard the market.” (Paragraph 6.4)

The methodology for operationalizing these recommendations in the context of index futures was laid down by another committee that submitted its report in November 1998. The principal elements of this framework were:

- SEBI should not lay down the margins but should approve a VaR estimation methodology under which the margins are automatically updated every day
- The exponentially weighted moving average method (also known as the IGARCH or Risk Metrics method) should be used to estimate volatility daily

- The 99% VaR should be operationalized by using three standard deviations to account for the fat tails
- Since even a 99% VaR implies a margin shortfall once every hundred trading days (approximately once every six months), it is necessary to have a second line of defence of 3% (an exposure limit of 33 ⅓ times) in the form of a liquid net worth requirement.
- The derivatives exchange and clearing corporation should be encouraged to refine the VaR methodology continuously on the basis of further experience.

This VaR framework was further extended when index options were introduced. Essentially, the VaR was now based on a portfolio approach similar to that of the SPAN system employed by leading derivative exchanges worldwide:

- The possible loss on the entire portfolio of any client is estimated under a variety of price and volatility scenarios.
- The range of prices considered for this purpose is set at three standard deviations in conformity with the value used when only index futures were traded.
- The range of volatility changes for option valuation was set at 4%. The Black-Scholes or other alternative models could be used for option valuation
- The margin is computed as the worst case loss under these various price and volatility scenarios
- The margin shall not however be less than 3% of the notional value of all short options. This minimum margin is intended to cover model risk and impacts option portfolios which are approximately delta, gamma and vega neutral and therefore attract very low margins under the Black-Scholes valuation model.
- The second line of defence was set at 3% for index options also on the basis of notional value.

When stock options were introduced the same framework was extended by stipulating:

- The range of price movements considered was set at 3.5 standard deviations to account for the fatter tails of movements of stock prices as compared to index movements.
- The range of volatilities to be considered was set at 10% to account for the higher volatility of stocks.
- The second line of defence was set at 5% to account for the higher volatility of stocks.

The ACD regards this risk containment framework as adequate except for changing the second line of defence to the higher of 5% or 1.5 standard deviations as already mentioned in 3.3 above. The underlying rationale for the multiplier 1.5 is that under the assumption of power law tails, the expected price change conditional on the change being greater than x is $h/(h-1)x$ where h is the tail index. Since the first line of margins is equal to x , the second line must cover the excess over x or $[h/(h-1)-1]x$. If we assume h to be in the range of 3.25 to 3.75 and x is 3.5 standard deviations, then the second line is about 1.5 standard deviations. We put a floor of 5% on this to deal with situations where the estimated volatility is very low because of a long period of very low actual volatility⁶.

4.2 Cross Margining: Basic Principles

The LCGC was of the view that cross margining should be introduced only after the derivative markets have become fully established and the systems capability for adopting sophisticated systems has emerged:

“At the initial stage of derivatives market in India, the Committee does not favour cross-margining which takes into account a dealer’s combined position in the cash and derivative segments and across all stock exchanges. The Committee recognises that cross-margining is logical and would economise the use of a trading member’s capital, but a conservative approach would be more advisable until the reliability of systems has been fully established. The systems capability has to emerge before adopting sophisticated systems.” (Paragraph 6.9)

The ACD is of the view that the initial stage referred to by the LCGC is now over. Derivative markets are now well established and the systems capability for implementing complex margining systems now exists. Cross-margining is now the logical next step. The ACD recommends the following method of implementing cross margining without commingling the cash and derivative segments:

- Cross margining should be implemented at the client level. The margin should be computed on the integrated position of a client across cash and derivative market.
- To achieve efficiency in client level cross margining, it would be desirable that a client has the same clearing member across both the cash and derivative segment. In the event if a client chooses to settle trades through more than one clearing member, the client would decide by way of an agreement which clearing member would collect margin from the client and in event of a default what would be the obligation of other clearing members.

⁶ In a sense, this problem arises because of the use of an EWMA model instead of a full fledged GARCH model.

- In the event of default the clearing corporations⁷ would liquidate the positions in their respective markets and under an agreement transfer the surplus, if any to the clearing corporation where there is a deficit.
- This method of cross margining avoids commingling the two segments of the exchange. However, it does involve each clearing corporation taking a credit exposure on the other. This must be limited by internal prudential guidelines and embodied in the agreement between the two clearing bodies.
- To achieve cross margining certain legal changes would have to be made in the cash / derivative markets. These are-
 - Legal provisions as regard default, TGF/SGF would have to be modified.
 - Agreement between clearing corporation, client/clearing member/ trading member to be framed and bye-laws suitably amended.
- Common client identification is necessary to implement cross margining at the client level. The quickest way to do this would be to make a global unique client identification (say PAN number) a pre-requisite for those clients who wish to avail of cross margining. Those who do not have this global unique client identification will still be able to trade but they will not get the benefit of cross margining.

From a risk management point of view, there are technical issues to be resolved for cross margining between an index derivative position and an offsetting cash market position in a basket of stocks that tracks the index.

4.3 Cross Margining between single stock derivative and the underlying

The positions in the underlying that are eligible for cross margining against positions in single stock derivatives are:

- The underlying in dematerialized form transferred to or pledged with the clearing corporation
- Short or long positions in any cash market segment that has a cross margining agreement with the derivative market segment under consideration

A position in the underlying offset by an equal opposite position in the stock future would be margined like a calendar spread. For the purpose of calculating the spread margin, the maturity difference between the underlying and the near month contract will be taken as one month and the maturity difference between the underlying and a far month contract will be taken as one month plus the maturity difference between the near

⁷ The term clearing corporation is used in this report to include a clearing house.

month contract and the far month contract. Calendar spread treatment will also be accorded to stock option positions whose deltas are offset by opposite positions in the underlying in the same manner in which the calendar spread treatment is applied to option positions of one maturity delta-hedged with futures of a different maturity.

Just as for calendar spreads between two futures contracts, calendar spreads between the underlying and the derivative will also cease three days before expiry of the relevant derivative contract. This has to be done because of the basis risk that arises on settlement. The only possible exception would be where the derivative is a futures contract that is physically settled and the underlying position consists of a position in the cash market segment whose settlement obligations can be netted against the settlement obligations arising on expiry of the future.

Strictly speaking there is a settlement related basis risk whenever an American option is delta hedged with futures or with positions in the underlying. This is because the American option can be exercised at any time. This basis risk is ignored under the assumption that it can be managed by (a) requiring a one day notice before exercise, (b) imposing daily exercise and assignment limits, and (c) withdrawing the spread treatment when the option position has been given notice of assignment for exercise.

4.4 Cross margining between index futures and a basket of constituent stocks

Cross margining would be allowed between positions in index futures and a basket of positions in the constituent stocks provided the client designates the basket of positions as an index basket. The permissible positions in the constituent stocks would be:

- Actual holdings in the stock in unencumbered dematerialized form that are transferred or pledged with the clearing corporation
- Short or long positions in the stock in any cash market segment that has a cross margining agreement with the derivative market segment under consideration
- Short or long positions in the stock futures
- An exchange traded fund (ETF) that tracks the index could also be regarded as a basket of constituent stocks after applying an appropriate haircut to cover redemption costs and tracking error

A basket of positions in index constituents can be decomposed into three portfolios:

- (a) an exact index replica that has the same value as the basket at current market prices,
- (b) a short deviation portfolio consisting of short positions in some constituent stocks and
- (c) a long deviation portfolio consisting of long positions in some constituent stocks.

Portfolios (b) and (c) can be combined into a total deviation portfolio consisting of the absolute deviations between the index and basket. The construction of these portfolios is illustrated below with the following example of a hypothetical index that has only five stocks:

Stock	Index weights	Basket weights	Replica portfolio	Short deviation portfolio	Long deviation portfolio	Total deviation portfolio
	X_i	B_i	$R_i = X_i$	$S_i = \text{Min}(B_i - X_i, 0)$	$L_i = \text{Max}(B_i - X_i, 0)$	$T_i = B_i - X_i = L_i - S_i$
A	30%	28%	30%	-2%	0	2%
B	25%	26%	25%	0	1%	1%
C	10%	11%	10%	0	1%	1%
D	15%	16%	15%	0	1%	1%
E	20%	19%	20%	-1%	0	1%
Total	100%	100%	100%	-3%	3%	6%

It may be seen that the replica portfolio has the same value as the basket at current market prices because the short deviation portfolio and the long deviation portfolio have equal but opposite values. For the same reason, the value of the total deviation portfolio is twice that of the long or short deviation portfolios.

4.4.1 Eligibility Condition for Cross Margining with Basket

Cross margining between the basket and the index future will be permitted only if the following eligibility condition is satisfied:

The total deviation portfolio must have a value not exceeding 5% of the value of the basket. In other words, the basket must approximate the index quite closely.

The Committee recommends that the limit of 5% be reviewed after six months of experience of cross margining.

4.4.2 Margin offset between index futures and replica portfolio

The margin offset between index futures and the replica portfolio will be identical to that between single stock futures and the underlying. In other words, the position will be treated as a calendar spread and margined as such.

4.4.3 Margin on total deviation portfolio

There are two options here:

- The total deviation portfolio can be margined as a portfolio of positions on individual constituents of the portfolio. This would require that the volatility and other margin parameters must be computed for even those index constituents that do not have options or stock futures trading on them.
- A simpler solution is to margin the total deviation portfolio as if it were a position in a single hypothetical stock whose volatility is twice that of the index and which is assumed to be sufficiently liquid (impact cost less than 1%) not to require a $\sqrt{3}$ scaling for illiquidity. The smallness of the total deviation portfolio is a critical factor in using this approximation.

4.5 Cross margining between index options and options on constituent stocks

No cross margining will be permitted between positions in index options and a basket of positions in options on constituent stocks in the index. The reasons for this stand are:

- It is unlikely that any arbitrageur will delta hedge index options with a basket of constituent stock options. It is much easier to delta hedge index options with index futures and stock options with stock futures. Therefore, though it is not too difficult to give a cross margin benefit for the offsetting deltas of the two positions, there are little practical benefits from doing so.
- An arbitrageur might indeed to want vega hedge index options with a basket of constituent stock options under the belief that the index implied volatility must be a weighted average of constituent implied volatilities. Price discovery might indeed be aided by giving a cross margining benefit for such a vega hedge, but the methodology for doing so would be too complex to implement.

4.6 Cross margining between two indices

No cross margining will be permitted between two indices even if they are highly correlated.

4.7 Cross margining between two stocks

No cross margining will be permitted between two stocks even if they are highly correlated.

5 Market Structure and Governance

5.1 Separation of cash and derivatives markets

The LCGC discussed the issue of separation of the cash and derivative markets at length:

“The Committee examined the relative merits of allowing derivatives trading to be conducted by an existing stock exchange vis-à-vis a separate exchange for derivatives. The arguments for each are summarised below.

Arguments for allowing existing stock exchanges to start futures trading:

- (a) The most weighty argument in this regard is the advantage of synergies arising from the pooling of costs of expensive information technology networks and the sharing of expertise required for running a modern exchange. Setting-up a separate derivatives exchange will involve high costs and require more time.
- (b) The recent trend in other countries seems to be towards bringing futures and cash trading under coordinated supervision. The lack of coordination was recognised as an important problem in U.S.A. in the aftermath of the October 1987 market crash. Exchange-level supervisory coordination between futures and cash markets is greatly facilitated if both are parts of the same exchange.

Arguments for setting-up separate futures exchange:

- (a) The trading rules and entry requirements for futures trading would have to be different from those for cash trading.
- (b) The possibility of collusion among traders for market manipulation seems to be greater if cash and futures trading are conducted in the same exchange.
- (c) A separate exchange will start with a clean slate and would not have to restrict the entry to the existing members only but the entry will be thrown open to all potential eligible players.” (Paragraph 3.7)

“From the purely regulatory angle, a separate exchange for futures trading seems to be a neater arrangement. However, considering the constraints in infrastructure facilities, the existing stock exchanges having cash trading may also be permitted to trade derivatives provided they meet the minimum eligibility conditions as indicated below...” (Paragraph 3.8)

The ACD has also discussed this matter extensively. The committee noted that one of the major considerations of the LCGC in recommending a separate derivatives segment was the desire to “start with a clean slate” without being bound by the trading rules and practices of the cash segment. The Committee also noted that the LCGC’s recommendations were made keeping in mind the circumstances prevalent during the period in which it conducted its deliberations (The LCGC was formed in 1996 and submitted its report in 1998). Since then, there have been significant changes with regard to the governance of Exchanges and the structure of the markets. The ACD also noted that in many areas, the procedures and practices in the derivative segment are being adopted in the cash segment. Moreover, internationally, different markets like equity, derivatives and debt are merging to achieve efficiency in operations and to reduce cost of transactions.

The Committee considered the desirability of separation in three different areas:

1. In certain areas like risk management and surveillance a 'one market concept' should be followed and these areas would have to be administered by taking an overall exposure of members / client across all segments of the Exchange. Separation was undesirable in these areas.
2. In certain areas, the desirability of separation needs further analysis and discussion. For example, it could be argued that the 'Trade Guarantee Fund (TGF) / Settlement Guarantee Fund (SGF)' should be separate so that the risk of one market does not affect the risk of the other market and also because the fact that all the members of cash segment are not the members of the derivative segment. But it could also be argued that merging or pooling of funds in the TGF/SGF across different market segments would in fact strengthen the Clearing Corporation. Moreover, since many members of the cash segment are now becoming members of the derivative segment, TGF/SGF of cash and derivatives could also be considered for merger. Similarly, the desirability of having separate membership, bylaws and governing boards also needs further discussion. The Committee decided that these issues could be taken up for review at a later stage and that till then the current situation should continue.
3. In certain areas like personnel, administration and infrastructure, the Committee was of the view that it should be left to the Exchanges to decide whether to have separation or not.

After deliberation the committee recommended that SEBI should only be concerned with separation of legal architecture of the derivative segment by ensuring separate Bye-laws, Rules, Regulations, Governing Council & membership. The functional, operational and administrative modalities should be left to the discretion of the exchanges. The cash and derivative segments could have common personnel, trading terminal and infrastructure. The committee specified the areas in the derivative segment which should be separate from the cash segment for the present. These are as under:-

- The legal framework governing trading, clearing & settlement of the Derivative segment should be separate form the cash market segment. In other words, the Regulations & Bye-laws of derivative segment, as the case may be for specific exchanges, should be separate.
- TGF/SGF of the derivative segment should be separate form the cash market segment and merging / pooling of TGF/SGF may be considered at a later date.
- Membership of the derivative segment should be separate from the cash market segment.
- The Governing Council / Clearing Council / Executive Committees of the derivative segment should be separate from the cash market segment.

5.2 Sub brokers

The LCGC Report made no mention of sub brokers though it recommended a two tier market structure consisting of trading members and trading members.

The ACD has discussed the issue of sub brokers on several occasions. Its view has consistently been that there can be no compromise on

- (a) client level gross margins
- (b) regulation of sales practices at client level.

Sub brokers as they operate in cash market are inconsistent with this. However, the ACD has consistently taken the view that other forms of multi-tier broking relationships are possible consistent with the above two requirements.

- The Trading member – Clearing Member structure itself is two-tier structure and the regulatory regime imposes no minimum capital requirement on trading members as the clearing member is responsible for all settlement obligations. It is therefore possible for a sub broker to be registered as a trading member with fairly low capital requirements. The ACD has also been of the view that exchanges should be allowed to use any terminology that they like for such sub-broker turned trading member so long as they are registered with SEBI as trading members.
- It is also possible to adopt a remisier model in which client of the sub broker receive contract notes issued in the name of and on behalf of the main broker.

The ACD is of the view that SEBI should be open to any proposal from the exchanges for assimilating sub brokers into the market structure so long as these are consistent with the twin requirements of client level gross margins and regulation of sales practices at client level.

5.3 Inspection

The LCGC recommended 100% inspection of all derivative brokers every year:

“The Committee also feels that every derivative trader/member (not just 10 per cent of them) should be inspected by the derivative exchange annually, both to provide guidance in the initial years and to check compliance. This is particularly important at the initial stage of derivatives trading. The derivative exchange should be required to have a strong inspection department. Its staff should be given specialised training for the purpose.” (Paragraph 4.6)

The advisory committee reviewed the recommendation of 100% inspection of trading / clearing members in a year by the LCGC. The committee was informed that while reviewing the functioning of derivative segment of the two exchanges (NSE and BSE), SEBI had observed that in an effort to complete 100% inspection the quality of inspection

was being compromised. The Exchanges also agreed with the observation of SEBI and requested that the condition of 100% inspection be done away with as it is practically difficult to inspect all members irrespective of their share in the total trading in the market.

The advisory committee after deliberating on the issue was of the view that inspection should be linked to the level of activity of the member and other criteria as the circumstances demand. The committee was of the view that condition of 100% inspection may be done away with and the quantum of members to be inspected could be linked to the cost and benefit of inspections and the criteria decided in this regard. The Exchange should work out an appropriate inspection strategy in consultation with SEBI. This inspection strategy should lay down:

- the criteria for identifying the top members to be taken up for 100% inspection
- the percentage of remaining members to be inspected on a sampling basis
- mechanisms to ensure that active members do not go uninspected for several years in succession

5.4 Surveillance

The committee also deliberated on the issues which would be covered in the Surveillance Systems / Mechanism in the derivative markets. While many aspects of surveillance would be the same for derivatives and for other securities, the committee felt that some areas of differences do exist. In particular, the Committee is of the view that the exchanges should consider developing a specific stock watch system for derivative markets. The cash market surveillance mechanism may not meet all the requirements of the derivatives market. Some of the important issues that arise are as follows:

- There should be monitoring of open interest, cost of carry, impact cost, and volatility. The open positions in the derivative market should be seen in conjunction with the open positions in the cash market i.e. the position deltas should be monitored.
- The timing of information disclosure by corporates should be monitored as this could influence the prices of the contract at the time of contract introduction and expiry.
- Strike prices with large open positions should be monitored as such strike prices could be a target price to be achieved in the cash market to derive maximum benefit from the derivative position.
- It is also necessary to monitor contract expirations very carefully. The ACD has sometimes reviewed this on an ad hoc basis. For example, in one of its meetings, it reviewed the contract expirations coinciding with large volumes and high volatility on February 28, 2002 (budget announcement) and March end (close of

the financial year). Both BSE & NSE submitted details of the analysis that they had carried out in this regard and stated unequivocally that there were no risk management or market integrity concerns associated with these expirations. Expiration monitoring should be done systematically from a surveillance point of view.

- Unified surveillance of the cash and derivatives markets is essential both at the exchange level and at the level of SEBI.
- SEBI and the Exchanges should study surveillance practices in various global equity derivative markets. Surveillance practices in global commodities and bullion derivative markets could also be studied where appropriate as some of the well publicized cases of market manipulation in derivatives have been in these markets. Case studies on some market manipulations in various derivatives markets could be looked at to see what lessons could be drawn.

5.5 Physical Settlement

The LCGC Report took it for granted that physical settlement would be used for derivative contracts on individual stocks:

“In the case of individual stocks, the positions which remain outstanding on the expiration date will have to be settled by physical delivery. This is an accepted principle everywhere.” (Paragraph 2.8(5))

However, when single stock derivatives were introduced in India, it was decided to use cash settlement to begin with because the exchanges did not then have the software, legal framework and administrative infrastructure for physical settlement. It was proposed that cash settlement would be replaced by physical settlement within a period of six months as the exchanges developed the capabilities to achieve physical settlement efficiently.

In April 2002, the ACD proposed a broad framework for physical settlement. The SEBI Board desired that the committee should present a report highlighting the risks and benefits of physical settlements along with possible risk containment measures.

Accordingly, the ACD reconsidered its recommendation on the risks and benefits of physical settlement. The ACD notes the principal issues involved in physical settlement:

- In the absence of a vibrant mechanism for securities lending and borrowing, physical settlement of stock specific derivative contracts, especially stock options, may raise concerns on the possibility of a short squeeze.
- Globally, cash settlement is cheaper than physical settlement, but the economics may be less clear cut in India where the modernization of the payment system has lagged that of the securities settlement system.
- Under the existing procedure of cash settlement, hedgers and arbitrageurs incur overnight price risk for liquidating one leg of the transaction in the cash markets.

A hedger (who by definition has a position in the underlying) would have to liquidate that position in the cash market and then bears the risk that the price realized in the cash market would differ from the settlement price used for cash settlement in the derivative markets. The same argument applies to arbitrageurs. Speculators on the other hand would find cash settlement beneficial since they do not (by definition) have an offsetting cash market position and cash settlement saves them the burden of operating in two markets. Physical settlement of derivative contract helps hedgers and arbitrageurs avoid basis risk while imposing some additional costs on speculators.

The committee is of the view that the regulatory regime should be more in tune with the requirements of hedgers and arbitrageurs than the needs of speculators. For this reason, it recommends physical settlement which protects hedgers and arbitrageurs from basis risk in the settlement process⁸. At the same time, the Committee recognizes the concerns regarding short squeezes in physical settlement. To address these concerns, the committee recommends the following measures to reduce the risk of short squeeze:

- The exchanges should lay down limits on daily exercise and assignment of stock options. Since these options are American, the squeeze can arise at any time during the contract cycle. Daily limits on exercise and assignment limit the ability to squeeze the market in the middle of the contract month.
- That leaves the possibility of a short squeeze at expiry. One important defence against this is the position limits that apply in the derivative market. In fact, market manipulation can take place even under cash settlement and position limits are the principal defence available to the regulator.
- The Committee also believes that there is greater need for surveillance as the contract approaches expiry. Large positions tend to be closed out or rolled over into the next contract month as the contract approaches expiry. Large positions that are maintained or enhanced during the last days of the life of the contract need to be monitored closely.

⁸ An alternative approach would be to examine changes in contract design and market microstructure that would eliminate the basis risk for hedgers and arbitrageurs even under cash settlement. Essentially, these would require that hedgers and arbitrageurs have the ability to achieve guaranteed execution in the cash market at the settlement price. Mechanisms like “settle at the open” where the “open” is arrived at through a call auction would come in this category. An active call market at the “open” or “close” where a single market-clearing price emerges out of a large number of buy & and large number of sell orders would make cash settlement an attractive option. Such a mechanism would be particularly important in the case of the index, where guaranteed execution at the closing price perfectly fits the trading needs of index funds and index arbitrageurs.

- Greater availability of information is another powerful force to guard against market manipulation (regardless of whether the settlement is cash or physical). Information on large positions must be disclosed to the market on a regular basis and the exchanges should be empowered and encouraged to disclose information in greater detail especially towards contract expiry.

The committee therefore recommends that derivatives on individual stocks should shift to physical settlement. The committee also recommends that physical settlement be implemented for all stock based derivative product simultaneously by giving at least 45 days notice to the market. However, Mr. Vaidyanath stated that the BSE is apprehensive of short squeezes in absence of efficient stock borrowing and lending mechanism and would like the choice of implementing physical settlement to be left to the exchange.

As regards the mechanism of physical settlement, three different models appear to be prevalent globally:

1. At one extreme is the system of completely separate and independent settlement processes for derivatives and cash equities. This might be a reasonable description of the London Clearing House (LCH)'s independent settlement processes for Liffe and LSE. However, LCH settlement systems have been continuously evolving and LSE/LCH started net settlement of cash equities only recently.
2. Use cash market transactions to settle derivatives. This might be a reasonable description of what MEFF does in Spain. In this model, every derivatives member must appoint a cash market member to carry out the execution of cash market transactions deriving from the exercise or settlement of derivative contracts traded by it for itself or on behalf of its clients.
3. Use cash market clearing corporation to settle derivatives. This might be a reasonable description of what the Option Clearing Corporation (OCC) does in the US. Under this model, settlement obligations among derivative market members resulting from the exercise or settlement of derivatives are discharged through a cash market clearing corporation. The OCC carries this model further by stipulating that "When an exercise is submitted to a stock clearing corporation for settlement and not rejected by it, the responsibility for completing the settlement passes from OCC to the stock clearing corporation. ... After that time, OCC has no further responsibility to its Clearing Members for the exercise. Instead, rights and responsibilities run between the exercising and assigned Clearing Members and the stock clearing corporation" (OCC, Rule 913).

The ACD is of the view that the first model (completely separate settlement) would require a duplication of the entire settlement infrastructure in the derivatives market clearing corporation without any attendant benefits. At the same time, the second model (settlement through cash market transactions) commingles the cash and derivative markets and is undesirable as the cost and efficiency benefits of that model could be achieved by intertwining the two clearing corporations rather than the two markets themselves.

Accordingly, the ACD recommends the third model: the mechanism of physical settlement should be such that at no point in time are trades on the derivative segment commingled with trades on cash market. However, the clearing corporation⁹ of the derivative segment could use the facility of the clearing corporation of cash market as its agent.

This would neither dilute the guarantee mechanism nor would it cast a burden on Trade guarantee fund of the other segment. The role of clearing corporation of derivative segment and clearing corporation of the cash segment would be defined in an agreement/arrangement which could be in line with the agreement between the various clearing corporations which are carrying out clearing between two markets internationally.

The committee considered the need of reducing the cost of transaction by giving margin benefit in the case of offsetting position in cash and derivative market. The committee was of view that it would be better to implement cross margining in cash and derivative market instead of merging the trades in cash and derivative market. The recommendations in this regard are outlined in 4.2. However, until full fledged cross margining is adopted, there should be a margin offset only for deliverable positions.

In the light of the above broad policy framework, committee recommends the following operational parameters for physical settlement:

- Clearing Corporation of the cash market would act as an *agent*¹⁰ of the clearing corporation of the derivative segment, for clearing the exercised / expired stock option and stock futures contracts. The delivery obligation at the Trading Member level in the derivative markets would be settled through the cash market clearing corporation as per the delivery mechanism prevalent in the cash market clearing corporation.
- The trading member of the derivative market would enter into an agreement/arrangement with a clearing member of the cash market and such clearing member of the cash market would act as an *agent* of the trading member/ clearing member of the derivative market for the purpose of settling the delivery obligation of such member.

⁹ The term clearing corporation is used in this report to include a clearing house.

¹⁰ Where the clearing corporation of the cash and derivative segments are the same legal entity, the agency “agreement” between the two clearing corporations would be an arrangement regarding settlement, margining and use of guarantee funds. However, the term agent is used to cover the general case where the clearing corporations may be distinct legal entities.

- The Clearing Corporations of the Cash segment and the Derivative segment may enter into an agreement/arrangement which could address the issues of risk management, cross margining system, and the other concerned areas. In the event of default the proportion in which the burden of default would be shared between the Settlement Guarantee Funds of cash and derivative segment, could also be specified in the agreement/arrangement.
- Similarly, a tripartite agreement between the client, the trading member of derivative segment and the clearing member of the cash segment could be entered which could specify issues pertaining to delivery offsets, margin requirement and any other concerned issue.
- The delivery obligation of the derivative segment would be netted at Trading Member level and passed on to the clearing member of the cash market for settlement as an agent.
- To allow option writers to deliver stock in time, one day's notice shall be given for the exercise of options. On exercise, the delivery would be settled in the time frame specified in the cash market.
- The margin set off at the client level would be made available by adopting the cross margining between the clearing corporation of derivatives segment and the cash segment as outlined in 4.2.
- The 'effective date' from which stock futures and stock option contracts change to physical settlement mode should coincide with the date of inception of a new contract month. From the 'effective date' the outstanding stock futures and stock option contracts, would also change to physical settlement, though at inception, these contracts were stated to be for cash settlement.
- The 'effective date' for physical settlement should be announced 45 days in advance.

6 Use of Derivatives by Mutual Funds

The LCGC recommended that mutual funds should be permitted to use derivatives for hedging and portfolio rebalancing:

“Mutual funds should be allowed to use financial derivatives for hedging purposes (including anticipated hedging) and portfolio re-balancing within a policy framework and rules laid down by their Board of Trustees who should specify what derivatives are allowed to be used, within what limits, for what purposes, for which schemes, and also the authorisation procedure.” (Paragraph 7.10)

“The offer documents of mutual fund schemes should disclose whether the scheme permits the use of derivatives and the details in this regard. Also the income and

balance sheet of each mutual fund scheme would have to disclose the impact of derivatives trading and of any open position in this regard.” (Paragraph 7.12)

The ACD discussed the issue of mutual funds’ participation in derivatives at great length. On the one hand, there was the question of whether mutual funds should be allowed to go beyond hedging and portfolio rebalancing. On the other hand, there were a number of questions about what the term “hedging and portfolio rebalancing” actually means.

After considerable discussion, the Committee was of the view that it is necessary to distinguish between

1. New funds that have come to the public with full disclosure of their derivative trading strategy. This category would also include existing schemes that undergo the process for changing its fundamental attributes¹¹ to enable the use of additional derivative strategies.
2. Existing funds whose offer documents did not have a complete disclosure of the derivative strategies that they would adopt or explicitly limited the use of derivatives to “hedging and portfolio rebalancing”.

The ACD believes that for new schemes, the regulatory regime should rely on full disclosure of risks. There should be no bar on innovations by mutual funds so long as investors come into the fund with full knowledge. For existing schemes, it is necessary to stick to “hedging and portfolio rebalancing” and the Committee has tried to elaborate on the meaning of this term.

6.1 New Schemes: Utilising mainstream governance and disclosure mechanisms

Under normal circumstances, the trading strategies and ideas in portfolio management used by the AMC should be fully disclosed in the offer document, and the AMC should

¹¹ Regulation 15A of the mutual fund regulations provides:

“The trustees shall ensure that no change in the fundamental attributes of any scheme or the trust or fees and expenses payable or any other change which would modify the scheme and affects the interest of unitholders, shall be carried out unless, -

- (i) a written communication about the proposed change is sent to each unitholder and an advertisement is given in one English daily newspaper having nationwide circulation as well as in a newspaper published in the language of the region where the Head Office of the mutual fund is situated; and
- (ii) the unitholders are given an option to exit at the prevailing Net Asset Value without any exit load.”

be closely interacting with the trustees who perform governance functions on behalf of investors on all aspects of the operations of the scheme. In this environment, the role of SEBI is limited to certain improvements in disclosure norms, using which mutual funds would give investors and potential investors sound information about the portfolio strategies associated with a given scheme.

Hence, the first mechanism through which mutual fund schemes can engage in derivatives trading consists of three steps:

1. Additional text in the prospectus which fully explains the ways in a given scheme would use financial derivatives, including numerical examples,
2. An ongoing dialogue with the trustees, whereby the trustees would establish that the actual functioning of the AMC is consistent with these promises,
3. An enhanced disclosure program (described in 6.3 below).

By these principles, if a mutual fund house can persuade investors that a beta=5 leveraged equity index fund is an attractive product, and thus raise resources which should be deployed through such a strategy, then it should be free to implement this using index futures and/or index options.

This path can be utilised when new schemes are created. For existing mutual fund schemes, utilising this path involves a modification to the offer document, which entails obtaining the consent of existing unit-holders.

6.2 Existing Schemes: Rules governing hedging and portfolio rebalancing.

The bulk of mutual fund assets today are in existing open-end schemes. It is likely that the bulk of new resources coming into mutual funds in the future will come into open-end schemes that exist as of today. In the absence of any changes to a mutual fund prospectus, the rules governing derivatives trading by mutual funds should limit mutual funds to certain strategies:

1. Portfolio rebalancing
2. Hedging

The following paragraphs (6.2.1, 6.2.2 and 6.2.3) illustrate in more detail some of the portfolio strategies that could be classified as constituting 'portfolio rebalancing' or 'hedging' as well some strategies that cannot be so classified. These illustrations are not intended to be exhaustive.

6.2.1 What does hedging mean?

The term hedging is fairly clear. It would cover derivative market positions that are designed to offset the potential losses from existing cash market positions. Some examples of this are as follows:

- An income fund has a large portfolio of bonds. This portfolio stands to make losses when interest rates go up. Hence, the fund may choose to short an interest rate futures product in order to offset this loss.
- An income fund has a large portfolio of corporate bonds. This portfolio stands to make losses when credit spreads of these bonds degrade or when defaults take place. Hence, the fund may choose to buy credit derivatives which pay when these events happen.
- Every equity portfolio has exposure to the market index. Hence, the fund may choose to sell index futures, or buy index put options, in order to reduce the losses that would take place in the event that the market index drops.

The regulatory concerns are about (a) the effectiveness of the hedge and (b) its size.

“Hedging” a Rs.1 billion equity portfolio with an average beta of 1.1 with a Rs. 1.3 billion short position in index futures is not an acceptable hedge because the over hedged position is equivalent to a naked short position in the future of Rs. 0.2 billion. Similarly, “hedging” a diversified equity portfolio with an equal short position in a narrow sectoral index would not be acceptable because of the concern on effectiveness. A hedge of only that part of the portfolio that is invested in stocks belonging to the same sector of the sectoral index by an equal short position in the sectoral index futures would be acceptable.

“Hedging” an investment in a stock with a short position in another stocks’ futures is not an acceptable hedge because of effectiveness concerns. This would be true even for merger arbitrage where long and short positions in two merging companies are combined to benefit from deviations of market prices from the swap ratio.

Hedging with options would be regarded as over-hedging if the notional value of the hedge exceeds the underlying position of the fund *even if* the option delta is less than the underlying position. For example, a Rs.2 billion index put purchased at the money is not an acceptable hedge of a Rs.1 billion, beta=1.1 fund though the option delta of approximately Rs. 1 billion is less than the underlying exposure of the fund of Rs. 1.1 billion.

Covered call writing is hedging if the effectiveness and size conditions are met. Again the size of the hedge in terms of notional value and not option delta must not exceed the underlying portfolio.

The position is more complicated if the option position includes long calls or short puts. The worst-case short exposure considering all possible expiration prices (see 6.2.3 below) should meet the size condition.

6.2.2 What does portfolio rebalancing mean?

The use of derivatives for portfolio rebalancing covers situations where a particular desired portfolio position can be achieved more efficiently or at a lower cost using derivatives rather than cash market transactions. The basic idea is that the mutual fund has a fiduciary obligation to its unit holders to buy assets at the best possible price.

Thus if it is cheaper (after adjusting for cost of carry) to buy a stock future rather than the stock itself, the fund does not have a fiduciary obligation to use stock futures unless there are other tangible or intangible disadvantages to using derivatives. Similarly, if a synthetic money market position created using calendar spreads is more attractive than a direct money market position (after adjusting for the credit worthiness of the clearing corporation), the fund would normally have a fiduciary obligation to use the calendar spread. If a fund can improve upon a buy-and-hold strategy by selling a stock or an index portfolio today, investing the proceeds in the money market, and having a locked-in price to buy it back at a future date, then it would have a fiduciary obligation to do so.

The general principle here would be that a fund is permitted to *do using derivatives whatever it could have done directly* - no more and no less. For example, a fund's position in a stock - underlying and derivatives taken together - should be within the fund's maximum permissible limit in the stock. For this purpose, stock option long calls should be counted as notional value. The position is more complicated if there are short calls or long puts. The worst-case long exposure considering all possible expiration prices (see 6.2.3 below) should be less than the fund's permissible limit.

There is another complication in case of long index positions. One could regard this as an equivalent exposure in each constituent of the index. This may be severely limiting where the fund already has a long position in a stock which has a long weight in the index. Another possibility is to say that a fund is permitted to deploy any part of its assets in a broad index and a sectoral fund is permitted to do the same in a sectoral index. Then the stock wise limits would be applied to the remaining part of the portfolio.

In any case, a long index position cannot be used to leverage a portfolio beyond the leverage that is otherwise permissible. Thus a fund with Rs.1 billion assets cannot have a Rs. 1.5 billion notional value of long index futures and index options.

6.2.3 Computation of worst case exposure for complex option positions

We use a simple example to illustrate the worst case exposure method of determining whether a portfolio of option positions on the same underlying is an acceptable "hedging and portfolio rebalancing" strategy. Considering the following stock option strategy:

- a. Long call options on 5 million shares at a strike price of Rs 80.
- b. Long put options on 2 million shares at a strike price of Rs 90
- c. Short call options on 1 million shares at a strike price of Rs 110

- d. Long put options on 3 million shares at a strike price of Rs 120
- e. Long call options on 4 million shares at a strike price of Rs 130
- f. Short call options on 3 million shares at a strike price of Rs 140

Since the fund has a bullish position on 9 million shares (a plus e) and a bearish position on 9 million shares (b plus c plus d plus f), its option delta could be comparatively small especially when the stock price is not far from the weighted average strike price.

However, depending on what the stock price turns out to be at expiry, only some of the options will end up in the money and will therefore get exercised by or against the fund. Consequently, the fund could end up with a long or short position in the stock at expiry depending on what the stock price turns out to be at that point of time. The worst case long and short exposures can be worked out as follows:

Price at expiry	Options that end up in the money and therefore get exercised by or against the fund	Net number of shares (short or long) the fund ends up holding as a result of the option exercises
Below 80	b and d	5 million shares short
80-90	a, b and d	nil
90-110	a and d	2 million shares long
110-120	a, c and d	1 million shares long
120-130	a and c	4 million shares long
130-140	a, c and e	8 million shares long
above 140	a, c, e and f	5 million shares long

The worst case short exposure arises when the share price at expiry is below 80 and the fund ends up delivering 5 million shares to exercise the in-the-money puts. This would be an acceptable level of hedging only if the fund's position in the underlying and the futures were at least 5 million shares.

Its worst case long position (8 million shares) is when the share price is above 130 and below 140. The fund receives 9 million shares from exercising its in-the-money calls (a and e) and delivers 1 million shares against its short calls (c) which are also in the money. This means that the fund can take up this option strategy only if this 8 million shares plus its position in the underlying shares and futures is together less than the maximum permissible limit for the fund's holding in the stock.

The fund must therefore satisfy two conditions before it can take up this option strategy as part of “hedging and portfolio rebalancing”:

- the fund’s position in the underlying and the futures must be at least 5 million shares so that the position does not become over-hedged
- the fund’s existing position in the underlying shares and futures plus the 8 million shares worst case long exposure of the option strategy must together be less than the maximum permissible limit for the fund’s holding in the stock

Some fund managers may regard the worst case exposure analysis as an excessively harsh view of what they might consider a legitimate and relatively low risk derivative strategy. In particular, it might be objected that the worst case long exposure of 8 million shares should be treated more leniently since it applies only in a narrow range of share prices (130-140). The Committee is however of the view that even if strategies of this kind are attractive and low risk ways of creating and profiting from gamma and vega exposures to a stock, the creation of such exposures does not per se constitute “hedging and portfolio rebalancing”. To justify the strategy in a “hedging and portfolio rebalancing” framework, it is necessary to show that the worst case short position resulting from the strategy is an acceptable hedging activity and that the worst case long position resulting from it is an acceptable portfolio rebalancing activity.

6.3 Ongoing disclosure requirements

In addition to the existing disclosures, each mutual fund scheme should make the following information available to investors and to the public at large on its website at a monthly frequency:

- Gross turnover on derivatives, reported separately by product categories (such as index futures, index options, stock futures, etc.).
- Outstanding position on derivatives as of the end-of-month, reported separately by product categories.
- Lowest, median and highest values in the month of the overall scheme delta with respect to the market index. This should report the sensitivity of the portfolio to a unit change in the market index, incorporating direct equity holdings, index derivatives positions and stock derivatives positions. Internally, these values would be computed by each scheme which uses derivatives every day at closing prices. The three summary statistics (min, median, max) over the month would be publicly reported.
- If adding the derivative positions to the positions in the underlying would significantly change the list or ranking of the top 10 stocks in the portfolio, the top 10 holdings on the basis of underlying plus single stock derivative positions should be disclosed alongside the disclosure of the top 10 holdings of the scheme. For this purpose, option positions will be converted into equivalent positions in

the underlying on the basis of the option deltas. The same procedure should be adopted if the scheme's positions in derivatives on any "narrow" index are such as to significantly change the list or ranking of the top 10 stocks in the portfolio.

7 SEBI Related Issues

7.1 Derivatives Cell and Advisory Committee

The LCGC very rightly emphasised the need for SEBI to build competencies in the area of derivatives:

“SEBI should immediately create a special Derivatives Cell because derivatives demand special knowledge. It should encourage its staff members to undergo training in derivatives and also recruit some specialised personnel.

A Derivatives Advisory Council may also be created to tap the outside expertise for independent advice on many problems which are bound to arise from time to time in regard to derivatives.” (Paragraph 4.11(b))

The Advisory Committee on Derivatives has been in existence for a year now. Prior to that there was a Technical Group on Derivatives for about a year. Most of the ground work on derivatives has been completed in these two years. Going forward, two sets of issues will arise:

- Operational issues will continue to come up on various aspects of the derivatives markets. The ACD is of the view that SEBI must now gear up to handle this with in-house staff. The SEBI Derivatives Cell has been in existence for several years now and has acquired significant expertise in the area. While LCGC felt the need for external advice to handle the “many problems which are bound to arise from time to time in regard to derivatives”, the ACD thinks that the derivatives cell is now ready to accept this additional responsibility. If necessary, the Derivatives Cell can be further strengthened through new recruitment and skills upgradation.
- A number of issues will arise regarding the interrelationship between the cash and derivatives markets particularly in the areas of risk containment and surveillance. Surveillance issues must largely be an in-house function and this report has recommended unified surveillance of the two markets (see 5.4 above). In the area of risk management, there is a need to create mechanisms that can facilitate an integrated view of risk management in both cash and derivative markets simultaneously

Accordingly, the ACD recommends:

- Strengthening of the Derivative Cell both quantitatively and qualitatively to shoulder most of the responsibility for operational issues regarding the derivatives market.

- Strengthened unified surveillance of the cash and derivative markets as described in 5.4 above.
- Develop mechanisms to facilitate an integrated view of risk management in both cash and derivative markets simultaneously

7.2 SEBI and RBI

The Committee recommends that SEBI and RBI should work together on moving towards exchange traded derivatives in the area of interest rates and currencies as outlined in 3.1 above.

Appendix A: Methodology for Corporate Adjustments

Methodology laid down in SEBI Circular of June 2001

Bonus, Stock Splits and Consolidations:

For Bonus, Stock Splits and Consolidations:

- The new strike price shall be arrived at by dividing the old strike price by the adjustment factor as under.
- The new market lot / multiplier shall be arrived at by multiplying the old market lot by the adjustment factor as under.
- The new position shall be arrived at by multiplying the old position by the adjustment factor as under.

Bonus

Ratio = A:B Adjustment factor = $(A+B)/B$

Stock Splits and Consolidations

Ratio = A:B Adjustment factor = A/B

Right

Ratio = A:B Premium = C Face Value = D Existing Strike Price = X

New Strike Price = $((B * X) + A * (C + D))/(A+B)$

Existing Market Lot / Multiplier / Position = Y

New issue size = $Y * (A+B)/B$

Rounding of fractional adjustments

The above methodology may result in fractions due to the corporate action e.g. a bonus ratio of 3:7. With a view to minimizing fraction settlements, the following methodology is proposed:

1. Compute value of the position before adjustment
2. Compute value of the position taking into account the exact adjustment factor
3. Carry out rounding off for the Strike Price and Market Lot
4. Compute value of the position based on the revised strike price and market lot

The difference between 1 and 4 above, if any, shall be by adjusted in the Strike Price or Market Lot, so that no forced closure of open position is mandated.

Dividends

Dividends which are below 10% of the market value of the underlying stock would be deemed to be ordinary dividends and no adjustment in the Strike Price would be made for ordinary dividends. For extra-ordinary dividends, above 10% of the market value of the underlying stock, the Strike Price would be adjusted.

Decisions of the erstwhile sub group on corporate adjustments

Adjustment of the Extra Ordinary dividend in Stock Options

- To decide whether the dividend is 'Extra Ordinary' (i.e. over 10% of the market price of the underlying stock), the market price would mean the closing price of the scrip on the day previous to the date on which announcement of the dividend is made by the company after the meeting of the Board of directors. However, in cases where the announcement is made after the close of the market hours, the same day's closing prices would be taken as the market price. Further, if the shareholders of the company in the AGM change the rate of dividend declared by the Board of Directors, than to decide whether the dividend is extra ordinary or not would be based on the rate of the dividend communicated to the exchange after AGM and the closing price of the scrip on the day previous to the date of AGM.
- In case of declaration of extra ordinary dividend by any company the total dividend amount (special and/or ordinary) would be reduced from all of the strike prices of the option contracts on that stock.
- The revised strike prices would be applicable from the ex-dividend date specified by the exchange.

Adjustment of the Extra Ordinary dividend in Stock Futures

An adjustment should be made in the reference price of Single Stock Futures Contracts on ex-dividend date for extra ordinary dividends, in line with the policy followed for Stock options. The adjustment should be such that the buyer of the Single Stock Futures contracts receives the dividend. Consequently, the reference rate for the purpose of Mark to Market settlement of Single Stock Futures on the ex-dividend date would be reduced by the value of the extra ordinary dividend.

Adjustments of the derivatives contracts due to mergers of two companies

- During the announcement of the record date, the last cum-date would be known; the announcement giving the exact date of expiration may be informed to the market in individual cases.

- After the announcement of the record date, no fresh contracts would be introduced in that underlying which would cease to exist subsequent to the merger.
- Un-expired contracts outstanding as on the last cum-date would be compulsorily settled at the settlement price. The settlement price shall be the closing price of the underlying.
- In case of the introduction of contracts of longer duration, this policy along with other policies of corporate adjustment may require a review.