# CHAPTER 3

## EVOLUTION AND PROGRESS OF REGULATORY FRAMEWORK FOR EQUITY DERIVATIVES MARKET IN INDIA

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CHAPTER 3
EVOLUTION AND PROGRESS OF REGULATORY FRAMEWORK FOR EQUITY DERIVATIVES MARKET IN INDIA

3.1 Introduction:

The Securities and Exchange Board of India (SEBI) was established on April 12, 1992 in accordance with the provisions of the Securities and Exchange Board of India Act, 1992. As mentioned in the earlier chapter, the road for stock exchange traded derivatives contracts was cleared with removal of prohibition of options on securities by way of amendment to Securities Laws through Securities Laws (Amendment) Ordinance, 1995. SEBI had set up a 24 member committee under the chairmanship of Dr L. C. Gupta on November 18, 1996 to develop appropriate regulatory framework for derivatives trading in India. The committee submitted its report on March 17, 1998. Further, SEBI in June 1998 set up a committee under the Chairmanship of Prof. J. R. Varma to study and recommend measures for risk management in equity derivatives market in India. Prof. J. R. Varma Committee submitted its report in October 1998. Derivatives trading commenced in India in June 2000 after SEBI granted the final approval to this effect in May 2000. This chapter is also based on the various guidelines and circulars issued by the Exchanges, namely NSE and BSE, from time to time governing the equity derivatives market and its functioning in line with the SEBI guidelines and requirements.

3.2 Recommendations of DR. L.C. Gupta Committee Report:

Dr. L.C. Gupta Committee was appointed by SEBI by a Board resolution dated November 18, 1996 in order “to develop appropriate regulatory framework for derivatives trading in India”. The Committee submitted its report on Derivatives in March 1998 along with the Suggestive Bye-Laws to be adopted by the derivatives segment of the Exchange.

Dr. L.C. Gupta Committee had set the following regulatory objectives in mind while giving the recommendations to SEBI in its report:
“(a) **Investor Protection:**

(i) **Fairness and Transparency:** The trading rules should ensure that trading is conducted in a fair and transparent manner. Sales practices adopted by dealers for derivatives require specific regulation. Need for adequate internal control system.

(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 of clients.

(iii) **Competent and honest service:** The eligibility criteria for trading members should be designed to encourage competent and qualified personnel. Prescribing 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:** Providing "Quality of Markets" i.e. enhancing important market qualities, such as cost-efficiency, price-continuity, and price-discovery.

(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.1

Hence, keeping above objectives in mind, the Committee also recommended separate Exchange for trading derivatives trading to have a neater arrangement from the regulatory angle. However, considering the constraints in infrastructure facilities, the Committee suggested permitting existing stock exchanges to trade derivatives provided they meet the minimum eligibility conditions as indicated below:

i. “The trading should take place through an online screen-based trading system, which also has a disaster recovery site. The per-half-hour capacity
of the computers and the network should be at least 4 to 5 times of the anticipated peak load in any half hour, or of the actual peak load seen in any half-hour during the preceding six months. This shall be reviewed from time to time on the basis of experience.

ii. The clearing of the derivatives market should be done by an independent clearing corporation, which satisfies the conditions stipulated by SEBI in this regard.

iii. The exchange must have an online surveillance capability which monitors positions, prices and volumes in realtime so as to deter market manipulation. Price and position limits should be used for improving market quality.

iv. Information about trades, quantities, and quotes should be disseminated by the exchange in realtime over at least two information vending networks which are accessible to investors in the country.

v. The Exchange should have at least 50 members to start derivatives trading.

vi. If derivatives’ trading is to take place at an existing cash market, it should be done in a separate segment with a separate membership; i.e., all members of the existing cash market would not automatically become members of the derivatives market. Membership of the derivative segment shall be separate from the cash market segment.

vii. The derivatives market should have a separate governing council which shall not have representation of trading/clearing members of the derivatives Exchange beyond whatever percentage SEBI may prescribe after reviewing the working of the present governance system of exchanges.

viii. The Chairman of the Governing Council of the Derivative Division/Exchange shall be a member of the Governing Council. If the Chairman is a Broker/Dealer, then, he shall not carry on any Broking or Dealing Business on any Exchange during his tenure as Chairman.

ix. The exchange should have arbitration and investor grievances redressal mechanism operative from all the four areas/regions of the country.

x. The exchange should have an adequate inspection capability.

xi. No trading/clearing member should be allowed simultaneously to be on the governing council of both the derivatives market and the cash market.

xii. If already existing, the Exchange should have a satisfactory record of monitoring its members, handling investor complaints and preventing irregularities in trading.”^2
Besides the above, SEBI also stipulated Exchanges to have Trade Guarantee Fund (TGF) /Settlement Guarantee Fund (SGF) for derivative segment that is separate from TGF/SGF of cash market segment. The separation as regard to the functional, operational and administrative modalities was left to the discretion of the Exchanges. The cash and derivative segment of an Exchange could have common personnel, trading terminal and infrastructure.

“The Committee recommended division of regulatory responsibility at two levels which is aimed at securing the triple advantages of (a) permitting desirable flexibility, (b) maximizing regulatory effectiveness and (c) minimizing regulatory cost. Thus, Committee emphasized that derivatives exchange should be designed, right from the start, as a competent and effective regulating organisation in every possible way. Hence, a derivatives exchange has been designed, right from the start, as a competent and effective regulating organization in every possible way. A separate governance structure has been specified for exchanges which are allowed to have derivatives trading. The exchange-level regulations include entry requirements for derivatives traders/members, design of derivatives contracts, broker-client relationship including sales procedures and risk disclosure to clients, trading and reporting procedures, internal risk control systems, margining, clearing, settlement and dispute resolution. The role of SEBI is to provide over-all supervision and guidance to the exchange and to act as the regulator of last resort.

The Committee opined that SEBI’s regulatory responsibility should be to approve the rules, bye-laws and regulations of the derivative exchange and should also approve the proposed derivative contracts before commencement of trading. Any change in the rules, bye-laws and regulations of the Derivative Exchange would need prior approval of SEBI. It also opined that SEBI need not be involved in framing exchange-level rules but it should evaluate them, identify deficiencies and suggest improvements.”

The Committee felt that the derivatives market will have to be subjected to more stringent requirements than is the case with present cash markets. Hence, there were stringent rules prescribed for the entry of derivatives brokers/dealers as follows:
i. “No automatic entry for existing stock brokers: It was suggested that a broker of cash segment of the exchange cannot automatically become a member of the derivatives exchange. Only those who satisfy stricter eligibility conditions of the derivatives market should be admitted to derivatives trading.

ii. Capital adequacy: The capital adequacy requirements for derivatives brokers/dealers were prescribed as follows:

a. The absolute amount of minimum capital adequacy requirement for derivative brokers/dealers has to be much higher than for cash market. Further, the capital adequacy requirement should be satisfied for each exchange/segment separately.

b. A two-level system of members, viz., Clearing Members and Non-Clearing Members, as found in several countries, has been specified for the derivatives exchange. Under such a system, net-worth requirement for the Clearing Members is higher than for the Non-Clearing members. The Non-Clearing members have to depend on the Clearing Members for settlement of trades. The Clearing Member has to take responsibility for non-clearing member’s position so far as the Clearing Corporation is concerned. The advantage of the two-level system is that it can help to bring in more traders into derivatives trading, thus enhancing the market’s liquidity.

c. The Committee also recommended that the Clearing Members of the derivatives exchange should have a minimum net worth of Rs. 300 lakh as per SEBI’s definition and should make a deposit of Rs.50 lakh with the Exchange/Clearing Corporation in the form of liquid assets, such as Cash, Fixed Deposits pledged in the name of the Exchange, Bank Guarantees, or other securities.

d. Certification Requirement: The broker-members, sales persons/dealers in the derivatives market must have passed a certification programme which is considered adequate by SEBI.

e. Registration with SEBI: Brokers/dealers of Derivatives Exchange/Division should be registered with SEBI. This would be in addition to their registration as brokers/dealers of any stock exchange.

In the Committee’s view, the clearing mechanism should be organised as separate and independent entity than the Stock Exchange, as a Clearing
Corporation. Clearing Corporation being different legal counterparty to all trades should be responsible for guaranteeing settlement for all open positions. The following requirements were felt necessary in clearing corporation/house by the Committee while allowing the equity derivatives trading on the Exchange platforms:

i. “Novation: The clearing corporation must perform full novation, i.e. the clearing corporation should interpose itself between both legs of every trade, becoming the legal counterparty to both or alternatively should provide an unconditional guarantee for settlement of all trades.

ii. The Clearing Corporation should collect initial (i.e. upfront) margin to which the exposure limits of the broker/dealer would be linked. The Clearing Corporation should enforce the “mark-to-market margin” system. In case of failure of a clearing/trading member, the Clearing Corporation should have recourse to disable the Clearing/trading member from trading in order to stop further increase in his exposure. The requirements for capital adequacy and upfront margin should be set taking into account the volatility of the underlying market.

iii. The Clearing Corporation should be an independent corporation. Its Governing Board should be immune to any interference or direct/indirect pressure by trading interests. Hence, there should be no representation of trading interests on its Governing Board. Committee felt that SEBI should ultimately aim towards achieving this. However, understanding that the it may take longer time to create this, until such time the existing Clearing Corporations/Houses could continue to be used provided that the Clearing Corporation/House becomes counterparty to all trades or provides unconditional guarantee for settlement of all trades and the Exchange agrees to participate in Central Clearing Corporation as and when that entity comes up.

iv. Maximum exposure limit: Apart from the minimum net-worth requirement, there should be a maximum exposure limit computed on gross basis for each broker/dealer. Such exposure limit should be linked to the amount of deposits/margins kept by a broker/dealer as deposit with the Clearing House/Clearing Corporation in the prescribed liquid assets.

v. Mark-to-market margins: The Clearing Corporation should enforce the “mark-to-market margin” system on daily basis. The margins should be
collected before the start of the next day’s trading. For this purpose all derivatives dealers/brokers should be required to be connected to Electronic Funds Transfer Facility.

vi. Cross Margining: In 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.

vii. Margin Collection from clients: Collection of initial and mark-to-market margins by brokers from their clients should be insisted upon in the case of derivatives trading. Margin collection from clients should not be left to the discretion of brokers/dealers. SEBI should require derivatives exchanges to ensure, through systems of inspection, reporting, etc., that margins are actually collected from all clients without exception, including financial institutions. Committee suggested two indirect methods of ensuring this should also be adopted, viz. (1) exposure limits for dealers/traders in relation to upfront initial margin deposited with the exchange should be fixed on gross basis and (2) brokers/dealers should be required to disclose to the exchange the trading done on their own behalf separately from trading on clients’ behalf at the time of order entry.

viii. Monitoring capability: The clearing corporation should have the capacity to monitor the overall position of members across both cash and derivatives markets for those members who are participating in both.

ix. Ability of close-out the positions: In the event of a member default in meeting its liabilities, the Clearing Corporation/House should have processing capability to require either the prompt transfer of client positions and assets to another member or to close-out all open positions.

x. Safeguarding client’s money: The Committee recommended that the Clearing Corporation should segregate the upfront/initial margins deposited by Clearing Members for trades on their own account from the margins deposited with it on client account. The Clearing Corporation shall not utilise the margins deposited with it on client account for fulfilling the dues which a Clearing Member may owe to the Clearing Corporation in respect of trades on the member’s own account. For the purpose, at the time of opening a position, the dealer/broker should indicate whether the position is for the client or for the broker himself. On
all client positions, both buy or sell, margins should be collected on gross basis (i.e. on buy and sell positions separately without netting them). Similarly, when closing a position, the Clearing Corporation would have to be informed by the Clearing Member whether it was a client position or Member’s own position. In case of a Clearing Member default, the margin paid by such Member on his own account only would be allowed to be used by Clearing Corporation for realising its own dues from the Member. There should be an independent Investor Protection Fund for the Derivative Division/Exchange which should be available to compensate clients in case of Member default.”

The Committee recommended that a clearing corporation must have SEBI approval for functioning as such. To be eligible for such approval, it should satisfy the following conditions:

i. “The clearing corporation must perform full novation, i.e. the clearing corporation should interpose itself between both legs of every trade, becoming the legal counterparty to both or alternatively should provide an unconditional guarantee for settlement of all trades.

ii. The clearing corporation should have the capacity to monitor the overall position of members across both cash and derivatives markets for those members who are participating in both.

iii. 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. These capital adequacy norms should apply intra-day, so that there is no instant of time where the good funds deposited by the member to the clearing corporation are smaller than the value at risk of the position at that point in time. The clearing corporation should have intra-day monitoring software to ensure that this condition is met at every single instant within the day. “Good funds” here are defined as the initial margin and the mark to market margin available with the clearing corporation.

iv. In the event of unusual positions of a member, the clearing corporation should charge special margin over and above the normal margins.

v. The clearing corporation must establish facilities for electronic funds transfer (EFT) for swift movement of margin payments. In situations
where EFT is unavailable, the clearing corporation should collect correspondingly larger initial margin to cover the potential for losses over the time elapsed in collection of mark to market margin. For example, if two days elapse in moving funds, then the value at risk should be calculated based on the prospective two-day loss.

vi. In the event of a member default in meeting its liabilities, the Clearing Corporation/House should have processing capability to require either the prompt transfer of client positions and assets to another member or to close-out all open positions.6

The potential risk involved in speculating (as opposed to hedging) with derivatives is not understood widely. In the case of pricing of complex derivatives contracts, there is a real danger of unethical sales practices. Clients may be fooled or induced to buy unsuitable derivatives contracts at unfair prices and without properly understanding the risks involved. Hence, the Committee recommended that attention be given to proper supervision of sales practices for derivatives from the very beginning and it should be the responsibility of the Derivatives Exchange, as a self-regulatory organisation, to take the necessary steps in this regard under the general oversight of SEBI. “The Committee felt that the broker-client relationship and sales practices for derivatives need special regulatory focus as follows:

i. “Risk disclosure Document: Committee observed that it has become a standard practice in many countries to require a “risk disclosure document” to be provided by broker/dealer to every client in respect of the particular type of derivatives contracts being sold. Thus committee felt that the customers should be given a risk disclosure document prior to their registration by the derivatives broker.

ii. Know your client requirements: The derivatives brokers/dealers are expected to know their clients and to exercise care to ensure that the derivative product being sold by them to a particular client is suitable to his understanding and financial capabilities. Hence, the concept of “know-your-client” needed to be implemented and every broker/trader should obtain a client identity form, as suggested in Model Rules for Derivatives Exchanges.
iii. As recommended by Committee earlier, not only derivatives brokers/dealers, but also sales persons working for derivatives brokers should have passed a certification programme. If sufficient attention is not paid to this initially, we may have a situation analogous to a large number of ill-trained drivers whom it becomes difficult to control later."

Since SEBI (Mutual Fund) Regulations prohibited the use of derivatives by mutual fund, the Committee commented on allowing Mutual Funds as clients in the derivatives market. The Committee recommended that the 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 authorization procedure.

Dr. L.C. Gupta Committee also drafted the suggestive bye-laws for regulation and control of the trading and settlement of derivatives contracts on the Exchanges and clearing Corporations/House.

3.3 **Recommendations of Prof. J. R. Varma Committee Report:**

SEBI, while accepting the recommendations of Dr L C Gupta Committee, appointed a Committee under Prof. J R Varma to recommend measures for risk containment for derivatives market in India. This Committee focused on ways of making operational the broad recommendations of the Dr. L.C. Gupta Committee to maintain the initial margin to cover 99% Value at Risk (VaR). The report provides the methodology for determining initial margin to be charged on Index Futures contracts, prescribes liquid net-worth, exposure limits for clearing members, transparency and disclosure norms for the Clearing Corporation and position limits etc.

The Committee enumerated the risk containment issues that assume importance in the Indian context such as Estimation of volatility, Calendar spreads, Trader Net-Worth, Margin Collection and Enforcement, Clearing Corporation, Position Limits, Legal Issues etc.

The report, submitted in October 1998, provided the methodology for determining initial margin to be charged on Index Futures contracts, prescribes
liquid net-worth, exposure limits for clearing members, transparency and disclosure norms for the clearing corporation and position limits etc. The risk containment measures for other derivatives contracts were subsequently prescribed by SEBI from time to time.

With regard to margining system, Prof. J R Varma Committee report suggested that “SEBI should authorise the use of a particular VaR estimation methodology but should not mandate a specific minimum margin level. The Committee suggested the Initial Margin fixation methodology as follows:

a. The exponential moving average method would be used to obtain the volatility estimate every day. The estimate at the end of day $t$, $\sigma_t$, is estimated using the previous volatility estimate $\sigma_{t-1}$ (as at the end of day $t-1$), and the return $r_t$ observed in the futures market during day $t$.

$$
(\sigma_t)^2 = \lambda (\sigma_{t-1})^2 + (1 - \lambda) (r_t)^2
$$

where $\lambda$ is a parameter which determines how rapidly volatility estimates change.

b. A value of 0.94 would be used for $\lambda$.

c. The margins for 99% VAR would be based on three sigma limits.

d. For statistical reasons, return is defined as the logarithmic return

$$
r_t = \ln(I_t/I_{t-1})
$$

where $I_t$ is the index futures price at time $t$.

e. Given this statistical definition, the plus/minus three sigma limits for a 99% VAR would specify the maximum/minimum likely logarithmic returns. To convert these into percentage margins, the logarithmic returns would have to be converted into percentage price changes by reversing the logarithmic transformation. Therefore the percentage margin on short positions would be equal to $100(\exp(3\sigma_t)-1)$ and the percentage margin on long positions would be equal to $100(1-\exp(-3\sigma_t))$. This implies slightly larger margins on short positions than on long positions, but the difference is not significant except during periods of high volatility where the difference merely reflects the fact that the downside is limited (prices can at most fall to zero) while the upside is unlimited. The derivatives exchange/clearing corporation may, if it so chooses, simply apply the higher margin on both the buy and sell side.
f. To use the formula in (a) above on the first day of index futures trading would require a value of $\sigma_{t-1}$, the estimated volatility at the end of the day preceding the first day of index futures trading. This would be obtained as follows. (i) Calculate the standard deviation of returns in the cash index during the last one year. (ii) Set the volatility estimate at the beginning of that year equal to this average value. (iii) Move forward through the year, one day at a time, using the formula in (a) above to get the estimated volatility at the end of that day using cash index prices instead of index future prices. (iv) The estimated volatility by this method at the end of the day preceding the first day of index futures trading would be the value of $\sigma_{t-1}$ to be used in formula in (a) above at the end of the first day of futures trading. Thereafter each day’s estimate $\sigma_t$ becomes the $\sigma_{t-1}$ for the next day.

g. As a transitional measure, for the first six months of trading (until the futures market stabilises with a reasonable level of trading), a parallel estimation of volatility would be done using the cash index prices instead of the index futures prices and the higher of the two volatility measures would be used to set margins.

h. As a further transitional measure, for the first six months of trading (until the futures market stabilises with a reasonable level of trading), the initial margin shall not be less than 5%.

In the initial period, margins for futures market would be set using volatility derived from the cash market as discussed in (f) above. This involves an assumption that the volatility of the Nifty or Sensex futures would be identical to the volatility of the same index in the cash market. However, the volatility in the futures market could be higher because of “noise trader risk”. The Committee felt that this is not a serious problem because of the use of the exponential moving average method to estimate volatility. This method is more sensitive to recent data, the weightage attached to volatility figures derived from the cash market declines rapidly as data from the futures markets itself becomes available. Therefore if futures markets do turn out to be more volatile, the margins would adjust upwards very quickly. Moreover, the transitional measures outlined in (g) and (h) above provide a further degree of protection.\textsuperscript{8}

The Committee also recommended that the volatility estimated at the end of the day’s trading should be used in calculating margin calls at the end of
the same day. Further, the volatility estimation and margin fixation methodology was also required to be clearly made known to all market participants so that they can compute what the margin would be for any given closing level of the index. The trading software for this purpose should itself provide this information on a real time basis on the trading workstation screen.

“The Committee took note of the international practice of levying very low margins on calendar spreads. A calendar spread is a position at one maturity which is hedged by an offsetting position at a different maturity. Even though Committee observed that the cost of carry is not an efficient money market rate, in order to ensure that the margining system operates smoothly when a calendar spread is turned into a naked short or long position on the index either by the expiry of one of the legs or by the closing out of the position in one of the legs the margin on calendar spreads was decided should be far higher than international practice. Thus the Committee suggested that:

a. The margin on calendar spreads should be levied at a flat rate of 0.5% per month of spread on the far month contract of the spread subject to a minimum margin of 1% and a maximum margin of 3% on the far side of the spread for spreads with legs upto 1 year apart. A spread with the two legs three months apart would thus attract a margin of 1.5% on the far month contract.

b. The margining of calendar spreads should be reviewed at the end of six months of index futures trading.

c. A calendar spread should be treated as a naked position in the far month contract as the near month contract approaches expiry. This change should be affected in gradual steps over the last few days of trading of the near month contract. Specifically, during the last five days of trading of the near month contract, the following percentages of a calendar spread shall be treated as a naked position in the far month contract: 100% on day of expiry, 80% one day before expiry, 60% two days before expiry, 40% three days before expiry, 20% four days before expiry. The balance of the spread shall continue to be treated as a spread. This phasing in will apply both to margining and to the computation of exposure limits.

d. If the closing out of one leg of a calendar spread causes the members’ liquid net worth to fall below the minimum levels specified by Exchanges/SEBI,
his terminal shall be disabled and the clearing corporation shall take steps to liquidate sufficient positions to restore the members’ liquid net worth to the levels mandated.

e. The derivatives exchange should explore the possibility that the trading system could incorporate the ability to place a single order to buy or sell spreads without placing two separate orders for the two legs.

f. For the purposes of the exposure limit, a calendar spread shall be regarded as an open position of one third of the mark to market value of the far month contract. As the near month contract approaches expiry, the spread shall be treated as a naked position in the far month contract in the same manner as in (c) above.”

The Committee also recommended laying down of operational guidelines by clearing corporation on collection of margin and standard guidelines for back office accounting at the clearing member and trading member level to facilitate the detection of non-compliance at each level.

The Committee felt the need to have another level of defence in the form of the broker’s net worth to avoid any crisis from time to time. The Committee considering the reality of the Indian situation, liquid net worth is a far more meaningful defence against market risk than book net worth. “Liquid net worth means:

a. total liquid assets deposited with the exchange/clearing corporation towards initial margin and capital adequacy, LESS

b. initial margin applicable to the total gross open positions at any given point of time of all trades cleared through the clearing member.

The Committee also recommended that the clearing member’s liquid net worth must satisfy the following Conditions 1 and 2 on a real time basis:

a. Condition 1: Liquid Net Worth shall not be less than Rs 50 lacs at any point of time.

b. Condition 2: The mark to market value of gross open positions at any point of time of all trades cleared through the clearing member shall not exceed 331/3 times the members’ liquid net-worth.”

As recommended by the Dr. L.C. Gupta Committee, liquid assets for the purposes of initial margins as well as liquid net worth includes cash, fixed deposits, bank guarantees, Treasury bills, government securities or
dematerialized securities (with suitable haircuts) pledged in favour of the exchange/clearing corporation or bank guarantees. “Prof. J R Varma Committee laid down few conditions as given below while accepting liquid assets mentioned here by the Exchanges and/or Clearing Corporation/House:

a. Bank Guarantees

i. The clearing corporation/House shall lay down exposure limits either in rupee terms or as percentage of the trade guarantee fund that can be exposed to a single bank directly or indirectly. The total exposure would include guarantees provided by the bank for itself or for others as well as debt or equity securities of the bank which have been deposited by members as liquid assets for margins or net worth requirement.

ii. Not more than 5% of the trade guarantee fund or 1% of the total liquid assets deposited with the clearing house whichever is lower shall be exposed to any single bank which is not rated P1 (or P1+) or equivalent by a RBI recognised credit rating agency and not more than 50% of the trade guarantee fund or 10% of the total liquid assets deposited with the clearing house whichever is lower shall be exposed to all such banks put together.

iii. The exposure limits and any changes thereto shall be promptly communicated to SEBI. The clearing corporation shall also periodically disclose to SEBI its actual exposure to various banks.

b. Securities:

Clearing corporation shall approve the list of acceptable securities, the hair-cuts applicable to various classes of securities, and the method of periodic revaluation (marking-to-market). The clearing corporation is free to adopt more stringent conditions than those described below. These policies shall be promptly disclosed to SEBI.

i. The marking to market of securities shall be carried out at least weekly for all securities.

ii. Debt securities shall be acceptable only if they are investment grade. Haircuts shall be atleast 10% with weekly mark to market.

iii. The total exposure of the clearing corporation to the debt or equity securities of any company shall not exceed 75% of the trade guarantee fund or 15% of the total liquid assets of the clearing corporation / house
whichever is lower. Exposure for this purpose means the mark to market value of the securities less the applicable haircuts.

iv. Equity securities shall be in dematerialised form. The acceptable securities shall be the top 100 securities by market capitalisation out of the top 200 securities by market capitalisation and also by trading value. This list shall be updated on the basis of the average market capitalisation over the previous six months. When a security is dropped from the list of acceptable securities, existing deposits of that security will continue to be counted for liquid assets for a period of one month. Haircuts on equity shall be at least 15% with weekly mark to market. The clearing corporation may charge a higher haircut on concentrated portfolios of equity securities deposited by a member.

v. All securities deposited for liquid assets shall be pledged in favour of the clearing corporation.

c. Minimum cash requirement

At least 50% of the total liquid assets shall be in the form of cash equivalents viz. cash, bank guarantee, fixed deposits, T-bills and dated government securities.\(^\text{11}\)

The Committee considered the issue of position limits at the customer level, trading member level, clearing member level and market level and suggested the following:

a. “Customer Level

The Committee agreed that though position limits make most sense conceptually when imposed at the customer level, it is not practical to enforce such a requirement unless

i. The aggregate position of a customer who operates through several brokers can be determined by the use of a single customer code (for example the Income Tax permanent account number). As practiced in the market, each broker assigns a code to a customer independently so the customer has as many codes as the number of brokers through whom he operates.

ii. A customer operating under multiple names and through multiple shell companies can be identified as a single customer using an operationalizable definition of ‘acting in concert’.
Thus, the Committee instead of recommending position limits at the client level, it recommended a self-disclosure requirement similar to that in the take-over regulations:

i. Any person or persons acting in concert who together own 15% or more of the open interest are shall be required to report this fact to the exchange and failure to do so shall attract a penalty as laid down by the exchange / Clearing Corporation / SEBI.

ii. This requirement may not be monitored by the exchange on a real-time basis, but if during any investigation or otherwise, any violation is proved, penalties can be levied.

iii. This would not mean a ban on large open positions but only a disclosure requirement.

b. Trading Member Level

The Committee recommended that:

i. There shall be a position limit at the trading member level of 15% of the open interest or Rs 100 crore whichever is higher.

ii. This is to be reviewed after six months of index futures trading.

c. Clearing Member Level

The Committee recommended that no separate position limit should be imposed at this level on aggregate trades cleared by a member. However, the clearing member shall ensure that his own positions and the positions of members clearing through him are within the limits specified.

d. Market Level

The Committee recommended that:

i. No limits should be imposed at this stage on the total market wide open interest (as a percentage of the underlying market capitalisation).

ii. This should be reviewed at the end of six months of index futures trading to determine whether position limits are required at this level to guard against situations where a very large open interest leads to attempts to manipulate the underlying market.
The Committee opined on the Customer level and Trading Member level margins and capital that the clearing corporation may specify:

a. the minimum margins to be collected from customers which may be more than the margins charged to members;

b. the minimum capital requirements for trading members in the form of deposits with the clearing member or the clearing corporation.”

3.4 Creation of a Separate Derivatives Cell by SEBI:

SEBI did not have any separate cell or division to look after derivatives functions like other functions till the formation of Derivatives Division in February 1998. Dr. L.C. Gupta Committee in its report also had recommended the following:

a. 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.

b. 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.

c. SEBI should urgently consider the creation of an Economic Research Wing.

In line with the recommendation of the Committee, SEBI had created a separate Derivatives Cell in February 1998. The cell was later rechristened as Division of New Products and Derivatives (DNPD). SEBI had also been reviewing the policies, procedures and circulars issued with regard to the activity in the derivatives market through the recommendations of the Committees and also by taking various other policy decisions.

This Division is responsible for supervising the functioning and operations of derivatives exchanges and related market organizations. The division is mainly responsible for the following:

i. Derivatives market policy issues and approval of new derivative products

ii. Monitoring the functioning of derivatives exchanges including conducting inspections and compliance exams.
iii. Prescribing and Monitoring risk management and settlement practices in derivatives exchanges
iv. Developing the trading and settlement framework for new products.
v. Regulatory action wherever required including issuing show cause notices, appointment of Enquiry/Adjudication officers and consequential action of serving of Chairman’s order etc.

3.5 Criteria for Derivative Exchanges/Segments, Clearing Corporation/House for Equity Derivatives:

SEBI while accepting the recommendations of the Dr. L.C. Gupta Committee had set the eligibility criteria for Derivative Exchange / Derivative Segment of the Exchange, Clearing Corporation/House for Equity Derivatives.

SEBI stipulated that the Stock Exchanges can apply to SEBI for grant of recognition under Section 4 of the Securities Contract Regulation Act, 1956 provided the derivatives exchange/segment have a separate governing council and representation of trading/clearing members is limited to maximum of 40% of the total members of the Governing Council. The exchange also should regulate the sales practices of its members and it needs to obtain prior approval of SEBI before start of trading in any derivatives contract.

The Clearing and settlement of derivatives trades for such exchanges/segments should be through a SEBI approved Clearing Corporation/House. Clearing Corporations / Houses complying with the eligibility conditions as laid down by the Dr. L.C. Gupta Committee can apply to SEBI for approval.

“The derivative segment of an exchange and its Clearing House/Corporation need to be separate from the cash segment in the following areas –

i. The legal framework governing trading, clearing and settlement of the derivative segment should be separate from the cash market segment. In other words, the Regulations and / or Bye-laws of derivative segment, as the case may be for specific exchanges, should be separate from the cash market.

ii. Trade Guarantee Fund (TGF)/Settlement Guarantee Fund (SGF) of the derivative segment should be separate from the TGF/SGF of cash market segment.
iii. Membership of the derivative segment should be separate from the cash market segment.

iv. The Governing Council/Clearing Council/Executive Committees of the derivative segments shall be separate from the cash market segment.”

The separation with regard to the functional, operational and administrative modalities is left at the discretion of the Exchange. The cash and derivative segment of an Exchange can have common personnel, trading terminal and infrastructure.

3.6 Inspection of Members:

Dr. L.C. Gupta in the report had stipulated that the inspections of 10% members should be carried out by the derivatives Exchanges. Subsequently, the same was increased to 100% of the members to be covered for inspections under the derivatives segment. This stipulation of carrying out 100% inspection of derivatives trading and clearing members in a year was further withdrawn in December 2002 and devising appropriate policy and plan with regard to selecting members to be inspected was left to the discretion of the exchanges.

Today, the quantum of members to be inspected that is required to be carried out by the Derivatives Exchanges can be linked to the cost and benefit of inspections and the level of activity of members. SEBI had left it to the discretion of the Derivative Exchanges/Segments to work out appropriate policy and plan for selecting members for inspection by them subject to following

i. There should criteria for identifying the top members (in terms of level of activity) to be taken up for compulsory inspection.

ii. The percentage of remaining members to be inspected can be selected on a sampling basis.

iii. Mechanisms should ensure that active members do not go un-inspected for several years in succession.

SEBI has also mandated that the inspection policy and plan for the year by the exchanges has to be submitted to SEBI for approval. Besides, above SEBI also independently conducts inspections of the members through its officials.
3.7 Derivatives Exchange Governance:

The functioning of the Derivatives Stock Exchanges/Segments and Clearing Corporations is managed by SEBI by laying down stringent guidelines for the appointment of CEO and the important Governing Bodies on the Exchanges and ensuring that the interest of the market is protected through the same.

“The exchanges / clearing house within a period of two months from the date of final approval for trading and settlement granted by SEBI are required to constitute the Governing Board, Clearing Council and Statutory Committees in the manner prescribed hereunder:-

a. The Governing Board of the Derivative Exchange/ Segment should be constituted as follows:

i. The Derivative Exchange/Segment should have a separate Governing Board which shall not have representation of Trading/Clearing Members of the Derivative Exchange/Segment/Clearing House/Clearing Corporation beyond 40% of the total members on the Governing Board provided that no Trading Member/Clearing Member are allowed to simultaneously be on the Governing Board of the Derivative Exchange/Segment and any of the underlying securities market.

ii. The members of the Governing Board of the Derivative Exchange / Segment shall elect a Chairman within a period of 10 days from the constitution of the Board and if the Chairman is a Trading/Clearing Member then he should not carry on any trading or clearing business on any Exchange during his tenure as Chairman.

iii. Not less than 60% of the members on the Governing Board of the Derivative Exchange/Segment should be public representative, Board nominees or any other person appointed with the approval of the Board. Provided that not more than 50% of such members should be common with the Governing Board / Executive Committee of the underlying securities exchange. Further, such members should be from amongst the persons of integrity having necessary professional competence and experience in the areas related to securities / derivatives markets.

iv. One-third of the elected members should retire at each annual general meeting and would be eligible to offer themselves for re-election. Provided, that where a person has been a member elected for two
consecutive terms on the governing board of the derivatives exchange / segment, he should not offer himself for re-election for a further period of two years.

v. The Executive Director or the Managing Director of the Exchange should assume all responsibility for the duties specified for CEO.

vi. The members appointed above shall not be subject to retirement by rotation and can hold office at the pleasure of SEBI or as per the provision of the Act and the Rules under which the Exchange is constituted.

b. The Clearing Council shall be constituted as prescribed hereunder:

i. The clearing council should not have any representation from the trading or clearing members.

ii. The members of clearing council should be persons of integrity having necessary professional competence and experience in the areas related to securities / derivatives markets. Their appointment, however, are subject to approval by SEBI.

iii. The Executive Director or the Managing Director of the clearing house/corporation should assume all responsibility for the duties specified for CEO.

iv. The members on the clearing council should elect a Chairman within a period of 10 days from the constitution of the clearing council.

v. The members appointed on the clearing council should not be subject to retirement by rotation and shall hold office at the pleasure of SEBI or as per the provisions of the Act and the Rules under which the clearing house / corporation is constituted.

c. For the purpose of appointment of the non-elected members on the governing board of the derivatives exchange / segment or on the clearing council, the derivatives exchange /segment and the clearing council can forward the names of persons to SEBI for approval of such appointments. SEBI however has the right to appoint any other persons, whose names have not been forwarded by the governing board of the derivatives exchange/segment and / or clearing council.

d. The Rules or Article of Association, as the case may be, of the stock exchange should provide that besides the governing board / clearing council, it should be the duty of the Chief Executive Officer to give effect
to the directives, guidelines and orders issued by SEBI in order to implement the applicable provisions of law, rules, regulations as also the Rules or the Articles of Association, Regulations and Bye-laws of the stock exchange. Any failure in this regard will make him liable for removal or termination of service by the governing board of the derivatives exchange / segment or the clearing council as the case may be, with the prior approval of SEBI or on receipt of direction to that effect from SEBI, subject to the concerned Chief Executive Officer being given an opportunity of being heard against such termination.

e. The Rules or Articles of Association, as the case may be, should provide that not more than 40% of the trading or clearing members of the derivatives exchange / segment and it’s clearing house / corporation should be appointed on the arbitration, disciplinary and default committees. At least 60% should be nominated on the said committees from persons other than members of the derivatives exchange / segment and it’s clearing house / corporation. The appointment of member on the statutory committees should be with the prior approval of SEBI. The Default Committee should function under the supervision of Clearing Council.”

The Exchanges govern the day-to-day operations of the derivatives market through the Governing Board or governing body of the stock exchanges including Governing Council, Executive Committee, Clearing Council, Executive Committee of Derivatives Clearing House/Clearing Corporation and various Statutory Committees such as Disciplinary Action Committee, Arbitration Committee, and Defaulters Committee etc.

3.8 Risk Management Structure Stipulated by SEBI

SEBI initially permitted trading in the Index Futures in Indian Derivatives Market. With the introduction of Index Options, Stock Futures and Stock Options, SEBI also issued various circulars and guidelines from time to time to address the specific issues related to the derivatives market in India. SEBI also reviewed the existing derivatives market structure from time to time through the Derivatives Advisory Council. SEBI issued various circulars specifying various changes to the risk management system adopted from time to time depending on the market conditions and the demand of the then market
scenario. This is evident from the fact that the risk management structure underwent change in December 2002 where SEBI prescribed some changes to the existing risk containment measures and prescribed broad eligibility criteria of stocks on which stock options and single stock futures could be introduced by the equity derivatives exchanges. SEBI also reviewed the recommendations of Dr. L.C. Gupta Committee on Derivatives in December 2002 and issued directives making some changes to the market structure.

“"In July 2004, SEBI further prescribed some changes to the risk containment measures, position limits and the broad eligibility criteria of Stocks and Index on which futures and options could be introduced by the exchanges which were further reviewed in January 2006 to take into account changes on corporate restructuring.”15

“"In January, 2006, SEBI modified the Trading Member/FII/Mutual Fund level position limits for stock based exchange traded derivative contracts. SEBI also introduced in December 2007, mini derivative (Futures and Options) contract on Index -Sensex and Nifty and in January 2008 SEBI introduced Volatility Index and Index options with longer tenure. SEBI also allowed Cross Margining across Exchange traded Equity (Cash) and Exchange traded Equity Derivatives (Derivatives) segments in December 2008.”16

“"In November 2009, SEBI gave flexibility to the Stock Exchanges to set the expiry date /day for equity derivative contracts. In January 2008, SEBI standardized lot size for derivative contracts on individual stocks stipulating the price bands based on which the lot size are required to be set by the exchanges. In July 2010, SEBI revised Exposure Margin for Exchange Traded Equity Derivatives to higher of 5% or 1.5 times the standard deviation (of daily logarithmic returns of the stock price) from the earlier one of higher of 10% or 1.5 times the standard deviation (of daily logarithmic returns of the stock price) of the notional value of the gross open position in single stock futures and gross short open position in stock options in a particular underlying.”17

Today, the risk management structure as specified by SEBI from time to time and now exists in 2012 is as follows:

3.8.1 Liquid Net-worth :

The Liquid Net Worth is defined as under:
- total liquid assets deposited with the exchange / clearing corporation / house towards initial margin and capital adequacy, LESS
- Initial margin applicable to the total gross open positions at any given point of time on all trades to be cleared through the clearing member.

“The clearing member’s liquid net worth has to satisfy both the conditions given below on a real time basis:

- Condition 1: Liquid Net Worth cannot be less than Rs 50 lacs at any point of time.
- Condition 2: The mark to market value of gross open positions at any point of time of all trades cleared through the clearing member should not exceed 33 1/3 (thirty three one by three) times his liquid net-worth.

The notional value of gross open positions at any point in time in the case of Index Futures should not exceed 33 1/3 (thirty three one by three) times the liquid net worth of a member. Exposure limits are in addition to the initial margin requirements.

3.8.2 Liquid Assets

At least 50% of the total liquid assets is in the form of cash equivalents viz. cash, bank guarantee, fixed deposits, T-bills and dated government securities. Liquid Assets for the purposes of initial margins as well as liquid net worth includes cash, fixed deposits, bank guarantees, Treasury bills, government securities or dematerialized securities (with prescribed haircuts) pledged in favour of the exchange / clearing corporation or bank guarantees as defined hereunder. Units of money market mutual funds and units of gilt funds can be accepted towards cash equivalent component of the liquid assets of a clearing member. The unit should be valued on the basis of its Net Asset Value after applying a hair cut of 10% on the NAV and any exit load charged by the mutual fund. The valuation or the marking to market of such units should be carried out on a daily basis.

a) Bank Guarantees

The clearing corporation / house can set an exposure limit for each bank, taking into account the following relevant factors:
i. “The Governing Council or other equivalent body of the clearing corporation / house has to lay down exposure limits either in rupee terms or as percentage of the trade guarantee fund that can be exposed to a single bank directly or indirectly. The total exposure has to include guarantees provided by the bank for itself or for others as well as debt or equity securities of the bank which have been deposited by members as liquid assets for margins or net worth requirement.

ii. Not more than 5% of the trade guarantee fund or 1% of the total liquid assets deposited with the clearing house, whichever is lower, should be exposed to any single bank which is not rated P1 (or P1+) or equivalent, by a RBI recognised credit rating agency or by a reputed foreign credit rating agency, and not more than 50% of the trade guarantee fund or 10% of the total liquid assets deposited with the clearing house, whichever is lower, should be exposed to all such banks put together.

iii. The exposure limits and any changes thereto are required to be communicated to SEBI. The clearing corporation is also required to periodically disclose to SEBI its actual exposure to various banks.”

b) Securities

Equity securities classified under Group I in the underlying cash market can be accepted towards liquid assets in the derivative markets. Securities classified under Group I are those as defined by SEBI from time to time. The equity securities are required to be valued/ marked to market on a daily basis after applying a haircut equivalent to the respective VaR of the equity security. “The list of acceptable equity securities has to be updated on the basis of trading and mean impact cost on the 15th of each month. When a security is dropped from the list of acceptable equity securities, the existing deposits of that security continues to be counted towards liquid assets till the end of the month. Equity securities are necessarily required to be only in dematerialized form.

Units of all mutual funds can also be accepted as the securities component of liquid assets. The unit has to be valued on the basis of its
Net Asset Value (NAV) after applying a hair cut equivalent to the VaR of the units NAV and any exit load charged by the mutual fund. The valuation or the marking to market of such units has to be carried out on a daily basis. The valuation/marking to market of all securities, including debt securities, dated government securities and T-bills, should be carried out daily, with appropriate haircuts.

Debt securities are acceptable only if they are investment grade. Haircuts are required to be at least 10% with daily mark to market. The total exposure of the clearing corporation to the debt or equity securities of any company cannot exceed 75% of the trade guarantee fund or 15% of the total liquid assets of the clearing corporation / house whichever is lower. Exposure for this purpose means the mark to market value of the securities less the applicable haircuts. All securities deposited for liquid assets are required to be pledged in favour of the clearing corporation.

Clearing Members can also accept foreign sovereign securities with ‘AAA’ rating, (hereinafter referred to as “sovereign securities”) as collateral from FII client with the necessary safeguards laid down by SEBI. Before accepting sovereign securities as collateral from FII, the clearing member needs to enter into a written agreement with the FII and also with the clearing corporation, containing various terms such as India as jurisdiction, taking rights to liquidate sovereign securities tendered etc. The clearing corporation / clearing member has to take due care to ensure that the sovereign securities tendered as collateral are available for liquidation in the event of insolvency of the Clearing member / FII or any intermediary or any other person located overseas through whom the securities are held. The clearing corporation is also required to take adequate care to ensure that the sovereign securities accepted by it as margin are tendered under a mechanism which does not unduly hinder timely liquidation in the event of default by the clearing member.*20

The clearing corporation has to value the collateral tendered by applying due haircuts which can either be a fixed percentage or VaR based. A higher haircut can be considered to cover the expected time frame for liquidation. A market determined price as obtained from an internationally recognized data vendor has to be considered for valuation.
The prices are required to be converted into rupee terms on a daily basis. The rupee value so used for conversion has to be the “RBI Reference rate”. The RBI reference rate needs to be disclosed by the clearing corporation to the clearing members, so as to enable them to report the value of the margins collected from FIIs. The sovereign securities tendered as collateral are treated as part of the cash component of the liquid assets of the clearing member, and the value of the sovereign securities cannot be more than 10% of the total value of the cash component of the liquid assets of the clearing member.

3.8.3 Risk Management for Index Futures:

a) Initial Margin :

“The Initial Margin requirements are based on worst scenario loss of a portfolio of an individual client to cover 99% VaR over one day horizon across various scenarios of price changes and volatility shifts. For Index products, the price scan range is specified at three standard deviation (3 sigma) and the volatility scan range is specified at 4%. Initial margin is calculated as per the formula given earlier as suggested in the Prof. J.R. Varma Committee report. The Exponential Weighted Moving Average method (EWMA) is used to obtain the volatility estimate every day.”

The volatility estimated at the end of the day’s trading is used in calculating the initial margin calls at the end of the same day. The volatility estimation and margin fixation methodology is also required to be made known to all market participants so that they can compute what the margin would be for any given closing level of the index. Further, the trading software itself is required to provide this information on a real time basis on the trading workstation screen.

There is also a minimum margin requirement. For index futures contracts it is specified that in no case the initial margin can be less than 5% of the value of the contract.

b) Margins for Calendar Spreads

A calendar spread is a situation in which a position at one maturity is hedged by an offsetting position at a different maturity on the same underlying, e.g., a short position in six months contract
hedged by a long position in nine month contract. “The margin on calendar spreads has to be at a flat rate of 0.5% per month of spread on the far month contract subject to a minimum margin of 1% and a maximum margin of 3% on the far side of the spread.”

c) Exposure Limits

“It has been prescribed that the notional value of gross open positions at any point in time in the case of Index Futures should not exceed 33 1/3 (thirty three one by three) times the liquid net worth of a member. Therefore, the exchanges are required to ensure that 3% of the notional value of gross open position in index futures is collected/ adjusted from the liquid net-worth of a member on a real time basis.”

Exposure limits are in addition to the initial margin requirements.

d) Real Time Computation

The computation of Worst Scenario Loss has two components. The first is the valuation of the portfolio under sixteen scenarios. At the second stage, these Scenario Contract Values are applied to the actual portfolio positions to compute the portfolio values and the initial margin (Worst Scenario Loss). For computational ease, exchanges are permitted to update the Scenario Contract Values only at discrete time points each day and the latest available Scenario Contract Values are required to be applied to member/client portfolios on a real time basis.

“However, in order to ensure that the most recent scenario are applied for computation of the portfolio values and the initial margin, the scenario contract values are required to be updated at least 5 times in the day, which can be carried out by taking the closing price of the previous day at the start of trading and the prices at 11:00 a.m., 12:30 p.m., 2:00 p.m., and at the end of the trading session.”

e) Cross Margining

The positions of clients in both the cash and derivatives segments to the extent they offset each other are required to be considered for the purpose of cross margining as per the following priority:
i. “Index futures position and constituent stock futures position in derivatives segment,

ii. Index futures position in derivatives segment and constituent stock position in cash segment, and

iii. Stock futures position in derivatives segment and the position in the corresponding underlying in cash segment

A basket of positions in index constituent stock/stock futures, which is a complete replica of index in the ratio specified by the Exchange/Clearing Corporation, are eligible for cross margining benefit. The positions in the derivatives segment for stock futures and index futures are required to be in the same expiry month to be eligible for cross margining benefit.

A spread margin of 25% of the total applicable margin on the eligible off-setting positions, as mentioned above, is required to be levied in the respective cash and derivative segments. Cross margining benefit are required to be computed at client level on an online real time basis and provided to the trading member/clearing member/custodian, as the case may be, who, in turn passes on the benefit to the client. For institutional investors, however, the cross margining benefit can be provided only after confirmation of trades. In order to avail the facility of cross margining, clients can maintain two accounts with the trading member/clearing member, namely arbitrage account and a non-arbitrage account, to allow converting partially replicated portfolio into a fully replicated portfolio by taking opposite positions in two accounts. However, for the purpose of compliance and reporting requirements, the positions across both accounts are required to be taken together and client is required to have unique client code.

A client can settle through a trading member/clearing member/custodian, who is clearing in both the segments or through two trading members/clearing members/custodians, one of whom is a trading member/custodian in the cash segment and the other is a clearing member in the derivatives segment. However, such clients

over a course of time are expected to settle through only one clearing member who is a member in both the segments.

“In the event of default by a trading member/clearing member/custodian, as the case may be, whose clients have availed cross margining benefit, the Stock Exchange/Clearing Corporation has option to:

i. Hold the positions in cross margin account till expiry in its own name OR

ii. Liquidate the positions/collateral in either segment and use the proceeds to meet the default obligation in the other segment.

The Exchange/Clearing Corporation are also required to enter into an agreement with client/clearing member/trading member/custodian, clearly laying down the inter-se distribution of liability / responsibility in the event of default. The exchanges are also required to specify the legal agreements between the clearing entities for the purpose of margin utilization in case of liquidation/default etc.

f) **Margin Collection and Enforcement**

The Exchange can offer a choice to the members to opt for payment of Mark to Market Margin (MTM):

i. either before the start of trading the next day, i.e., T+0, or

ii. on the next day, i.e., T+1.

If the member opts for payment of MTM by T+1, then correspondingly higher initial margin are required to be collected by the clearing corporation/house before the start of the trading on the next day to cover the potential losses over the time elapsed in the collection of margins. The clearing corporation/clearing house are also required to lay down operational guidelines for collection of margin and standard guidelines for back office accounting at the level of clearing member and trading member to facilitate the detection of non-compliance at each level. The initial margin (or the worst scenario loss) plus the calendar spread charge are required to be adjusted against the available Liquid Net worth of the member who, in turn, are required to collect the initial margin from their clients.”²⁶


²⁶
3.8.4 Risk Management for Index Options:

a) Initial Margin

“The Initial Margin requirements are based on worst case loss of a portfolio of an individual client to cover a 99% VaR over a one day horizon. For Index products, the price scan range is specified at three standard deviation (3 sigma) and the volatility scan range is specified at 4%. There is also a minimum margin requirement. For index options, a short option minimum charge (as explained below) of 3% of the notional value of all short index option has been prescribed.”

The Initial Margin requirement is netted at level of individual client and it has to be on gross basis at the level of Trading/Clearing Member. The Initial margin requirement for the proprietary position of Trading/Clearing member has to be on net basis.

b) Portfolio Based Margining

A portfolio based margining approach is required to be adopted in order to take an integrated view of the risk involved in the portfolio of each individual client comprising of his positions in index futures and index options contracts. “The parameters for such a model are required to include-

i. Worst Scenario Loss

The worst case loss of a portfolio is required to be calculated by valuing the portfolio under several scenarios of changes in the index and changes in the volatility of the index. The scenarios to be used for this purpose are as under:

<table>
<thead>
<tr>
<th>Risk Scenario Number</th>
<th>Price Move in Multiples of Price Range</th>
<th>Volatility Move in Multiples of Volatility Range</th>
<th>Fraction of Loss to be Considered</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>0</td>
<td>+1</td>
<td>100%</td>
</tr>
<tr>
<td>2.</td>
<td>0</td>
<td>-1</td>
<td>100%</td>
</tr>
<tr>
<td>3.</td>
<td>+1/3</td>
<td>+1</td>
<td>100%</td>
</tr>
<tr>
<td>4.</td>
<td>+1/3</td>
<td>-1</td>
<td>100%</td>
</tr>
<tr>
<td>5.</td>
<td>-1/3</td>
<td>+1</td>
<td>100%</td>
</tr>
<tr>
<td>6.</td>
<td>-1/3</td>
<td>-1</td>
<td>100%</td>
</tr>
<tr>
<td>7.</td>
<td>+2/3</td>
<td>+1</td>
<td>100%</td>
</tr>
<tr>
<td>8.</td>
<td>+2/3</td>
<td>-1</td>
<td>100%</td>
</tr>
</tbody>
</table>
The price range is defined as three standard deviations as calculated for VaR purposes in the index futures market for the near month contract. The volatility range would be taken at 4%. While computing the worst scenario loss, it should be assumed that the prices of futures of all maturities on the same underlying index move up or down by the same amount.

For the purpose of the calculation of option values, the exchanges have been allowed to use any of the following standard Option Pricing Models – Black-Scholes, Binomial, Merton, Adesi-Whaley.

The maximum loss under any of the scenario (considering only 35% of the loss in case of scenarios 15 and 16) is the Worst Scenario Loss. Thus, the Worst Scenario Loss is the margin requirement for the portfolio subject to additions and adjustments mentioned below:

ii. **Real Time Computation**

The computation of Worst Scenario Loss has two components. The first is the valuation of each option contract under sixteen scenarios using an appropriate option pricing model. The second is the application of these Scenario Contract Values to the actual positions in a portfolio to compute the portfolio values and the Worst Scenario Loss. For computational ease, exchanges are permitted to update the Scenario Contract Values only at discrete time points each day. However, the latest available Scenario Contract Values is required to be applied to member / client portfolios on a real time basis.

### Source:
SEBI (2012), *Master Circular on Exchange Traded Derivatives, PP28-32*
iii. Calendar Spread

The margin for calendar spread is the same as specified for the index futures contracts. However, the margin is required to be calculated on the basis of delta of the portfolio in each month. Thus, a portfolio consisting of a near month option with a delta of 100 and a far month option with a delta of 100 would bear a spread charge equal to the spread charge for a portfolio which is long 100 near month futures and short 100 far month futures. The Calendar Spread Margin has to be charged in addition to the Worst Scenario Loss of the portfolio.

iv. Short Option Minimum Margin

The Short Option Minimum Margin equal to 3% of the Notional Value of all short index options has to be charged, if sum of the Worst Scenario Loss and the Calendar Spread Margin is lower than the Short Option Minimum Margin. Notional Value of option positions is calculated by applying the last closing price of the index futures contract.

v. Net Option Value

The Net Option Value is required to be calculated as the current market value of the option times the number of options (positive for long options and negative for short options) in the portfolio. This Net Option Value has to be added to the Liquid Net Worth of the clearing member. This means that the current market value of short options has to be deducted from the Liquid Net Worth and the market value of long options has to be added thereto. Thus, market to market gains and losses on option positions get adjusted against the available Liquid Net Worth. Since the options are premium style, mark to market gains and losses are not required to be settled in cash for option positions.

vi. Cash Settlement of Premium

For option positions, the premium has to be paid by the buyers in cash and paid out to the sellers in cash on T+1 day.
vii. Unpaid Premium

Until the buyer pays the premium, the premium due is deducted from the available Liquid Net Worth on a real time basis.

c) Exposure Limits

The notional value of gross open positions at any point of time in the case of all Short Index Option Contracts does not exceed 33 1/3 (thirty three one by three) times the liquid net worth of a member.

d) Real Time Computation

In the case of Index options, the process to be followed for real time computation is the same as that of Index Futures contracts.

e) Margin Collection and Enforcement

In the case of Index options, the process to be followed for margin collection and enforcement is the same as that of Index Futures contracts.  

3.8.5 Risk Management for Stock Futures:

a) Initial Margin or Worst Scenario Loss

“The Initial Margin requirements are based on worst scenario loss of a portfolio of an individual client to cover 99% VaR over one day horizon across various scenarios of price changes and volatility shifts.

In the case of Single Stock Futures, the initial margin is required to be computed as the worst scenario loss of a portfolio comprising of all the positions of a client in all the futures and options contracts. For Single Stock Futures, the price scan range is 3.5 Standard Deviation (3.5 sigma) and in no case the initial margin for Single Stock Futures contract can be less than 7.5% of the value of the Single Stock Futures contract. The SPAN margining system, which has been adopted by both BSE & NSE, does not have the provision to provide for charging a minimum margin of 7.5% for futures contracts. However, in order to achieve the requirement of minimum margin for the Single Stock Futures contract, the price scan range is required to be adjusted so as to ensure that the initial margin for Single Stock
Futures contracts does not fall below 7.5% in any scenario. The standard deviation is calculated as per the methodology specified in the index futures.

The Initial Margin requirement continues to be netted at level of individual client and is calculated on a gross basis at the level of Trading / Clearing Member. The Initial margin requirement for the proprietary position of Trading/Clearing member is calculated on a net basis.

b) Calendar spread

The margin on calendar spread is calculated on the basis of delta of the portfolio consisting of futures and option contract in each month. Thus, a portfolio consisting of a near month option with a delta of 100 and a far month option with a delta of −100 would bear a spread charge equal to the spread charge for a portfolio which is long 100 near month futures and short 100 far month futures. The Calendar Spread Margin is charged in addition to the Worst Scenario Loss of the portfolio.

The margin on calendar spreads is at a flat rate of 0.5% per month of spread on the far month contract subject to a minimum margin of 1% and a maximum margin of 3% on the far side of the spread.

c) Exposure Limits

The value of gross open positions at any point of time in all the Single Stock Futures contracts cannot exceed 20 (twenty) times the available liquid net worth of a member. Hence, the exchanges are required to ensure that higher of 5% or 1.5 (standard deviation) of the notional value of gross open position in Single Stock Futures contracts is collected /adjusted from the liquid net worth of a member on a real time basis. Exposure limits are in addition to the initial margin requirements. For the purpose of computing 1.5 standard deviations, the standard deviation of daily logarithmic returns of prices in the underlying stock in the cash market in the last six months is required to be computed. This value is applicable for a month and then is required to be re-calculated at the end of the month by once again taking the price data on a rolling basis for the past six months.
d) **Real Time Computation**

The computation of Worst Scenario Loss has two components. The first is the valuation of the portfolio under sixteen scenarios. At the second stage, these Scenario Contract Values are applied to the actual portfolio positions to compute the portfolio values and the initial margin (Worst Scenario Loss). For computational ease, exchanges are permitted to update the Scenario Contract Values only at discrete time points each day and the latest available Scenario Contract Values would be applied to member/client portfolios on a real time basis.

Like Index Futures, in order to ensure that the most recent scenario are applied for computation of the portfolio values and the initial margin, the scenario contract values are updated at least 5 times in the day at the same time as specified for index futures. For the purpose of computing worst scenario loss on a portfolio, the price scan range for stock option and single stock future contracts are required to be linked to liquidity, measured in terms of impact cost for an order size of Rs.5 Lakhs, calculated on the basis of order book snapshots in the previous six months. Accordingly, if the mean value of impact cost exceeds 1%, the price scanning range is required to be scaled up by square root of three. This is in addition to the requirement of scaling up for the look-ahead period i.e. the time in which mark to market margin is collected. SEBI has also given the guidance for computation of impact cost for an order size of Rs.5 Lakhs which is as under:-

Impact cost is required to be calculated by taking four snapshots in a day from the order book in the past six months. These four snapshots are to be randomly chosen from within four fixed ten-minutes windows spread throughout the day. The impact cost is the percentage price movement caused by an order size of Rs.5 Lakhs from the average of the best bids and offer prices in the order book snapshot. The impact cost is calculated for both, the buy and the sell side in each order book snapshot. The mean of the impact cost for both the buy and the sell side in each order book snapshot in the past
six months is computed to determine the applicable price scan range in the stock.

The mean impact cost is required to be calculated at 15\(^{th}\) of each month on a rolling basis considering the order book snapshots of the previous six months. If the mean impact cost or a stock moves from less than or equal to 1% to more than 1%, the price scan range in such stock is required to be scaled up by square root of three and the scaling has to be dropped when the impact cost drops to 1% or less. Such changes are applicable on all existing open position within three days from the 15\(^{th}\) of each month.

e) **Cross Margining**

In the case of Stock Futures, the process to be followed for cross margining is same as that followed in the Index Futures contracts.

f) **Margin Collection and Enforcement**

The Margin collection and enforcement system is same as that for index future contracts.

Further, for stocks which have a mean value of impact cost greater than 1%, in addition to the price scanning range, the minimum initial margin for single stock futures contracts is scaled up by square root of three. In the absence of trading in the last half an hour the theoretical price is taken for the collection of MTM margin.”

3.8.6 Risk Management for Stock Options:

a) **Initial Margin Computation:**

“The Initial Margin requirements are based on worst scenario loss of a portfolio of an individual client to cover 99% VaR over one day horizon across various scenarios of price changes and volatility shifts. For stock option contracts the price scan range is specified at three and a half standard deviation (3.5 sigma) and the volatility scan range is specified at 10%. There is also a minimum margin requirement. A short option minimum charge of 7.5% of the notional value of all short stock option contracts has been prescribed.
b) **Portfolio Based Margining**

In the case of Stock Options, the portfolio based margining process to be followed is same as that followed in the Index Options contracts.

c) **Exposure Limits**

It has been prescribed that the notional value of gross short open positions at any point in time in the case of Stock Option Contracts shall not exceed 20 (twenty) times the liquid net worth of a member. Exposure limits are in addition to the initial margin requirements. Therefore, the exchanges are required to ensure that 5% of the notional value of gross open position in the case of stock option contracts is collected/adjusted from the liquid net worth of a member on a real time basis. Further, the notional value of the options contract are required to be calculated on the basis of the previous day’s closing value of the underlying.

d) **Real Time Computation**

The process to be followed for real time calculation is same as that for stock future contracts.

e) **Margin Collection and Enforcement**

The process followed for margin collection and enforcement is same as that for index future contracts. Further, for stocks which have a mean value of impact cost greater than 1%, in addition to the price scanning range, the short option minimum charge for stock option contracts are required to be scaled up by square root of three.

### 3.9 Risk Management System Adopted by the Exchanges:

A sound risk management system is integral to an efficient clearing and settlement system. The Exchanges have risk containment measures that are common and also were common internationally. Exchanges have a comprehensive risk management system for Futures & Options. The same is also developed in line with the guidelines given above by SEBI. The most vital component in risk management is online position monitoring and margining system.

Risk containment measures adopted by derivatives exchanges include capital adequacy requirements of members, monitoring of member performance
and track record, stringent margin requirements, position limits based on capital, online monitoring of member positions and automatic disablement from trading when limits are breached, etc.

Actual margining and position monitoring is done on-line, on an intra-day basis. Risk Management for Derivative products is managed with Standard Portfolio Analysis of Risk (SPAN) which is considered to be highly sophisticated, value-at-risk methodology that calculates performance bond/margin requirements by analyzing the "what-if's" of virtually any market scenario. The SPAN (Standard Portfolio Analysis of Risk) is used for the purpose of margining, which is risk-based, portfolio-approach. Both the Exchanges have a system which is more or less similar in nature.

The Exchanges and/or Clearing Corporations have adopted the risk management system through multiple levels of defenses. The defense built by the exchanges and the risk management system adopted by them to mitigate the various risks is based on following:

1. Liquid Assets
2. Margins
   a. Initial Margins - SPAN and SPAN Risk Parameters
   b. Mark-to-Market Margin
   c. Premium Margins
   d. Assignment Margin
   e. Exposure Margin
   f. Calendar Spread
   g. Short Option Minimum Charge
3. Additional Base Capital
4. Payment of Margins
5. Client Margin Reporting
6. Cross Margin Benefits
7. Position Limits
8. Voluntary Close out Facility

3.9.1 Liquid Assets

As per Exchanges, Clearing members are required to provide liquid assets to them which adequately would cover exchange’s various margins and liquid net worth requirements. These liquid assets are
segregated as cash component and non-cash component. Cash component means cash, bank guarantees, fixed deposit receipts, units of money market mutual fund, Gilt funds, Government of India securities and any other form of collateral as prescribed from time to time. Non-cash component means all other forms of collateral deposits like deposit of approved list of demat securities and units of the other mutual funds and any other form of collateral as may be prescribed from time to time. The total liquid assets comprise of the cash component and the non cash component wherein the cash component has to be at least 50% of liquid assets.

a) **Cash Component:**

i. **Liquid Net-worth Requirement for Clearing Members:**

   The Liquid Net-worth is computed as total liquid assets less initial margin payable at any point in time. Here,

   \[
   \text{Initial Margin requirement} = \text{Total SPAN Margin Requirement} + \text{Buy Premium} + \text{Assignment Margin}
   \]

   The clearing member needs to meet with the liquid net-worth requirements prescribed by the Clearing Corporation at all points of time. The Clearing Members of the Clearing Corporations are required to maintain a minimum liquid net-worth of Rs.50 lakhs with the Clearing Corporation in the following manner: (a) Rs.25 lakhs in the form of cash and (b) Rs.25 lakhs in any one or combination of the forms of collaterals accepted towards liquid assets.

   The Clearing Members are also required to maintain additional deposit of Rs.10 lakhs each, in respect of every trading member whose deals such clearing members undertake to clear and settle, in the following manner: (1) Rs.2 lakhs to be maintained in the form of cash. (2) Rs.8 lakhs to be maintained in any one or combination of the forms of collaterals accepted towards liquid assets.

   ii. **Cash:**

   Clearing Members can deposit cash with Clearing Corporation from their respective clearing bank account. Clearing members who
intend to transfer Cash from one segment to another segment can also transfer the same on an intraday basis. Members are required to specify the segment where the collateral is to be transferred.

iii. Bank Fixed Deposit Receipts (FDRs):

Clearing members are permitted to place fixed deposit receipts as collateral towards liquid assets. The FDRs are to be normally lien marked in favour of the Clearing Corporation and only from the Banks specified by the Exchanges from time to time. These FDRs also need to have validity of a minimum period of 3 months in case of margin deposit and for a minimum period of 12 months in case of security deposit. Similar to Cash Transfer, Clearing members who intend to transfer the FDR from one segment to another segment can transfer the same on an intraday basis.

iv. Bank Guarantees (BGs):

Clearing Members can also place bank guarantees in the specified formats of the Exchanges either for specific segment or for any of the clearing segment, from any approved banks towards liquid assets. Bank Guarantees for security deposit are required to be issued for a minimum period of 12 months with a specific claim period of at least 3 months. Further, a bank guarantee for margin deposit is required to have validity for a minimum period of 3 months. In the event, any issuing bank does not provide for a specific claim period beyond the expiry date in the bank guarantee, the clearing members can submit Bank Guarantees for a minimum period of 15 months in case of security deposit. The maturity period of such bank guarantee is reduced by 3 months by Clearing Corporation in case of security deposit and 7 days in case of margin deposit, which would be considered as the claim period of the bank guarantee. The acceptance of the bank guarantees by the clearing corporation is subject to the bank-wise and member-wise limits stipulated by Clearing Corporation from time to time.

Like Cash and FDRs, Clearing Members can shift BG provided as margin deposit from one segment of the Exchange to the other segments of the same Exchange.
v. **Mutual Funds:**

Members can pledge open ended mutual fund units available in demat form as collateral towards Liquid assets. The Clearing Corporation can revise the list of approved mutual fund scheme and the haircuts from time to time. The mutual fund units are valued based on the Net Asset Value (NAV) of the mutual fund unit. The value of the mutual fund unit is reduced by such haircut as may be prescribed by the Clearing Corporation from time to time to arrive at the collateral value of the mutual fund unit. The haircut applicable is normally the VaR margin rate and exit load if any applicable for the respective mutual fund scheme. Only the value net of applicable haircuts and exit load is considered as the value of the mutual fund units pledged. Further, the total value of mutual fund units provided as non cash portion of the liquid assets cannot exceed 25% of the liquid assets of the respective member. Units of money market mutual fund and Gilt funds (including units of open ended liquid mutual funds or government securities mutual funds) are also accepted by clearing corporations where applicable haircut is 10%.

vi. **Government Securities and T-Bills:**

Clearing member can also provide G-Sec / T-Bills towards collateral. Clearing Corporations prescribe list of G-Sec/T-Bills that is eligible for acceptance as collateral from time to time. G-Sec/T-bills are accepted as collateral only in electronic form. The benefit of G-Sec/T-bills provided as collaterals is also passed on immediately to clearing members on G-Sec/T-Bills being transferred to the SGL-II account of Clearing Corporations. G-Sec/T-Bills are valued daily based on previous day's MTM prices as specified by CCIL. A hair cut of 10% is applied on the value of G-Sec/T-bill provided as collateral by clearing members. The value after applying the hair cut is added to the cash component of the liquid assets of the clearing member. Periodic coupon / redemption payments received on the G-Sec/T-Bills provided by the member are passed on to the member by Clearing Corporation
immediately upon receipt of relative interest/redemption from Reserve Bank of India.

vii. **Foreign Sovereign Securities**

Clearing Members can also collect Foreign Sovereign Securities as collateral from Foreign Institutional Investors (FIIs) for Exchange Traded Derivative Transactions and provide the same as collateral to the Clearing Corporation. The methodologies for acceptance of foreign sovereign securities shall be as under:

a. Only US Government securities with 'AAA' rating are accepted as collateral.

b. The clearing members can pledge the securities in favour of the Clearing Corporation through the approved custodian. The foreign sovereign securities are valued on a daily basis and converted into rupee terms based on the latest available RBI reference rate or such other rate as specified by the Clearing Corporation from time to time. A hair cut of 20% or such other hair cut as specified by the Clearing Corporation from time to time is applied on the value of foreign securities pledged by the clearing members. Further, the net value of foreign sovereign securities cannot exceed 10% of the total value of the cash component of the liquid assets of the clearing member.

**b) Non Cash Component :**

The non-cash component consists of the following:

i. **Liquid (Group I) Equity Shares:** Clearing members can pledge shares of Liquid (Group I) Equity Shares which are in demat form towards the non-cash component as specified by the Exchanges from time to time in favour of the Clearing Corporation of the respective exchanges. The Clearing Corporation can revise the list of approved securities and the haircuts from time to time. These securities placed with the Clearing Corporations are valued on daily basis based on the closing price of the security in the Capital Market segment of the respective Exchanges. The haircut at VaR margin rate applicable for the security is applied to arrive at the
net value of the securities which is considered as value of securities pledged by Clearing Members.

ii. **Mutual fund units other than those listed under cash component**
decided by Clearing Corporation from time to time deposited with approved custodians are accepted towards non-cash component.

### 3.9.2 Margins

Exchanges and Clearing Corporations have developed a comprehensive risk containment mechanism for the derivatives segment. The most critical component of a risk containment mechanism for derivatives segment is the online position monitoring and margining system. The actual margining and position monitoring is done on-line, on an intra-day basis. The Indian derivatives markets use the SPAN (Standard Portfolio Analysis of Risk) system for the purpose of margining, which is a portfolio based system.

a) **Initial Margin**

Initial margin requirements are based on 99% value at risk over a one day time horizon. The Initial Margin requirement is based on the worst-case loss of portfolio at client level to cover 99% VaR over one day horizon. However, in the case of futures contracts (on index or individual securities), where it may not be possible to collect mark to market settlement value, before the commencement of trading on the next day, the initial margin is computed over a two-day time horizon, applying the appropriate statistical formula. The methodology for computation of Value at Risk percentage is as per the recommendations of SEBI from time to time.

**Initial margin requirement for a member:**

1. For clients, the positions are netted at level of individual client and grossed across all clients at Trading/ Clearing Member level, without any setoffs between clients.
2. For proprietary positions - is netted at Trading/ Clearing Member level without any setoffs between client and proprietary positions.

The methodology for computation of Value at Risk (VaR) percentage is as per the stipulation of SEBI. For the purpose of SPAN Margin, various parameters are specified from time to time.
worst-case loss of a portfolio is calculated by valuing the portfolio under several scenarios of changes in the respective Stock and/or Index prices. The sixteen risk scenarios as discussed earlier to arrive at applicable margin are used for this purpose.

SPAN constructs scenarios of probable changes in underlying prices and volatilities in order to identify the largest loss a portfolio might suffer from one day to the next. It then sets the margin requirement at a level sufficient to cover this one-day loss. The complex calculations (e.g. the pricing of options) in SPAN are executed by the Clearing Corporation. The results of these calculations are called Risk arrays. Risk arrays, and other necessary data inputs for margin calculation are then provided to members on a daily basis in a file called the SPAN Risk Parameter file. This data is also made available by the exchanges to Clearing Members who can apply the data contained in the Risk parameter files to their specific portfolios of futures and options contracts to determine their SPAN margin requirements.

The price scan range and the mean impact cost as stipulated by SEBI are taken into consideration into the calculations. For the purpose of SPAN Margin, Clearing Corporation specifies various parameters as stipulated by SEBI from time to time:

**Table: 3.2**

**Price and Volatility Scan Range and Short Option Minimum Charge Parameters**

<table>
<thead>
<tr>
<th></th>
<th>Index Futures</th>
<th>Index Options</th>
<th>Futures on Individual Securities</th>
<th>Options on Individual Securities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price scan range</td>
<td>Three standard deviations (3 sigma). Min. margin percentage is 7.1%.</td>
<td>Three standard deviations (3 sigma)</td>
<td>Three &amp; a half standard deviations (3.5 sigma). Min. margin percentage is 10.7%.</td>
<td>Three &amp; a half standard deviations (3.5 sigma)</td>
</tr>
<tr>
<td>Volatility scan range</td>
<td>4%</td>
<td>4%</td>
<td>10%</td>
<td>10%</td>
</tr>
<tr>
<td>Short Option Minimum Charge</td>
<td>Not Applicable</td>
<td>3% of the notional value* of all short index option positions</td>
<td>Not Applicable</td>
<td>7.5% of the notional value* of all short index option positions</td>
</tr>
</tbody>
</table>

*Notional value, with respect to an option contract, is computed as the product of the short open position in that option contract multiplied by the previous day's closing price of the underlying security, or such other price as may be specified by Clearing Corporation from time to time.*
The **price** scan range is taken at three standard deviations (100*e(3σ-1)) where σ is daily volatility of respective underlying Index /Stock or Index/Stock Futures whichever is higher. However, the Derivatives Segment can specify a higher price scan range than the said 3σ values for better risk management. To cover a 99% VaR over 'T' day’s horizon, the price scan range is based on 3σ √T where T is number of days.

The **minimum** initial margin equal to 5% of the notional value of the contract based on the last available price of the futures contract is applied at all times. To achieve the same, the price scan range is adjusted to ensure that the minimum margin collected doesn’t fall below 5% at any time. In addition, the minimum margin is also scaled up by the look ahead point. The **computation** of risk arrays for various Index and/or Stock future contracts is done at discrete time points each day and as stipulated by SEBI the latest available risk arrays are applied to the portfolios on a real time basis at 5 times in a day at the time intervals specified by SEBI.

Clearing **Corporation** collects initial margin up-front for all the open positions of a Clearing Member based on the margins computed. Clearing Members in turn are required to collect the initial margin from the Trading Members and his respective clients. Similarly, a Trading Member is also required to collect upfront margins from his clients.

**b) Mark-to-Market Margin**

The clients’ positions are marked-to-market on a daily basis at the portfolio level. However, for payment of mark-to-market margin to the Exchanges/ Clearing Corporations, the same is netted out at the Member level. The mark-to-market margin is paid in / out in cash on T+1 day. The daily closing price of the Index and/or Stock futures contract for mark-to-market settlement is arrived at considering the weighted average **price** of all the trades in last half an hour of the continuous trading session. If there were no trades during the last half an hour, then the theoretical price is taken as the official closing price.
The theoretical price is arrived at using following algorithm:
Theoretical price = Closing value of underlying Index + \{closing value of underlying Index \times \text{No. of days to expiry} \times \text{risk free interest rate (at present 7\%) / 365}\}

The Bank Rate + 1\% would be taken as risk free interest rate percentage and dividend yield is taken as zero for simplicity.

c) **Premium Margin**

In addition to Span Margin, Premium Margin is charged to members. The premium margin is the client wise premium amount payable by the buyer of the option and is levied till the completion of pay-in towards the premium settlement.

d) **Assignment Margin**

Assignment Margin is levied on a Clearing Member in addition to SPAN margin and Premium Margin. It is levied on assigned positions of Clearing Members towards interim and final exercise settlement obligations for option contracts on index and individual securities till the pay-in towards exercise settlement is complete.

The Assignment Margin is the net exercise settlement value payable by a Clearing Member towards interim and final exercise settlement and is deducted from the effective deposits of the Clearing Member available towards margins.

e) **Exposure Margin**

The exposure margins for options and futures contracts on index are as follows:

a. For Index options and Index futures contracts: 3\% of the notional value of a futures contract. In case of options it is charged only on short positions and is 3\% of the notional value of open positions. Here, notional value means the contract value at last traded price/closing price.

b. For option contracts and Futures Contract on individual Securities: The higher of 5\% or 1.5 standard deviation of the notional value of gross open position in futures on individual securities and gross short open positions in options on individual securities in a
particular underlying. The standard deviation of daily logarithmic returns of prices in the underlying stock in the cash market in the last six months is computed on a rolling and monthly basis at the end of each month. Here the notional value means the value of an equivalent number of shares as conveyed by the options contract, in the underlying market, based on the last available closing price.

f) Calendar Spread or Inter-month Risk Charge

The margin on calendar spread is calculated and benefit is given to the Members for such position till expiry of near month contract. The calendar-spread margin is charged in addition to worst-scenario loss of the portfolio.

As SPAN scans futures prices within a single underlying instrument, it assumes that price moves correlate perfectly across contract months. Since price moves across contract months do not generally exhibit perfect correlation, SPAN adds a Calendar Spread Charge (also called the Inter-month Spread Charge) to the Scanning Risk Charge associated with each futures and options contract.

For each futures and options contract, SPAN identifies the delta associated with each futures and option position, for a contract month. It then forms spreads using these deltas across contract months. For each spread formed, SPAN assesses a specific charge per spread which constitutes the Calendar Spread Charge.

The margin for calendar spread is calculated on the basis of delta of the portfolio in each month. The calendar spread position is granted calendar spread treatment till the expiry of the near month contract.

g) Short Option Minimum Charge

Short options positions in extremely deep-out-of-the-money strikes may appear to have little or no risk across the entire scanning range. However, in the event that underlying market conditions change sufficiently, these options may move into-the-money, thereby generating large losses for the short positions in these options. To cover the risks associated with deep-out-of-the-money short options positions, SPAN assesses a minimum margin for each short option position in the portfolio called the Short Option Minimum charge,
which is set by the Clearing Corporations. The Short Option Minimum charge serves as a minimum charge towards margin requirements for each short position in an option contract.

h) Margin Reports

The Clearing Corporations provided various reports to the Clearing Members and/or Trading Members and/or Custodial Participants such as Margin Statement of Clearing Members, Margin Statement of Trading Member/ Custodial Participant, Margin Payable Statement of Clearing Member, Detail Margin File of Clearing Members, Client Level Margin File of Trading Members, Detailed provisional margin report for clearing member, Client Level provisional Margin File of Trading Members, Cross margin benefit report for clearing member, Cross margin benefit report for trading member, Offset positions report for trading member, Offset positions report for clearing member etc.

3.9.3 Additional Base Capital

In case a trading member wishes to take additional trading positions his Clearing Member is required to provide Additional Base Capital (ABC) to the Clearing Corporations. ABC can be provided by the members in the form of Cash, Bank Guarantee, Fixed Deposit Receipts and approved securities. Clearing members can provide additional margin/collateral deposit (additional base capital) to Clearing Corporation and/or can retain deposits and/or such amounts which are receivable from Clearing Corporation, over and above their minimum deposit requirements, towards initial margin and/ or other obligations.

All collateral deposits made by Clearing Members are segregated into cash component and non-cash component as specified earlier. For Additional Base Capital, cash component means cash, bank guarantee, fixed deposit receipts, T-bills and dated government securities. Non-cash component means all other forms of collateral deposits like deposit of approved demat securities. At least 50% of the deposits is required to be in the form of cash component only.
3.9.4 Payment of Margins

The initial and exposure margin is payable upfront by Clearing Members. Initial margins can be paid by members in the form of Cash, Bank Guarantee, Fixed Deposit Receipts and approved securities.

Clearing members who are clearing and settling for other trading members can specify the maximum collateral limit towards initial margins, for each trading member and custodial participant clearing and settling through them. Such limits can be set up by the clearing member. Such collateral limits once set are applicable to the trading members/custodial participants for that day, unless otherwise modified by clearing member.

3.9.5 Client Margin Reporting

Clearing Members (CMs) and Trading Members (TMs) are required to collect upfront initial margins from all their Trading Members/ Constituents. CMs are required to compulsorily report, on a daily basis, details in respect of the margin amount due and collected, from the TMs/ Constituents clearing and settling through them, with respect to the trades executed/ open positions of the TMs/ Constituents, which the CMs have paid to Clearing Corporations, for the purpose of meeting margin requirements.

Similarly, TMs are required to report on a daily basis details in respect of the margin amount due and collected from the constituents clearing and settling through them, with respect to the trades executed/ open positions of the constituents, which the trading members have paid to the CMs, and on which the CMs have allowed initial margin limit to the TMs.

The cut off day upto which a member can report client margin details to Clearing Corporations is 5 working days after the trade day. The Exchanges/Clearing Corporations levy penalty in case of short reporting by trading/clearing member as specified by SEBI.
3.9.6 Cross Margin

Cross margining benefit is available across Cash and Derivatives segment and to all categories of market participants. For client/entities clearing through same clearing member in Cash and Derivatives segments, the clearing member is required to intimate client details to Exchanges/Clearing Corporations to avail the benefit of Cross margining. For client/entities clearing through different clearing member in Cash and Derivatives segments they are required to enter into necessary agreements for availing cross margining benefit. For the client/entities who wish to avail cross margining benefit in respect of positions in Index Futures and Constituent Stock Futures only, the entity’s clearing member in the Derivatives segment has to provide the details of the clients.

The positions of clients in both the Cash and F&O segments to the extent they offset each other are considered for the purpose of cross margining as per the priority stipulated by SEBI covered earlier in the chapter.

Cross-margin benefit is also available in case of Futures on the Global Indices as well such as of S&P 500, DJIA, BRICSMART, IBOVESPA, MICEX etc.

The computation of cross margining benefit is done at client level on an online real time basis and provided to the trading member / clearing member / custodian who in turn passes on the benefit to the respective client. For institutional investors the positions in Cash segment are considered only after confirmation by the custodian on T+1 basis and on confirmation by the clearing member in F&O segment. The positions in the Cash and F&O segment are considered for cross margining only till time the margins are levied on such positions. While reckoning the offsetting positions in the Cash segment, positions in respect of which margin benefit has been given on account of early pay-in of securities or funds are not considered. The positions which are eligible for offset, are subject to spread margins. The spread margins are 25% of the applicable upfront margins on the offsetting positions or such other amount as specified by Clearing Corporation from time to time. The difference in the margins on the total portfolio and on the portfolio excluding off-setting
positions considered for cross margining, less the spread margins is considered as cross margining benefit.

In the event of default by a trading member / clearing member / custodian, as the case may be, whose clients have availed cross margining benefit, Clearing Corporation hold the positions in the cross margin account till expiry in its own name. The Clearing Corporation liquidates the positions / collateral in either segment and uses the proceeds to meet the default obligation in the other segment. In addition to this, the exchange also takes such other risk containment measures or disciplinary action as it may deem fit and appropriate in this regard.

3.9.7 Position Limits

Besides, initial margins various market participants have to adhere to the position limits stipulated by SEBI from time to time. The position limits for Foreign Institutional Investor (FII), Mutual Funds, FII’s Sub-accounts, Non Resident Indians (NRIs) & Mutual Fund (MF) schemes are monitored by the Clearing Corporations based on the Custodian Participant (CP) Codes allotted to these entities.

The position limits are computed on a gross basis at the level of a FII and on a net basis at the level of sub-accounts and proprietary positions. The open positions for all derivative contracts are valued as the open interest multiplied with the closing price of the respective underlying in the cash market.

The Clearing Corporation monitors the FII’s position limits at the end of each trading day. For this purpose, FIIs/sub-account of FII intending to trade in the equity derivatives segment of the Exchange are required to take a custodian participant (CP) code from Clearing Corporation through the Clearing Members. Only FIIs/ Sub-accounts of FIIs which have been allotted a unique CP code by Clearing Corporation are permitted to trade on the Exchange in the derivatives segment.

The FII/ Sub-account of FII need to ensure that all orders placed by them on the Exchange carry the relevant CP code allotted by Clearing Corporation in the trading system. Clearing Member(s) of the FII are required to submit the details of all the trades confirmed by FII to
Clearing Corporation, by the end of each trading day, as per the mechanism specified.

Clearing Corporation monitors the open positions of the FII/ sub-account of the FII for each underlying security and index on which futures and option contracts are traded on the Exchange, against the position limits specified at the level of FII/ sub-accounts of FII respectively, at the end of each trading day.

In the event of an FII breaching the position limits on any underlying, Clearing Corporation advises the Exchange to withdraw the facility granted to such FII to take any fresh positions in any derivative contracts. Such FII is required to reduce their open position in such underlying, in accordance with the mechanism provided by Clearing Corporation from time to time. The facility withdrawn is reinstated upon due compliance of the position limits.

It is also obligatory on FIIs to report any breach of position limits by them / their sub-account/s to Clearing Corporation and ensure that such sub-account/s does not take any fresh positions in any derivative contracts in such underlying. The sub-account of FII is required to reduce open position in such underlying, in accordance with the mechanism specified by Clearing Corporation and is permitted to take further positions only upon due compliance of the position limits. The applicable position limits are as under:

a) Market Wide Position Limits (for Derivative Contracts on Underlying Stocks)

At the end of each day the Exchange disseminate the aggregate open interest across all Exchanges in the futures and options on individual scrips along with the market wide position limit for that scrip and tests whether the aggregate open interest for any scrip exceeds 95% of the market wide position limit for that scrip. If the same is found to be true for anyone, the Exchange takes note of open positions of all client/ TMs as at the end of that day in that scrip, and from next day onwards the client/ TMs are allowed to trade only to decrease their positions through offsetting positions till the normal trading in the scrip is resumed.
The normal trading in the scrip is resumed only after the aggregate open interest across Exchanges comes down to 80% or below of the market wide position limit.

A facility is available on the trading system to display an alert once the open interest on the NSE in the futures and options contract in a security exceeds 60% of the market wide position limit specified for such security.

b) Trading Member-wise Position Limit

The trading member-wise position limit in equity derivatives contracts is as under:

i. **Index Futures**

The trading member position limits in equity index futures contracts is higher of Rs.500 crores or 15% of the total open interest in the market in equity index futures contracts. This limit is applicable on open positions in all futures contracts on a particular underlying index.

ii. **Index Options**

The trading member position limits in equity index option contracts is higher of Rs.500 crores or 15% of the total open interest in the market in equity index option contracts. This limit is applicable on open positions in all option contracts on a particular underlying index.

iii. **Futures and Option contracts on individual securities:**

The trading member-wise position limit in futures and options in individual stocks is related to the market-wide position limit for the individual stocks.

- For stocks having applicable market-wide position limit (MWPL) of Rs. 500 crores or more, the combined futures and options position limit is 20% of applicable MWPL or Rs. 300 crores, whichever is lower and within which stock futures position cannot exceed 10% of applicable MWPL or Rs. 150 crores, whichever is lower.

- For stocks having applicable market-wide position limit (MWPL) less than Rs. 500 crores, the combined futures and
options position limit is 20% of applicable MWPL and futures position cannot exceed 20% of applicable MWPL or Rs. 50 crores whichever is lower.

c) Client Level Position Limits

The gross open position for each client, across all the derivative contracts on an underlying, should not exceed:

-1% of the free float market capitalization (in terms of number of shares)

or

- 5% of the open interest in all derivative contracts in the same underlying stock (in terms of number of shares) whichever is higher

d) FII Level Position Limits

FII level Position limits in **Index options contracts**: 
- FII position limit in all index options contracts on a particular underlying index are Rs.500 crores or 15 % of the total open interest of the market in index options, whichever is higher. This limit is applicable on open positions in all options contracts on a particular underlying index.

FII level Position limits in **Index futures contracts**: 
- FII MF position limit in all index futures contracts on a particular underlying index is Rs.500 crores or 15 % of the total open interest of the market in index futures, whichever is higher. This limit is applicable on open positions in all futures contracts on a particular underlying index.

In addition to the above, FIIs can take exposure in equity index derivatives subject to the following limits:

- Short positions in index derivatives (short futures, short calls and long puts) not exceeding (in notional value) the FII’s holding of stocks.
- Long positions in index derivatives (long futures, long calls and short puts) not exceeding (in notional value) the FII’s holding of cash, government securities, T-Bills and similar instruments.

In this regard, if the open positions of an FII exceed the limits as stated above, such surplus is deemed to comprise of short and long
positions in the same proportion of the total open positions individually. Such short and long positions in excess of the said limits are compared with the FII’s holding in stocks, cash etc as stated above. Members are required to report their holdings in stocks, cash etc in a specified format.

FII level Position limits in **Stock Futures & Options:**

- For stocks having applicable market-wide position limit (MWPL) of Rs. 500 crores or more, the combined futures and options position limit is 20% of applicable MWPL or Rs. 300 crores, whichever is lower and within which stock futures position cannot exceed 10% of applicable MWPL or Rs. 150 crores, whichever is lower.
- For stocks having applicable market-wide position limit (MWPL) less than Rs. 500 crores, the combined futures and options position limit is 20% of applicable MWPL and futures position cannot exceed 20% of applicable MWPL or Rs. 50 crore whichever is lower.

e) **Sub-account Position Limits -**

Sub-account level Position limits in **Index Futures & Options:**

- A disclosure is required from any person or persons acting in concert who together own 15% or more of the open interest of all futures and options contracts on a particular underlying index on the Exchange. Failure to do so is treated as a violation of Rules, Bye-Laws and Regulations in this regard.

Sub-account level Position limits in **Stock Futures & Options:**

- The gross open position across all futures and options contracts on a particular underlying security, of a sub-account of an FII should not exceed the higher of:
  - 1% of the free float market capitalization (in terms of number of shares)
  - 5% of the open interest in the derivative contracts on a particular underlying stock (in terms of number of contracts).

These position limits are applicable on the combined position in all futures and options contracts on an underlying security on the Exchange.
f) **NRI Level Position Limits**

The position limits for NRIs are same as the client level position limits specified above. Therefore, the NRI position limits are—

- For **Index based contracts**, a disclosure requirement for any person or persons acting in concert who together own 15% or more of the open interest of all derivative contracts on a particular underlying index.

- For **stock option and single stock futures contracts**, the gross open position across all derivative contracts on a particular underlying stock of a NRI cannot exceed the higher of:
  
  1% of the free float market capitalization (in terms of number of shares)

  or

  5% of the open interest in the derivative contracts on a particular underlying stock (in terms of number of contracts)

  This position limits are applicable on the combined position in all derivative contracts on an underlying stock at an exchange.

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**g) Mutual Fund Level Position Limits**

Mutual Fund position limits in **equity index futures and options contracts** are higher of:

- Rs.500 crore

  Or

  -15% of the total open interest in the market in equity index futures contracts.

  This limit is applicable on open positions in all futures and options contracts on a particular underlying index as prescribed by SEBI. In addition to the above, Mutual Funds can take exposure in equity index derivatives subject to the following limits:

- **Short positions in Index Derivatives** (Short Futures, Short Calls and Long puts) not exceeding (in notional value) the Mutual Fund holding of stocks. The stocks are valued at the closing price in the cash market as on the previous trading day.
• **Long positions in Index Derivatives** (long futures, long calls and short puts) not exceeding (in notional value) the Mutual Fund holding of cash, government securities, T-Bills and similar instruments. The government securities and T-Bills are to be valued at book value. Money Market Mutual Funds and Gilt Funds are valued at Net Asset Value (NAV).

  Mutual Fund position limits in *equity Stock futures and options contracts* are:

• For stocks having applicable market-wide position limit (MWPL) of Rs. 500 crores or more, the combined futures and options position limit is 20% of applicable MWPL or Rs. 300 crores, whichever is lower and within which stock futures position cannot exceed 10% of applicable MWPL or Rs. 150 crores, whichever is lower.

• For stocks having applicable market wide position limit (MWPL) less than Rs. 500 crores, the combined futures and options position limit is 20% of applicable MWPL and futures position cannot exceed 20% of applicable MWPL or Rs. 50 crores whichever is lower.

h) **Mutual Fund Each Scheme Level Position Limits** -

  For *Index based Contracts*, Mutual Funds are required to disclose the total open interest held by its scheme or all schemes put together in a particular underlying index, if such open interest equals to or exceeds 15% of the open interest of all derivative contracts on that underlying index.

  For *Stock Futures and Option Contracts*, the gross open position across all derivative contracts on a particular underlying stock of a scheme of mutual fund cannot exceed the higher of:

  1% of the free float market capitalisation (in terms of number of shares)

  or

  5% of the open interest in the derivative contracts on a particular underlying stock (in terms of number of contracts)

  This position limits is applicable on the combined position in all derivative contracts on an underlying stock.
3.9.8 Voluntary Close out Facility

The Voluntary Close out facility allows members to voluntarily define a margin limit beyond which all the orders get risk managed thereby preventing members from getting disabled by virtue of execution of such orders. Voluntary Close out limits for open interest enables member to define position limit beyond which all the orders are checked for trading member level position limit violations by the exchange thereby preventing from getting disabled for any particular underlying symbol.

Members desirous of availing the facility need to define a margin utilization limit/open interest limit i.e., an Upper limit to move into Voluntary Close out mode and a Lower limit to move out of Voluntary Close out mode. Clearing Members can set Voluntary Close out limits for margin only, whereas trading members can set Voluntary Close out limits for margin as well as open interest.

All orders received in the Voluntary Close out mode are validated at the applicable margins for sufficiency of available capital/sufficiency of position limit for such security/index prior to acceptance of the orders.

3.10 Risk Management Framework for Listed Foreign Indices:

Derivative contracts on foreign indices have been structured by the Exchanges as per the SEBI circular CIR/DNPD/2/2011 dated January 11, 2011. The overall risk management framework in case of foreign indices is similar to that used for existing listed derivative contracts. However, owing to the difference in time zones of the home exchanges of these indices, trading sessions of these indices may not match with the Indian market timings. These issues have been accounted for by the exchanges in the framework created for foreign indices.

3.11 Monitoring System for Initial Margin and Exposure Limits and for other critical issues:

The risk of each trading and clearing member is monitored on a real-time basis by the Exchanges/Clearing Corporations and alerts/disablement messages are generated if the member crosses the set limits. Clearing members, who have violated any requirement and / or limits, may reduce the position by closing out
its existing position or, bring in additional cash deposit by way of cash or bank guarantee or FDR or securities. Similarly, in case of margin violation by Trading Members, clearing member has to set its limit for enablement.

a. Initial Margin violation

The initial margin on positions of a CM is computed on a real time basis i.e. for each trade. The initial margin amount is reduced from the effective deposits of the CM with the Clearing Corporation. For this purpose, effective deposits are computed by reducing the total deposits of the CM by Rs. 50 lakhs (referred to as minimum liquid net-worth). The CM receives warning messages on his terminal when 70%, 80%, and 90% of the effective deposits are utilised. At 100% the clearing facility provided to the CM is withdrawn. Withdrawal of clearing facility of a CM in case of a violation will lead to withdrawal of trading facility for all TMs and/ or custodial participants clearing and settling through the CM.

Similarly, the initial margins on positions taken by a TM are computed on a real time basis and compared with the TM limits set by his CM. The initial margin amount is reduced from the TM limit set by the CM. Once the TM limit has been utilised to the extent of 70%, 80%, and 90%, a warning message is received by the TM on his terminal. At 100% utilization, the trading facility provided to the TM is withdrawn.

A member is provided with warnings at 70%, 80% and 90% level before his trading/ clearing facility is withdrawn. A CM may thus accordingly reduce his exposure to contain the violation or alternately bring in Additional Base Capital.

b. Exposure Limit Violation

This violation occurs when the exposure margin of a Clearing Member exceeds his liquid net-worth, at any time, including during trading hours. The liquid net worth means the effective deposits as reduced by initial margin and net buy premium. In case of violation, the clearing facility of the clearing member is withdrawn leading to withdrawal of the trading facilities of all trading members and/ or clearing facility of custodial participants clearing through the clearing member.
c. **Trading Member-wise Position Limit Violation**

This violation occurs when the open position of the trading member / custodial participant exceeds the Trading Member wise Position Limit at any time, including during trading hours. In case of violation trading member is not allowed to increase open position in the security/index in which position is exceeded.

In respect of initial margin violation, exposure margin violation and position limit violation, penalty is levied on a monthly basis. Penalty is to the Clearing Members for every day of violation.

d. **Disclosure for Client Positions in Index based contracts**

Any person or persons acting in concert who together own 15% or more of the open interest on a particular underlying index is required to report this fact to the Exchange/ Clearing Corporation. For futures contracts, open interest is equivalent to the open positions in the futures contract multiplied by last available traded price or closing price, as the case may be. For option contracts, open interest is equivalent to the notional value which is computed by multiplying the open position in that option contract with the last available closing price of the underlying.

e. **Market Wide Position Limits for derivative contracts on underlying stocks**

At the end of each day during which the ban on fresh positions is in force for any scrip, when any member or client has increased his existing positions or has created a new position in that scrip the client/ TMs are charged a penalty.

f. **Violation arising out of mis-utilisation of trading member/ constituent collaterals and/or deposits**

This violation takes place when a clearing member utilizes the collateral of one TM and/ or constituent towards the exposure and/ or obligations a TM/ constituent, other than the same TM and/ or constituent.

g. **Violation of Exercised Positions**

When option contracts are exercised by a CM, where no open long positions for such CM/ TM and/ or constituent exist at the end of the day, at the time the exercise processing is carried out, it is termed as violation of exercised positions.
3.12 Equity Derivatives Surveillance Measures Adopted by SEBI and Exchanges:

Surveillance of the markets is one of the prime requirements for well functioning securities market. The primary responsibility of safe-guarding the integrity of the market and ensuring that the market is performing in accordance with the stipulated norms and practice has been the prime responsibility of the delegated to the stock exchanges by SEBI, which acts as first-level regulators for equity derivatives trading.

The exchanges, as part of their surveillance mechanism, keep a watch on stock’s prices and analyze their trading pattern in the equity and the derivatives markets to initiate appropriate and timely actions in case of any discrepancies. The exchanges also report any suspicious incidents or price manipulations to SEBI, as and when observed, for further examination.

As mentioned in the annual report of SEBI, it monitors market movements and detects potential breaches of regulations, analyzing the trading in stocks and initiates appropriate action wherever warranted. While SEBI receives primary inputs through examination reports from stock exchanges, it also receives inputs viz., complaints from investors, and references from other internal departments of SEBI, regulatory bodies, and other govt. agencies as also reports in the media.

In addition, to enhance the efficacy of the surveillance function, SEBI has put in place a comprehensive Integrated Market Surveillance System (IMSS) which generates alerts arising out of unusual market movements. SEBI has also implemented a Data Warehousing and Business Intelligence System (DWBIS) which support multi-dimensional historical data, have the capability for pattern recognition to quickly identify abnormal situations/transactions, and provide an analytic environment that accelerates investigation functions.

SEBI also keeps an oversight on the activities of the stock exchanges and depositories to promote an effective surveillance mechanism. SEBI also has regular meetings with the exchanges and depositories to monitor their surveillance activities and market movements. The exchanges as first level regulators should have an online surveillance capability which monitors positions, prices and volumes on real time so as to deter market manipulation.

“The surveillance systems of the exchanges is required to be designed keeping in view all the relevant aspects including the following -
a. The alerts in the online surveillance system are expected to be so designed that indications of material aberrations from normal activity are automatically generated and thrown up by the system.

b. The parameters which need to be monitored either through the online system or otherwise are required to inter-alia include the following parameters:
   i. Monitoring of open interest, cost of carry/impact cost and volatility.
   ii. Monitoring of closing prices.
   iii. The open positions in the derivative market needs to be seen in conjunction with the open positions in the cash market i.e. the position deltas need to be monitored.
   iv. The timing of disclosure by corporate bodies needs to be monitored as this could influence the prices of the contract at the time of introduction and expiry.
   v. Strike prices with large open positions needs to be monitored as this could influence the prices of the contract at the time of introduction and expiry.
   vi. Strike prices with large open positions need to 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.

c. The surveillance systems and processes are required to be able to
   i. Capture and process client level details.
   ii. Develop databases of trading activity by brokers as well as clients.
   iii. Generate trading pattern in individual products or group of products by a broker over a period of time or by a client / group of clients over a period of time.
   iv. Generate the pattern of trading in a product over a period of time giving such details as the purchases/sales/positions/open interest held by different brokers or clients/group of clients.
   v. Monitor proportion of trading in derivatives market vis-à-vis trading in the underlying in the cash market and aberrations as compared to historical data and as compared to market average.
   vi. Monitor large trades, call put ratio’s and exercise patterns.

d. For integration of surveillance in cash and derivatives markets, the persons who carry out monitoring/analysis in the derivatives market need to have access to data of the underlying security in cash market and vice versa. The co-
ordination between surveillance and derivatives segment would ensure monitoring of positions at broker/client level across cash and derivatives market with a view to identifying possible fraudulent or manipulative activity.

e. Examination of derivatives trading details is taken up on the basis of cash market surveillance also, and vice versa.

f. While the surveillance system generates large amount of information, it is only the first step towards analysing market behaviour to identify potential problems. The exchange’s surveillance staff carries out quick and effective analysis of information generated by the surveillance system and documents this analysis properly. The documentation is further properly authenticated and verified by a designated authority of the stock exchanges.

g. The information and feedback received from broker inspections is vital input for effective surveillance. For this, broker inspections are taken up in a rational manner keeping in view the level of trading activity, client profile, number and nature of complaints received against the broker, history of risk management related defaults and regulatory violations etc. Information obtained through broker inspections is made available to the monitoring/surveillance departments of stock exchanges.

h. The information gathered by the risk management departments/clearing corporations while enforcing the risk management measures and settlement processes are critical inputs. Such information could include pattern of defaults related to specific scrips/contracts and special risk management measures taken keeping in view the market conditions.

i. The exchanges normally call for information from brokers in a standard form, and preferably in electronic form, to facilitate faster analysis as well as building up of databases.

j. While implementing a stock watch type of system for derivatives, the system is normally designed to provide online access to relevant historical data on derivatives trading for at least a year.

k. The underlying securities in the derivatives market are listed on more than one exchange and brokers dealing in such securities/derivatives may have membership in more than one exchange. In the interest of better surveillance, the relevant information obtained through surveillance at one exchange is shared with other exchanges. Hence, the Exchanges share
information on positions in underlying stocks and their derivatives and any extraordinary movement in price/volume or concentration periodically or upon specific request by any other stock exchange.

1. Exchanges study surveillance practices in various Global Equity Derivative Markets. Surveillance practices in commodities and bullion markets can also be studied wherever appropriate and also case studies on some market manipulations in various derivatives markets are looked at in order to see what lessons could be drawn from the same. The knowledge acquired through this is applied to the equity derivatives to detect similar cases.”

The Exchanges carry out surveillance activity based on the unique client codes assigned to each client. They have made their surveillance system robust on the guidelines stipulated by SEBI and to detect any early signals or warnings of any manipulative activity that may be observed by them from time to sometimes on real time basis and sometimes at the end of the day or even based on the periodic reports. Further, Position limits act as an important surveillance measure designed to prevent large concentrated positions which may affect market integrity. There are also positions limits specified by SEBI as market level, client level, Trading member level, NRI, Sub-accounts, FIIs, Mutual Funds level which are monitored by the Exchanges. These limits are as follows. The details about these are explained earlier.

There are self-disclosure requirement for any person or persons acting in concert who together own 15% or more of the open interest would be required to report this fact to the exchange. Failure to disclose such breaches attract penalty from the exchange / clearing corporation / SEBI.

In the case of NRIs, MFs and FIIs, the Exchanges are required to monitor their position limits. These entities are required to notify the names of the Clearing Member(s) through whom it would clear its derivative trades to the Exchange.

The NRIs/MFs/FIIs are required to report to the Clearing Member (Custodian) the extent of their holding of stocks, cash, government securities, T-Bills and similar instruments before the end of the day. The Clearing Member (Custodian) in turn reports the same to the Exchanges. The Exchanges then monitor their position limits. These entities are
required to notify the names of the Clearing Member(s) and Custodian through whom it would clear its derivative trades to exchanges and their Clearing House/Clearing Corporation. A unique code is assigned by the exchanges and/or the Clearing House/Clearing Corporation to them who are intending to trade in derivative contracts. These entities are required to confirm all its positions and the positions of sub-accounts/mutual funds schemes, wherever applicable, to the designated Clearing Members before the end of each trading day which in turn is submitted to the derivative Segment of the exchange and their Clearing House / Clearing Corporation. The exchanges and their Clearing House / Clearing Corporation then compute their total trading exposure and monitor the position limits at the end of each trading day. The cumulative FII positions are disclosed to the market before the commencement of trading on a T + 1 basis. The sub-account and Mutual Funds schemes position limits are required to be monitored by the FII and MFs respectively by themselves.

In the event of any breach in the position limits on any derivative contract on an underlying, they are not permitted by the exchanges and their Clearing House / Clearing Corporation / Clearing Member/s to take any fresh positions in any derivative contracts in that underlying. However, they are permitted to execute off-setting transactions so as to reduce their open position.

With regard to market wide position limit for single stock futures and stock option contracts, the same is linked to the free float market capitalization and is equal to 20% of the number of shares held by non-promoters in the relevant underlying security (i.e., free-float holding). This limit is applicable on aggregate open positions in all futures and all option contracts on a particular underlying stock. The Exchanges are required to test at the end of each day whether the market wide open interest for any scrip exceeds 95% of the market wide position limit for that scrip. If so, from the next day onwards the members/client can trade only to decrease their positions through offsetting positions. Even though the Exchange takes this action only at end of day, the Exchanges are required to disclose real time information about the market wide open interest as a percentage of the market wide position limits. The exchanges monitor at the end of each day
for any fresh positions taken in any banned scrips and penalizes them if found any violations. The normal trading in such banned scrips resumes after the open outstanding position comes down to 80% or below of the market wide position limit. All the equity derivatives exchanges disseminate on their website the data related to the Market Wide Position Limits across Exchanges on the trading day in the evening.
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