Derivatives Market

Introduction

Derivative is a product whose value is derived from the value of one or more basic variables, called bases (underlying asset, index or reference rate), in a contractual manner. The underlying asset can be equity, forex, commodity or any other asset. The International Monetary Fund (IMF) defines derivatives as *"financial instruments that are linked to a specific financial instrument or indicator or commodity and through which specific financial risks can be traded in financial markets in their own right. The value of a financial derivative derives from the price of an underlying item, such as an asset or index. Unlike debt securities, no principal is advanced to be repaid and no investment income accrues."*

The emergence of the market for derivative products, most notably forwards, futures and options, can be traced back to the willingness of risk-averse economic agents to guard themselves against uncertainties arising out of fluctuations in asset prices. By their very nature, the financial markets can be subject to a very high degree of volatility. Through the use of derivative products, it is possible to partially or fully transfer price risks by locking-in asset prices. As instruments of risk management, derivative products generally do not influence the fluctuations in the underlying asset prices. However, by locking-in asset prices, derivative products minimise the impact of fluctuations in asset prices on the profitability and cash flow situation of risk-averse investors.

Derivative products initially emerged as hedging devices against fluctuations in commodity prices and commodity-linked derivatives remained the sole form of such products for many years. The financial derivatives came into spotlight in post-1970 period due to growin g instability in the financial markets. In recent years, the market for financial derivatives has grown tremendously both in terms of variety of instruments available, their complexity and also turnover. The factors generally attributed as the major driving force behind growth of financial derivatives are (a) increased volatility in asset prices in financial markets, (b) increased integration of national financial markets with the international markets, (c) marked improvement in communication facilities and sharp decline in their costs, (d) development of more sophisticated risk management tools, providing economic agents a wider choice of risk management strategies, and (e) innovations in the derivatives markets, which optimally combine the risks and returns over a large number of financial assets, leading to higher returns, reduced risk as well as transaction costs as compared to individual financial assets.

Products, Participants and Functions

Derivative contracts have several variants. The most common variants are forwards, futures, options and swaps:

Forward contract is a customised contract between two entities, where settlement takes place on a specific date in the future at today's pre-agreed price.

Futures contract is an agreement between two parties to buy or sell an asset at a certain time in the future at a certain price. Futures contracts are special types of forward contracts in the sense that the former are standardised exchange-traded contracts.

Option contract gives the right, but not the obligation, to buy or sell a specified quantity of the underlying at a fixed exercise price on or before the expiration date. A call option gives the right to buy and a put option gives the right to sell.

Swaps are private agreements between two parties to exchange cash flows in the future according to a pre-arranged formula. The two commonly used swaps are interest rate swaps and currency swaps.

The following three broad categories of participants - hedgers, speculators, and arbitrageurs – trade in the derivatives market:

Hedgers face risk associated with the price of an asset. They use futures or options markets to reduce or eliminate this risk.

Speculators wish to bet on future movements in the price of an asset. Futures and options contracts can give them an extra leverage; that is, they can increase both the potential gains and potential losses in a speculative venture.

Arbitrageurs are in business to take advantage of a discrepancy between prices in two different markets. If, for example, they see the futures price of an asset getting out of line with the cash price, they will take offsetting positions in the two markets to lock in a profit.

The derivatives market performs a number of economic functions. First, prices in an organised derivatives market reflect the perception of market participants about the future and lead the prices of underlying to the perceived future level. The prices of derivatives converge with the prices of the underlying at the expiration of derivative contract. Thus derivatives help in discovery of future as well as current prices. Second, the derivatives market helps to transfer risks from those who have them but may not like them to those who have appetite for them. Third, derivatives, due to their inherent nature, are linked to the underlying cash markets. With the introduction of derivatives, the underlying market witnesses higher trading volumes because of participation by more players who would not otherwise participate for lack of an arrangement to transfer risk. Fourth, speculative trades shift to a more controlled environment of derivatives market. In the absence of an organised derivatives market, speculators trade in the underlying cash markets. Margining, monitoring and surveillance of the activities of various participants become extremely difficult in these kind of mixed markets. Fifth, an important incidental benefit that flows from derivatives trading is that it acts as a catalyst for new entrepreneurial activity. The derivatives have a history of attracting many bright, creative, well-educated people with an entrepreneurial attitude. They often energise others to create new businesses, new products and new employment opportunities, the benefit of which are immense. Sixth, derivatives markets help increase savings and investment in the long run. Transfer of risk enables market participants to expand their volume of activity.

Exchange-traded vs. OTC Markets

Compared to exchange-traded derivatives, the OTC derivatives markets have the features, such as (i) The management of counter-party (credit) risk is decentralised and located within individual institutions; (ii) There are no formal centralised limits on individual positions, leverage, or margining; (iii) There are no formal rules for risk and

burden-sharing; (iv) There are no formal rules or mechanisms for ensuring market stability and integrity, and for safeguarding the collective interests of market participants; and (v) The OTC contracts are generally not regulated by both a regulatory authority and the exchange's self-regulatory organisation, although they are affected indirectly by national legal systems, banking supervision and market surveillance.

Some of the features of OTC derivatives markets embody risks to financial market stability. The following features of OTC derivatives markets can give rise to instability in institutions, markets, and the international financial system: (i) the dynamic nature of gross credit exposures; (ii) information asymmetries; (iii) the effects of OTC derivative activities on available aggregate credit; (iv) the high concentration of OTC derivative activities in major institutions; and (v) the central role of OTC derivatives markets in the global financial system. Instability arises when shocks, such as counter-party credit events and sharp movements in asset prices that underlie derivative contracts, occur which significantly alter the perceptions of current and potential future credit exposures. When asset prices change rapidly, the size and configuration of counter-party exposures can become unsustainably large and provoke a rapid unwinding of positions.

There has been some progress in addressing these risks and perceptions. However, the progress has been limited in implementing reforms in risk management, including counter-party, liquidity and operational risks, and OTC derivatives markets continue to pose a threat to international financial stability. The problem is more acute as heavy reliance on OTC derivatives creates the possibility of systemic financial events, which fall outside the more formal clearing house structures. Moreover, those who provide OTC derivative products, hedge their risks through the use of exchange traded derivatives. In view of the inherent risks associated with OTC derivatives, and their dependence on exchange traded derivatives, India law considers them illegal except for specific contracts under FRAs/IRS on domestic currency as allowed by RBI.

Derivatives Market in India

The first step towards introduction of derivatives trading in India was the promulgation of the Securities Laws (Amendment) Ordinance, 1995, which withdrew the prohibition on options in securities. The market for derivatives, however, did not take off, as there was no regulatory framework to govern trading of derivatives. SEBI 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 prescribing necessary pre-conditions for introduction of derivatives trading in India. The Committee recommended that derivatives should be declared as 'securities' so that regulatory framework applicable to trading of 'securities' could also govern trading of securities. SEBI also set up a group in June 1998 under the Chairmanship of Prof. J. R. Varma, to recommend measures for risk containment in derivatives market in India. The Report, which was submitted in October 1998, worked out the operational details of margining system, methodology for charging initial margins, broker net worth, deposit requirement and real-time monitoring requirements.

The SC(R)A was amended in December 1999 to include derivatives within the ambit of 'securities' and the regulatory framework was developed for governing derivatives trading. Derivatives were formally defined to include: (a) *a security derived from a debt instrument, share, loan whether secured or unsecured, risk instrument or contract for differences or any other form of security, and (b) a contract which derives its value from the prices, or index of prices, or underlying*

securities. The Act also made it clear that derivatives shall be legal and valid only if such contracts are traded on a recognised stock exchange, thus precluding OTC derivatives. The Government also rescinded in March 2000 the three-decade old notification, which prohibited forward trading in securities.

Derivatives trading commenced in India in June 2000 after SEBI granted the final approval to this effect in May 2000. SEBI permitted the derivative segments of two stock exchanges, *viz* NSE and BSE, and their clearing house/corporation to commence trading and settlement in approved derivative contracts. To begin with, SEBI approved trading in index futures contracts based on S&P CNX Nifty Index and BSE-30 (Sensex) Index. This was followed by approval for trading in options based on these two indices and options on individual securities. The trading in index options commenced in June 2001 and trading in options on individual securities commenced in July 2001. Futures contracts on individual stock were launched in November 2001. Derivative contracts are traded and settled in accordance with the rules, byelaws, and regulations of the respective exchanges and their clearing house/corporation duly approved by SEBI and notified in the official gazette.

Policy Developments

This section discusses policy, most regulatory developments during 2001-02.

Risk Containment Measures for Stock Options

The following risk containment measures were laid down in June 2001 by SEBI to be adopted by the derivative exchange/segment and the Clearing House/Corporation for the trading and settlement of Stock Options:

i. The stock option contracts shall have prior approval of SEBI and should comply with the disclosure requirements, if any, laid down by SEBI.

ii. The exchanges shall have premium settled American style stock options, which shall be settled in cash at exercise, for an initial period of six months, thereafter, the stock options, at exercise, shall be settled by delivery. The stock option contract shall have a minimum contract size of Rs. 2 lakh at the time of its introduction in the market and a maximum maturity of 12 months with a minimum of 3 strikes (in the money, near the money and out of the money).

iii. The initial margin requirements shall be based on worst case loss of a portfolio of an individual client to cover 99% VaR over a one day horizon.

iv. A portfolio based margining approach shall be adopted which will take an integrated view of the risk involved in the portfolio of each individual client comprising of his positions in Derivative Contracts. The approach should include the following parameters:-

   a) The Worst Case Scenario Loss would be calculated by valuing the portfolio under several scenarios for changes in the stock prices and changes in the volatility of the stock. The price range for generating the scenarios would be 3.5 s.

   b) A Short Option Minimum Margin equal to 7.5% of the Notional Value based on the previous day's closing value of the underlying stock, of all Short Stock Options shall be charged if sum of Worst Case Scenario Loss is lower than the Short Option Minimum Margin for the given underlying.

c) The net option value shall be calculated as the current market value of the option times the number of options in the portfolio which will be added to the liquid net worth of the clearing member. Thus marked to market gains and losses on option positions will get adjusted against the available liquid net worth.

d) For all stock option positions, the premium shall be paid in by the buyers in cash and paid out to the sellers in cash on T+1 day.

e) The notional value of gross open positions at any point in time for index futures and all short index option contracts shall not exceed $33^{1}/_{3}$ times the liquid networth of a member, and in case of stock option contracts, the notional value of gross short open position at any point in time shall not exceed 20 times the liquid networth of a member.

f) The existing member wise position limits in the index futures and index options market shall be applicable to stock options also on the basis of notional value of the contract. In addition, a market wide limit on the open position on stock option contract is also prescribed which shall be lesser of-

- 20 times the average number of shares traded daily, during the previous calendar month, in the cash segment of the Exchange, OR
- 10% of the number of shares held by non-promoters i.e. 10% of the free float, in terms of number of shares of a company.

The stocks to be eligible for options trading (also prescribed for stock futures later) should satisfy the following criteria:

i. The stock should be amongst the top 200 scrips, on the basis of average market capitalisation during the last six months and the average free float market capitalisation should not be less than Rs.750 crore. The free float market capitalisation means the non-promoter holding in the stock. The non-promoter holding in the company should be at least 30%.

ii. The stock should be amongst the top 200 scrips on the basis of average daily volume (in value terms), during the last six months. Further, the average daily volume should not be less than Rs. 5 crore in the underlying cash market.

iii. The stock should be traded on at least 90% of the trading days in the last six months.

iv. The ratio of the daily volatility of the stock vis-à-vis the daily volatility of the Index *(either BSE-30 Sensex or S&P CNX Nifty)* should not be more than 4, at any time during the previous six months.

v. The stock on which option contracts are permitted to be traded on one derivative exchange/segment would also be permitted to trade on other derivative exchanges/ segments.

Based on these criteria, SEBI approved trading in option contracts in 31 stocks.

Risk Containment Measures for Stock Futures

SEBI laid down in November 2001 the following scheme of risk containment measures for stock futures:

i. The single stock future contracts shall have prior approval of SEBI and should comply with the disclosure requirements, if any, laid down by SEBI.

ii. The stock future contract shall be settled in cash and would have the same multiplier as the lot size for the option contracts in the same underlying stock.

iii. The single stock future contracts will have a maximum maturity of 12 months, initially the maturity would be for 3 months. Three contracts of maturity of 1, 2 and 3 months shall be introduced simultaneously such that at any point of time at least three individual stock future contracts on a particular underlying would be available for trading.

iv. The stock futures contracts can be introduced in 31 stocks on which stock options have been introduced.

v. A portfolio based margining approach shall be adopted, which takes an integrated view of the risk involved in the portfolio of each individual client comprising of his positions in all derivative contracts, viz., index futures, index options, stock options and stock futures. The parameters for such a model should include the following:

   a. The initial margin requirements shall be 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. The price scan range would be 3.5s and the initial margin shall not in any case be less than 7.5% of the value of the contract.

   b. The initial margin requirement shall be netted at level of individual client and shall be calculated on a gross basis at the level of Trading/Clearing member and that for the proprietary position of Trading/Clearing member on a net basis.

   c. The exchanges would collect mark to market settlement of stock futures contracts before start of the next days' trading, in cash. The members in turn shall collect the initial margin from their clients.

   d. The same provision relating to margin/exposure, as applicable to option contracts/index future contracts, as the case may be, shall apply to calendar spreads in stock future contracts.

vi. In case of stock futures contracts, the value of gross open position at any point in time shall not exceed 20 times the available liquid net worth of a member.

vii. The same provision relating to margin/exposure, as applicable to option contracts, index future contracts, as the case may be, shall apply to calendar spreads in stock future contracts.

viii. To avoid and detect concentrations of positions and market manipulation, the following position limits would be followed:

Client level: The gross open position of a client across all derivative contracts on a particular underlying shall not exceed the higher of 1% of the free flow market capitalisation (in terms of shares), or 5% of the open interest in derivatives contracts in a particular underlying stock (in terms of number of contracts).

Trading member level. At the trading member level, the position limit in derivative contracts on a particular stock would be at 7.5% of the open interest or Rs. 50 crore whichever is higher for the derivative contract in a particular underlying at an Exchange.

Market level: The market wide limit of open positions (in terms of the number of underlying stock) on an option and futures contract on a particular underlying stock

would be the lower of 30 times the average number of shares traded daily during the previous calendar month in cash segment of the Exchange, or 10% of the number of shares held by non-promoters, i.e. 10% of the free float, in terms of number of shares of a company.

Membership on Derivatives Segment

The Securities Appellate Tribunal (SAT) set aside in January 2002 a SEBI order which required the appellant to pay fees on the Capital Market Segment as per the judgement of the Honorable Supreme Court in BSE Broker's Forum's case before his application for grant of registration certificate for Derivatives Segment could be considered. It did not find support from the rules and regulations to the Respondent's argument that unless the applicant clears the dues if any payable with reference to his broking activities in the Capital Market Segment, his application for grant of registration in the Derivative Segment cannot be considered. It noted that grant of registration certificate is to be considered as per the provisions of Chapter III A of the SEBI (Stock-brokers and Sub- brokers) Regulations, 1992. There is not even an implied requirement to clear the arrears of fees, relatable to the Capital Market Segment in Chapter IIIA, by the applicants. The Regulations do not stipulate that any person from whom fees is due in the Capital Market Segment, should clear those dues first to be eligible for grant of certificate of registration in the Derivative Segment. It observed: "The failure to pay the dues relating to the business activities in the Capital Market Segment cannot be a ground not to consider the application from the Appellant, in the absence of any specific regulation prescribing such a requirement. Respondent is at liberty to put such a requirement in the Regulations if it so desires. Regulation making power is available to the Respondent."

Self Clearing Membership

SEBI approved a new category of membership in the derivative segment to enable a trading member to clear his own trades as a 'Self Clearing Member'. Such Clearing Members can not clear and settle trades of the other trading members. All the existing SEBI registered trading members on the derivatives segment would be eligible for the 'Self Clearing Membership'.

FII Trading in Derivatives

FIIs were permitted to trade in all the exchange traded derivative contracts subject to the position limits. They shall adhere to the position limits prescribed for them and their sub-accounts and also comply with the procedure for trading, settlement and reporting as prescribed by the derivative exchange/Clearing House/Clearing Corporation from time to time. The position limits for the FII and their sub-accounts shall be as under:

At the level of the FII: In case of index related derivative products there shall be a position limit at 15% of the open interest of all derivative contracts on a particular underlying index or Rs. 100 crore, whichever is higher, per exchange. The FII position limit in derivative contracts on a particular underlying stock would be at 7.5% of the open interest of all derivative contracts on a particular underlying stock or Rs. 50 crore, whichever is higher, at an exchange.

At the level of the Sub-Account: A 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 shall disclose the same. The gross open positions across all derivative contracts on a particular underlying stock of a sub-account of a FII should not exceed the higher of

1% of the free float market capitailisation (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).

The position limits would be 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 position for this would be computed as the open interest multiplied with closing price of the respective underlying in the cash market. The Derivative Segment of the Exchanges and their Clearing House/Clearing Corporation would monitor the FII position limits at the end of each trading day and the FII would monitor the sub account position limits.

Accounting for Index Futures

The Institute of Chartered Accountants of India (ICAI) issued guidance note on accounting for index futures from the viewpoint of the parties who enter into such futures contracts as buyers or sellers. For other parties involved like brokers, trading members, clearing members and clearing corporations, a trade in equity index futures is similar to a trade in, say shares, and does not pose any peculiar accounting problems. Following are guidelines for accounting transactions in the index futures in the books of the client:

- A client is required to pay an initial margin determined by the Clearing Corporation as per the bye laws/regulations of the Exchange for entering into the index futures contracts. Such initial margin paid/payable should be debited to the "Initial Margin-Equity Index Futures Account". Any additional margins should also be accounted for in the same manner.
- Payments made or received on account of daily settlement by the client would be credited/debited to the bank account and the corresponding debit or credit for the same should be made to the Mark- to-Market Margin-Equity Index Futures Account.
- When a series of contract expires, the profit/loss on final settlement of the contracts in the series is calculated as the difference between final settlement price and contract prices of all the contracts in the series. The profit/loss, so calculated would be shown in the profit and loss account by corresponding debit/credit to Mark-to-Market Margin-Equity Index Futures Account. Same kind of accounting treatment would be given when the contract is squared up by entering into a reverse contract. Accordingly, if more than one contract in respect of the relevant series of index futures contract to which the squared-up contract pertains is outstanding at the time of the squaring-up of the contract, the contract price of the aforementioned contract would be determined using First-In, First-Out (FIFO) method.
- On the settlement of index futures contract, the initial margin paid in respect of the contract is released which would be credited to Initial Margin- Equity Index Futures Account and a corresponding debit be given to the bank account or the deposit account.
- In case of any defaults made by the clients in respect of daily settlement, the contract is closed out and the amount not paid by the client is adjusted against the initial margin. In the books of the client, the amount so adjusted should be debited to Mark-to- Market- Equity Index Futures Account with a corresponding credit to Initial margin-Equity Index Futures Account.
- The amount of bank guarantee, and book value as also the market value of securities lodged should be disclosed in respect of outstanding contracts at the year-end,

where initial margin has been paid by way of bank guarantee and/or lodging of securities. The total number of contracts entered and gross number of units of equity index futures traded should be disclosed in respect of each series of equity index futures.

Accounting for Index/Stock Options

The Institute of Chartered Accountants of India issued in June 2002 guidance note on accounting for index options and stock options from the view point of the parties who enter into such contracts as buyers/holder or sellers/writers. Following are the guidelines for accounting treatment in case of cash settled index options and stock options:

Accounting at the inception of the contract

The seller/writer of the option is required to pay initial margin for entering into the option contract. Such initial margin paid would be debited to 'Equity Index Option Margin Account' or to 'Equity Stock Option Margin Account', as the case may be. In the balance sheet, such account should be shown separately under the head "Current Assets".

The buyer/holder of the option is not required to pay any margin. He is required to pay the premium. In his books, such premium would be debited to 'Equity Index Option Premium Account' or 'Equity Stock Option Premium Account', as the case may be. In the books of the seller/writer, such premium received should be credited to 'Equity Index Option Premium Account' or 'Equity Stock Option Premium Account', as the case may be.

Accounting at the time of payment/receipt of margin

Payments made or received by the seller/writer for the margin should be credited/debited to the bank account and the corresponding debit/credit for the same should also be made to 'Equity Index Option Margin Account' or to 'Equity Stock Option Margin Account', as the case may be.

Sometimes, the client deposit a lump sum amount with the trading/clearing member in respect of the margin instead of paying/receiving margin on daily basis. In such case, the amount of margin paid/received from/into such accounts should be debited/credited to the 'Deposit for Margin Account'. At the end of the year the balance in this account would be shown as deposit under 'Current Assets'.

Accounting for open options as on balance sheet date

The 'Equity Index Option Premium Account' and the 'Equity Stock Option Premium Account' should be shown under the head 'Current Assets' or 'Current Liabilities', as the case may be.

In the books of the buyer/holder, a provision should be made for the amount by which the premium paid for the option exceeds the premium prevailing on the balance sheet date. The provision so created should be credited to "Provision for Loss on Equity Index Option Account" or to the "Provision for Loss on Equity Stock Options Account", as the case may be. The provision made as above should be shown as deduction from "Equity Index Option Premium" or "Equity Stock Option Premium" which is shown under 'Current Assets'.

In the books of the seller/writer, the provision should be made for the amount by which premium prevailing on the balance sheet date exceeds the premium received for that option. This provision should be credited to "Provision for Loss on Equity Index

Option Account" or to the "Provision for Loss on Equity Stock Option Account", as the case may be, with a corresponding debit to profit and loss account. "Equity Index Options Premium Account" or "Equity Stock Options Premium Account" and "Provision for Loss on Equity Index Options Account" or "Provision for Loss on Equity Stock Options Account" should be shown under 'Current Liabilities and Provisions'.

In case of any opening balance in the "Provision for Loss on Equity Stock Options Account" or the "Provision for Loss on Equity Index Options Account", the same should be adjusted against the provision required in the current year and the profit and loss account be debited/credited with the balance provision required to be made/excess provision written back.

Accounting at the time of final settlement

On exercise of the option, the buyer/holder will recognise premium as an expense and debit the profit and loss account by crediting "Equity Index Option Premium Account" or "Equity Stock Option Premium Account". Apart from the above, the buyer/holder will receive favorable difference, if any, between the final settlement price as on the exercise/expiry date and the strike price, which will be recognised as income.

On exercise of the option, the seller/writer will recognise premium as an income and credit the profit and loss account by debiting "Equity Index Option Premium Account" or "Equity Stock Option Premium Account". Apart from the above, the seller/writer will pay the adverse difference, if any, between the final settlement price as on the exercise/expiry date and the strike price. Such payment will be recognised as a loss.

As soon as an option gets exercised, margin paid towards such option would be released by the exchange, which should be credited to "Equity Index Option Margin Account" or to "Equity Stock Option Margin Account", as the case may be, and the bank account will be debited.

Accounting at the time of squaring off an option contract

The difference between the premium paid and received on the squared off transactions should be transferred to the profit and loss account.

Following are the guidelines for accounting treatment in case of delivery settled index options and stock options:

The accounting entries at the time of inception, payment/receipt of margin and open options at the balance sheet date will be the same as those in case of cash settled options. At the time of final settlement, if an option expires unexercised then the accounting entries will be the same as those in case of cash settled options. If the option is exercised then shares will be transferred in consideration for cash at the strike price. For a call option the buyer/holder will receive equity shares for which the call option was entered into. The buyer/holder should debit the relevant equity shares account and credit cash/bank. For a put option, the buyer/holder will deliver equity shares for which the put option was entered into. The buyer/holder should credit the relevant equity shares account and debit cash/bank. Similarly, for a call option the seller/writer will deliver equity shares for which the call option was entered into. The seller/writer should credit the relevant equity shares account and debit cash/bank. For a put option the seller/writer will receive equity shares for which the put option was entered into. The seller/writer should debit the relevant equity shares account and credit cash/bank. In addition to this entry, the premium paid/received will be transferred to the profit and loss account, the accounting entries for which should be the same as those in case of cash settled options.

Market Design

Only two exchanges, namely the NSE and BSE, offer platform for trading of derivatives. However, as we shall see later, during the year 2001-02, BSE accounted for less than 2% of turnover in the market. Hence in this section, the market design has been discussed taking derivative segment (called Futures and Options (F&O) segment) of NSE as an example.

Trading Mechanism

The derivatives trading system at NSE, called NEAT-F&O trading system, provides a fully automated screen-based trading for Nifty futures and options and stock futures and options on a nationwide basis as well as an online monitoring and surveillance mechanism. It supports an anonymous order driven market, which operates on a strict price/time priority. It provides tremendous flexibility to users in terms of kinds of orders that can be placed on the system. Various time and price-related conditions like Good-till-Day, Good-till-Cancelled, Good-till-Date, Immediate or Cancel, Limit/Market Price, Stop Loss, etc. can be built into an order. Trading in derivatives is essentially similar to that of trading of securities in the CM segment.

There are four entities in the trading system:

1. *Trading members:* Trading members are members of NSE. They can trade either on their own account or on behalf of their clients including participants. The exchange assigns a Trading member ID to each trading member. Each trading member can have more than one user. The number of users allowed for each trading member is notified by the exchange from time to time.

2. *Clearing members:* Clearing members are members of NSCCL. They carry out risk management activities and confirmation/inquiry of trades through the trading system. These clearing members are trading members and clear trades for themselves and/or others.

3. *Professional clearing members:* A professional clearing members is a clearing member who is not a trading member. Typically, banks and custodians become professional clearing members and clear and settle for their trading members.

4. *Participants:* A participant is a client of trading members like financial institutions. These clients may trade through multiple trading members but settle through a single clearing member.

The trading terminals of F&O segment were available in 223 cities at the end of March 2002. Besides, the trading terminals can be accessed through the Internet by the investors from anywhere.

Membership Criteria

NSE admits members on its F&O segment in accordance with the rules and regulations of the Exchange and the norms specified by SEBI. It follows 2-tier membership structure stipulated by SEBI to enable wider participation. Those interested in taking membership on F&O segment are required to take membership of 'CM and F&O segment' or 'CM, WDM and F&O segment'. Trading and clearing members are admitted separately. Essentially, a clearing member (CM) does clearing for all his trading members (TMs), undertakes risk management and performs actual settlement. The eligibility criteria for

membership on F&O segment is summarised in Table 7-1. The trading members are required to have qualified users and sales persons, who have passed a certification programme approved by SEBI. At the end of March 2002, there were 484 members in the F&O segment.

Table 7-1 A: Eligibility Criteria for Membership on F&O Segment of NSE

Particulars	New Members		Existing Members
	CM and F&O Segment	CM, WDM and F&O Segment	
Net Worth[1]	Rs. 100 lakh	Rs. 200 lakh	Rs. 100 lakh
Interest Free Security Deposit (IFSD)[2]	Rs. 125 lakh	Rs. 275 lakh	Rs. 8 lakh
Collateral Security Deposit (CSD)[2]	Rs. 25 lakh	Rs. 25 lakh	-
Annual Subscription	Rs. 1 lakh	Rs. 2 lakh	Rs. 1 lakh

Note: 1. Net worth of Rs. 300 lakh is required for clearing membership.

2. Additional Rs. 25 lakh is required for clearing membership. In addition, the clearing member is required to bring in IFSD of Rs. 2 lakh and CSD of Rs. 8 lakh per trading member in the F&O segment.

Table 7-1 B: Requirements for Professional Clearing Membership

Particulars	F&O Segment	CM and F&O Segment
Eligibility	Trading members of NSE/SEBI registered custodians/recognised banks	
Net Worth	Rs. 300 lakh	
Interest Free Security Deposit (IFSD)	Rs. 25 lakh	Rs. 34 lakh
Collateral Security Deposit (CSD)	Rs. 25 lakh	Rs. 50 lakh
Annual Subscription	Nil	Rs. 2.5 lakh

Note: The PCM is required to bring in IFSD of Rs. 2 lakh and CSD of Rs. 8 lakh per trading member in the F&O segment.
Source: NSE.

Contract Specifications

Contract specification for derivatives are summarised in Annexure 7-1.

Index Futures

The index futures contract on NSE is based on S&P CNX Nifty Index. These contracts expire on the last Thursday of the expiry month and have a maximum of 3-month expiration cycle. A new contract is introduced on the next trading day following the expiry of the near month contract. At a point of time, three contracts are available for trading, with 1 month, 2 months and 3 months to expiry. Each futures contract has a separate limit order book. All passive orders are stacked in the system in terms of price-time priority and trades take place at the passive order price (similar to the existing capital market trading system). The best buy order for a given futures contract will be the order to buy the index at the highest index level whereas the best sell order will be the order to sell the index at the lowest index level. Trading is for a minimum lot size of 200 units.

Index Options

The trading in index options on NSE is based on S&P CNX Nifty with a maximum of 3 months expiration cycle. The options contracts are European style and are cash settled. There are a minimum of 5 strike prices, two 'in-the-money', one 'at-the-money' and two 'out-of-the-money' for every call and put option. Hence, at a given point in time there are a minimum of 3 * 5 * 2 or 30 options contracts. These expire on the last Thursday of the month. Upon expiry of a contract, the new index options contract is introduced in the same manner as index futures contract. Just as in the case of futures contracts, each option product has its own order book and its own prices. Trading is in minimum market lot size of 200 units.

Stock Options

The stock options are based on select individual securities. These are American style and settled in cash. The expiration cycle for stock options is the same as for index futures and index options. A new contract is introduced on the trading day following the expiry of the near month contract. NSE provides a minimum of five strike prices for every option type (i.e., call & put) during the trading month. There are two in-the-money (ITM) contracts, two out-of-the-money contracts (OTM) and one at-the-money (ATM) contract.

Stock Futures

These contracts are based on select securities. These are also cash settled. The expiration cycle for stock futures is the same as for index futures, index options and stock options. A new contract is introduced on the trading day following the expiry of the near month contract.

Charges

The maximum brokerage chargeable by a TM in relation to trades effected in the contracts admitted to dealing on the F&O segment of NSE is fixed at 2.5% of the contract value in case of index futures and 2.5% of notional value of the contract {(Strike price + Premium)* Quantity} in case of index options, exclusive of statutory levies.

The transaction charges payable by a TM for the trades executed by him on the F&O segment are fixed at Rs. 2 per lakh of turnover (0.002%) (each side) or Rs. 1 lakh annually, whichever is higher. The TMs contribute to Investor Protection Fund of F&O segment at the rate of Rs. 10 per crore of turnover (0.0001%) (each side).

Basket Trading Facility

In order to provide a facility for easy arbitrage between futures and cash markets, NSE provides basket-trading facility. This enables generation of portfolio offline order files in the derivatives trading system and its execution in the cash segment. A trading member can buy or sell a portfolio through a single order, once he determines its size. The system automatically works out the quantity of each security to be bought or sold in proportion to their weights in the portfolio.

Nifty futures at SGX-DT

With commencement of trading in derivatives of securities in India, foreign bourses have evinced interest to introduce trading in derivatives based on Indian indices. Under an agreement, Singapore Exchange Derivatives Trading Limited (SGX-DT) was granted a license to trade futures and options contracts based on the S&P CNX Nifty Index.

SGX-DT launched the SGX S&P CNX Nifty Index futures contract on September 25, 2000. The contract is based on the S&P CNX Nifty Index, which is owned by IISL, a subsidiary of NSE. The SGX S&P CNX Nifty Index futures is traded in US $, with a contract size equivalent to US $ 20 multiplied by the S&P CNX Nifty Index. Based on the closing index value of 1358.05 on August 18, 2000, the size of each futures contract is about US $ 27,161 (approximately 5 times that of the contract traded in NSE). The contract is cash settled and is traded on the Exchange's electronic trading platform (SGX ETS) from Monday to Friday. The trading of Nifty futures in SGX was introduced for enabling international market participants gain exposure to the Indian stock market in a highly cost-effective manner.

Regulations for Risk Management

The following risk management measures have been prescribed by SEBI:

i. *Liquid Networth Requirements:* A clearing member's minimum liquid net worth must be at least Rs. 50 lakh at any point of time.

ii. *Initial Margin Computation*: A portfolio based margining approach has been adopted which takes an integrated view of the risk involved in the portfolio of each individual client comprising of his positions in all derivative contracts. 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. The parameters for such a model include:

   - *Worst Scenario Loss:* The worst case loss of a portfolio is calculated by valuing the portfolio under several scenario changes in the underlying and changes in the volatility of the underlying. For index products the price scan range is specified at three standard deviation (3 sigma) and the volatility scan range is specified at 4%. Additionally, for index futures contracts the initial margin may not be less than 5% of the value of the contract. For futures and option contracts on stocks 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%. The minimum initial margin for stock futures contract is 7.5% of the value of the contract.

   - *Calendar Spreads*: A calendar spread is a position in an underlying with one maturity which is hedged by an offsetting position in the same underlying with a different maturity: for example, a short position in a July futures contract on Reliance and a long position in the August futures contract on Reliance is a calendar spread. Calendar spreads attract lower margins because they are not exposed to market risk of the underlying. If the underlying rises, the July contract would make a profit while the August contract would make a loss. Margin on calendar spreads is levied at 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 month contract of the spread.

iii. *Short Option Minimum Margin:* The short option minimum margin equal to 3% of the notional value of all short index options is charged if sum of the worst scenario loss and the calendar spread margin is lower than the short option minimum margin. For stock options it is equal to 7.5% of the notional value based on the previous days closing value of the underlying stock. Notional value of option positions is calculated on the short option positions by applying the last closing price of the relevant underlying.

iv. *Net Option Value:* The net option value is calculated as the current market value of the option times the number of option units (positive for long options and negative for short options) in the portfolio. Net option value is added to the liquid net worth of the clearing member. This means that the current market value of short options are deducted from the liquid net worth and the market value of long options are added thereto. Thus mark 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 settled in cash for option positions. Net option value is computed based on the last closing price.

v. *Premium Margin:* Premium amount due for a client is deducted from the available liquid net worth towards premium margins on a real time basis till the completion of premium settlement on T+1 day.

vi. *Initial Margin*: Margins in the derivatives markets are based on a 99% Value at Risk (VAR) approach at three sigma limits over a one day horizon. Accordingly, margins are computed based on volatility computations. The initial margin is netted with respect to each contract at level of individual client and is on gross basis across all clients for a trading/clearing member. The initial margin for proprietary position of a trading/clearing member is done on net basis. Initial margins are required to be collected upfront. Accordingly, the initial margin plus the calendar spread charge is adjusted against the available liquid networth of a member. The member is in turn required to collect the initial margin from his clients upfront.

vii. *Exposure Limits:* The notional value of gross open positions at any point in time for index futures and short index option contracts shall not exceed $33\frac{1}{3}$ (thirty three one by three) times the liquid networth of a clearing member. In case of futures and option contracts on stocks, the notional value of futures contracts and short option position at any time shall not exceed 20(twenty) times the liquid networth of a member.

Therefore, 3% of the notional value of gross open position in index futures and short index option contracts, and 5% of the notional value of futures and short option position in stocks is additionally adjusted from the liquid networth of a clearing member on a real time basis. Notional value of the options contract is calculated on the basis of the previous days closing price of the underlying. These exposure limits are in addition to the initial margin and calendar spread requirements.

For exposure purpose, calendar spreads (only for future contracts) are regarded as an open position of one third ($\frac{1}{3}$ rd) of the mark to market value of the far month futures contract. As the near month contract approaches expiry, the spread is treated as a naked position in the far month contract three trading days prior to the expiry of the far month contract.

viii. *Position Limits:* Position limits have been specified by SEBI at trading member, client, market and FII levels respectively:

- *Trading Member Position Limits*: There is a position limit in derivative contracts on an index of 15% of the open interest or Rs.100 crore, whichever is higher. The position limit in derivative contracts on an individual stock is 7.5% of the open interest in that underlying on the exchange or Rs. 50 crore, whichever is higher. Once a member, in a particular underlying reaches the position limit then he is permitted to take only offsetting positions(which result in lowering the open position of the member) in derivative contracts on such underlying.

- *Client Level Position Limits:* On index based derivative contracts, at the client level there is a self–disclosure requirement as follows: Any person or persons acting in concert who together own 15% or more of the open interest in all futures and option contracts on the same index are required to report this fact to the clearing corporation and failure to do so attracts a penalty. This does not mean a ban on large open positions but is a disclosure requirement. On stock based derivative contracts, the gross open position across all such derivative contracts in a particular underlying of a single customer/client shall not exceed the higher of 1% of the free float market capitalisation (in terms of number of shares) or 5% of the open interest in a particular underlying stock (in terms of number of contracts). This position limit is applicable on the combined position in all derivative contracts in an underlying stock at an exchange.
- *Market Wide Position Limits:* The market wide limit of open positions (in terms of the number of units of underlying stock) on all futures and option contracts on a particular stocks is lower of 30 times the average number of shares traded daily, during the previous calendar month, in the capital market segment of the exchange, or 10% of the number of shares held by non–promoters i.e. 10% of the free float, in terms of number of shares of a company. This market wide limit is applicable on a particular underlying. When the total open interest in a contract reaches 80% of the market wide limit in that contract, the price scan range and volatility scan range in SPAN would be doubled.
- *Position Limits for FIIs:* This is the same as discussed in the policy developments section earlier.
- *Eligibility of Stocks for Futures and Option Trading:* This is the same as discussed in the policy developments section earlier.

Clearing and Settlement

National Securities Clearing Corporation Limited (NSCCL) undertakes clearing and settlement of all trades executed on the futures and options (F&O) segment of the NSE. It also acts as legal counterparty to all trades on the F&O segment and guarantees their financial settlement.

Clearing Entities

Clearing and settlement activities in the F&O segment are undertaken by NSCCL with the help of the following entities:

Clearing Members

In the F&O segment, some members, called self clearing members, clear and settle their trades executed by them only either on their own account or on account of their clients. Some others, called trading member–cum–clearing member, clear and settle their own trades as well as trades of other trading members (TMs). Besides, there is a special category of members, called professional clearing members (PCM) who clear and settle trades executed by TMs. The members clearing their own trades and trades of others, and the PCMs are required to bring in additional security deposits in respect of every TM whose trades they undertake to clear and settle.

Clearing Banks

Funds settlement takes place through clearing banks. For the purpose of settlement all

clearing members are required to open a separate bank account with NSCCL designated clearing bank for F&O segment. The Clearing and Settlement process comprises of the following three main activities:

1. Clearing
2. Settlement
3. Risk Management

Clearing Mechanism

The clearing mechanism essentially involves working out open positions and obligations of clearing (self-clearing/trading-cum-clearing/professional clearing) members. This position is considered for exposure and daily margin purposes. The open positions of CMs are arrived at by aggregating the open positions of all the TMs and all custodial participants clearing through him, in contracts in which they have traded. A TM's open position is arrived at as the summation of his proprietary open position and clients' open positions, in the contracts in which he has traded. While entering orders on the trading system, TMs are required to identify the orders, whether proprietary (if they are their own trades) or client (if entered on behalf of clients) through 'Pro/ Cli' indicator provided in the order entry screen. Proprietary positions are calculated on net basis (buy - sell) for each contract. Clients' positions are arrived at by summing together net (buy - sell) positions of each individual client. A TM's open position is the sum of proprietary open position, client open long position and client open short position. Table 7-2 illustrates determination of open position of a CM, who clears for two TMs having two clients.

Table 7-2: Determination of Open Position of a Clearing Member

TMs clearing through CM	Proprietary Trades			Trades: Client 1			Trades: Client 2			Open Position	
	Buy	Sell	Net	Buy	Sell	Net	Buy	Sell	Net	Long	Short
ABC	4,000	2,000	2,000	3,000	1,000	2,000	4,000	2,000	2,000	6,000	
PQR	2,000	3,000	-1,000	2,000	1,000	1,000	1,000	2,000	-1,000	1,000	2,000
Total	**6,000**	**5,000**	**2,000** -1,000	**5,000**	**2,000**	**3,000**	**5,000**	**4,000**	**2,000** -1,000	**7,000**	**2,000**

Settlement Mechanism

All futures and options contracts are cash settled, i.e. through exchange of cash. The underlying for index futures/options of the Nifty index cannot be delivered. These contracts, therefore, have to be settled in cash. Futures and options on individual securities can be delivered as in the spot market. However, it has been currently mandated that stock options and futures would also be cash settled. The settlement amount for a CM is netted across all their TMs/clients, with respect to their obligations on MTM, premium and exercise settlement.

Settlement of Futures Contracts

Futures contracts have two types of settlements, the MTM settlement which happens on a continuous basis at the end of each day, and the final settlement which happens on the last trading day of the futures contract.

MTM Settlement

All futures contracts for each member are marked-to-market (MTM) to the daily settlement price of the relevant futures contract at the end of each day. The profits/losses are computed as the difference between:

1. The trade price and the day's settlement price for contracts executed during the day but not squared up.

2. The previous day's settlement price and the current day's settlement price for brought forward contracts.

3. The buy price and the sell price for contracts executed during the day and squared up.

Table 7-3 explains the MTM calculation for a member. The settlement price for the contract for today is assumed to be 105. The table gives the MTM charged on various positions. The margin charged on the brought forward contract is the difference between the previous day's settlement price of Rs. 100 and today's settlement price of Rs. 105. Hence on account of the position brought forward, the MTM shows a profit of Rs. 500. For contracts executed during the day, the difference between the buy price and the sell price determines the MTM. In this example, 200 units are bought @Rs. 100 and 100 units sold @Rs. 102 during the day. Hence the MTM for the position closed during the day shows a profit of Rs. 200. Finally, the open position of contracts traded during the day, is margined at the day's settlement price and the profit of Rs. 500 credited to the MTM account. So the MTM account shows a profit of Rs. 1,200.

Table 7-3: Computation of MTM at the end of the day

Trade details	Quantity bought/sold	Settlement price	MTM
Brought forward from previous day	100@100	105	500
Traded during day			
Bought	200@100		
Sold	100@102	102	200
Open position (not squared up)	100@100	105	500
Total			**1,200**

The CMs who have a loss are required to pay the mark-to-market (MTM) loss amount in cash which is in turn passed on to the CMs who have made a MTM profit. This is known as daily mark-to market settlement. CMs are responsible to collect and settle the daily MTM profits/losses incurred by the TMs and their clients clearing and settling through them. Similarly, TMs are responsible to collect/pay losses/ profits from/to their clients by the next day. The pay-in and pay-out of the mark-to-market settlement are effected on the day following the trade day. In case a futures contract is not traded on a day, or not traded during the last half hour, a 'theoretical settlement price' is used. After completion of daily settlement computation, all the open positions are reset to the daily settlement price. Such positions become the open positions for the next day.

Final Settlement of Futures

On the expiry day of the futures contracts, after the close of trading hours, NSCCL marks all positions of a CM to the final settlement price and the resulting profit/loss is settled in cash. Final settlement loss/profit amount is debited/ credited to the relevant CM's clearing bank account on the day following expiry day of the contract.

Settlement Prices for Futures

Daily settlement price on a trading day is the closing price of the respective futures contracts on such day. The closing price for a futures contract is currently calculated as the last half an hour weighted average price of the contract in the F&O Segment of NSE. Final settlement price is the closing price of the relevant underlying index/security in the capital market segment of NSE, on the last trading day of the contract. The closing price of the underlying Index/security is currently its last half an hour weighted average value in the capital market segment of NSE.

Settlement of Options Contracts

Options contracts have three types of settlements, daily premium settlement, exercise settlement, interim exercise settlement in the case of option contracts on securities and final settlement.

Daily Premium Settlement

Buyer of an option is obligated to pay the premium towards the options purchased by him. Similarly, the seller of an option is entitled to receive the premium for the option sold by him.The premium payable amount and the premium receivable amount are netted to compute the net premium payable or receivable amount for each client for each option contract.

Exercise Settlement

Although most option buyers and sellers close out their options positions by an offsetting closing transaction, an understanding of exercise can help an option buyer determine whether exercise might be more advantageous than an offsetting sale of the option. There is always a possibility of the option seller being assigned an exercise. Once an exercise of an option has been assigned to an option seller, the option seller is bound to fulfill his obligation (meaning, pay the cash settlement amount in the case of a cash-settled option) even though he may not yet have been notified of the assignment.

Interim Exercise Settlement

Interim exercise settlement takes place only for option contracts on securities. An investor can exercise his in-the-money options at any time during trading hours, through his trading member. Interim exercise settlement is effected for such options at the close of the trading hours, on the day of exercise. Valid exercised option contracts are assigned to short positions in the option contract with the same series (i.e. having the same underlying, same expiry date and same strike price), on a random basis, at the client level. The CM who has exercised the option receives the exercise settlement value per unit of the option from the CM who has been assigned the option contract.

Final Exercise Settlement

Final exercise settlement is effected for all open long in–the–money strike price options existing at the close of trading hours, on the expiration day of an option contract.

All such long positions are exercised and automatically assigned to short positions in option contracts with the same series, on a random basis. The investor who has long in–the–money options on the expiry date will receive the exercise settlement value per unit of the option from the investor who has been assigned the option contract.

Exercise Process

The period during which an option is exercisable depends on the style of the option. On NSE, index options are European style, i.e. options are only subject to automatic exercise on the expiration day, if they are in–the–money. As compared to this, options on securities are American style. In such cases, the exercise is automatic on the expiration day, and voluntary prior to the expiration day of the option contract, provided they are in–the–money. Automatic exercise means that all in–the–money options would be exercised by NSCCL on the expiration day of the contract. The buyer of such options need not give an exercise notice in such cases. Voluntary exercise means that the buyer of an in–the–money option can direct his TM/CM to give exercise instructions to NSCCL. In order to ensure that an option is exercised on a particular day, the buyer must direct his TM to exercise before the cut-off time for accepting exercise instructions for that day. Usually, the exercise orders will be accepted by the system till the close of trading hours. Different TMs may have different cut–off times for accepting exercise instructions from customers, which may vary for different options. An option, which expires unexercised becomes worthless. Some TMs may accept standing instructions to exercise, or have procedures for the exercise of every option, which is in–the–money at expiration. Once an exercise instruction is given by a CM to NSCCL, it cannot ordinarily be revoked. Exercise notices given by a buyer at anytime on a day are processed by NSCCL after the close of trading hours on that day. All exercise notices received by NSCCL from the NEAT F&O system are processed to determine their validity. Some basic validation checks are carried out to check the open buy position of the exercising client/TM and if option contract is in–the–money. Once exercised contracts are found valid, they are assigned.

Assignment Process

The exercise notices are assigned in standardized market lots to short positions in the option contract with the same series (i.e. same underlying, expiry date and strike price) at the client level. Assignment to the short positions is done on a random basis. NSCCL determines short positions, which are eligible to be assigned and then allocates the exercised positions to any one or more short positions. Assignments are made at the end of the trading day on which exercise instruction is received by NSCCL and notified to the members on the same day. It is possible that an option seller may not receive notification from its TM that an exercise has been assigned to him until the next day following the date of the assignment to the CM by NSCCL.

Exercise Settlement Computation

In case of index option contracts, all open long positions at in–the–money strike prices are automatically exercised on the expiration day and assigned to short positions in option contracts with the same series on a random basis. For options on securities, where exercise settlement may be interim or final, interim exercise for an open long in–the–money option position can be effected on any day till the expiry of the contract. Final exercise is automatically effected by NSCCL for all open long in–the–money positions in the expiring month option contract, on the expiry day of the option contract. The exercise settlement price is the closing price of the underlying (index or security) on the exercise

day (for interim exercise) or the expiry day of the relevant option contract (final exercise). The exercise settlement value is the difference between the strike price and the final settlement price of the relevant option contract. For call options, the exercise settlement value receivable by a buyer is the difference between the final settlement price and the strike price for each unit of the underlying conveyed by the option contract, while for put options it is difference between the strike price and the final settlement price for each unit of the underlying conveyed by the option contract. Settlement of exercises of options on securities is currently by payment in cash and not by delivery of securities. It takes place for in-the-money option contracts.

The exercise settlement value for each unit of the exercised contract is computed as follows:

Call options = Closing price of the security on the day of exercise - Strike price

Put options = Strike price - Closing price of the security on the day of exercise

For final exercise the closing price of the underlying security is taken on the expiration day the exercise settlement by NSCCL would ordinarily take place on 3rd day following the day of exercise. Members may ask for clients who have been assigned to pay the exercise settlement value earlier.

Special Facility for Settlement of Institutional Deals

NSCCL provides a special facility to Institutions/Foreign Institutional Investors (FIIs)/ Mutual Funds etc. to execute trades through any TM, which may be cleared and settled by their own CM. Such entities are called custodial participants (CPs). To avail of this facility, a CP is required to register with NSCCL through his CM. A unique CP code is allotted to the CP by NSCCL. All trades executed by a CP through any TM are required to have the CP code in the relevant field on the trading system at the time of order entry. Such trades executed on behalf of a CP are confirmed by their own CM (and not the CM of the TM through whom the order is entered), within the time specified by NSE on the trade day though the on-line confirmation facility. Till such time the trade is confirmed by CM of concerned CP, the same is considered as a trade of the TM and the responsibility of settlement of such trade vests with CM of the TM. Once confirmed by CM of concerned CP, such CM is responsible for clearing and settlement of deals of such custodial clients. FIIs have been permitted to trade in all the exchange traded derivative contracts subject to compliance of the position limits prescribed for them and their sub-accounts, and compliance with the prescribed procedure for settlement and reporting. A FII/a sub-account of the FII, as the case may be, intending to trade in the F&O segment of the exchange, is required to obtain a unique Custodial Participant (CP) code allotted from the NSCCL. FIIs/sub–accounts of FIIs which have been allotted a unique CP code by NSCCL are only permitted to trade on the F&O segment. The FII/sub–account of FII ensures that all orders placed by them on the Exchange carry the relevant CP code allotted by NSCCL.

Risk Management

NSCCL has developed a comprehensive risk containment mechanism for the F&O segment. The salient features of risk containment mechanism on the F&O segment are:

1. The financial soundness of the members is the key to risk management. Therefore, the requirements for membership in terms of capital adequacy (net worth, security deposits) are quite stringent.

2. NSCCL charges an upfront initial margin for all the open positions of a CM. It specifies the initial margin requirements for each futures/options contract on a daily basis. It also follows value-at-risk(VaR) based margining through SPAN. The CM in turn collects the initial margin from the TMs and their respective clients.
3. The open positions of the members are marked to market based on contract settlement price for each contract. The difference is settled in cash on a T+1 basis.
4. NSCCL's on-line position monitoring system monitors a CM's open positions on a real-time basis. Limits are set for each CM based on his capital deposits. The on-line position monitoring system generates alerts whenever a CM reaches a position limit set up by NSCCL. NSCCL monitors the CMs for MTM value violation, while TMs are monitored for contract-wise position limit violation.
5. CMs are provided a trading terminal for the purpose of monitoring the open positions of all the TMs clearing and settling through him. A CM may set exposure limits for a TM clearing and settling through him. NSCCL assists the CM to monitor the intra-day exposure limits set up by a CM and whenever a TM exceed the limits, it stops that particular TM from further trading.
6. A member is alerted of his position to enable him to adjust his exposure or bring in additional capital. Position violations result in withdrawal of trading facility for all TMs of a CM in case of a violation by the CM.
7. A separate settlement guarantee fund for this segment has been created out of the capital of members. The fund had a balance of Rs. 648 crore at the end of March 2002.

The most critical component of risk containment mechanism for F&O segment is the margining system and on-line position monitoring. The actual position monitoring and margining is carried out on–line through Parallel Risk Management System (PRISM). PRISM uses SPAN(r) (Standard Portfolio Analysis of Risk) system for the purpose of computation of on-line margins, based on the parameters defined by SEBI.

NSE–SPAN

The objective of NSE–SPAN is to identify overall risk in a portfolio of all futures and options contracts for each member. The system treats futures and options contracts uniformly, while at the same time recognizing the unique exposures associated with options portfolios, like extremely deep out–of–the–money short positions and inter–month risk. Its over–riding objective is to determine the largest loss that a portfolio might reasonably be expected to suffer from one day to the next day based on 99% VaR methodology. SPAN considers uniqueness of option portfolios. The following factors affect the value of an option:

1. Underlying market price
2. Strike price
3. Volatility(variability) of underlying instrument
4. Time to expiration
5. Interest rate

As these factors change, the value of options maintained within a portfolio also changes.

Thus, 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 to cover this one–day loss. The complex calculations (e.g. the pricing of options) in SPAN are executed by NSCCL. The results of these calculations are called risk arrays. Risk arrays, and other necessary data inputs for margin calculation are provided to members daily in a file called the SPAN risk parameter file. Members 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. Hence, members need not execute complex option pricing calculations, which is performed by NSCCL. SPAN has the ability to estimate risk for combined futures and options portfolios, and also re–value the same under various scenarios of changing market conditions.

Margins

The margining system for F&O segment is explained below:

- *Initial Margin:* Margin in the F&O segment is computed by NSCCL upto client level for open positions of CMs/TMs. These are required to be paid up-front on gross basis at individual client level for client positions and on net basis for proprietary positions. NSCCL collects initial margin for all the open positions of a CM based on the margins computed by NSE-SPAN. A CM is required to ensure collection of adequate initial margin from his TMs up-front. The TM is required to collect adequate initial margins up-front from his clients.
- *Premium Margin:* In addition to initial margin, premium margin is charged at client level. This margin is required to be paid by a buyer of an option till the premium settlement is complete.
- *Assignment Margin for Options on Securities:* Assignment margin is levied in addition to initial margin and premium margin. It is required to be paid on assigned positions of CMs towards interim and final exercise settlement obligations for option contracts on individual securities, till such obligations are fulfilled. The margin is charged on the net exercise settlement value payable by a CM towards interim and final exercise settlement.
- *Client Margins:* NSCCL intimates all members of the margin liability of each of their client. Additionally members are also required to report details of margins collected from clients to NSCCL, which holds in trust client margin monies to the extent reported by the member as having been collected form their respective clients.

Margin/Position Limit Violations

PRISM generates various alerts whenever a CM exceeds any limits set up by NSCCL. These are detailed below:

- *Initial Margin Violation*: Initial margin limits are set by NSCCL for each CM based on the collateral deposited by the CM in accordance with SEBI recommendations. CMs are provided a F&O clearing member terminal for the purpose of monitoring the open positions of all the TMs and/or CPs clearing and settling through him. A CM may also set initial margin limits for a TM clearing and settling through him. NSCCL assists a CM to monitor the intra-day initial margin limits. Whenever a TM exceeds the limits, his trading facility is withdrawn. Initial margin on positions taken by 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 a CM with NSCCL. As the effective deposit is used up to 70%, 80%, and 90%, the member receives a warning message on his terminal. Once it is used 100%, the clearing facility provided to a CM is automatically withdrawn. The liquid net worth of a CM at any point of time should not be less than Rs. 50 lakh. Withdrawal of clearing facility of a CM in case of a violation leads to automatic withdrawal of trading facility for all TMs and/or CPs clearing and settling through such CM. Similarly, the initial margin on positions taken by a TM is also computed on a real time basis and compared with the TM initial margin limits set by his CM. The initial margin amount is reduced from the TM initial margin limit set by a CM. As the TM limit is used up to 70%, 80%, and 90%, the member receives a warning message on his terminal. Once it is used 100%, the trading facility provided to the TM is automatically withdrawn. A member is provided with adequate warnings on the violation before his trading/clearing facility is withdrawn. A CM may appropriately reduce his exposure to contain the violation or alternately bring in additional capital.

- *Member-wise Position Limit Violation*: The member-wise position limit check is carried out by PRISM on open position of a TM. The open position in all index futures and index option contracts of any TM, cannot exceed 15% of the total open interest of the market or Rs. 100 crore, whichever is higher at any time, including during trading hours. The open positions in all the futures and option contracts on the same underlying security of any TM, cannot exceed 7.5% of the total open interest of the market or Rs. 50 crore, whichever is higher, at any time, including during trading hours. 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 multiplied with the last available closing price of the underlying.

- *Exposure Limit Violation:* PRISM monitors exposure of members. The exposure for a CM to all futures and option contracts cannot exceed $33^{1}/_{3}$ times the liquid net worth for index options and index futures contracts, and 20 times the liquid net worth for futures/options contracts on individual securities. This means that 3% of exposure in case of index futures/options and 5% of exposure in case of stock futures/options shall not exceed liquid networth, after adjusting for initial margin.

- *Market-wide Position Limit Violation*: PRISM monitors market wide position limits for futures and option contracts on individual securities. The open position across all members, across all futures and option contracts on an underlying security, conveyed by the number of units of underlying security, cannot exceed lower of the following limits: 30 times the average number of shares traded daily, during the previous calendar month, in the relevant underlying security in the underlying segment of the relevant exchange, or 10% of the number of shares held by non-promoters in the relevant underlying security, i.e. 10% of the free float in terms of the number of shares of a company. When the total open interest in an option contract, across all members, reaches 80% of the market wide position limit for a contract, the price scan range and volatility scan range (for SPAN margin) are doubled. NSCCL specifies the market-wide position limits once every month, at the beginning of the month, which is applicable for the subsequent month.

- *Client–wise Position Limit Violation*: This occurs when the open position of any client exceeds 1% of the free float market capitalization (in terms of no. of shares) or 5%

of the open interest (in terms of number of shares) whichever is higher, in all the futures and option contracts on the same underlying security. The TM/CM through whom the client trades/clears his deals shall be liable for such violation and penalty may be levied on such TM/CM which he may in turn recover from the client. In the event of such a violation, TM/CM shall immediately ensure, that the client does not take fresh positions and reduces the positions of such clients to be within permissible limits. 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 multiplied with the last available closing price of the underlying.

- *Misutilisation of TM/Constituent's Collateral and/or Deposit*: A CM cannot utilize the collateral of one TM and/or constituent towards the exposure and/or obligations of another TM and/or constituent. Where such an act is detected, it is treated as a violation.
- *Violation of Exercised Positions*: NSCCL verifies whether open long positions for such CM/TM and/or constituent exist in relation to option contracts, which are exercised by a CM/TM, before initiating exercise processing. Where contracts are exercised though there are no open positions, such cases are treated as violations.

Market Outcome

Trading Volumes

As mentioned earlier, the derivatives are traded only on two exchanges. The details of trades on these exchanges during 2001-02 are presented in Table 7-4. The total exchange traded derivatives witnessed a volume of Rs. 103,848 crore during the current year as against Rs. 3,918 crore during the preceding year. While NSE accounted for about 98% of total turnover, BSE accounted for less than 2%. The market witnessed higher volumes from June 2001 with introduction of index options, and still higher volumes with the

Table 7-4: Trade Details of Derivatives Market*

Month/Year	NSE		BSE		Total	
	No. of Contracts Traded	Turnover (Rs. cr.)	No. of Contracts Traded	Turnover (Rs. cr.)	No. of Contracts Traded	Turnover (Rs. cr.)
Apr-01	13,274	292	1,617	28	14,891	320
May-01	10,048	230	656	12	10,704	242
Jun-01	35,466	785	2,708	55	38,174	840
Jul-01	93,306	2,031	3,014	55	96,320	2,086
Aug-01	125,589	2,696	33,758	596	159,347	3,292
Sep-01	272,572	5,281	26,253	399	298,825	5,680
Oct-01	290,209	5,477	3,965	56	294,174	5,533
Nov-01	413,809	8,760	6,690	136	420,499	8,896
Dec-01	550,020	12,919	4,143	86	554,163	13,005
Jan-02	805,638	21,348	6,038	146	811,676	21,494
Feb-02	834,984	21,616	14,843	307	849,827	21,923
Mar-02	751,958	20,490	1,922	48	753,880	20,538
2001-02	**4,196,873**	**101,925**	**105,607**	**1,923**	**4,302,480**	**103,848**

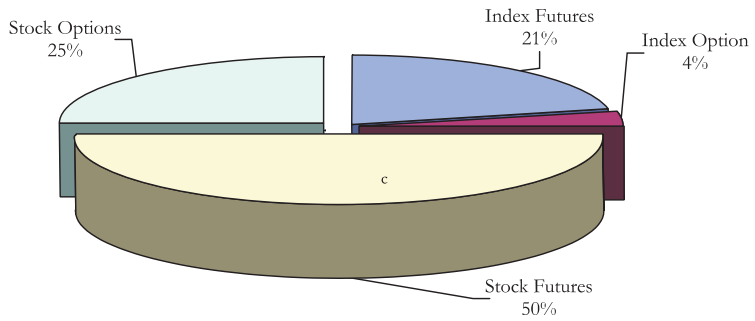
*: Data pertains to Index Futures, Stock Futures, Index Options and Stock Options.
Source: NSE and BSE.

introduction of stock options in July 2001. There was a spurt in volumes in November 2001 when stock futures were introduced. It is believed that India is the largest market in the World for stock futures. Since 98% of volumes came from NSE, the further detailed analysis is based on NSE data.

The F&O segment of NSE reported a total turnover of Rs. 101,925 crore during the period 2001-02 as against Rs. 2,365 crore during the preceding year. About 42 lakh contracts were traded during the same period. The turnover witnessed a sharp rise with the introduction of stock futures in November 2001. The segment witnessed a record turnover of Rs. 2,156 crore on February 28, 2002. The turnover increased from Rs. 292 crore in April 2001 to Rs. 20,490 crore in March 2002. The average daily turnover also increased from Rs. 15.35 crore in April 2001 to Rs. 1,078.41 crore in March 2002. The business growth of the F&O segment is presented in Annexure 7-2.

Though stock futures were introduced in November 2001 and such contracts are available only on 31 securities, it accounted for about 50% of total turnover in F&O Segment for the year 2001-02. The product-wise distribution of turnover in F&O segment for the year 2001-02 is presented in Chart 7-1. It is evident that near month contracts are more popular than not-so-near month contracts; futures are more popular than options; contracts on securities are more popular than those on indices; and call options are more popular than put options.

Chart 7-1: Product-wise Distribution of Turnover of F&O Segment of NSE, 2001-02



The F&O Segment provides a nation-wide market. The city-wise distribution of turnover of the F&O segment is presented in Table 7-5. During the year, Mumbai contributed nearlyt 50% of total turnover. The contributions from Delhi and Kolkata were 24.3% and 12.6% respectively.

Open Interest

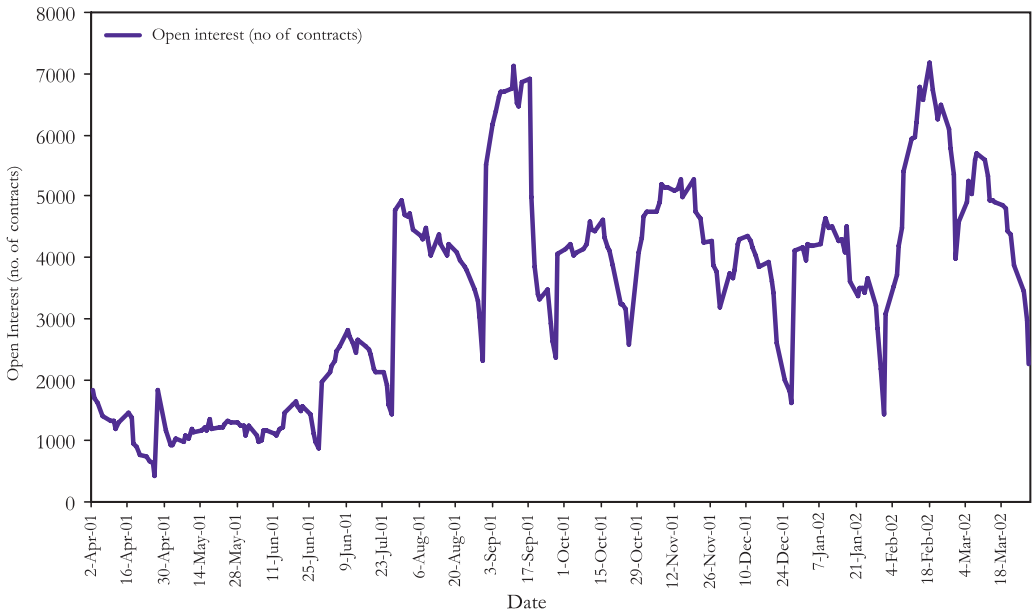
Open interest is the total number of outstanding contracts that are held by market participants at the end of each day. Putting it simply, open interest is a measure of how much interest is there in a particular option or future. Increasing open interest means that fresh funds are flowing in the market, while declining open interest means that the market is liquidating. The highest open interest in index futures at NSE was recorded at 7,177 contracts on

Table 7-5: City-wise Distribution of Turnover of F&O Segment of NSE 2001-02

Sl. No.	Location	Share in Turnover (%) 2000-01	2001-02
1	Mumbai	68.33	49.08
2	Delhi/Ghaziabad	20.79	24.28
3	Calcutta/Howrah	2.46	12.60
4	Cochin/Ernakulam/Parur/Kalamserry/Alwaye	1.32	2.44
5	Ahmedabad	0.93	2.25
6	Chennai	3.02	2.01
7	Hyderabad/Secunderabad/Kukatpally	0.12	1.54
8	Others	3.03	5.80
	Total	**100**	**100**

February 18, 2002. The daily open interest for near month index futures at NSE is presented in Chart 7-2.

Chart 7-2: Daily Open Interest for Near Month Nifty Futures



Implied Interest Rate

In the futures market, implied interest rate or cost of carry is often used inter-changeably. Cost of carry is more appropriately used for commodity futures, as by definition it means the total costs required to carry a commodity or any other good forward in time. The costs involved are storage cost, insurance cost, transportation cost, and the financing cost. In case of equity futures, the carry cost is the cost of financing minus the dividend returns. Assuming zero dividend, the only relevant factor is the cost of financing.

One could work out the implied interest rate incorporated in futures prices, which is the percentage difference between the future value of an index and the spot value,

annualised on the basis of the number of days before the expiry of the contract. Carry cost or implied interest rate plays an important role in determining the price differential between the spot and the futures market. By comparing the implied interest rate and the existing interest rate level, one can determine the relative cost of futures' market price. Implied interest rate is also a measure of profitability of an arbitrage position. Theoretically, if the futures price is less than the spot price plus cost of carry or if the futures price is greater than the spot price plus cost of carry, arbitrage opportunities exist.

The futures prices are available for different contracts at different points of time. Chart 7-3 presents Nifty futures close prices for the near month contracts, which are most liquid, and the spot Nifty close values from April 2001 to March 2002. The difference between the future price and the spot price is called *basis*. As the time to expiration of a contract reduces, the basis reduces. Daily implied interest rate for Nifty futures from April 2001 to March 2002 is presented in Chart 7-4. The implied interest rate for near month Nifty futures as on last trading of the month is presented in Table 7-6. It is observed that index futures market suffers from mispricing in the sense that futures trade at discount to underlying. This may be due to restriction on short sales and lack of maturity.

Chart 7-3: Nifty Futures and Spot Price

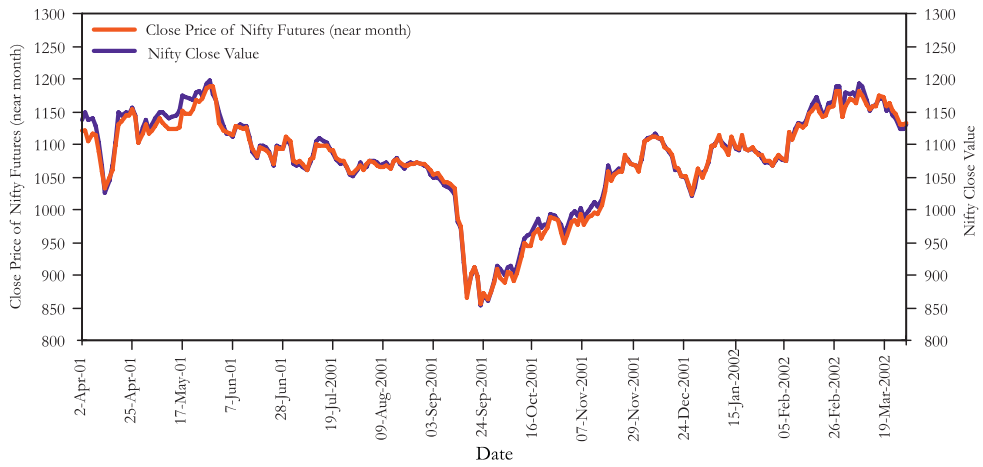


Table 7-6: Implied Interest Rate for Near Month Nifty Futures (April 2001 - March 2002)

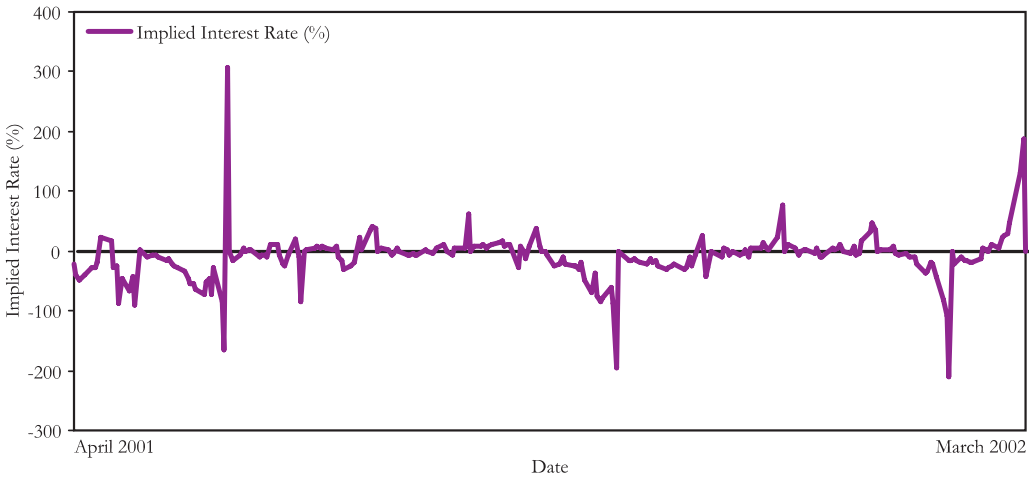
Month	Expiry Date of near month Contract	Closing Future Price	Closing Spot Price	Implied Interest Rate (%)
Apr-01	31-May-2001	1,117.10	1,125.25	-8.56%
May-01	31-May-2001	1,167.55	1,167.90	0.00%
Jun-01	26-Jul-2001	1,110.85	1,107.90	3.59%
Jul-01	30-Aug-2001	1,068.05	1,072.85	-5.44%
Aug-01	27-Sep-2001	1,059.50	1,053.75	7.38%
Sep-01	25-Oct-2001	908.70	913.85	-7.62%
Oct-01	29-Nov-2001	961.45	971.90	-13.53%
Nov-01	29-Nov-2001	1,067.85	1,067.15	0.00%
Dec-01	31-Jan-2002	1,063.60	1,059.05	5.06%
Jan-02	31-Jan-2002	1,075.60	1,075.40	0.00%
Feb-02	28-Feb-2002	1,141.30	1,142.05	0.00%
Mar-02	28-Mar-2002	1,131.45	1,129.55	0.00%

Note:The implied interest rate is calculated on the last trading day of the month for Near Month Nifty Futures.
Source: NSE.

Implied Volatility

Volatility is one of the important factors, which is taken into account while pricing options. It is a measure of the amount and speed of price changes, in either direction. Everybody would like to know what future volatility is going to be. Since it is not possible

Chart 7-4: Implied Interest Rate for Near Month Nifty Futures (April 2, 2001 to March 28, 2002)



to know future volatility, one tries to estimate it. One way to do this is to look at historical volatility over a certain period of time and try to predict the future movement of the underlying. Alternatively, one could work out implied volatility by entering all parameters into an option pricing model and then solving for volatility. For example, the Black Scholes model solves for the fair price of the option by using the following parameters – days to expiry, strike price, spot price, volatility of underlying, interest rate, and dividend. This model could be used in reverse to arrive at implied volatility by putting the current price of the option prevailing in the market.

Putting it simply, implied volatility is the market's estimate of how volatile the underlying will be from the present until the option's expiration, and is an important input for pricing options - when volatility is high, options premiums are relatively expensive; when volatility is low, options premiums are relatively cheap. However, implied volatility estimate can be biased, especially if they are based upon options that are thinly traded.

Prof J. R. Varma ("Mispricing of Volatility in the India Index Options Market", Working Paper 2002-04-01, April 2002, IIM, Ahmedabad) has estimated the option prices and implied volatility from the Black formula and found that for about 6.5% of all calls and about 7.5% of all puts, implied volatility was undefined because the option traded below its intrinsic value. This is an indication of mispricing of options.

Volatility Smile

The volatility smile is the relation between the implied volatility and the strike price of the same maturity. Normally the smiles for equity options is more like a sneer - a downward sloping curve when plotted against the strike price and the volatility smiles for both put and call should look alike. However, Prof. Varma ("Mispricing of Volatility in the India Index Options Market", Working Paper 2002-04-01, April 2002, IIM, Ahmedabad) found

V shaped smiles and the smiles are markedly different for puts and calls. He estimated volatility smiles separately for put and call options and established by statistical significance tests that the smiles are sharply different for calls and puts while put call parity requires that the smiles be the same. The implied probability distribution is more highly peaked and has (except for deep-in-the-money calls) thinner tails than the normal distribution or the historical distribution. The market thus appears to be underestimating the probability of market movements in either direction. Prof. Varma also noticed some overpricing of deep-in-the-money calls and some inconclusive evidence of violation of put-call parity. However, he found that the observed prices are rather close to the average of the intrinsic value of the option and its Black-Scholes value disregarding the smiles.

Settlement

All derivative contracts are currently cash settled. During 2001-02, such cash settlement amounted to Rs. 786 crore. The settlement of futures and of options involved Rs. 527 crore and Rs. 259 crore respectively. The details of settlement on the F&O segment is presented in Table 7-7. The Settlement Guarantee Fund of the F&O Segment had a balance of Rs. 725 crore at the end of July 2002.

Table 7-7: Settlement Statistics in F&O Segment

(In Rs. crore)

Month/Year	Index/Stock Futures		Index/Stock Options		Total
	MTM Settlement	Final Settlement	Premium Settlement	Exercise Settlement	
Jun-00	0.22	0.01	-	-	0.23
Jul-00	1.46	0.04	-	-	1.50
Aug-00	0.76	0.03	-	-	0.79
Sep-00	2.11	0.13	-	-	2.25
Oct-00	3.42	0.27	-	-	3.69
Nov-00	4.65	0.07	-	-	4.73
Dec-00	9.82	0.69	-	-	10.50
Jan-01	11.94	0.11	-	-	12.05
Feb-01	16.14	0.51	-	-	16.65
Mar-01	33.56	0.06	-	-	33.62
2000-01	**84.08**	**1.93**	**-**	**-**	**86.01**
Apr-01	8.04	0.09	-	-	8.13
May-01	3.78	0.11	-	-	3.89
Jun-01	4.85	0.01	1.47	0.28	6.61
Jul-01	6.70	0.14	5.88	1.43	14.13
Aug-01	4.59	0.14	9.83	5.06	19.62
Sep-01	33.69	0.50	15.62	13.91	63.72
Oct-01	11.27	0.10	17.96	11.42	40.75
Nov-01	28.38	0.71	24.55	20.21	73.85
Dec-01	78.94	3.76	17.47	8.21	108.38
Jan-02	112.53	2.17	30.57	17.75	163.02
Feb-02	108.87	12.21	24.40	8.86	154.34
Mar-02	103.62	1.99	17.01	6.81	129.42
2001-02	**505.25**	**21.93**	**164.76**	**93.95**	**785.88**

Policy Debates

Derivatives have been around for about two years. The trading volumes in the derivatives have, however, been quite modest in the first year (2000-01). It picked up substantially during 2001-02 with the introduction of stock futures. However, the full potential is yet to be realized. As of now, very few members have been permitted by SEBI to trade in the derivatives. Some participants like, FIIs and MFs, have been permitted to have limited participation. It has been made mandatory by SEBI that at two dealers of the brokerage firm should have passed SEBI-approved certification test for derivatives. The process of attaining certification has been rather slow. There is lack of clarity on taxation and accounting aspects pertaining to derivatives market. The stock futures/options are currently cash settled and hence the derivatives market is really delinked from the cash market. A few policy debates having bearing on volumes are discussed in this section.

Taxability of Income arising from Derivative Contracts

The Income-tax Act does not have any specific provision regarding taxability of income from derivatives. Only provisions, which have an indirect bearing on derivative transactions, are sections 73 (1) and 43 (5). Section 73 (1) provides that any loss, computed in respect of a speculative business carried on by the assessee, shall not be set off except against profits and gains, if any, of any speculative business. Section 43(5) of the Act defines a speculative transaction as a transaction in which a contract for purchase or sale of any commodity, including stocks and shares, is periodically or ultimately settled otherwise than by actual delivery or transfer of the commodity or scrips. It excludes the following types of transactions from the ambit of speculative transactions:

1. A contract in respect of stocks and shares entered into by a dealer or investor therein to guard against loss in his holding of stocks and shares through price fluctuations;
2. A contract entered into by a member of a forward market or a stock exchange in the course of any transaction in the nature of jobbing or arbitrage to guard against loss, which may arise in ordinary course of business as such member.

A transaction is thus considered speculative if (i) it is in commodities, shares, stock or scrips, (ii) it is settled otherwise than by actual delivery (iii) it is not for jobbing/arbitrage, and (iv) the participant has no underlying position.

In the absence of a specific provision, it is apprehended that the derivative contracts, particularly the index futures/options which are essentially cash-settled, may be construed as speculative transactions. Therefore, the losses, if any, will not be eligible for set off against other incomes of the assessee and will be carried forward and set off against speculative income only up to a maximum of eight years. The fact, however, is that derivative contracts are not for purchase/sale of any commodity, stock, share or scrip. Derivatives are a special class of securities under the Securities Contracts (Regulation) Act, 1956 and do not any way resemble any other type of securities like shares, stocks or scrips. Derivative contracts are cash-settled, as these can not be settled otherwise. Derivative contracts are entered into by the hedgers, speculators and arbitrageurs. A derivatives contract has any of these two parties and hence some of the derivative contracts, (not all), have an element of speculation. At least one of the parties is a hedger or an arbitrageur. It would, therefore, be unfair to treat derivative transactions as speculative. Otherwise it would be a penalty on hedging which the Securities Laws (Amendment) Act, 1999 seeks to promote. In view of these difficulties in applying the existing provisions, it is desirable to clarify or make special provision for derivatives of securities.

Every derivative contract has two parties, generally a hedger and a speculator. All types of participants need to be provided level playing field so that the market is competitive and efficient. As regards taxability, the law should not treat income of the hedgers, speculators and arbitrageurs differently. Income of all the participants from derivatives need to be treated uniformly. This is all the more necessary as it is well neigh impossible to ascertain if a participant is trading for speculation, hedging or arbitrage.

A transaction is thus considered speculative, if a participant enters into a hedging transaction in scrips outside his holdings. It is possible that an investor does not have all the 30 or 50 stocks represented by the index. As a result an investor's losses or profits out of derivatives transactions, even though they are of hedging nature in real sense, it is apprehended, may be treated as speculative. This is contrary to capital asset pricing model, which states that portfolios in any economy move in sympathy with the index although the portfolios do not necessarily contain any security in the index. The index derivatives are, therefore, used even for hedging the portfolio risk of non-index stocks. An investor who does not have the index stocks can also use the index derivatives to hedge against the market risk as all the portfolios have a correlation with the overall movement of the market (i.e. index).

In view of (i) practical difficulties in administration of tax for different purposes of the same transaction, (ii) inherent nature of a derivative contract requiring its settlement otherwise than by actual delivery, (iii) need to provide level playing field to all the parties to derivatives contracts, and (iv) need to promote derivatives markets, the exchange-traded derivatives contracts need to be exempted from the purview of speculative transactions. These must, however, be taxed as normal business income.

Cross Margining

Cross-margining takes into account a member/client's combined position across products/ market segments (like, cash and derivatives markets) and across all exchanges. This means that member's margin with an exchange for one market can be used against margin requirements of another market. Cross-margining thus results in reduction in total margin payable by a member/client trading in related products and in more than one market. For example, a clearing corporation can compute and levy a single net margin amount based upon offsetting positions in different products/markets/exchanges. In fact, the L. C. Gupta Committee which had framed regulatory framework for derivatives, had recommended that cross margining (between spot and derivatives market) should be allowed eventually, as this would optimally use resources. Since this offers several benefits like, reduced collateral requirement, increased liquidity, improved collateral management and lower operational costs, the regulatory authorities should weigh the possibility of introducing cross-margining system.

Contract Value

In order to prevent the small investors, who may be lured by sheer speculative gain, from venturing into derivative contracts, the Standing Committee on Finance of Parliament, which had examined the derivatives bill, had recommended that the threshold limit of the derivatives contracts should be pegged not below Rs. 2 lakh. Accordingly, the minimum contract size for all derivatives was fixed at Rs. 2 lakh. It has been the experience that it is the retail players who have been dominating the derivatives market. The minimum limit of Rs. 2 lakh is a discouragement for them as the cost of entering into a transaction is high and many of them may not have a matching portfolio of Rs. 2 lakh. It is, therefore, being argued that the contract size should be reduced to, say Rs. 1 lakh, to encourage

more retail participation, which will translate into higher volumes. Further, normally the contract size is determined in terms of 100 or 200 units or multiples thereof subject to a minimum value of Rs. 2 lakh. In case the contract size is determined at 100 units with a value of Rs. 2 lakh and the price of the underlying doubles, the contract size becomes 100 units with a value of Rs. 4 lakh. Thus the upward movement in price after contract multiples were set increases the contract size and discourages retail participation. On the other hand, if the price falls to a quarter after the contract size is set, the contract size reduces to Rs. 50,000 which may attract very small investors not having expertise in derivatives trading. The determination of contract size is a double edged sword and it needs to be carefully set so that very small investors are not attracted and subsequently hurt. In the alternative, following global practice, the determination of contract size may be left to stock exchanges.

Further Products

The derivatives trading in India has so far been introduced in a fairly limited range of products. Index futures and options are available only on two indices, viz. S&P CNX Nifty and BSE Sensex. Options and futures on individual stocks are available only on select 30 securities. However, there is no limit to the range of derivative products, which are available internationally. After the market gains more familiarity with derivative products, one will have to consider introducing new derivative products based on various other instruments available in financial markets. For example, the index futures/options could be extended to some other popular indices, like Nifty Junior and Defty. The stock futures/options could be extended to all active securities. The possibility of introducing derivatives with exchange rate, interest rate and gold as the underlying could also be explored. Other possible options are derivatives on MIBID/MIBOR and on key overseas stock indices, like Nasdaq 100 and Nikkie 200. These would provide wider option to market participants.

Annexure 7-1: Contract Specification for F&O Contracts of NSE

Particulars	Index Futures	Stock Futures	Index Options	Stock Options
Security Description	N FUTIDX NIFTY	N FUTSTK ——	N OPTIDX NIFTY	N OPTSTK —-
Underlying	S&P CNX Nifty Index	Individual Securities	S&P CNX Nifty Index	Individual Securities
Style of Option	NA	NA	European	American
Contract Size (minimum value of Rs. 2 lakh)	200 or multiples therof	Multiples of 100, as may be specified by NSE	200 or multiples therof	Multiples of 100, as may be specified by NSE
Price Steps	_____Rs. 0.05_____			
Expiration Months	_____3 near months_____			
Trading Cycle	A maximum of three month trading cycle - the near month (one), the next month (two) and the far month (three). New contract is introduced on the next trading day following the expiry of near month contract			
Last Trading/Expiration Day	Last Thursday of the expiry month or the preceding trading day, if last Thursday is a trading holiday			
Price Bands	_____		NA _____	
No. of Strike Prices	NA	NA	Minimum of 5 (two 'in the money', one 'at the money' and two 'out of the money') for every option type (i.e. call and put)	Minimum of 5 (two 'in the money', one 'at the money' and two 'out of the money') for every option type (i.e. call and put)
Strike Price Interval (in Rs.)	NA	NA	20	Between 2.5 and 100 depending on the price of underlying
Settlement	In cash on T+1 basis	In cash on T+1 basis	In cash on T+1 basis	Daily settlement on T+1 basis and final settlement on T+3 basis
Daily Settlement Price	Closing price of futures contract	Closing price of futures contract	Premium Value (net)	Premium Value (net)
Final Settlement Price	Closing value of index on expiry day	Closing value of securities on expiry day	Closing value of index on expiry day	Closing price of security on exercise day or expiry day
Settlement Day	_____Last trading day_____			
Margins	_____Up-front initial margin on daily basis_____			

NA: Not applicable

Annexure 7-2: Business Growth of F&o Market Segment of NSE

Month/ Year	Index Futures		Stock Futures		Index Options				Stock Options				Total		Average Daily Turnover
					Call		Put		Call		Put				
	No. of Contracts Traded	Turnover (Rs. cr.)	No. of Contracts Traded	Turnover (Rs. cr.)	No. of Contracts Traded	Turnover (Rs. cr.)	No. of Contracts Traded	Turnover (Rs. cr.)	No. of Contracts Traded	Turnover (Rs. cr.)	No. of Contracts Traded	Turnover (Rs. cr.)	No. of Contracts Traded	Turnover (Rs. cr.)	Turnover
Jun-00	1,191	35	-	-	-	-	-	-	-	-	-	-	1,191	35	2
Jul-00	3,783	108	-	-	-	-	-	-	-	-	-	-	3,783	108	5
Aug-00	3,301	90	-	-	-	-	-	-	-	-	-	-	3,301	90	4
Sep-00	4,376	119	-	-	-	-	-	-	-	-	-	-	4,376	119	6
Oct-00	6,388	153	-	-	-	-	-	-	-	-	-	-	6,388	153	7
Nov-00	9,892	247	-	-	-	-	-	-	-	-	-	-	9,892	247	11
Dec-00	9,208	237	-	-	-	-	-	-	-	-	-	-	9,208	237	12
Jan-01	17,860	471	-	-	-	-	-	-	-	-	-	-	17,860	471	21
Feb-01	19,141	524	-	-	-	-	-	-	-	-	-	-	19,141	524	26
Mar-01	15,440	381	-	-	-	-	-	-	-	-	-	-	15,440	381	18
Jun-00 to Mar-01	**90,580**	**2,365**	**-**	**-**	-	-	-	-	-	-	-	-	**90,580**	**2,365**	**12**
Apr-01	13,274	292	-	-	-	-	-	-	-	-	-	-	13,274	292	15
May-01	10,048	230	-	-	-	-	-	-	-	-	-	-	10,048	230	10
Jun-01	26,805	590	-	-	5,232	119	3,429	77	-	-	-	-	35,466	785	37
Jul-01	60,644	1,309	-	-	8,613	191	6,221	135	13,082	290	4,746	106	93,306	2,031	92
Aug-01	60,979	1,305	-	-	7,598	165	5,533	119	38,971	844	12,508	263	125,589	2,696	128
Sep-01	154,298	2,857	-	-	12,188	243	8,262	169	64,344	1,322	33,480	690	272,572	5,281	264
Oct-01	131,467	2,485	-	-	16,787	326	12,324	233	85,844	1,632	43,787	801	290,209	5,477	261
Nov-01	121,697	2,484	125,946	2,811	14,994	310	7,189	145	112,499	2,372	31,484	638	413,809	8,760	438
Dec-01	109,303	2,339	309,755	7,515	12,890	287	5,513	118	84,134	1,986	28,425	674	550,020	12,919	680
Jan-02	122,182	2,660	489,793	13,261	11,285	253	3,933	85	133,947	3,836	44,498	1,253	805,638	21,348	928
Feb-02	120,662	2,747	528,947	13,939	13,941	323	4,749	107	133,630	3,635	33,055	864	834,984	21,616	1,081
Mar-02	94,229	2,185	503,415	13,989	10,446	249	4,773	111	101,708	2,863	37,387	1,094	751,958	20,490	1,078
2001-02	**1,025,588**	**21,482**	**1,957,856**	**51,516**	**113,974**	**2,466**	**61,926**	**1,300**	**768,159**	**18,780**	**269,370**	**6,383**	**4,196,873**	**101,925**	**413**

Note:

1. Notional Turnover = (Strike Price + Premium) * Quantity.
2. Index Futures, Index Options, Stock Options and Stock Futures were introduced in June 2000, June 2001, July 2001 and November 2001, respectively.