Frequently Asked Questions
On Derivatives (Futures & Options)

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1. What is the BSE SENSEX Index?

The BSE SENSEX, short form of Sensitive Index, first compiled in 1986 is a "Market Capitalization-Weighted" index of 30 component stocks representing a sample of large, well-established and financially sound companies. The index is widely reported in both, the domestic and international, print and electronic media and is widely used to measure the performance of the Indian stock markets.

The BSE SENSEX is the benchmark index of the Indian capital market and one, which has the longest social memory. In fact the SENSEX is considered to be the pulse of the Indian stock markets. It is the oldest index in India and has acquired a unique place in the collective consciousness of investors. Further, as the oldest index of the Indian Stock market, it provides time series data over a fairly long period of time. Small wonder, that the SENSEX, over the years, became one of the most prominent Brands in the Country.

2. What are the objectives of BSE SENSEX?

The BSE SENSEX is the benchmark index with wide acceptance among individual investors, institutional investors, foreign investors and fund managers. The objectives of the index are:

- **To measure Market Movements**
  Given its long history and its wide acceptance, no other index matches the BSE SENSEX in reflecting market movements and sentiments. SENSEX is widely used to describe the mood in the Indian Stock markets.

- **Benchmark for Funds Performance**
  The inclusion of Blue chip companies and the wide and balanced industry representation in the SENSEX makes it the ideal benchmark for fund managers to compare the performance of their funds.

- **For Index Based Derivatives Products**
  Institutional investors, money managers and small investors all refer to the BSE SENSEX for their specific purposes. The BSE SENSEX is in effect the proxy for the Indian stock markets. Since SENSEX comprises of leading companies in all the significant sectors in the economy, we believe that it will be the most liquid contract in the Indian market and will garner a pre-dominant market share.

3. What are the criteria for selection of scrips for the SENSEX?

- **Market Capitalisation**
  The scrip should figure in the top 100 companies listed by market capitalization. Also market capitalization of the scrip should be more than 0.5% of the total market capitalization of the Index i.e. the minimum weightage should be 0.5%. Since the
BSE SENSEX is a market capitalization weighted index, this is one of the entry criteria for scrip selection.

- **Industry Representation**
  Scrip selection would take into account a balanced representation of the economy. The index companies should be leaders in their industry group with sound management.

- **Trading Frequency**
  The scrip should have been traded on every trading day for the last six months. Exceptions can be made for extreme reasons like scrip suspension etc.

- **Number of trades**
  The scrip should be among the top 150 companies listed by average number of trades per day for the last six months.

- **Volume Traded**
  The scrip should be among the top 150 companies listed by average Volume traded per day for the last six months.

- **Continuity**
  Whenever the composition of the index is changed, the continuity of historical series of index values is re-established by linking the value of the revised index to its last previous value prior to the review. This is done by changing the base value of the index to the extent of the percentage change in the market capitalisation of the index because of the revision. The back calculation over the last one year period would be carried out and correlation of the revised index to the old index should not be less than 0.98 to ensure that the historical continuity of the index is maintained.

4. What companies are represented in the SENSEX?

<table>
<thead>
<tr>
<th>Company Name (As on 15.06.01)</th>
<th>Sector</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hindustan Lever</td>
<td>FMCG</td>
</tr>
<tr>
<td>Reliance Industries</td>
<td>Chem. &amp; Petrochemicals</td>
</tr>
<tr>
<td>Infosys Tech.</td>
<td>Information Tech</td>
</tr>
<tr>
<td>Reliance Petroleum</td>
<td>Oil &amp; Gas</td>
</tr>
<tr>
<td>ITC</td>
<td>FMCG</td>
</tr>
<tr>
<td>State Bank Of India</td>
<td>Finance</td>
</tr>
<tr>
<td>MTNL</td>
<td>Telecom</td>
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<tr>
<td>Satyam Computers</td>
<td>Information Tech</td>
</tr>
<tr>
<td>Zee Telefilms</td>
<td>Media</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Company</th>
<th>Sector</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ranbaxy Labs</td>
<td>Healthcare</td>
</tr>
<tr>
<td>ICICI</td>
<td>Finance</td>
</tr>
<tr>
<td>Larsen &amp; Toubro</td>
<td>Diversified</td>
</tr>
<tr>
<td>Cipla</td>
<td>Healthcare</td>
</tr>
<tr>
<td>Hindalco</td>
<td>Metals &amp; Mining</td>
</tr>
<tr>
<td>HPCL</td>
<td>Oil &amp; Gas</td>
</tr>
<tr>
<td>TISCO</td>
<td>Metal &amp; Mining</td>
</tr>
<tr>
<td>Nestle</td>
<td>FMCG</td>
</tr>
<tr>
<td>HLL</td>
<td>Information Tech</td>
</tr>
<tr>
<td>BHEL</td>
<td>Capital Goods</td>
</tr>
<tr>
<td>Dr. Reddy's Lab</td>
<td>Healthcare</td>
</tr>
<tr>
<td>Castrol India</td>
<td>Oil &amp; Gas</td>
</tr>
<tr>
<td>Bajaj Auto</td>
<td>Transport Equip</td>
</tr>
<tr>
<td>BSES</td>
<td>Power</td>
</tr>
<tr>
<td>ACC</td>
<td>Housing</td>
</tr>
<tr>
<td>Grasim Industries</td>
<td>Diversified</td>
</tr>
<tr>
<td>Gujarat Ambuja</td>
<td>Housing</td>
</tr>
<tr>
<td>Glaxo (India)</td>
<td>Healthcare</td>
</tr>
<tr>
<td>TELCO</td>
<td>Transport Equip</td>
</tr>
<tr>
<td>Colgate-Palmolive</td>
<td>FMCG</td>
</tr>
<tr>
<td>Hero Honda</td>
<td>Transport Equip</td>
</tr>
</tbody>
</table>

5. What is the beta of Sensex scrips?

Beta measures the sensitivity of a scrip movement relative to movement in the SENSEX. Statistically Beta is defined as: Beta = Covariance (SENSEX, Stock)/ Variance (SENSEX).

Note: Covariance and variance are calculated from the Daily Returns data of the SENSEX and SENSEX scrips.

**TABLE below gives the Beta values for SENSEX stocks for the period June 2000 - May 2001.**

<table>
<thead>
<tr>
<th>Name</th>
<th>Mkt. Cap. As on 26/02/2002</th>
<th>Weight in BSE-SENSEX</th>
<th>Name</th>
<th>Mkt. Cap. As on 26/02/2002</th>
<th>Weight in BSE-SENSEX</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIND.LEVER(D)</td>
<td>53171.04</td>
<td>18.07</td>
<td>HINDALCO(DM)</td>
<td>6150.1</td>
<td>2.09</td>
</tr>
<tr>
<td>RELIANCE(DM)</td>
<td>33904.63</td>
<td>11.53</td>
<td>L.C.I.C.I.(DM)</td>
<td>5238.2</td>
<td>1.78</td>
</tr>
<tr>
<td>INFO.TECH(DM)</td>
<td>25437.66</td>
<td>8.65</td>
<td>NESTLE (I)(DM)</td>
<td>5151.9</td>
<td>1.75</td>
</tr>
<tr>
<td>ITC LTD.(DM)</td>
<td>17790.13</td>
<td>6.05</td>
<td>LARSEN &amp; T(D)</td>
<td>5030.8</td>
<td>1.71</td>
</tr>
<tr>
<td>REL.PETROL(D)</td>
<td>15813.07</td>
<td>5.38</td>
<td>BAJAJ AUTO(D)</td>
<td>4555.7</td>
<td>1.55</td>
</tr>
<tr>
<td>STATE BNK(DM)</td>
<td>13696.93</td>
<td>4.66</td>
<td>BHEL (DM)</td>
<td>4476.6</td>
<td>1.52</td>
</tr>
<tr>
<td>MAHA.TEL(D)</td>
<td>10665.90</td>
<td>3.63</td>
<td>TATA STEEL(D)</td>
<td>4120.8</td>
<td>1.40</td>
</tr>
<tr>
<td>RANBAXY LB(D)</td>
<td>10100.29</td>
<td>3.43</td>
<td>TATA ENGG(DM)</td>
<td>3750.8</td>
<td>1.28</td>
</tr>
</tbody>
</table>

The Stock Exchange, Mumbai

Derivatives Segment
6. How is SENSEX Computed?

**Base - Year**: The financial year 1978-79 was chosen as the base year. Considerations for the choice were the price stability during that year and proximity to the period of introduction of the index.

**Method of Compilation**: The compilation of the index values is based on the 'weighted aggregates' method. Under this method, the price of a component share in the index is weighted by the number of equity shares outstanding, so that each scrip will influence the index in proportion to its respective market importance. The current market value for any particular scrip is obtained by multiplying the price of the share by the number of equity shares outstanding. The index on a day is calculated as the percentage of the aggregate market value of the equity shares of all the companies in the sample on that day to the average market value of the same companies during the base period. This method of compilation has the advantage that it has the necessary flexibility to adjust for price changes caused by various corporate actions. This methodology of calculation is consistent with the methodology applied by the most popular indices of the world.

It is a wealth-measuring index where the prices are weighted by market capitalization. In such an index the base period values are adjusted for subsequent rights and new issue of equity. This adjustment prevents a distorted picture and gives an idea of wealth created for shareholders over a period.

7. With what frequency is SENSEX calculation done?

During market hours, prices of the index scrips, at which trades are executed, are automatically used by the trading computer to calculate the SENSEX every minute and continuously updated on all trading workstations connected to the BSE trading computer in real time. A day's opening, high and low prices are also given by the computer. But the closing prices are calculated using spreadsheet to ensure theoretical consistency.

8. How is the closing price of SENSEX calculated?

The closing index is computed at the end of 'continuous trading session' on the basis of official closing prices of components stocks. The algorithm to calculate the closing prices is as follows:

- If 20 market lots have been traded during the last 15 minutes, then the weighted average price for the last 20 market lots would be considered,
• If 20 market lots have not been traded, but at least 10 trades have taken place during the last 15 minutes, the weighted average price for the last 10 trades would be considered.

• If 10 trades have not taken place during the last 15 minutes, but have taken place during the last 30 minutes, the weighted average price for the last 10 trades would be considered,

• If 10 trades have not taken place but at least one trade has taken place during the last 30 minutes, the weighted average price of all trades in the last 30 minutes would be considered, and

• If there are no trades during the last 30 minutes, then the last traded price would be taken as the official closing price.

Weighted average price, calculated as above, would be rounded off to the nearest tick.

9. Who maintains the index?

One of the important aspects of maintaining continuity with the past is to update the base year average. The base year value adjustment ensures that the rights issue and new capital of the index scrips do not destroy the value of the index.

The day-to-day maintenance of the index is done by the exchange and special care is taken to include only those scrips, which pass through several filters. In April 1998, the Governing Board of the Exchange has set up an Index Committee. The present index committee has experts which includes representatives from members of the Exchange, FIIs, FIs, academicians, financial analysts and representatives of user-groups.

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BASICS OF DERIVATIVES

10. What are derivative instruments?

A derivative is an instrument whose value is derived from the value of one or more underlying, which can be commodities, precious metals, currency, bonds, stocks, stocks indices, etc. Four most common examples of derivative instruments are Forwards, Futures, Options and Swaps.

11. What are Forward contracts?

A forward contract is a customized contract between two parties, where settlement takes place on a specific date in future at a price agreed today. The main features of forward contracts are
- They are bilateral contracts and hence exposed to counter-party risk.
- Each contract is custom designed, and hence is unique in terms of contract size, expiration date and the asset type and quality.
- The contract price is generally not available in public domain.
- The contract has to be settled by delivery of the asset on expiration date.
- In case, the party wishes to reverse the contract, it has to compulsorily go to the same counter party, which being in a monopoly situation can command the price it wants.

12. What are Futures?

Futures are exchange-traded contracts to sell or buy financial instruments or physical commodities for future delivery at an agreed price. There is an agreement to buy or sell a specified quantity of financial instrument/commodity in a designated future month at a price agreed upon by the buyer and seller. Today the contracts have certain standardized specifications.

13. What is the difference between Forward contracts and Futures contracts?

Futures is a type of forward contract.

1. **Standardized Vs Customized Contract** - Forward contract is customized while the future is standardized. To be more specific, the terms of a Forward Contracts are individually agreed between two counter-parties, while Futures being traded on exchanges have terms standardized by the exchange.

   **Counter party risk** - In case of Futures, after a trade is confirmed by two members of exchange, the exchange/clearing house itself becomes the counter-party (or guarantees) to every trade. The credit risk, which in case of forward contracts was on the counter-party, gets transferred to exchange/clearing house, reducing the risk to almost nil.

2. **Liquidity** - Futures contracts are much more liquid and their price is much more transparent due to standardization and market reporting of volumes and price.

3. **Squaring off** - A forward contract can be reversed only with the same counter-party with whom it was entered into. A Futures contract can be reversed with any member of the exchange.
SENSEX FUTURES

14. What is the underlying for SENSEX Futures?

The underlying for the SENSEX futures is the BSE Sensitive Index of 30 scrips, popularly called the SENSEX.

15. What is the contract multiplier?

The contract multiplier is 50. This means that the Rupee notional value of a futures contract would be 50 times the contracted value. The following table gives a few examples of this notional value.

<table>
<thead>
<tr>
<th>Contracted Price of Futures</th>
<th>Notional Value in Rs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>3500</td>
<td>175000</td>
</tr>
<tr>
<td>3600</td>
<td>180000</td>
</tr>
<tr>
<td>3700</td>
<td>185000</td>
</tr>
<tr>
<td>3750</td>
<td>187500</td>
</tr>
<tr>
<td>3800</td>
<td>190000</td>
</tr>
</tbody>
</table>

16. What is the ticker symbol and trading hours?

The ticker symbol is BSX. The trading timings for the Derivatives Segment of BSE are from 9:30 a.m. to 3:30 p.m. The investors can take advantage of expressing their view in the market before opening of cash market. However, please check the trading timings from time to time.

17. What is the maturity of the futures contract?

Regulations permit introduction of futures upto 12 months maturity. Initially, however, futures for the one month, two months and three months maturity have been introduced. On 9th June 2000, the three futures for June, July and August 2000 were started. These futures expired on 25th June, 27th July and 31st August 2000 respectively. This is because the expiry date has been fixed as the last Thursday of the month for each month. On the day after the expiry, a new future would come into existence for three-month maturity. For example, on 30th of June, the September future came into existence. This future expired on 28th of September, being the last Thursday of the month.

18. What is the tick size?

The tick size is "0.1". This means that the minimum price fluctuation in the value of a future can be only 0.1. In Rupee terms, this translates to minimum price fluctuation of Rs. 5 (Tick size X Contract Multiplier = 0.1 X Rs. 50).

19. How is the final settlement price determined?
The closing value of Sensex of the cash market is taken as the final settlement price of the futures contract on the last trading day of the contract for settlement purpose.

20. What is margin money?

The aim of margin money is to minimize the risk of default by either counter-party. The payment of margin ensures that the risk is limited to the previous day's price movement on each outstanding position. However, even this exposure is offset by the initial margin holdings.

Margin money is like a security deposit or insurance against a possible Future loss of value.

21. Are there different types of Margin?

Yes, there are different types of margin like Initial Margin, Variation margin and Additional margin.

22. What is the objective of Initial margin?

The basic aim of Initial margin is to cover the largest potential loss in one day. Both buyer and seller have to deposit margins. The initial margin is deposited before the opening of the position in the Futures transaction. This margin is calculated by SPAN by considering the worst case scenario.

23. What is Variation or Mark-to-Market Margin?

All daily losses must be met by depositing of further collateral - known as variation margin, which is required by the close of business, the following day. Any profits on the contract are credited to the client's variation margin account.

24. What are long/short positions?

In simple terms, long and short positions indicate whether you have a net over-bought position (long) or over-sold position (short).

25. Is there a theoretical way of pricing Index Future?

The theoretical way of pricing any Future is to factor in the current price and holding costs or cost of carry.

In general, the Futures Price = Spot Price + Cost of Carry.

Cost of carry is the sum of all costs incurred if a similar position is taken in cash market and carried to maturity of the futures contract less any revenue which may result in this period. The costs typically include interest in case of financial futures (also insurance and
storage costs in case of commodity futures). The revenue may be dividends in case of index futures.

Apart from the theoretical value, the actual value may vary depending on demand and supply of the underlying at present and expectations about the future. These factors play a much more important role in commodities, specially perishable commodities than in financial futures.

In general, the Futures price is greater than the spot price. In special cases, when cost of carry is negative, the Futures price may be lower than Spot prices.

26. What is the concept of Basis?

The difference between spot price and Futures price is known as basis. Although the spot price and Futures prices generally move in line with each other, the basis is not constant. Generally basis will decrease with time. And on expiry, the basis is zero and Futures price equals spot price.

27. What is Contango?

Under normal market conditions, Futures contracts are priced above the spot price. This is known as the Contango Market.

28. What is Backwardation?

It is possible for the Futures price to prevail below the spot price. Such a situation is known as Backwardation. This may happen when the cost of carry is negative, or when the underlying asset is in short supply in the cash market but there is an expectation of increased supply in future - example agricultural products.

29. What are the profits and losses in case of a futures position?

The profits and losses would depend upon the difference between the price at which the position is opened and the price at which it is closed. Let us take some examples.

Example 1
Position - Long - Buy June Sensex Futures @ 3300
Payoff: Profit - if the futures price goes up
Loss - if the futures price goes down
Calculation - The profit or loss would be equal to fifty times the difference in the two rates

If June Sensex Futures is sold @ 3400 there would be a profit of 100 points which is equal to Rs. 5,000 (100 X 50).
However if the June Sensex is sold @ 3250 there would be a loss of 50 points which is equal to Rs. 2,500 (50X50)

Example 2
Position - Short – Sell June Sensex Futures @ 3300

Payoff : Profit - if the futures price goes down
Loss - if the futures price goes up

Calculation - The profit or loss would be equal to fifty times the difference in the two rates.

If June Sensex Futures is bought @ 3500 there would be a loss of 200 points which is equal to Rs. 10,000 (200 X 50).

However if the June Sensex Futures is bought @ 3200, there would be a profit of 100 points which is equal to Rs. 5,000 (100 X 50).

30. What happens to the profit or loss due to daily settlement?

In case the position is not closed the same day, the daily settlement would alter the cash flows depending on the settlement price fixed by the exchange every day. However the net total of all the flows every day would always be equal to the profit or loss calculated above. Profit or loss would only depend upon the opening and closing price of the position, irrespective of how the rates have moved in the intervening days.

Let us take the illustration given in example 1 where a long position is opened at 3250 and closed at 3350 resulting in a profit of 100 points or Rs. 5,000. Let us assume that the position was closed on the fifth day from the day it was taken and look at the resultant cash flows.

Example 3
Daily closing settlement price

<table>
<thead>
<tr>
<th>Day 1</th>
<th>Day 2</th>
<th>Day 3</th>
<th>Day 4</th>
<th>Position closed</th>
</tr>
</thead>
<tbody>
<tr>
<td>3300</td>
<td>3380</td>
<td>3360</td>
<td>3320</td>
<td>3350</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Case 1</th>
<th>Settlement Price</th>
<th>Calculation</th>
<th>Profit/ Loss</th>
</tr>
</thead>
<tbody>
<tr>
<td>Position opened: 3250 (bought)</td>
<td>Day 1: 3300</td>
<td>3300 - 3250</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>Day 2: 3380</td>
<td>3380 - 3300</td>
<td>80</td>
</tr>
<tr>
<td></td>
<td>Day 3: 3360</td>
<td>3360 - 3380</td>
<td>-20</td>
</tr>
<tr>
<td></td>
<td>Day 4: 3320</td>
<td>3320 - 3360</td>
<td>-40</td>
</tr>
<tr>
<td></td>
<td>Position closed: 3350 (sold)</td>
<td>3350 - 3320</td>
<td>30</td>
</tr>
</tbody>
</table>

Net Profit/ Loss: 100
In all the cases the net resultant is a profit of 100 points, which is the difference between the closing and opening price, irrespective of the daily settlement price and different MTM flows.

31. How does the Initial Margin affect the above profit or loss?

The initial margin is only a security provided by the client through the clearing member to the exchange. It can be withdrawn in full after the position is closed. Therefore it does not affect the above calculation of profit or loss.

However there would be a funding cost / transaction cost in providing the security. This cost must be added to your total transaction costs to arrive at the true picture. Other items in transaction costs would include brokerage, stamp duty etc.

32. What is a spread position?

A calendar spread is created by taking simultaneously two positions

1. A long position in a futures series expiring in any calendar month
2. A short position in the same futures as 1 above but for a series expiring in any month other than the 1 above.

Examples of Calendar Spreads

1. Long June Sensex Futures – Short July Sensex Futures
2. Short July Sensex Futures – Long August Sensex Futures

A spread position must be closed by reversing both the legs simultaneously. The reversal of 1 above would be a sale of June Sensex Futures while simultaneously buying the July Sensex Futures.

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STOCK FUTURES

33. What are Stock Futures?

Stock Futures are financial contracts where the underlying asset is an individual stock. Stock Future contract is an agreement to buy or sell a specified quantity of underlying

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Derivatives Segment
profit would be Rs. 20 per share. In case, the investor squares up his position by selling November Reliance futures @ 300, the loss would be Rs. 30 per share.

42. What is the market lot for stock futures?

The market lot is different for various stock futures contract. Market lot for stock futures are as mentioned below:

ACC(1500), BAJAUTO(800), BHEL(1200), BPCL(1100), BSES(1100), CIPLA(200), DIGITAL(400), DRREDDY(400), GAACL(1100), GRASIM(700), HDFC LTD(300), HLL(1000), HINDALCO (300), HPCL(1300), ICICI LTD(2800), INFOSYS(100), ITC(300), LARSAN(1000), MAHINDRA & MAHINDRA(2500), MTNL(1600), RANBAXY(500), RIL(600), RPL(4300), SATYAM(1200), SBI(1000), STELRITE OPTICAL(600), TATA POWER(1600), TATA TEA(1100), TELCO(3300), TISCO(1800), VSNL(700).

43. Why is the market lot different for different stocks?

According to L. C. Gupta Committee Report on Derivatives, a minimum contract value should be Rs. 2 lakhs. This value was divided by the market value of individual stock to arrive at market lot for it.

44. What is the different contract months available for trading?

1, 2 and 3 months contracts are available for trading.

45. What is spread trading on BSE?

One can trade in spread contracts on the Derivative Segment of BSE. Spreads are the contracts for differential price. This means that in case you want to buy a December contract and sell November contract, you can enter an order for Buy Nov Dec stating the difference you want to pay. Similarly, you can enter an order for Sell Nov Dec stating the difference you want to receive.

46. Is BSE Derivatives open before cash market?

Yes. The trading timings for the Derivatives Segment of BSE are from 9:30 a.m. to 3:30 p.m. The investors can take advantage of expressing their view in the market before opening of cash market. However, please check the trading timing from time to time.

47. As an investor, how do I start trading in Stock Futures?

Sign up the client agreement form provided to you by your broker

Deposit upfront initial margin

Now start trading!!
48. What securities can I submit to the broker as collateral?

You can pay initial margin in non-cash (bank guarantee, securities) form also. This is an arrangement between you and your broker. However, the mark-to-market loss has to be settled in cash.

49. How does an investor who has the underlying stock use stock futures when he anticipates a short-term fall in stock price?

The holder of the physical stock can sell a future to avoid making a loss without having to sell the share. Any loss caused by the fall in the price of the stock is offset by gains made on the stock future position.

50. How can an investor benefit from a predicted rise in the price of a stock?

An investor can benefit from a predicted rise in the price of a stock by buying futures. As the price of the futures rises, the investor will make a positive return. As the investor will have to pay only the margin (which forms a fraction of the notional value of contract), his return on investment will be higher than on an equivalent purchase of shares.

An investor can benefit from a predicted fall in the price of stock by selling futures. As the price of the future falls in line with the underlying stock, the investor will make a positive return.

51. What is pair trading?

This trading strategy involves taking a position on the relative performance of two stocks. It is achieved by buying futures on the stock expected to perform well and selling futures on the stock anticipated to perform poorly. The overall gain or loss depends on the relative performance of the two stocks.

Similarly it is possible to take a position in the relative performance of a stock versus a market index. For example traders who would like to take only company specific risk could buy/sell the relative index future.

52. Where do I get more information about Derivatives products offered by BSE?

Visit us at www.bseindia.com
www.bsewebx.com

Contact us at: 022-2721233/34 ext. 8707

E-mail us at: derivatives@bseindia.com

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53. Important Terminology in Options

**Option Premium** - Premium is the price paid by the buyer to the seller to acquire the right to buy or sell.

**Strike Price or Exercise Price** - The strike or exercise price of an option is the specified/pre-determined price of the underlying asset at which the same can be bought or sold if the option buyer exercises his right to buy/sell on or before the expiration day.

**Expiration date** - The date on which the option expires is known asExpiration Date. On Expiration date, either the option is exercised or it expires worthless.

**Exercise Date** - is the date on which the option is actually exercised. In case of European Options the exercise date is same as the expiration date while in case of American Options, the options contract may be exercised any day between the purchase of the contract & its expiration date (see European/American Option). In India, options on “Sensex” is European, whereas options on stocks is American.

**Open Interest** - The total number of options contracts outstanding in the market at any given point of time.

**Option Holder**: is the one who buys an option which can be a call or a put option. He enjoys the right to buy or sell the underlying asset at a specified price on or before specified time. His upside potential is unlimited while losses are limited to the Premium paid by him to the option writer.

**Option seller/ writer**: is the one who is obligated to buy (in case of Put option) or to sell (in case of call option), the underlying asset in case the buyer of the option decides to exercise his option. His profits are limited to the premium received from the buyer while his downside is unlimited.

**Option Series**: An option series consists of all the options of a given class with the same expiration date and strike price. E.g. BSXCMAY3600 is an options series which includes all Sensex Call options that are traded with Strike Price of 3600 & Expiry in May.

(BSX Stands for BSE Sensex (underlying index), C is for Call Option , May is expiry date & strike Price is 3600)

54. What is Assignment?

When holder of an option exercises his right to buy/sell, a randomly selected option seller is assigned the obligation to honor the underlying contract, and this process is termed as Assignment.
55. What is European & American Style of options?

An American style option is the one which can be exercised by the buyer till the expiration date, i.e. anytime between the day of purchase of the option and the day of its expiry. The European kind of option is the one which can be exercised by the buyer on the expiration day only & not anytime before that.

56. What are Call Options?

A call option gives the holder (buyer/ one who is long call), the right to buy specified quantity of the underlying asset at the strike price on or before expiration date in case of American option. The seller (one who is short call) however, has the obligation to sell the underlying asset if the buyer of the call option decides to exercise his option to buy.

Example: An investor buys One European call option on Infosys at the strike price of Rs. 3500 at a premium of Rs. 100. If the market price of Infosys on the day of expiry is more than Rs. 3500, the option will be exercised. The investor will earn profits once the share price crosses Rs. 3600 (Strike Price + Premium i.e. 3500+100). Suppose stock price is Rs. 3800, the option will be exercised and the investor will buy 1 share of Infosys from the seller of the option at Rs 3500 and sell it in the market at Rs 3800 making a profit of Rs. 200 { (Spot price - Strike price) - Premium}. In another scenario, if at the time of expiry stock price falls below Rs. 3500 say suppose it touches Rs. 3000, the buyer of the call option will choose not to exercise his option. In this case the investor loses the premium (Rs 100), paid which shall be the profit earned by the seller of the call option.

57. What are Put Options?

A Put option gives the holder (buyer/ one who is long Put), the right to sell specified quantity of the underlying asset at the strike price on or before a expiry date in case of American option. The seller of the put option (one who is short Put) however, has the obligation to buy the underlying asset at the strike price if the buyer decides to exercise his option to sell.

Example: An investor buys one European Put option on Reliance at the strike price of Rs. 300/-, at a premium of Rs. 25/-. If the market price of Reliance, on the day of expiry is less than Rs. 300, the option can be exercised as it is 'in the money'. The investor's Break even point is Rs. 275/ (Strike Price - premium paid) i.e., investor will earn profits if the market falls below 275. Suppose stock price is Rs. 260, the buyer of the Put option immediately buys Reliance share in the market @ Rs. 260/- & exercises his option selling the Reliance share at Rs 300 to the option writer thus making a net profit of Rs. 15 {(Strike price - Spot Price) - Premium paid}. In another scenario, if at the time of expiry, market price of Reliance is Rs 320/-, the buyer of the Put option will choose not to exercise his option to sell as he can sell in the market at a higher rate. In this case the investor loses the premium paid (i.e Rs 25/-), which shall be the profit earned by the seller of the Put option.

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<table>
<thead>
<tr>
<th>CALL OPTIONS</th>
<th>PUT OPTIONS</th>
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<tr>
<td>Option buyer or option holder</td>
<td>Buys the right to buy the</td>
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<td>underlying asset at the</td>
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<td>specified price</td>
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<td>Option seller or option writer</td>
<td>Has the obligation to sell</td>
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<td>the underlying asset (to</td>
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<td>the option holder) at the</td>
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<td>specified price</td>
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58. How are options different from futures?

The significant differences in Futures and Options are as under:

- Futures are agreements/contracts to buy or sell specified quantity of the underlying assets at a price agreed upon by the buyer & seller, on or before a specified time. Both the buyer and seller are obliged to buy/sell the underlying asset.

- In case of options the buyer enjoys the right & not the obligation, to buy or sell the underlying asset.

- Futures Contracts have symmetric risk profile for both the buyer as well as the seller, whereas options have asymmetric risk profile. In case of Options, for a buyer (or holder of the option), the downside is limited to the premium (option price) he has paid while the profits may be unlimited. For a seller or writer of an option, however, the downside is unlimited while profits are limited to the premium he has received from the buyer.

- The Futures contracts prices are affected mainly by the prices of the underlying asset. The prices of options are however, affected by prices of the underlying asset, time remaining for expiry of the contract, interest rate & volatility of the underlying asset.

59. Explain 'In the Money', 'At the Money' & 'Out of the money' Options.

An option is said to be 'at-the-money', when the option's strike price is equal to the underlying asset price. This is true for both puts and calls.

A call option is said to be 'in the money' when the strike price of the option is less than the underlying asset price. For example, a Sensex call option with strike of 3900 is 'in-the-money', when the spot Sensex is at 4100 as the call option has value. The call option holder has the right to buy a Sensex at 3900, no matter by what amount the spot price exceeded the strike price. With the spot price at 4100, selling Sensex at this higher price can make a profit.

On the other hand, a call option is out-of-the-money when the strike price is greater than the underlying asset price. Using the earlier example of Sensex call option, if the Sensex falls to 3700, the call option no longer has positive exercise value. The call holder will not
exercise the option to buy Sensex at 3900 when the current price is at 3700 and allow his ‘option’ right to lapse.

<table>
<thead>
<tr>
<th>CALL OPTION</th>
<th>PUT OPTION</th>
</tr>
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<tbody>
<tr>
<td>In-the-money</td>
<td>Strike price &lt; Spot price of underlying asset</td>
</tr>
<tr>
<td>At-the-money</td>
<td>Strike price = Spot price of underlying asset</td>
</tr>
<tr>
<td>Out-of-the-money</td>
<td>Strike price &gt; Spot price of underlying asset</td>
</tr>
</tbody>
</table>

A put option is in-the-money when the strike price of the option is greater than the spot price of the underlying asset. For example, a Sensex put at strike of 4400 is in-the-money when the Sensex is at 4100. When this is the case, the put option has value because the put option holder can sell the Sensex at 4400, an amount greater than the current Sensex of 4100. Likewise, a put option is out-of-the-money when the strike price is less than the spot price of underlying asset. In the above example, the buyer of Sensex put option won’t exercise the option when the spot is at 4800. The put no longer has positive exercise value and therefore in this scenario, the put option holder will allow his ‘option’ right to lapse.

60. What are Covered & Naked Calls?

A call option position that is covered by an opposite position in the underlying instrument (for example shares, commodities etc), is called a covered call. Writing covered calls involves writing call options when the shares that might have to be delivered (if option holder exercises his right to buy), are already owned. E.g. A writer writes a call on Reliance and at the same time holds shares of Reliance so that if the call is exercised by the buyer, he can deliver the stock.

Covered calls are far less risky than naked calls (where there is no opposite position in the underlying), since the worst that can happen is that the investor is required to sell shares already owned at below their market value. When a physical delivery uncovered/ naked call is assigned on exercise, the writer will have to purchase the underlying asset to meet his call obligation and his loss will be the excess of the purchase price over the exercise price of the call reduced by the premium received for writing the call.

61. What is the Intrinsic Value of an option?

The intrinsic value of an option is defined as the amount by which an option is in-the-money, or the immediate exercise value of the option when the underlying position is marked-to-market.

- For a call option: Intrinsic Value = Spot Price - Strike Price
- For a put option: Intrinsic Value = Strike Price - Spot Price
The intrinsic value of an option must be a positive number or 0. It can't be negative. For a call option, the strike price must be less than the price of the underlying asset for the call to have an intrinsic value greater than 0. For a put option, the strike price must be greater than the underlying asset price for it to have intrinsic value.

62. Explain Time Value with reference to Options.

Time value is the amount option buyers are willing to pay for the possibility that the option may become profitable prior to expiration due to favorable change in the price of the underlying. An option loses its time value as its expiration date nears. At expiration an option is worth only its intrinsic value. Time value cannot be negative.

63. What are the factors that affect the value of an option (premium)?

There are two types of factors that affect the value of the option premium:

Quantifiable Factors:
- underlying stock price
- the strike price of the option
- the volatility of the underlying stock
- the time to expiration and
- the risk-free interest rate

Non-Quantifiable Factors:
- Market participants' varying estimates of the underlying asset's future volatility
- Individuals' varying estimates of future performance of the underlying asset, based on fundamental or technical analysis
- The effect of supply & demand - both in the options marketplace and in the market for the underlying asset
- The "depth" of the market for that option - the number of transactions and the contract's trading volume on any given day.

64. What are different pricing models for options?

The theoretical option pricing models are used by option traders for calculating the fair value of an option on the basis of the earlier mentioned influencing factors. The two most popular option pricing models are: Black Scholes Model which assumes that percentage change in the price of underlying follows a normal distribution. Binomial Model which assumes that percentage change in price of the underlying follows a binomial distribution.

65. Who decides on the premium paid on options & how is it calculated?

Options Premium is not fixed by the Exchange. The fair value/theoretical price of an option can be known with the help of pricing models & then depending on market conditions the price is determined by competitive bids & offers in the trading environment. An option's premium / price is the sum of Intrinsic value & time value.
(explained above). If the price of the underlying stock is held constant, the intrinsic value portion of an option premium will remain constant as well. Therefore, any change in the price of the option will be entirely due to a change in the option's time value. The time value component of the option premium can change in response to a change in the volatility of the underlying, the time to expiry, interest rate fluctuations, dividend payments & to the immediate effect of supply & demand for both the underlying & its option.

66. Explain the Option Greeks?

The price of an Option depends on certain factors like price and volatility of the underlying, time to expiry etc. The option Greeks are the tools that measure the sensitivity of the option price to the above-mentioned factors. They are often used by professional traders for trading & managing the risk of large positions in options & stocks. These Option Greeks are:

**Delta**: is the option Greek that measures the estimated change in option premium/price for a change in the price of the underlying.

**Gamma**: measures the estimated change in the Delta of an option for a change in the price of the underlying.

**Vega**: measures the estimated change in the option price for a change in the volatility of the underlying.

**Theta**: measures the estimated change in the option price for a change in the time to expiry.

**Rho**: measures the estimated change in the option price for a change in the risk free interest rates.

67. What is an Option Calculator?

An option calculator is a tool to calculate the price of an Option on the basis of various influencing factors like the price of the underlying and its volatility, time to expiry, risk free interest rate etc. It also helps the user to understand how a change in any one of the factors or more, will affect the option price. Readers can view this calculator at [www.cboe.com/software/toolbox/toolbox.exe](http://www.cboe.com/software/toolbox/toolbox.exe)

68. Who are the likely players in the Options Market?

Developmental institutions, Mutual Funds, Domestic & Foreign Institutional Investors, Brokers, Retail participants are the likely players in the Options Market.

69. Why do I invest in Options? What do options offer me?

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Besides offering flexibility to the buyer in the form of right to buy or sell, the major advantage of options is their versatility. They can be as conservative or as speculative as one’s investment strategy dictates. Some of the benefits of Options are as under:

- High leverage as by investing small amount of capital (in the form of premium), one can take exposure in the underlying asset of much greater value.

- Pre-known maximum Risk for an option buyer

- Large profit potential & limited risk for Option buyer

- One can protect his equity portfolio from a decline in the market by way of buying a protective put wherein one buys puts against an existing stock position. This option position can supply the insurance needed to overcome the uncertainty of the marketplace. Hence, by paying a relatively small premium (compared to the market value of the stock), an investor knows that no matter how far the stock drops, it can be sold at the strike price of the Put anytime until the Put expires. E.g. An investor holding 1 share of Infosys at a market price of Rs 3800/- thinks that the stock is overvalued and therefore decides to buy a Put option at a strike price of Rs. 3800/- by paying a premium of Rs 200/- . If the market price of Infosys comes down to Rs 3000/- , he can still sell it at Rs 3800/- by exercising his put option. Thus by paying a premium of Rs. 200, he insured his position in the underlying stock.

70. How can I use options?

If you anticipate a certain directional movement in the price of a stock, the right to buy or sell that stock at a predetermined price, for a specific duration of time can offer an attractive investment opportunity. The decision as to what type of option to buy is dependent on whether your outlook for the respective security is positive (bullish) or negative (bearish). If your outlook is positive, buying a call option creates the opportunity to share in the upside potential of a stock without having to risk more than a fraction of its market value (premium paid). Conversely, if you anticipate downward movement, buying a put option will enable you to protect against downside risk without limiting profit potential. Purchasing options offer you the ability to position yourself according to your market expectations in a manner such that you can both profit and protect (hedge) with limited risk.

71. Once I have bought an option & paid the premium for it, how does it get settled?

Option is a contract, which has a market value like any other tradable commodity. Once an option is bought there are following alternatives that an option holder has:

- You can sell an option of the same series as the one you had bought & close out /square off your position in that option at any time on or before its expiration date.

- You can exercise the option on the expiration day in case of European Option or; on or before the expiration day in case of an American option. In case the option is ‘Out
of Money at the time of expiry, one will not exercise his option, not being profitable and therefore, it will lapse or expire worthless.

72. What are the risks for an Option buyer?

The risk/loss of an option buyer is limited to the premium that he has paid.

73. What are the risks for an Option writer?

The risk of an Options Writer is unlimited whereas his gains are limited to the Premiums earned. When an uncovered call is exercised for physical delivery, the call writer will have to purchase the underlying asset and his loss will be the excess of the purchase price over the exercise price of the call reduced by the premium received for writing the call.

The writer of a put option bears a risk of loss if the value of the underlying asset declines below the exercise price. The writer of a put bears the risk of a decline in the price of the underlying asset potentially to zero. When put option holder exercises his option in the falling market, the put writer is bound to purchase the underlying at strike price, even if the underlying is otherwise available in the spot at lower price.

74. How can an option writer take care of his risk?

Option writing is a specialized job which is suitable only for the knowledgeable investor who understands the risks, has the financial capacity and has sufficient liquid assets to meet applicable margin requirements. The risk of being an option writer may be reduced by the purchase of other options on the same underlying asset and thereby assuming a spread position or by acquiring other types of hedging positions in the options/ futures and other correlated markets.

75. Who can write options in Indian Derivatives market?

In the Indian Derivatives market, SEBI has not created any particular category of options writers. Any market participant can write options. However, the margin requirements are stringent for options writers.

76. What are Stock Index Options?

The Stock Index Options are options where the underlying asset is a Stock Index e.g. Options on ‘Sensex’. Index Options were first introduced by Chicago Board of Options Exchange (CBOE) in 1983 on its Index ‘S&P 100’. As opposed to options on Individual stocks, index options give an investor the right to buy or sell the value of an index which represents group of stocks.

77. What are the uses of Index Options?

Index options enable investors to gain exposure to a broad market, with one trading decision and frequently with one transaction. To obtain the same level of diversification using individual stocks or individual equity options, numerous decisions and trades would
be necessary. Since, broad exposure can be gained with one trade, transaction cost is also reduced by using Index Options. As a percentage of the underlying value, premiums of index options are usually lower than those of equity options as equity options are more volatile than the Index.

78. Who would use index options?

Index Options are effective enough to appeal to a broad spectrum of users, from conservative investors to more aggressive stock market traders. Individual investors might wish to capitalize on market opinions (bullish, bearish or neutral) by acting on their views of the broad market or one of its many sectors. The more sophisticated market professionals might find the variety of index option contracts excellent tools for enhancing market timing decisions and adjusting asset mixes for asset allocation. To a market professional, managing the risk associated with large equity positions may mean using index options to either reduce their risk or to increase market exposure.

79. What are Options on individual stocks?

Options contracts where the underlying asset is an equity stock, are termed as Options on stocks. They are mostly American style options cash settled or settled by physical delivery. Prices are normally quoted in terms of the premium per share, although each contract is invariably for a larger number of shares, e.g. 100.

80. Which are the stocks on which options are available?

Options on individual stock are available on 31 stocks. They are: ACC, BAJAUTO, BHEL, BPCL, BSES, CIPLA, DIGITAL, DRREDDY, GACL, GRASIM, HDFC LTD, HLL, HINDALCO, HPCL, ICICI LTD, INFOSYS, ITC, LARsan, MAHINDRA & MAHINDRA, MTNL, RANBAXY, RIL, RPL, SATYAM, SBI, STERLITE OPTICAL, TATA POWER, TATA TEA, TELCO, TISCO, VSNL.

81. What is the market lot size of different stock option contracts?

The market lot is different for various stock options contract. Market lot for stock options are as mentioned below: It may please be noted that market lots for futures and options the following stocks

ACC(1500), BAJAUTO(800), BHEL(1200), BPCL(1100), BSES(1100), CIPLA(200), DIGITAL(400), DRREDDY(400), GACL(1100), GRASIM(700), HDFC LTD(300), HLL(1000), HINDALCO(300), HPCL(1300), ICICI LTD(2800), INFOSYS(100), ITC(300), LARsan(1000), MAHINDRA & MAHINDRA(2500), MTNL(1600), RANBAXY(500), RIL(600), RPL(4300), SATYAM(1200), SBI(1000), STERLITE OPTICAL(600), TATA POWER(1600), TATA TEA(1100), TELCO(3300), TISCO(1800), VSNL(700).

82. How will introduction of options in specific stocks benefit an investor?

Options can offer an investor the flexibility one needs for countless investment situations. An investor can create hedging position or an entirely speculative one, through various...
strategies that reflect his tolerance for risk. Investors of equity stock options will enjoy more leverage than their counterparts who invest in the underlying stock market itself in form of greater exposure by paying a small amount as premium.

Investors can also use options in specific stocks to hedge their holding positions in the underlying (i.e. long in the stock itself), by buying a Protective Put. Thus they will insure their portfolio of equity stocks by paying premium.

ESOPs (Employees' stock options) have become a popular compensation tool with more and more companies offering the same to their employees. ESOPs are subject to lock in periods, which could reduce capital gains in falling markets - Derivatives can help arrest that loss along with tax savings. An ESOPs holder can buy Put Option in the underlying stock & exercise the same if the market falls below the strike price & lock in his sale prices.

83. Whether the holders of equity options contracts have all the rights that the owners of equity shares have.

Holder of the equity options contracts do not have any of the rights that owners of equity shares have - such as voting rights and the right to receive bonus, dividend etc. To obtain these rights a Call option holder must exercise his contract and take delivery of the underlying equity shares.

84. What is Over the Counter Options?

OTC ("over the counter") options are those dealt directly between counter-parties and are completely flexible & customized. There is some standardization for ease of trading in the busiest markets, but the precise details of each transaction are freely negotiable between buyer and seller.

85. Where can I trade in Options and Futures contracts.

Like stocks, options and futures contracts are also traded on any exchange. In Bombay Stock Exchange, stocks are traded on BSE On Line Trading (BOLT) system and options and futures are traded on Derivatives Trading and Settlement System (DTSS).

86. What is the underlying in case of Sensex Options?

The underlying for the Sensex options is the BSE 30 Sensex, which is the benchmark index of Indian Capital markets, comprising of 30 scrips.

87. What will be the new margining system in the case of Options and futures?

A portfolio based margining model, I.E. Standard Portfolio Analysis of Risk (SPAN) system, has been adopted which will take an integrated view of the risk involved in the portfolio of each individual client comprising of his positions in all the derivatives contract traded on the Derivatives Segment. The Initial Margin would be based on worst-
case loss of the portfolio of a client to cover 99% VaR over two days horizon. The Initial Margin would be netted at client level and shall be on gross basis at the Trading/Clearing member level. The Portfolio will be marked to market on a daily basis.

88. How will the assignment of options take place?

On Exercise of an Option by an Option Holder, the trading software will assign the exercised option to the option writer on random basis based on a specified algorithm.

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