

Frequently Asked Questions

on

Derivatives Trading

At NSE



NATIONAL STOCK EXCHANGE OF INDIA LTD.

QUESTIONS & ANSWERS

1. What are derivatives?

Derivatives, such as futures or options, are financial contracts which derive their value from a spot price, which is called the “underlying”. For example, wheat farmers may wish to enter into a contract to sell their harvest at a future date to eliminate the risk of a change in prices by that date. Such a transaction would take place through a forward or futures market. This market is the “derivatives market”, and the prices of this market would be driven by the spot market price of wheat which is the “underlying”. The term “contracts” is often applied to denote the specific traded instrument, whether it is a derivative contract in wheat, gold or equity shares. The world over, derivatives are a key part of the financial system. The most important contract types are futures and options, and the most important underlying markets are equity, treasury bills, commodities, foreign exchange, real estate etc.

2. What is a forward contract?

In a forward contract, two parties agree to do a trade at some future date, at a stated price and quantity. No money changes hands at the time the deal is signed.

3. Why is forward contracting useful?

Forward contracting is very valuable in hedging and speculation. The classic hedging application would be that of a wheat farmer forward - selling his harvest at a known price in order to eliminate price risk. Conversely, a bread factory may want to buy bread forward in order to assist production planning without the risk of price fluctuations. If a speculator has information or analysis which forecasts an upturn in a price, then he can go long on the forward market instead of the cash market. The speculator would go long on the forward, wait for the price to rise, and then take a reversing transaction making a profit.

4. What are the problems of forward markets?

Forward markets worldwide are afflicted by several problems:

- (a) lack of centralisation of trading,
- (b) illiquidity, and
- (c) counterparty risk.

In the first two of these, the basic problem is that of too much flexibility and generality. The forward market is like the real estate market in that any two persons can form contracts against each other. This often makes them design terms of the deal which are very convenient in that specific situation for the specific parties, but makes the contracts non-tradeable if more participants are involved. Also the "phone market" here is unlike the centralisation of price discovery that is obtained on an exchange, resulting in an illiquid market place for forward markets. Counterparty risk in forward markets is a simple idea: when one of the two sides of the transaction chooses to declare bankruptcy, the other suffers. Forward markets have one basic issue: the larger the time period over which the forward contract is open, the larger are the potential price movements, and hence the larger is the counter-party risk.

Even when forward markets trade standardized contracts, and hence avoid the problem of illiquidity, the counterparty risk remains a very real problem.

5. What is a futures contract?

Futures markets were designed to solve all the three problems (listed in Question 4) of forward markets. Futures markets are exactly like forward markets in terms of basic economics. However, contracts are standardised and trading is centralized (on a stock exchange). There is no counterparty risk (thanks to the institution of a clearing corporation which becomes counterparty to both sides of each transaction and guarantees the trade). In futures markets, unlike in forward markets, increasing the time to expiration does not increase the counter party risk. Futures markets are highly liquid as compared to the forward markets.

6. What are various types of derivative instruments traded at NSE?

There are two types of derivatives instruments traded on NSE; namely Futures and Options :

Futures : A 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. All the futures contracts are settled in cash at NSE.

Options: An Option is a contract which gives the right, but not an obligation, to buy or sell the underlying at a stated date and at a stated price. While a buyer of an option pays the premium and buys the right to exercise his option, the writer of an option is the one who receives the option premium and therefore obliged to sell/buy the asset if the buyer exercises it on him.

Options are of two types - Calls and Puts options :

"Calls" give the buyer the right but not the obligation to buy a given quantity of the underlying asset, at a given price on or before a given future date.

"Puts" give the buyer the right, but not the obligation to sell a given quantity of underlying asset at a given price on or before a given future date. All the options contracts are settled in cash.

Further the Options are classified based on type of exercise. At present the Exercise style can be European or American.

American Option - American options are options contracts that can be exercised at any time upto the expiration date. Options on individual securities available at NSE are American type of options.

European Options - European options are options that can be exercised only on the expiration date. All index options traded at NSE are European Options.

Options contracts like futures are Cash settled at NSE.

7. What are various products available for trading in Futures and Options segment at NSE?

Futures and options contracts are traded on Indices and on Single stocks.

The derivatives trading at NSE commenced with futures on the Nifty 50 in June 2000. Subsequently, various other products were introduced and

presently futures and options contracts on the following products are available at NSE:

1. Indices : Nifty 50 CNX IT Index, Bank Nifty Index, CNX Nifty Junior, CNX 100 , Nifty Midcap 50, Mini Nifty and Long dated Options contracts on Nifty 50.
2. Single stocks - 228

8. Why Should I trade in derivatives?

Futures trading will be of interest to those who wish to:

- 1) Invest - take a view on the market and buy or sell accordingly.
- 2) Price Risk Transfer- Hedging - Hedging is buying and selling futures contracts to offset the risks of changing underlying market prices. Thus it helps in reducing the risk associated with exposures in underlying market by taking a counter- positions in the futures market. For example, an investor who has purchased a portfolio of stocks may have a fear of adverse market conditions in future which may reduce the value of his portfolio. He can hedge against this risk by shorting the index which is correlated with his portfolio, say the Nifty 50. In case the markets fall, he would make a profit by squaring off his short Nifty 50 position. This profit would compensate for the loss he suffers in his portfolio as a result of the fall in the markets.
- 3) Leverage- Since the investor is required to pay a small fraction of the value of the total contract as margins, trading in Futures is a leveraged activity since the investor is able to control the total value of the contract with a relatively small amount of margin. Thus the Leverage enables the traders to make a larger profit (or loss) with a comparatively small amount of capital.

Options trading will be of interest to those who wish to :

- 1) Participate in the market without trading or holding a large quantity of stock.
- 2) Protect their portfolio by paying small premium amount.

Benefits of trading in Futures and Options :

- 1) Able to transfer the risk to the person who is willing to accept them
- 2) Incentive to make profits with minimal amount of risk capital
- 3) Lower transaction costs
- 4) Provides liquidity, enables price discovery in underlying market
- 5) Derivatives market are lead economic indicators.

9. What are the benefits of trading in Index Futures compared to any other security?

An investor can trade the 'entire stock market' by buying index futures instead of buying individual securities with the efficiency of a mutual fund.

The advantages of trading in Index Futures are:

- The contracts are highly liquid
- Index Futures provide higher leverage than any other stocks
- It requires low initial capital requirement
- It has lower risk than buying and holding stocks
- It is just as easy to trade the short side as the long side
- Only have to study one index instead of 100s of stocks

10. How do I start trading in the derivatives market at NSE?

Futures/ Options contracts in both index as well as stocks can be bought and sold through the trading members of NSE. Some of the trading members also provide the internet facility to trade in the futures and options market. You are required to open an account with one of the trading members and complete the related formalities which include signing of member-constituent agreement, Know Your Client (KYC) form and risk disclosure document. The trading member will allot to you a unique client identification number. To begin trading, you must deposit

cash and/or other collaterals with your trading member as may be stipulated by him.

11. What is the Expiration Day?

It is the last day on which the contracts expire. Futures and Options contracts expire on the last Thursday of the expiry month. If the last Thursday is a trading holiday, the contracts expire on the previous trading day. For E.g. The January 2008 contracts mature on January 31, 2008.

12. What is the contract cycle for Equity based products in NSE ?

Futures and Options contracts have a maximum of 3-month trading cycle - the near month (one), the next month (two) and the far month (three), except for the Long dated Options contracts. New contracts are introduced on the trading day following the expiry of the near month contracts. The new contracts are introduced for a three month duration. This way, at any point in time, there will be 3 contracts available for trading in the market (for each security) i.e., one near month, one mid month and one far month duration respectively. For example on January 26,2008 there would be three month contracts i.e. Contracts expiring on January 31,2008, February 28, 2008 and March 27, 2008. On expiration date i.e January 31,2008, new contracts having maturity of April 24,2008 would be introduced for trading.

13. What is the concept of In the money, At the money and Out of the money in respect of Options?

In- the- money options (ITM) - An in-the-money option is an option that would lead to positive cash flow to the holder if it were exercised immediately. A Call option is said to be in-the-money when the current price stands at a level higher than the strike price. If the Spot price is much higher than the strike price, a Call is said to be deep in-the-money option. In the case of a Put, the put is in-the-money if the Spot price is below the strike price.

At-the-money-option (ATM) - An at-the money option is an option that

would lead to zero cash flow if it were exercised immediately. An option on the index is said to be "at-the-money" when the current price equals the strike price.

Out-of-the-money-option (OTM) - An out-of-the-money Option is an option that would lead to negative cash flow if it were exercised immediately. A Call option is out-of-the-money when the current price stands at a level which is less than the strike price. If the current price is much lower than the strike price the call is said to be deep out-of-the money. In case of a Put, the Put is said to be out-of-money if current price is above the strike price.

14. Is there any Margin payable?

Yes. Margins are computed and collected on-line, real time on a portfolio basis at the client level. Members are required to collect the margin upfront from the client & report the same to the Exchange.

15. How are the contracts settled?

All the Futures and Options contracts are settled in cash on a daily basis and at the expiry or exercise of the respective contracts as the case may be. Clients/Trading Members are not required to hold any stock of the underlying for dealing in the Futures / Options market. All out of the money and at the money option contracts of the near month maturity expire worthless on the expiration date.

FEW BASIC STRATEGIES

Have a view on the market?

Example A.

On 01 March an investor feels the market will rise

- Buys 1 contract of March ABC Ltd. Futures at Rs. 260 (market lot : 300)

09 March

- ABC Ltd. Futures price has risen to Rs. 280
- Sells off the position at Rs. 280. Makes a profit of Rs.6000 (300*20)

Example B.

On 01 March an investor feels the market will fall

- Sells 1 contract of March ABC Ltd. Futures at Rs. 260 (market lot : 300)

09 March

- ABC Ltd. Futures price has fallen to Rs. 240
- Squares off the position at Rs. 240
- Makes a profit of Rs.6000 (300*20)

Example C.

Assumption: Bullish on the market over the short term Possible Action by you: Buy Nifty calls

Example:

Current Nifty is 3880. You buy one contract (lot size 50) of Nifty near month calls for Rs.20 each. The strike price is 3900. The premium paid by you : (Rs.20 * 50) Rs.1000. Given these, your break-even Nifty level is 3920 (3900+20). If at expiration

Nifty advances to 3974, then	
Nifty expiration level	3974
Less Strike Price	3900
Option value	74.00 (3974-3900)
Less Purchase price	20.00
Profit per Nifty	54.00
Profit on the contract	Rs. 2,700 (Rs. 54* 50)

Note:

- 1) If Nifty is at or below 3900 at expiration, the call holder would not find it profitable to exercise the option and would lose the premium, i.e. Rs.1000. If at expiration, Nifty is between 3900 (the strike price) and 3920 (breakeven), the holder could exercise the calls and receive the amount by which the index level exceeds the strike price. This would offset some of the cost (premium).
- 2) The holder, depending on the market condition and his perception, may sell the call even before expiry.

Example D.

Assumption: Bearish on the market over the short term

Possible Action by you: Buy Nifty puts

Example:

Current Nifty is 3880. You buy one contract (lot size 50) of Nifty near month puts for Rs.17 each. The strike price is 3840. The premium paid by you will be Rs.850 (17*50). Given these, your break-even Nifty level is 3823 (i.e. strike price less the premium). If at expiration Nifty declines to 3786, then

Put Strike Price	3840
Nifty expiration level	3786
Option value	54 (3840-3786)

Less Purchase price	17
Profit per Nifty	37
Profit on the contract	Rs.1850 (Rs.37* 50)

Note:

- 1) If Nifty is at or above the strike price 3840 at expiration, the put holder would not find it profitable to exercise the option and would lose the premium, i.e. Rs.850. If at expiration, Nifty is between 3840 (the strike price) and 3823 (breakeven), the holder could exercise the puts and receive the amount by which the strike price exceeds the index level. This would offset some of the cost (premium).

- 3) The holder, depending on the market condition and his perception, may sell the put even before expiry.

Example E.

Use Put as a portfolio Hedge?

Assumption: You are concerned about a downturn in the short term in the market and its effect on your portfolio. The portfolio has performed well and you expect it to continue to appreciate over the long term but would like to protect existing profits or prevent further losses.

Possible Action: Buy Nifty puts.

Example:

You hold a portfolio of 5000 shares of ABC Ltd. Ltd. valued at Rs. 10 Lakhs (@ Rs.200 each share). Beta of ABC Ltd. is 1. Current Nifty is at 4250. You wish to protect your portfolio from a drop of more than 10% in value (i.e. Rs. 9,00,000). Nifty near month puts of strike price 3825 (10% away from 4250 index value) is trading at Rs. 2. To hedge, you buy

5 puts, i.e. 250 Nifties, equivalent to Rs.10 lakhs*1 (Beta of ABC Ltd) /4250 or Rs. 1130000/4250. The premium paid by you is Rs.500, (i.e.250 * 2). If at expiration Nifty declines to 3500, and ABC Ltd. falls to Rs.164.70, then

Put Strike Price	3825
Nifty expiration level	3500
Option value (per Nifty)	325 (3825-3500)
Less Purchase price (per Nifty)	2
Profit per Nifty	323
Profit on the contract	Rs.80,750 (Rs.323* 250)
ABC Ltd. shares value	Rs.8,23,500
Profit on the Nifty put contracts	Rs.80,750
Total value	Rs.9,04,250

Rs. 9,04,250 is approx. 10% lower than the original value of the portfolio. Without hedging using puts the investor would have lost more than 10% of the value.

16. What are the Risks associated with trading in Derivatives?

Investors must understand that investment in derivatives has an element of risk and is generally not an appropriate avenue for someone of limited resources/ limited investment and / or trading experience and low risk tolerance. An investor should therefore carefully consider whether such trading is suitable for him or her in the light of his or her financial condition. An investor must accept that there can be no guarantee of profits or no exception from losses while executing orders for purchase and / or sale of derivative contracts, Investors who trade in derivatives at the Exchange are advised to carefully read the Model Risk Disclosure Document and the details contained therein. This document is given by

the broker to his clients and must be read, the implications understood and signed by the investor. The document clearly states the risks associated with trading in derivatives and advises investors to bear utmost caution before entering into the markets.

Example 1.

An investor purchased 100 Nifty Futures @ Rs. 4200 on June 10. Expiry date is June 26.

Total Investment : Rs. 4,20,000. Initial Margin paid : Rs. 42,000

On June 26, suppose, Nifty index closes at 3,800.

Loss to the investor $(4200 - 3780) \times 100 = \text{Rs. } 42,000$

The entire initial investment (i.e. Rs. 42,000) is lost by the investor.

Example 2.

An investor purchased 100 ABC Ltd. Futures @ Rs. 2500 on June 10. Expiry date is June 26.

Total Investment : Rs. 2,50,000. Initial Margin paid : Rs. 37,500

On June 26, suppose, ABC Ltd. shares close at Rs. 2000.

Loss to the investor $(2500 - 2000) \times 100 = \text{Rs. } 50,000$

Example 3.

An investor buys 100 Nifty call options at a strike price of Rs. 4000 on June 15. Nifty index is at 4050. Premium paid = Rs. 10,000 (@Rs. 100 per call X 100 calls).

Expiry date of the contract is June 26

On June 26, Nifty index closes at 3900.

The call will expire worthless and the investor losses the entire Rs. 10,000 paid as premium.

Example 4.

An investor buys 100 ABC Ltd. put options at a strike price of Rs. 400 on June 15. ABC Ltd. share price is at 380.
Premium paid = Rs. 5,000 (@Rs. 50 per put X 100 calls).

Expiry date of the contract is June 26

On June 26, ABC Ltd. shares close at Rs. 410.

The put will expire worthless and the investor losses the entire Rs. 5,000 paid as premium.

Disclaimer

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