Department of Applied Economics & Commerce, P.U.

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Subject : Financial Derivatives

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Unit 4

Risk Management Through Derivatives

- *In the trading of securities or derivatives, there is always and an inherent risk.*
- ***Risk** is defined as chance of negative or low returns as compared to expectations.*

***Hedging** or risk management is a mechanism to counter balance or minimize such risk.*

- *Hedging can be done by using derivative contracts.*
- *For hedging, the investor must have certain position in the cash or the derivatives market and he should be interested to either eliminate or minimize the risk to which such outstanding position is exposed to.*
- *Hedging can provide protection against the price fluctuation which may take place in future.*

- *The selection of hedging strategy depends upon the previous position of the investor.*

- *Following are the different **hedging strategies using derivatives** :*

1) Short Hedge

2) Long Hedge

3) Protective put strategy

4) Covered call strategy

5) A no profit no loss strategy: Covering long position with index futures.

6) Protecting short position with index futures.

7) Delta Hedging

*1) **Short Hedge***

- *In short hedging, the hedger takes a position in derivatives that results in his **right to sell the underlying asset.***

- *Short hedge is suitable for the investor whose portfolio/ investment is subject to risk on account of **decline in the prices of the underlined share**.*

- *Short hedge is also useful for investors who are expecting to receive the underlying asset in the near future and wish **to ensure a particular price** or realization of a particular benefit by selling the underlying asset.*

- *For example, a farmer expecting to you have a good harvest undertakes a position on options our futures on the particular crop so as to have a particular price when the same is yielded.*

- *Short hedging can be done with the help of any of the following mechanism:*

a) Hedging through option contract
b) Hedging through futures contract
c) Hedging through index futures.

a) ***Hedging through option contract - A win-win strategy***

- *The short hedge can be created with the help of buying a put option.*

- *In this way, the buyer of the option is assured to receive a certain price for the shares, which he is likely to receive in future.*

- *For this protection of assured price he has to pay a premium for buying the options contract.*

- *This strategy is like a Win-Win strategy for the investor, as he will have gain, regardless of whether the prices decline or rise in the future.*

- *If in the future, on the expiry of option contract, price of the underlying asset **declines below the exercise price** then the option will be **in- the - money** and exercise of the option will yield the desired price for the underlying asset.*

- *In the future, on the expiry of option contract, price of the underlying asset **rises above the exercise price** then the option will be **out- of- the money** and buyer of the option will not exercise the option. He will sell his holding in the open market and will get the price more than the exercise price.*

*b) **Hedging through stock futures contract-zero cost price strategy***

- *Futures contract is a binding on both the parties.*

- *This can be used to protect against the risk arising from the investment made in securities.*

- *If at any time while holding the shares investor needs to protect himself against the declining price at zero cost then he should enter into a short on futures on the same underlying share. This will protect him from the declining prices.*

- *As futures contract generates rights as well as obligation therefore the hedger cannot have unlimited gain, but he will certainly realize the price equal to the strike price at which futures contract is entered.*

- *The level of gain will completely depend upon the difference between the price at which long position has been created and the strike price of futures contract.*

c) ***Hedging through index futures-zero cost counter balancing strategy***

- *Index is the barometer of the market, which indicates about the movement of share prices in the market.*

- *By taking a position on index futures one can have protection against the declining prices of the shares held by him. This can be done as follows:*

i) The investor has a long position in the shares which are represented in the index.

ii) The investor enters into a short on index futures.
This will provide counterbalance against the likely loss, taking place due to the decline in the prices in future.

- *If prices decline in the future, then long position will have a loss, but the gain from short position in index futures will counterbalance such loss.*

- *If the market rises in future then long position will provide a gain & short position in index will result into losses.*

- *The extent to which this strategy provides the hedging against the declining prices depends upon the level of hedging.*

- *If the hedger has used sophisticated hedging techniques then he will have sufficient coverage against the risk otherwise he may end up having partial coverage against the risk.*

2) ***Long hedge***

- *In long hedging the hedger takes a position in derivatives that results in his right to buy the underlying asset.*

- *Strategy of long hedge is undertaken by a hedger who needs a protection against expected rise in the price of underlying share/ asset likely to take place in future time period.*

- *Such rise maybe on account of the factors like systematic and unsystematic factors.*

- *This type of hedging is created by an investor, who has a commitment to deliver certain securities in the future or has a short position in the underlying securities.*

- *The strategy of long hedge is either created by taking a long position in the derivative contract or the hedge creates a right to receive/ buy the underlying share in future time.*

- *Depending upon the type of hedging strategy, the risk is either eliminated or minimized by taking a long hedge.*

- *Long hedging can be done as follows:*

a) Hedging through option contract.

b) Hedging through futures contract.

c) Hedging through index futures.

a) ***Hedging through option contract - A win-win strategy***

- *To hedge the risk following combination of transactions is adopted:*

i) Short position in the shares.

ii) A long position in call option on same share.

- *By doing so the investor minimizes his expected loss in the event of bullish market.*

- *When market happens to be bearish investor has a chance of having unlimited gain.*

- *In the future when price of the underlying share rises the call option becomes in- the- money and by exercising the option, the hedger can buy the underlying share at the predetermined exercise price.*

- *When price of the underlying share declines below the exercise price the option is out- of -the money and the hazard and buy the shares at the then prevailing market price.*

- *Thus this hedging strategy is like a Win-Win situation at the cost of premium for the call option.*

b) ***Hedging through stock futures contracts-*** *Zero cost assured gain strategy.*

- *Under this, the risk from an increase in the price of shares can be covered by taking the following combination:*

i) A short position in the share.

ii) A long position in futures contract in the same share.

- *The gain or loss will completely depend upon:*

i) The strike price of the futures contract and

ii) The price at which short position is created at present.

- *But the risk due to the price rise will get eliminated/ minimized.*
- *Here, the hedger realize the price equal to the strike price of future whether market for underlying shares rises or declines.*
- *Here, hedger does not incur any cost as it is incurred in hedging through option contract.*

(To be continued in next lecture)