MBAFM 5: Financial Derivatives

FOURTH SEMESTER

(Finance Specialisation

1.1 Introduction-Derivatives are instruments in respect of which trading is carried out as a right on an underlying asset. In normal trading, an asset is acquired or sold. When we deal with derivatives, the asset itself is not traded, but the right to buy or sell the asset is traded. Thus, a derivative instrument does not directly result in a trade but gives a right to a person which may ultimately result in trade. A buyer of a derivative gets a right over the asset which, after or during a particular period of time, might result in the buyer buying or selling the asset. A derivative instrument is based on an underlying asset. The asset may be a commodity, a stock or a foreign currency. A right is bought either to buy or sell the underlying asset after or during a specified time. The price at which the transaction is to be carried out is also spelt out in the beginning itself. The emergence of the market for derivative products, most notably forwardss, 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 price. By their very nature, the financial markets are marked by a very high degree of volatility. Through the use of derivative products, it is possible to transfer partially or fully price risks by locking-in asset prices. As instruments of risk management, these generally do not influence 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.

1.2 DERIVATIVES DEFINED

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. For example, wheat farmers may wish to sell their harvest at a future date to eliminate the risk of a change in prices by that date. Such a transaction is an example of a derivative. The price of this derivative is driven by the spot price of wheat which is the “underlying”. (1) 8 Financial Derivatives In the Indian context the securities contracts (Regulation) Act, 1956 (SC(R)A) defines "derivative" to include

1. A security derived from a debt instrument, share, loan whether secured or under secured, risk instrument or contract for differences or any other form of security.

2. A contract, which derives its value from the prices or underlying securities. Derivatives are securities under the SC(R)A and, hence, the trading of derivatives is governed by the regulatory framework under the SC(R)A.

Section I 1. Concept of Derivatives

The term ‘derivatives, refers to a broad class of financial instruments which mainly include options and futures. These instruments derive their value from the price and other related variables of the underlying asset. They do not have worth of their own and derive their value from the claim they give to their owners to own some other financial assets or security. A simple example of derivative is butter, which is derivative of milk. The price of butter depends upon price of milk, which in turn depends upon the demand and supply of milk. The general definition of derivatives means to derive something from something else. Some other meanings of word derivatives are:

a) derived function: the result of mathematical differentiation; the instantaneous change of one quantity relative to another; df(x)/dx,

b)derivative instrument: a financial instrument whose value is based on another security, (linguistics) a word that is derived from another word; "`electricity' is a derivative of ‘electric’. The asset underlying a derivative may be commodity or a financial asset. Derivatives are those financial instruments that derive their value from the other assets. For example, the price of gold to be delivered after two months will depend, among so many things, on the present and expected price of this commodity.

1.3 Definition of Financial Derivatives

Section 2(ac) of Securities Contract Regulation Act (SCRA) 1956 defines Derivative as:

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;

b) “a contract which derives its value from the prices, or index of prices, of underlying securities”.

1.4 Participants in Derivatives Market

1. Hedgers: They use derivatives markets to reduce or eliminate the risk associated with price of an asset. Majority of the participants in derivatives market belongs to this category.

2. Speculators: They transact futures and options contracts to get extra leverage in betting on future movements in the price of an asset. They can increase both the potential gains and potential losses by usage of derivatives in a speculative venture.

3. Arbitrageurs: Their behaviour is guided by the desire to take advantage of a discrepancy between prices of more or less the same assets or competing assets in 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.

1.5 BENEFITS OF DERIVATIVE MARKET

1. 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 price of the underlying at the expiration of the derivative contract. Thus, derivatives help in discovery of future as well as current prices.

2. Second, the derivatives market helps to transfer risks from those who have them but may not like them, to those who have an appetite for them.

3. Third, derivatives, due to their inherent nature, are linked to the underlying cash markets. With the introduction of derivatives, the underlying market witnesses higher trade volumes because of participation by more players who would not otherwise participate for lack of an arrangement to transfer risk.

4. 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.

5. 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.

6. Finally, derivatives markets help increase savings and investment in the long run. Transfer of risk enables market participants to expand their volume of activity.

7. The most important services provided by the derivatives is to control, avoid, shift and manage efficiently different types of risks, through various strategies like hedging, arbitraging. Spreading etc. Derivatives assist the holders to shiftor suitably modify the risk Introduction to Financial Derivatives 11 characteristics of their portfolios. These are specifically useful in highly volatile financial market conditions like erratic trading, highly flexible interest rates, volatile exchange rates and monetary chaos.

8. Derivatives serve as barometers of the future trends in prices which result in the discovery of new prices both on the spot and futures markets. Further, they help in disseminating conferrer information regarding the futures markets trading of various commodities and securities etc., to the society, which enable to discover or form suitable or correct or true equilibrium prices in the markets. As a result, they assist in appropriate and superior allocation of resource in the society.

9. As we see that, in derivatives trading, no immediate full amount of the transaction is required, because most of them are based on margin trading. As a result, large number of traders, speculator arbitrageurs operates in such markets. So, derivatives trading enhance liquidity and reduce transaction costs in the markets for underlying assets.

10. The derivatives assist the investors, traders and managers of large pools of funds to devise strategies so that they may make proper asset allocation, increase their yields and achieve other investment goals.

11. It has been observed from the derivatives trading in the market that the derivatives smoothen out price fluctuations, squeeze the price spread, integrate price structure at different point of time and remove gluts and shortages in the markets.

12. The derivatives trading encourage the competitive trading in the markets, different risk taking preference of the market operators like speculators, hedgers, traders, arbitrageurs, etc. resulting in increase in trading volume in the country. They also attract young investors, professionals an other experts who will act as catalysts to the growth of financial markets.

13. Lastly, it is observed that derivatives trading develop the market towards “complete markets”. Complete market concept refers to that situation where no particular investors are belter off than

others, or patterns of returns of all additional securities are spanned by the already existing securities in it, or there is no further scope of additional security.

14. All said and done, we can say it is the speculators-friendly market.

1.6 Classification of Derivatives

Broadly derivatives can be classified in to two categories as shown in Fig.1: Commodity derivatives and financial derivatives. In case of commodity derivatives, underlying asset can be commodities like wheat, gold, silver etc., whereas in case of financial derivatives underlying assets are stocks, currencies, bonds and other interest rates bearing securities etc. Since, the scope of this case study is limited to only financial derivatives so we will confine our discussion to financial derivatives only.

1.61Forward Contract A forward contract is an agreement between two parties to buy or sell an asset at a specified point of time in the future. In case of a forward contract the price which is paid/ received by the parties is decided at the time of entering into contract. It is the simplest form of derivative contract mostly entered by individuals in day to day's life.

1.6.2 Forward contract is a cash market transaction in which delivery of the instrument is deferred until the contract has been made. Although the delivery is made in the future, the price is determined on the initial trade date. One of the parties to a forward contract assumes a long position (buyer) and agrees to buy the underlying asset at a certain future date for a certain price. The other party to the contract known as seller assumes a short position and agrees to sell the asset on the same date for the same price. The specified price is referred to as the delivery price. The contract terms like delivery price and quantity are mutually agreed upon by the parties to the contract.

No margins are generally payable by any of the parties to the other. Forwards contracts are traded over-the- counter and are not dealt with on an exchange unlike futures contract. Lack of 19 International Research Journal of Finance and Economics - Issue 37 (2010) liquidity and counter party default risks are the main drawbacks of a forward contract. For instance, consider a US based company buying textile from an exporter from England worth £ 1 million payment due in 90 days. The Importer is short of Pounds- it owes pounds for future delivery. Suppose the spot (cash market) price of pound is US $ 1.71 and importer fears that in next 90 days, pounds might rise against the dollar, thereby raising the dollar cost of the textiles. The importer can guard against this risk by immediately negotiating a 90 days forward contract with City Bank at a forward rate of say, £ 1= $1.72. According to the forward contract, in 90 days the City Bank will give the US Importer £ I million (which it will use to pay for textile order), and importer will give the bank $ 1.72 million (1million ×$1.72) which is the dollar cost of £ I million at the forward rate of $ 1.72.

1.6.3 Future Contract

Futures is a standardized forward contact to buy (long) or sell (short) the underlying asset at a specified price at a specified future date through a specified exchange. Futures contracts are traded on exchanges that work as a buyer or seller for the counterparty. Exchange sets the standardized terms in term of Quality, quantity, Price quotation, Date and Delivery place (in case of commodity).The features of a futures contract may be specified as follows:

Fures contract may be specified as follows:

i These are traded on an organised exchange like IMM, LIFFE, NSE, BSE, CBOT etc.

ii These involve standardized contract terms viz. the underlying asset, the time of maturity and the manner of maturity etc.

iii These are associated with a clearing house to ensure smooth functioning of the market.

iv There are margin requirements and daily settlement to act as further safeguard.

v These provide for supervision and monitoring of contract by a regulatory authority.

vi Almost ninety percent future contracts are settled via cash settlement instead of actual delivery of underlying asset.

Futures contracts being traded on organized exchanges impart liquidity to the transaction. The clearinghouse, being the counter party to both sides of a transaction, provides a mechanism that guarantees the honouring of the contract and ensuring very low level of default (Hirani, 2007). Following are the important types of financial futures contract:-

i Stock Future or equity futures,

ii Stock Index futures,

iii Currency futures, and

iv Interest Rate bearing securities like Bonds, T- Bill Futures. To give an example of a futures contract, suppose on November 2007 Ramesh holds 1000 shares of ABC Ltd. Current (spot) price of ABC Ltd shares is Rs 115 at National Stock Exchange (NSE). Ramesh entertains the fear that the share price of ABC Ltd may fall in next two months resulting in a substantial loss to him. Ramesh decides to enter into futures market to protect his position at Rs 115 per share for delivery in January 2008. Each contract in futures market is of 100 Shares. This is an example of equity future in which Ramesh takes short position on ABC Ltd. Shares by selling 1000 shares at Rs 115 and locks into future price.

1.6.4. Options Contract

In case of futures contact, both parties are under obligation to perform their respective obligations out of a contract. But an options contract, as the name suggests, is in some sense, an optional contract. An option is the right, but not the obligation, to buy or sell something at a stated date at a stated price. A “call option” gives one the right to buy; a “put option” gives one the right to sell. Options are the standardized financial contract that allows the buyer (holder) of the option, i.e. the right at the cost of option premium, not the obligation, to buy (call options) or sell (put options) a specified asset at a set price on or before a specified date through exchanges.

Options contracts are of two types: call options and put options. Apart from this, options can also be classified as OTC (Over the Counter) options and exchange traded options. In case of exchange traded options contract, contracts are standardized and traded on recognized exchanges, whereas OTC

options are customized contracts traded privately between the parties. A call options 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. 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.

Suppose an investor buys One European call options on Infosys at the strike price of Rs. 3500 at a premium of Rs. 100. Apparently, if the market price of Infosys on the day of expiry is more than Rs. 3500, the options will be exercised. In contrast, a put options 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 an expiry date. The seller of the put options (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. Right to sell is called a Put Options. Suppose X has 100 shares of Bajaj Auto Limited. Current price (March) of Bajaj auto shares is Rs 700 per share. X needs money to finance its requirements after two months which he will realize after selling 100 shares after two months. But he is of the fear that by next two months price of share will decline. He decides to enter into option market by buying Put Option (Right to Sell) with an expiration date in May at a strike price of Rs 685 per share and a premium of Rs 15 per share

1.7 Types of Derivatives

There are three types of traders in the derivatives market:

1.Hedger

2.Speculator

3. Arbitrageur

1.7.1 Hedger: A hedge is a position taken in order to offset the risk associated with some other position. A hedger is someone who faces risk associated with price movement of an asset and who uses derivatives as a means of reducing that risk. A hedger is a trader who enters the futures market to reduce a pre-existing risk.

1.7.2 Speculators: While hedgers are interested in reducing or eliminating risk, speculators buy and sell derivatives to make profit and not to reduce risk. Speculators willingly take increased risks. Speculators wish to take a position in the market by betting on the future price movements of an asset. Futures and options contracts can increase both the potential gains and losses in a speculative venture. Speculators are important to derivatives markets as they facilitate hedging provide liquidity ensure accurate pricing, and help to maintain price stability. It is the speculators who keep the market going because they bear risks which no one else is willing to bear.

1.7.3 Arbitrageur: An arbitrageur is a person who simultaneously enters into transactions in two or more markets to take advantage of discrepancy between prices in these markets For example, if the futures price of an asset is very high relative to the cash price, an arbitrageur will make profit by buying the asset and simultaneously selling futures. Hence, arbitrage involves making profits from relative mispricing. Arbitrageurs also help to make markets liquid, ensure accurate and uniform pricing, and enhance price stability.

All three types of trades and investors are required for a healthy functioning of the derivatives market. Hedgers and investors provide economic substance to this market, and without them the markets would become mere tools of gambling. Speculators provide liquidity and depth to the market. Arbitrageurs help in bringing about price uniformity and price discovery. The presence of Hedgers, speculators and arbitrageurs, not only enables the smooth functioning of the derivatives market but also helps in increasing the liquidity of the market.

1.8 Why should there be margins?

Just as we are faced with day to day uncertainties pertaining to weather, health, traffic etc and take steps to minimize the uncertainties, so also in the stock markets, there is uncertainty in the movement of share prices.

This uncertainty leading to risk is sought to be addressed by margining systems by stock markets.

Suppose an investor, purchases 1000 shares of 'xyz' company at Rs.100/- on January 1, 2008. Investor has to give the purchase amount of Rs.1,00,000/- (1000 x 100) to his broker on or before January 2, 2008. Broker, in turn, has to give this money to stock exchange on January 3, 2008.

There is always a small chance that the investor may not be able to bring the required money by required date. As an advance for buying the shares, investor is required to pay a portion of the total amount of Rs.1,00,000/- to the broker at the time of placing the buy order. Stock exchange in turn collects similar amount from the broker upon execution of the order. This initial token payment is called margin.

Remember, for every buyer there is a seller and if the buyer does not bring the money, seller may not get his / her money.

Margin is levied on the seller also to ensure that he / she gives the 100 shares sold to the broker who in turn gives it to the stock exchange.

Margin payments ensure that each investor is serious about buying or selling shares.

In the above example, assume that margin was 15%. That is investor has to give Rs.15,000/-(15% of Rs.1,00,000/) to the broker before buying. Now suppose that investor bought the shares at 11 am on January 1, 2008. Assume that by the end of the day price of the share falls by Rs.25/-. That is total value of the shares has come down to Rs.75,000/-. That is buyer has suffered a notional loss of Rs.25,000/-. In our example buyer has paid Rs.15,000/- as margin but the notional loss, because of fall in price, is Rs.25,000/-. That is notional loss is more than the margin given.

In such a situation, the buyer may not want to pay Rs.1,00,000/ - for the shares whose value has come down to Rs.75,000/-. Similarly, if the price has gone up by Rs.25/-, the seller may not want to give the shares at Rs.1,00,000/-. To ensure that both buyers and sellers fulfill their obligations irrespective of prices movements, notional losses are also need to be collected.

Prices of shares may keep on moving every day. Margins ensure that buyers bring money and sellers bring shares to complete their obligations even though the prices have moved down or up.

Source: https://www.bseindia.com/downloads/faqsrs.pdf

Source:

Vashishtha, A., & Kumar, S. (2010). Development of Financial Derivatives Market in India- A Case Study. *International Research Journal of Finance and Economics* , 15-29.