

**FINANCIAL MARKETS &
DERIVATIVES
(DEMBB2)
(MBA 2 YEARS)**



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Lesson - 1

Financial Markets

1.0 Objectives

The objectives of this unit are to enable you:

- To understand the meaning and importance of financial markets.
- To know the various functions of financial markets.
- To know the various types of financial instruments that exists in financial markets.
- To understand the importance of financial markets.

Structure:

- 1.1 Introduction
- 1.2 Main Functions of the Financial Markets
- 1.3 Types of Financial Markets
- 1.4 Functions of the Money Market
- 1.5 Money Markets Instrument
- 1.6 Financial Institutions in the Money Market
- 1.7 The Indian Money Market
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- 1.17 Secondary Market
- 1.18 The Products Dealt in the Secondary Markets
- 1.19 Summary
- 1.20 Self Assessment Questions

This unit introduces to the basic meaning, nature and concept of financial. The importance, functions and various types of financial instruments is also covered in detail. It is essential for the management student to understand the concept of financial markets and its importance for the development of the people in the society as well of the country.

1.1 Introduction:

The financial system of a country can be divided into financial markets, financial institutions and financial instruments. A financial market is generally divided into money market and capital market; the former being the market for liquid or short-term assets and the latter for long-term assets. The money market itself is a system of inter-related sub-markets, which generate liquidity in the economy. An efficient and developed money market is essential for the smooth operation of the monetary and credit policy and for overall economic growth. The instruments traded in the market are, in general, highly liquid, have short-term character and involve low degree of risk. Before studying the Indian money market, it would be useful to look into the broad nature of a financial system within which it operates.

What is a Financial System?

Financial system is the institutional arrangement for efficient transfer of financial surplus from the savers (predominantly in the household sector) to the deficit – spenders (particularly the business sector and the government) the task is performed by a large variety of financial institutions through a number of financial instruments using innovative financial technology. The important function is known as 'Financial intermediation and the institutions are termed as 'Financial intermediaries', which can be classified in a number of ways. The institutions derive their existence from the basic fact that it is very difficult or expensive for the deficit spenders to reach out to the widely dispersed millions of surplus savers to meet their financial institutions. Surplus savers also prefer to lend their funds to financial institutions, particularly to the established ones in the organized sector, rather than lending directly to the deficit spenders as it involved lower risk, provides greater liquidity and convenience and make available various services provided by financial institutions. Borrowers, while dealing with the institutions, have greater certainty about the availability of required finance at relatively lower interest. This, however, is not necessarily the case when the financiers are in the unorganized sectors.

Nature of Financial Intermediation

While there are strong reasons for borrowers and lenders to operate through financial intermediaries, there is a sound economic rationale for financial institutions to take up this type of business activity. The logic can be seen in the following points

Economies of Scale: Since financial institutions, particularly in the organized sector, operate on large scale. They reap substantial economies of scale which lowers their transaction costs and extends profit margins.

Liquidity pricing: Financial institutions can convert a primary security with longer maturity into another security of their own with shorter maturity generating liquidity in the process, which can be of value to the holder of the short-maturity security. The institutions can charge a price for the liquidity so produced.

Risk Reduction: The institutions have fund operations on large scale which enable them to diversify their portfolios and thus reduce risk. It is difficult for the small investor or wealth holder to spread risk, as his resources are limited

Satisfying Diverse Investor Preference: Financial institutions have the potential or capability to satisfy diverse investor choice and preferences as they can produce and market a customer focused set of securities with different characteristics suited to saver or investor preference. Much, of course, depends on the institutions, understanding of the savers or potential investors, innovativeness of financial products, risk and return characteristics of the securities developed and marketing skills .

Professionalisation of Financial Management: The institutions are in a better position to engage finance professionals and experts to take care of the management of funds and financial services,. They can offer various combinations of risk, return, liquidity and tradability of the securities they develop to prospective investors and in the process enable the investors to take advantage of the skills of these professionals' financial managers. This assures the institutions about the market for their securities .

Small Investors' Convenience: The operations of the financial institutions make prudent investment by small investors quite convenient as the schemes of the institutions are generally well advertised and are available to prospective investors through a widespread network of agents. It saves the investors from the need to spend time and incur cost of making investments directly in their own .

The Three Pillars of a Financial System

The institutional structure of the financial system of a country rests on three pillars .

1. Financial MarketP: A financial market refers to the interacting groups of borrowers and lenders and to the mechanism through which funds are transferred or transacted between them . In this market, financial assets are traded and yield rates are determined . Depending upon the nature and extent of financial development, a range of financial sub-markets exist which are often interrelated and deal with different types of financial assets . Nevertheless, all types of financial markets can be classified into money markets and capital market, the former being the market for liquid or short-term assets and the latter for long-term assets (as mentioned earlier) . These markets, in India, are detailed in subsequent sections .

2. Financial Institutions: As already discussed, the basic function of financial institutions is to connect the classes of lenders and borrowers and, through an institutional arrangement, facilitate movement of funds from the former to the latter. They convert direct securities issued by the business firms into indirect securities to large classes of individual and institutional investors through their intermediation function. Depending upon the types of assets or securities dealt with, these institutions participate in money market or capital market or both. These institutions play a great role in converting savings into investment a process that is called capital formation . These institutions reduce financial constraints to economic growth, improve liquidity in the economic system and absorb risk thereby creating favourable conditions for business.

3. Financial Assets or Securities: The range of financial assets , securities, or instruments used or traded in the financial market is a leading indicator of its state of development and maturity. The larger the variety of the securities, the more adequately are the requirements of diverse groups

of investors met. These assets or securities are the creation of the borrowers including the financial institutions (which are lenders as well). The various securities can be ownership securities involving risk (like ordinary shares), creditor ship securities (like debentures), which entitle the holder to a pre-determined rate of interest and interest income, or hybrid securities (like preference shares), which contain elements of the both. In addition, there are a variety of innovative financial instruments catering to specialized requirements of borrowers and lenders. Such instruments are discussed in the subsequent sections.

Basic Functions

The basic functions of a financial system may now be summarized as follows:

Motivation for Savings: It provides motivation for saving by offering a wide variety of securities to cater to a variety of savings or investors' preference. The securities provide a wide choice of portfolios with different combinations of risk, return maturity and liquidity. The securities are divisible, convenient to hold, storable and provided hedge against inflation. These savings are extremely important from the point of view of economic growth.

Mobilisation of Savings: The system mobilizes the saving to enable the subsequent financing function. Ability to mobilize savings depends upon the quality of securities issued and marketing skills of the financial institutions. The mobilization takes place through bank deposits, equity shares, bonds, life insurance policies, units of mutual funds etc.

Saving Mobilization Can be Direct as well as Indirect: Mobilisation is direct when ultimate borrowers (like government or companies) issue and sell their securities (called primary securities) like bills, fixed deposits, equity shares or bonds directly to the surplus holders or prospective investors. Mobilisation is indirect when financial institution as intermediaries buy primary securities of the ultimate borrowers and issue secondary securities to the ultimate savers, lenders or prospective investors. This is also called transmutation of securities, which is a highly skilled work and requires the development and application of a sophisticated financial technology. Indirect mobilization is generally much more effective than indirect mobilisation. Much, of course, depends upon the state of development and regulation of the primary and secondary security markets.

Fund Allocation: The financial system allocated the funds mobilised from the lenders and investors to the ultimate borrowers or deficit spenders by subscribing their primary securities or through direct lending. In this process, the ultimate lenders (in case of direct financing) and financial institutions (in case of indirect financing) have to bear the risk at their own level. Financial institutions in case of indirect financing are far more capable than individual lenders to assess and cover the risk of financing. Whether the financial system is able to cater to the financial requirements of a large number of highly dispersed firms depends upon its allocate funds of different sizes, types and maturities from a wide variety of lenders and allocates the same to equally diverse groups of borrowers.

Risk Absorption: A financial system is not merely involved in the fund transfer process but also absorbs risk particularly through financial intermediation. The risk is made possible through the development of sophisticated financial technologies, innovative financial instruments and professionalisation of financial services. Failure to absorb risk can seriously hamper the growth of financial markets and keep the overall financial system, which creates favourable conditions for the growth of business.

These are the basic functions of a financial system. How well these functions are discharged, depends upon the status of the financial markets, the saving capacity of the individual lenders, the efficiency of the financial institutions, the quality of financial market regulation and, of course, the demand for new investment in the business sector which itself depends upon the state of business environment. From the macroeconomic point of view, the existence of a well-developed financial system is a sine qua non for accelerated economic growth.

Hall Marks of a Developed Financial System

A well developed financial system has the following distinctive characteristics.

Equity: It must be equitable in the sense that it takes care of the interests of the borrowers and lenders in a balanced manner and is not prejudicial or detrimental to the interest of one section or the other.

Allocative Efficiency: The system is capable of transferring the funds efficiently and adequately to the different classes of deficit spenders so that no particular segment of the business sector is starved of funds. The system has a wide reach and is able to use modern technology to push the funds to the various segments where these are required. Failure to do this can create imbalances in the growth process.

Efficacy: The system is effective in the mobilisation and allocation of funds. The system is actually capable of siphoning off funds from the surplus savers and lenders to where these are required.

Transition Costs: The system is capable of keeping the transaction costs minimum. This enables the financial institutions as well as the ultimate borrowers to maintain competitiveness.

Risk Absorption: As already pointed out, risk absorption is an important function of the financial system. The system, through innovative financial technologies, products and services is able to minimize the risk and create favourable conditions for business growth.

Adequacy of Returns: The system is able to provide adequate financial returns to lenders as well as to the intermediating financial institutions.

This pre-requires that the value addition in the financial sector is substantial and that the funds are deployed in areas where risk is low and return is high. When returns are low, incentive to save is dampened and financial operations become less attractive.

These hallmarks also serve as the criteria or the benchmarks against which the soundness and the degree of development of a financial system can be assessed. It must be commented that no financial system can grow in isolation. It requires a favourable business environment, both for financial and non-financial organizations, and enabling macroeconomic policy framework and existence of profitable opportunities. Private enterprise, competitive conditions and globalisation of the financial markets spur the growth of the system. A number of developing countries like India have initiated a series of financial reforms in the above areas.

Indian Money Market : Institutional Structure And Instruments

Simply stated, money market is the market for money and short-term financial assets, which are close substitutes for money and are highly liquid. Box 24.2 gives the characteristics of a developed money market.

Money market generally does not have a formal place of transactions like a stock exchange. Most of the transactions are initiated through oral or telephonic communication, which are subsequently confirmed and documented. The central bank, along with the network of commercial banks, plays a central role in the money market functioning. The central bank acts as the creator and regulator of liquidity while the commercial banks are the predominant creators of short-term assets.

The two institutions together are highly instrumental in the implementation of the monetary policy.

The Indian money market mainly consists of the call money market, bill market and the markets for certificates of deposits, commercial papers and repurchase options (REPO). The call money and bill markets have been the traditional components while the other components are relatively recent in origin. RBI has been regulating the money market through the REPOs and thus controlling the liquidity conditions. Following the recommendations of the Chakravarty Committee and the Vaghul Working Group, efforts have been made to broaden the base of the money market. The relative growth of the different components of the sub-markets of the Indian money market is shown in Table 1.1. The Table shows the outstanding amounts in the instruments of the different segments of the market in recent years.

Call Money Market

It is the principal component of the Indian Money market. It is the market for loans of very short maturity ranging from overnight loans to loans with short maturity. Such funds are called money at call and short notice. One distinctive feature of such funds and loans is that they can be withdrawn by the lender immediately or at periods of notice of up to fourteen days. Commercial banks are the predominant players in this market. Borrowings in the market are for short period and are raised to meet transitory requirements of the funds.

Call money centers are mainly located in Mumbai, Kolkata, Delhi, Chennai, Ahmedabad and Bangalore. Most of the funds are lent on overnight basis and the rest mostly at a short notice of about two weeks. During the decade 1989–99, the RBI has been permitting more and more players in the call money market. However, since the year 2000, on the recommendation of the Narasimham Committee, the market has been restricted only to commercial banks, Discount and Finance House of India (DFHI), Securities Trading Corporation of India (STCI) and primary dealers as the market makers. Because of the leading position of banks, it is called Interbank Call Market.

Banks are in a lending position when their reserves are in excess of the minimum Cash Reserve Ratio (CRR) requirements set by the RBI or when they have surplus funds due to low credit–deposit ratio. Conversely, they turn out as borrowers when their reserves fall below CRR requirements or when their credit–deposit ratio is high. Asset–liability mismatches are also among the reasons for the banks to lend or borrow in the market.

Call market rates are inherently volatile. However, the arbitrary operations of the DFHI, as market makers, have a cooling effect on volatility. The gradual broadening of the interbank call market has also brought stability to the call rates which is important for the growth of the market.

Indian interbank call market is characterized by a large number of borrowers and a few lenders. The State Bank of India is the leading lender which alone accounts for more than 50 per cent lending in the market. Variations in the call rate depend, among other factors, upon the liquidity

conditions of the market. In this regard, RBI plays an important role through its various liquidity facilities offered to banks. Fluctuations in call rates are induced mainly on account of the following factors:

- Change in the cash reserve ratio of the banks on a day-to-day basis .
- Asset-liability mismatches .
- Variations in credit-deposit ratio
- Variations in cash balance of the banks
- Periodic advance tax payments by business firms leading to substantial fund withdrawals from the banks compelling the latter to borrow from the market .
- Bunching of oil payments abroad, which reduce the ability of SBI to lend in the market.

During 1996 – 2000, the interbank call money lending rates fluctuated between 52.2 per cent and 0.1 per cent on the basis of monthly weighted averages. The coefficient of variation was highest at 86 per cent in 1997-98 compared to 12.7 per cent in 1999-2000.

The fund and liquidity position in the market is also significantly impacted by the borrowing operations of the government and transactions in the foreign exchange market (i.e., the transactions of foreign currency against rupee).

The growth of the call market was nearly stagnant during the period 1992 - 95. Since the year 1994 – 95, there has been rapid growth of the market . It has been largely due to the entry of more participants as a result of financial sector liberalization that has taken place over the last decade. Operations of the Discount and Finance House of India and Securities Trading Corporation of India have also significantly contributed to the growth of the market .These institutions are described later in the Chapter.

The Bill Market

Bill market is another important component of the Indian money market which meets the credit requirements of private trade and industry as well as the government and, at the same time, facilitates an efficient system of payment.

Commercial Bill Market

The commercial bill market in India has existed in the traditional Hundi form. The market has been developed, reformed and regulated, following the recommendations of a number of committees and provisions of schemes such as RBI's Bill Market scheme 1952, Narasimham Committee (1970), the Bill Rediscounting Scheme (also called New Bill Market Scheme which continues to-date though in modified form), Sukhmoy Chakravarty Committee and Vaghul Working Group.

Commercial bills are like postdated cheques drawn by the sellers on buyers for the value of the products transacted. In general, commercial bills have a maturity period of up to three months. These are important instruments of short-term finance to industry and trade . These bills are tradable and can be resold any number of times in the money market. The bills can be categorized into demand or sight bills and time or usance bills. The former are payable on demand or at the time of presentation whereas the latter are payable after a certain period of time (generally 30, 60 or 90

days). This maturity period is specified in the usance bill itself. This, demand bill entails no credit for the buyer of products though it allows time for transit of the products.

Banks are an integral part of the commercial bill market . Demand bills are purchased by the banks on behalf of the customers (generally the supplier business firms) subject to a maximum limit granted in each case . The bank, in the process of bill purchase retains possession of documents of ownership of goods (like railway receipt or lorry receipt which is endorsed in the name of the bank) till the payment of bill is made by the customer party. The banks discount time or usance bill. Discounting refers to the purchase of a bill at its discounted value , the discount being equivalent to the amount of interest due on it . The discounted price is obviously less than the face value of the bill . As it involves the risk of default, a bank generally accepts and discounts bill of the business firms having good market standing and creditworthiness. The market, however, is not well developed in India mainly because of the following reasons :

- There is lack of bill culture in the business sector .
- A large number of business firms do not accept the payment discipline of the bill market .
- There is absence of a separate specialized class of discount house .
- There is widespread prevalence of cash-credit system, which discourages the growth of bill business.

In spite of the above constrains, the commercial bill market is larger than the call market. The growth of the market has been slow as can be seen in. The value of bills purchased and discounted stagnated during 1991–93 , but rose significantly during 1993–96.

Treasury Bill and Repos Market

Treasury bills (T-bills) in the money market are the instruments of short-term finance and have a maturity period of 91 days and 182 days. The government issues these bills to meet its short-term liquidity requirements. They are also a handy and useful fiscal instrument which enable the banks to meet their statutory liquidity ration and CRR requirements as they can park their funds in these instruments to meet the statutory ratios. T-bills combine in them the features of liquidity and safety for which reason they are also referred to as gilt-edged securities. Though originally intended to be used as instruments to meet temporary shortfalls in revenue receipts, these have become a permanent source of borrowings.

Treasury bills are also sold on a discount basis, the rate of discount being the rate of yield. The sale of T-bills is generally through auctions, which take place frequently. The yield rate is determined at the auctions. Since 1987, RBI has been providing refinance facility in order to provide easy liquidity to the bills. DFHI is an active participant in the T-bills auctions and trades in the secondary market for the bills by providing bid (buy) and offer (sell) rates on a daily basis with small spreads. In addition to direct buying and selling of bills, DFHI operates REPO (Repurchase Options) facility under which it undertakes to buy and sell T-bills, the commitment varying for periods up to 14 days. The commitments are given to banks, financial institutions and other permitted organizations at interest rates which are negotiated in advance . The RePOs, thus, become an additional instrument available with the banks to adjust their SLR and CRR to the RBI requirements. The RBI signals its intentions for the short-term money market by changing the amount and rate of interest of refinance to the DFHI. REPO facility has considerably eased the pressure of demand on RBI refinance from

banks and financial institutions. The T-bill market has now been considerably broadened. Earlier, the participants in the market were the RBI (a major holder of T-bills), banks and term-finance institutions like IDBI, IFCI, ICICI, LIC and UTI. Now a number of corporate organizations and other entities have been allowed to play in the T-bill market. Foreign institutional investors are also allowed to buy and sell T-bills subject to certain limitations.

Repos were first developed in the US. These are widely used as a method of borrowing by large corporations, banks and non-bank institutions. The sale and repurchase agreements concerning government securities are called gilt repos.

Market for Certificates of Deposit (CDs)

A certificate of deposit is a negotiated claim issued by a bank in return for a time deposit. CDs, as securities, are generally purchased at a discount (i.e., at a price less than its face value) and in this way a bank promises to repay the deposit offering a yield to maturity. The advantage to a depositor is that he can sell his CD in the market. If this market is well developed, he will be willing to park his deposit with banks for long periods. This market imparts liquidity and tradability to the term deposits. CDs were first developed and issued in 1968.

In India, CDs as an instrument for the money market were evaluated by the Tambe Working

Group (the working group on money market constituted by the RBI which submitted its report in 1987). The Group did not favour the introduction of CDs because of (a) absence of secondary market (b) administered interest rate structure on bank deposits, and, (c) possibility of fake and fraudulent transactions. Later, in 1987, Vaghul Working Group looked into the desirability of introducing the instrument. The Group felt that for the instrument to be meaningful, it was necessary to link the deposit rates with the remaining interest rate structure of the financial system. The Group underscored the significance of the instrument but did not recommend the introduction of the same, like the earlier Group, unless appropriate conditions were created for the same.

The market for CDs was firmly set up in India. When the RBI scheme of CDs was announced in its credit policy in March 1989. The scheme has been amended and reformed a number of times since then. The main characteristics of the present CD market are as follows:

- CDs can be issued only by scheduled commercial banks with a minimum value of Rs. five lakh and in subsequent multiples of Rs. one lakh
- The maturity period of a CD ranges from three months to one year
- CDs can be subscribed by individuals, corporates, trusts, funds, associations and NRIs on a non-repatriable basis
- CDs are freely transferable by endorsement
- CDs cannot be used as security against loans
- Issuing bank cannot buy back a CD before maturity
- Banks have to maintain statutory reserve ratio requirements on the issue price of the CD.

The growth of the market for certificates of deposit has taken place at a highly uneven pace. In fact, there have been sharp upswings and downswings in the CDs market since its development. The fluctuating growth of the market. In terms of outstanding amounts of the CDs, there has been sharp growth during 199–93. After slump in 1993–94, there has again been sharp growth during 1994–96. Thereafter, there has been decline till 1997–98. The outstanding amount nose dived from about Rs. 14300 crore at the end of 1997–98 to just about 3,700 crore at the end of 1998–99. The sharp variation in the market turnover is closely related to the liquidity conditions. Under conditions of excess liquidity, the CDs market plunges into slump. The secondary market in CDs is just in a stage of infancy and will require quite some times to develop.

Commercial Papers Market

A Commercial paper is a special form of promissory note usually by large corporate house. However, in countries like Spain and Japan, these are commonly used by small business as a means of finance. These papers have a short-term and fixed maturity period and are unsecured. Commercial papers were first introduced in India on the recommendation of the Vaghul Working Group in 1987. As commercial papers are unsecured, the lending banks have only a general (rather than specific) claim upon the assets of the issuing company. A few banks maintain lines of credit for commercial papers. Under a line of credit, a lending bank has pre-arrangement with a borrowing company under which the latter can borrow up to a certain pre-arranged limit. The papers are issued by non-banking companies and all India financial institutions of high market credibility and standing and the interest rate offered on the papers is generally less than the average interest rate offered by banks on their credit.

The commercial paper scheme was formally launched by the RBI in January 1990 with guidelines which have been modified and liberalized according to the conditions and developments in money market from time to time. The present guidelines are as follows :

- The networth of the issuing company should not be less than Rs. four crore and the same limit applies to fund-based working capital.
- Shares of the issuing company should have been listed in at least one of the stock exchanges. Government companies and closely –held companies are exempted from this provision.
- The issuing companies should enjoy good credit rating.
- The bank advance of the issuing company must be classified as standard asset.
- The minimum amount of commercial paper issue should be Rs. five lakh.
- The maturity period of the papers should be in the range of 91 days to six months.
- Commercial papers, like certificates of deposit, should be issued at a negotiated discount rate.
- The issuing company must maintain a current ratio 1.33:1.

The rate of interest or discount on a commercial paper generally lies between the mean lending rate of the commercial banks and mean interest rate in the money market.

The yield to the investor on a commercial paper with a front end discount is calculated by the following formula.

Where y = yield rate (%); D_n = nominal or negotiated discount rate inclusive of stamp duty and other charges; and t = time period of discount compounded for one year.

Like the CDs market, there have been wide fluctuations in the growth of the commercial paper market over the last decade. In terms of year-end outstanding amount, the market had a low profile till 1992–93. The year 1993–94 recorded an explosive growth to Rs. 3264 crore as compared to just Rs. 577 crore in the preceding year. The amount fell abysmally to Rs. 76 crore in 1995–96 and again zoomed to Rs. 4770 crore in 1998–99.

Banks' investment in commercial papers is basically driven by their surplus fund position. In times of high liquidity, commercial papers are a better place, as compared to inter-bank call market, to park their funds as the interest rate available is higher. These papers provide a readymade investment opportunity at low risk which enables them to avoid marketing and transactional costs as in the case of their direct lending. Most commercial papers in India have a maturity period of less than three months; this immensely suits the banks with excess reserves. In tune with the general interest rate structure, the interest rate on commercial papers has been gradually declining.

1.2 The Main Function of the Financial Markets:

- To facilitate creation and allocation of credit and liquidity;
- To serve as intermediaries for mobilization of savings;
- To assist the process of balanced economic growth;
- To provide financial convenience; and
- To cater to the various credit needs of the business houses.

1.3 Types of Financial Markets:

Based on credit requirement for short-term and long-term purposes, financial markets are categorized into two types:

Money market

Capital market

Money market

The money market is a sub-section of the fixed income market. We generally think of the term fixed income as being synonymous to bonds. In reality, a bond is just one type of fixed income security. The difference between the money market and the bond market is that the money market specializes in very short-term debt securities (debt that matures in less than one year). Money market investments are also called cash investments because of their short maturities.

Money market securities are essentially IOUs issued by governments, financial institutions and large corporations. These instruments are very liquid and considered extraordinarily safe. Because they are extremely conservative, money market securities offer significantly lower returns than most other securities.

One of the main differences between the money market and the stock market is that most money market securities trade in very high denominations. This limits access for the individual

investor. Furthermore, the money market is a dealer market, which means that firms buy and sell securities in their own accounts, at their own risk. Compare this to the stock market where a broker receives commission to acts as an agent, while the investor takes the risk of holding the stock. Another characteristic of a dealer market is the lack of a central trading floor or exchange. Deals are transacted over the phone or through electronic systems.

The easiest way for us to gain access to the money market is with money market mutual funds or sometimes through a money market bank account. These accounts and funds pool together the assets of thousands of investors in order to buy the money market securities on their behalf. However, some money market instruments, like treasury bills may be purchased directly. Failing that, they can be acquired through other large financial institutions with direct access to these markets. There are several different instruments in the money market, offering different returns and different risks. The Reserve Bank of India describes the money market as "the centre for dealings, mainly of a short-term character, in monetary assets; it means the short-term requirements of borrower and provide liquidity or cash to the lenders." The borrowers in the money markets are generally merchants traders, manufacturers, business concerns, brokers and even government institutions. The lenders in the money market, on the other hand, include the central bank of the country, the commercial banks, insurance, companies and financial concerns.

1.4 Functions of the Money Market:

The money market performs the following functions:

- The basic function of money market is to facilitate adjustment of liquidity position of commercial bank, business corporations and other non-bank financial institutions.
- It provided outlets to commercial banks, business corporations, non-bank financial concerns and other investors for their short-term surplus funds.
- It provided short-term funds to the various borrowers such as businessmen, industrialists, traders etc.
- Money market provided short-term funds even to the government institutions.
- The money market constitutes a highly efficient mechanism for credit control. It serves as a medium through which the central bank of the country exercises control on the creation of credit.
- It enables business to invest their temporary surplus for a short period.
- It plays a vital role in the flow of funds to the most important uses.

1.5 Money Markets Instruments:

The money markets are not a single homogeneous but it is composed of several specialized sub-markets, each one of which deals in different types of short-term credit. We shall describe here the following important components of money markets.

1. Call Money Market: The call money market refers to the market for extremely short-period loans. Bills brokers and dealers in the stock exchange usually borrow money for short periods from commercial banks. The money is advanced by the commercial banks to bill brokers and dealers in

the stock exchange for a very short period of one day, overnight or maximum seven days. Such short period loans are called "call loans" as these can be recalled by the lending bank at any time. There is no collateral security demanded against these loans and the borrower has to repay the loans immediately whenever called for.

2. Certificate Of Deposit (CD):

A certificate of deposit (CD) is a time deposit with a bank. CDs are generally issued by commercial banks but they can be bought through brokerages. They bear a specific maturity date (from three months to five years), a specified interest rate, and can be issued in any denomination, much like bonds. Like all time deposits, the funds may not be withdrawn on demand like those in a checking account.

CDs offer a slightly higher yield than T-Bills because of the slightly higher default risk for a bank but, overall, the likelihood that a large bank will go broke is pretty slim. Of course, the amount of interest you earn depends on a number of other factors such as the current interest rate environment, how much money you invest, the length of time and the particular bank you choose. While nearly every bank offers CDs, the rates are rarely competitive, so it's important to shop around.

A fundamental concept to understand when buying a CD is the difference between annual percentage yield (APY) and annual percentage rate (APR). APY is the total amount of interest you earn in one year, taking compound interest into account. APR is simply the stated interest you earn in one year, without taking compounding into account. The difference results from when interest is paid. The more frequently interest is calculated, the greater the yield will be. When an investment pays interest annually, its rate and yield are the same. But when interest is paid more frequently, the yield gets higher. For example, say you purchase a one-year, \$1,000 CD that pays 5% semi-annually. After six months, you'll receive an interest payment of \$25 ($\$1,000 \times 5\% \times .5$ years). Here's where the magic of compounding starts. The \$25 payment starts earning interest of its own, which over the next six months amounts to \$0.625 ($\$25 \times 5\% \times .5$ years). As a result, the rate on the CD is 5%, but its yield is 5.06. It may not sound like a lot, but compounding adds up over time. The main advantage of CDs is their relative safety and the ability to know your return ahead of time. You'll generally earn more than in a savings account, and you won't be at the mercy of the stock market. Plus, in the U.S. the Federal Deposit Insurance Corporation guarantees your investment up to \$100,000. Despite the benefits, there are two main disadvantages to CDs. First of all, the returns are paltry compared to many other investments. Furthermore, your money is tied up for the length of the CD and you won't be able to get it out without paying a harsh penalty.

3. Commercial Paper:

For many corporations, borrowing short-term money from banks is often a laborious and annoying task. The desire to avoid banks as much as possible has led to the widespread popularity of commercial paper. Commercial paper is an unsecured short-term loan issued by a corporation, typically for financing accounts receivable and inventories. It is usually issued at a discount, reflecting current market interest rates. Maturities on commercial paper are usually no longer than nine months, with maturities of between one and two months being the average. For the most part, commercial paper is a very safe investment because the financial situation of a company can easily be predicted over a few months. Furthermore, typically only companies with high credit ratings and credit worthiness issue commercial paper. Over the past 40 years, there have only been a handful of

cases where corporations have defaulted on their commercial paper repayment. Commercial paper is usually issued in denominations of \$100,000 or more. Therefore, smaller investors can only invest in commercial paper indirectly through money market funds.

Money Market: Treasury Bills (T-Bills) Treasury Bills (T-bills) are the most marketable money market security. Their popularity is mainly due to their simplicity. Essentially, T-bills are a way for the Indian Government to raise money from the public. In this tutorial, we are referring to T-bills issued by the Indian Government, but many other governments issue T-bills in a similar fashion. T-bills are short-term securities that mature in one year or less from their issue date. They are issued with three-month, six-month and one-year maturities. T-bills are purchased for a price that is less than their par (face) value; when they mature, the government pays the holder the full par value. Effectively, your interest is the difference between the purchase price of the security and what you get at maturity. For example, if you bought a 90-day T-bill at \$9,800 and held it until maturity, you would earn \$200 on your investment. This differs from coupon bonds, which pay interest semi-annually. Treasury bills (as well as notes and bonds) are issued through a competitive bidding process at auctions. If you want to buy a T-bill, you submit a bid that is prepared either non-competitively or competitively. In non-competitive bidding, you'll receive the full amount of the security you want at the return determined at the auction. With competitive bidding, you have to specify the return that you would like to receive. If the return you specify is too high, you might not receive any securities, or just a portion of what you bid for.

4. Eurodollars:

Contrary to the name, Eurodollars have very little to do with the euro or European countries. Eurodollars are U.S. dollar-denominated deposits at banks outside of the United States. This market evolved in Europe (specifically London), hence the name, but Eurodollars can be held anywhere outside the United States. The Eurodollar market is relatively free of regulation; therefore, banks can operate on narrower margins than their counterparts in the United States. As a result, the Eurodollar market has expanded largely as a way of circumventing regulatory costs. The average Eurodollar deposit is very large (in the millions) and has a maturity of less than six months. A variation on the Eurodollar time deposit is the Eurodollar certificate of deposit. A Eurodollar CD is the same as a domestic CD, except that it is the liability of a non-U.S. bank. Because Eurodollar CDs are typically less liquid, they tend to offer higher yields.

The Eurodollar market is obviously out of reach for all but the largest institutions. The only way for individuals to invest in this market is indirectly through a money market fund.

5. Repos:

Repos is short for repurchase agreement. Those who deal in government securities use repos as a form of overnight borrowing. A dealer or other holder of government securities (usually T-bills) sells the securities to a lender and agrees to repurchase them at an agreed future date at an agreed price. They are usually very short-term, from overnight to 30 days or more. This short-term maturity and government backing means repos provide lenders with extremely low risk. Repos are popular because they can virtually eliminate credit problems. Unfortunately, a number of significant losses over the years from fraudulent dealers suggest that lenders in this market have not always checked their collateralization closely enough. There are also variations on standard repos:

Reverse Repo - The reverse repo is the complete opposite of a repo. In this case, a dealer buys government securities from an investor and then sells them back at a later date for a higher price.

Term Repo - exactly the same as a repo except the term of the loan is greater than 30 days.

6. Banker's Acceptance:

A bankers' acceptance (BA) is a short-term credit investment created by a non-financial firm and guaranteed by a bank to make payment. Acceptances are traded at discounts from face value in the secondary market.

For corporations, a BA acts as a negotiable time draft for financing imports, exports or other transactions in goods. This is especially useful when the creditworthiness of a foreign trade partner is unknown. Acceptances sell at a discount from the face value.

One advantage of a banker's acceptance is that it does not need to be held until maturity, and can be sold off in the secondary markets where investors and institutions constantly trade BAs.

1.6 Financial Institutions in the Money Market:

The commercial banks, non-bank financial institutions, bill brokers, acceptance houses and the central bank of the country are the major institutions of the money markets.

Commercial Banks: The commercial bank is the back bone of the money market. They form one of the major constituents of the money market. They use their short-term surplus funds to grant short-term loans to the money market. They also discount and rediscount the commercial papers such as bill of exchange and Treasury bill. Commercial banks always try to maintain a balance between liquidity and profitability.

Non-bank Financial Institutions: Non-bank financial institutions such as insurance companies and other business corporations having shortly period surplus funds also operate in the money market.

Acceptance Houses: Acceptance house and bill brokers are the important constituents of the money market in developed countries. These houses specialize in the acceptance of trade bill on behalf of their customers. Discount houses and bill broker's discount buy and sell bill drawn on the acceptance houses.

Central Bank: The central bank is the top-most financial institution in the money market. It is regarded as the lender of the last resort, bankers to the government, banker's bank and controller of the money market, as a lender of the last resort the central bank gives temporary financial assistance to commercial banks by rediscounting their eligible bills. The central bank controls the money markets with two main instruments, namely the bank rate and the open market operations.

1.7 The Indian Money Market:

The Indian money market is classified into two sectors: (i) Organized, and (ii) unorganized. The organized sector comprises the Reserve Bank of India, Commercial Bank and Foreign Exchange Banks. The unorganized sector included indigenous bankers and chit funds who pursue the banking business on traditional lines and lack uniformity and consistency in their operations. Thus the money market in India is not only heterogeneous but also unorganized. It possesses a number of drawbacks of an underdeveloped money market; some of the major deficiencies of the Indian money market are as under:

Existence of Unorganized Money Market: The existence of indigenous bankers as unorganized sector of money market is an important drawback of the money market. The indigenous bankers pursue the business on traditional lines and do not follow the rules and regulations of the central bank, i.e., Reserve Bank of India.

Lack of Integration: Another important drawback of the Indian money market is the division of money market into different sections which are loosely connected to each other. There exists no co-ordination between the organized and unorganized sector of the Indian money market. The Reserve bank of India has been trying to remove this defect and is now fully effective in the organized sector. Even in the unorganized sector many indigenous bankers are coming under the purview of RBI through its rediscounting facilities.

Wide Divergence in the Structure of Interest Rates: Due to lack of homogeneity in the composition of the Indian money market there is wide divergence in the structure of interest rates. Different rates of interest exist simultaneously due to immobility of funds from one section of money market to another e.g. call market and bill market. However the difference in the rates of interest, now-days, gets adjusted to changes in the bank rate.

Disparity in Interest Rates in Different Centers: There was not only wide divergence in the structure of interest rates, but also the feature of the Indian money market was disparity of interest rates in different centers of the money market. This was mainly due to the lack of cheap and fast remittance facilities. However, the Reserve bank has rationalized and cheapened the facilities of remittance of funds between different parts of the country, enabling to equalize interest rates all over the country. However, in unorganized sector, the interest rates are different even today.

Absence of Bill Market: The bill market, which is an essential characteristic of a developed money market, is also underdeveloped in India. There is a great paucity of sound commercial bill of exchange in our country. As a matter of habit, Indian traders resort to hundies rather than properly drawn bills of exchange. The Reserve Bank of Indian introduced Bill Market scheme in 1952 and new bill market in 1970.

Absence of a Well Organized Banking System: A well-organized banking system, which is so essential for the smooth running of a many markets, did not exist in India; banking facilities were restricted to cities and towns and were non-existing in the village. To add to it, the banking system remained unorganized, but after the passing of the Banking Regulation Act, 1949, the RBI has been exercising influence and control over the banking system in the country. After nationalization of the major banks branch banking has been speeded up. Lead bank scheme has also been introduced to organize the banking system.

Other Deficiencies: In addition to the above-mentioned drawbacks, there are a number of other deficiencies in the Indian money market. In India, there has been paucity of funds in the busy season from November to June resulting in higher rate of interest. RBI plays a significant role to remove this drawback by pumping in more money during the busy season and reducing them during off-season. The Indian money market is also characterized to be inelastic as well as unstable. It does not attract foreign funds as the London Money Market does.

1.8 The Reforms in the Indian Money Markets:

Since its inception particularly after independence, the Reserve Bank of India has been making efforts to remove the defects of the Indian money market. The organized sector of the market is relatively well knit and differences between various sectors of the market have been reduced. The bill market schemes were one very important step. But the Indian money market is still centered on the call money although efforts have been made to develop secondary market in post 1991 period.

Vaghul Committee on money market, Sukhmoy Chakravarty committee on the review of the working of financial system have made important recommendations on the Indian money market. The Reserve Bank of India has started the process of implementation of these recommendations.

Developed of Money Market Instruments: The Reserve Bank of India has played an important role in the introduction of new money market instruments. These new instruments are 182 days treasury bills, longer maturity bills, dated government securities, certificates of deposits and commercial papers, 3-4 days repos and 1 day repos from 1998-99.

Traditionally, the 91 days treasury bills have been the main instruments used by government of India for raising short-term funds. The investments came from commercial banks. In January 1993, the government of India introduced the system of weekly auctions, which has become quite popular. The government has been raising nearly Rs. 16000 crores through these instruments. The interest rate variations in these bills have been between 7.15 to 11 per cent. Indian money market is following the unique practice of converting treasury bills dated securities of 2 years or 5 years, normally carrying interest rate of 12 per cent.

Deregulation of Interest Rates: Deregulation of interest rates helps banks to accustom to better pricing of assets and liabilities and to the need to manage interest rate across their balance sheet.

The process of reduction of interest rate regulations started in 1988 when reserve bank of Indian removed the ceiling of 16.5 percent and fixed a minimum of 16 per cent p.a. in 1989 the ceiling on the interest rates on inter bank call market inter bank short-term deposits, etc. was also removed and the interest rate got linked to market forces.

Institutional Development: The post reforms period saw significant institutional development and procedural reforms aimed at developing a strong secondary market in government securities. Some of the developments are:

1. Discount and Finance House of Indian Ltd.
2. Securities Trading Corporation of India.

Money Market Mutual Funds: In 1992 setting up of money markets mutual funds was announced to bring it within in the reach of individuals. These funds have been introduced by financial institutions and banks.

Permission to Foreign Institutional Investors (FII): FII's are allowed to operate in all dated government securities. The policy for 1998-99 had allowed them to buy treasury bills within approved debt ceiling.

Liquidity Adjustment Facility: The committee on bank sector reforms (Narasimham Committee 11, 1998) recommended Liquidity Adjustment Facility (LAF) as a means to further develop

the short-term money market through provision of adequate liquidity. Accordingly, RBI introduced the Interim LAF (ILAF) in April 1999. Pending further up gradations in technology and local/procedural changes to facilitate electronic transfer and settlements.

Recent Development in the Money Market:

Indian money market has undergone a number of changes in the course of financial sector reforms. Though the market is much less developed as compared to the money markets of the USA, UK, Germany, Australia, Canada, Sweden and other developed market economies, it has acquired greater liquidity and vibrancy. There have been efforts in the direction of broadening and deepening the market through larger number of players and financial instruments. In addition to that, forces of competition have been introduced. The major developments in the market that have taken place may be briefly described as follows.

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Development of the Secondary Market: The development of the secondary component of the Indian money market, in formal sense, began from the year 1988 with the setting up of Discount and Finance House of India (DFHI). The nature and functions of the DFHI have already been explained in preceding sections. The operations of DFHI were supplemented by the Securities Trading Corporation of India (STCI) in 1994, which have led to the emergence of the secondary market in treasury bills and Government of India securities. The RBI intervenes in the market to inject or suck liquidity consistent with the growth requirements of the market.

Deregulation: There has been a trend towards deregulation of the Indian money market since 1988, which escalated, in the subsequent years. This has led to greater competition and smaller dispersion in the rates of the various sub- markets. Not only that, there has been gradual decline in the money market rates. The mean rate prevailing in the money market, which stood at 13.6 per cent in 1992, gradually came down to less than 9 per cent in 2002 with a few exceptions like the year 1996 when it was about 15 per cent. The standard deviation of the mean rate, which was about 5 per cent in 1992 gradually, came down to 1.5 banks and other money market institutions with regard to their basic operations. The growing stability of the money market is attributed largely to RBI regulation.

Development of the REPO Market: In recent years, steps have been taken to impart liquidity to the treasury bill through Repurchase Options (REPOs). The nature of the REPOs market has already been explained in the preceding sections. With the March 2000 amendment to the Securities Contracts (Regulation) Act, 1956, the RBI has been empowered to regulate dealings in government and money market securities. The RBI has permitted, under its new powers, to allow selected categories of entities to enter the market of REPOs in treasury bills and dated securities of the central and state governments.

Negotiated Dealing System (NDS): NDS was established in 2001 in order to facilitate electronic bidding in auctions and transactions in the secondary market in government securities.

It also disseminates information on trades on a real time basis. This not only facilitates smooth operation of the market but also reduces transaction cost and time. The system, when fully developed, will support transactions in REPOs, call money, commercial papers, certificates of deposit and interest rate derivatives. It is also being used for operating Liquidity Adjustment Facility (LAF, see the following sections). The main participants in the NDS are banks, primary dealers and financial institutions, which maintain Subsidiary General Ledger (SGL) accounts and current accounts with the RBI. The system is providing instrumental in expanding the transaction base of the money market and is reducing the extent of idle funds.

Clearing Arrangements: In order to clear the transactions in money and foreign exchange markets, the Clearing Corporation of India Limited (CCIL) was established in April 2001 under the Companies Act, 1956 with the State Bank of India as the main promoter. The basic function of the corporation is to clear all transactions in government securities and REPOs as conducted through the Negotiated Dealing System of the RBI. It also provides clearing arrangement for exchange transactions between the rupee and US dollar in spot and forward markets. The government has made it mandatory to settle all trades in government securities below Rs. 20 crore through the CCIL. However, trades with values exceeding Rs. 20 crore may be settled either through the CCIL or the RBI.

Proactive Role of Open Market Operations (OMOs): Recent years have witnessed a proactive role of OMOs of the RBI towards liquidity adjustment in the economy and fine – tuning of temporary asset-liability mismatches. The RBI closely watches the liquidity conditions in the economy as it affects the price level and cost of capital to business through changes in interest rate structure. The RBI conducts such transactions every month. Over the last few years, the RBI has been resorting to net sale of government securities. The type of security to be purchased or sold is selected by the RBI keeping in view the nature of asset-liability mismatches. During April – December 2001, the RBI sold government securities aggregating more than Rs.30,000 crore. Changes in the liquidity condition are quickly reflected in changes in the REPOs rate.

Liquidity Adjustment Facility (LAF): The facility was introduced with effect from June 2000 to contain market volatility through liquidity adjustment. The facility provided by the RBI involves absorption or injection of liquidity on a day-to-day basis. This facility was recommended by the Committee on Banking Sector Reforms (Narsimham Committee II, 1998) as a means to develop the short-term money market. As a consequence, the RBI introduced Interim Liquidity Adjustment Facility (LAF) in April 1999, which provided a mechanism of liquidity management through a mix of REPOs, export credit refinance and collateralized lending facilities supported by open market operations at predetermined rates of interest. The interim facility has been phased out and has been replaced by full-fledged LAF.

Under the present facility, the standing liquidity facilities are divided into two parts. The first part consists of a normal facility constituting about two-thirds of the limit at the bank rate. The second part exists as a backstop facility comprising of about one-third of the limit at a variable daily rate linked to the cut-off rates prevailing at regular LAF auctions. When these rates don't exist, the backstop facility is linked to the Mumbai Inter-bank Offer Rate (MIBOR). The quantum of adjustment and the rates under LAF are flexible and responsive to the circumstances in the money market. The funds made available by the RBI through LAF are meant basically to meet day-to-day liquidity mismatches rather than to meet normal financial requirements of participating institutions. LAF

was earlier based on a system of auctions on a uniform price basis so that a single REPO rate was applied to all the successful bidders. Now, there exists a system of multiple price auctions. The weighted average cut-off yield is conveyed to the public, which, along with the cut-off price, serves as a benchmark band for the call money market to operate.

1.9 Recent Trends in Indian Financial Markets:

Turbulent and tumultuous changes in economic milieu of the country ushered in during the last decade by the government policy of liberalization, delicensing and globalization of Indian economy with the walls cocooning the economy being torn down have brought about tectonic changes in Indian financial markets both in quantitative and qualitative terms. Unprecedented phenomenon in the securities market, growing institutionalization of the stock markets and proliferation, sophistication, innovation and diversification of the operations of financial institutions bear eloquent testimony to the emergence of broad-based matured and vibrant capital and money market in the country.

Surge in New Issue Market: The major development witnessed recently in the Indian new market were the repeal of Capital Issues (Control) Act, Abolition of the office of the Controller of capital issues and consequent introduction of free pricing of public issues.

Constitution of Security and Exchange Board of India (SEBI), OTC Exchange of India. and establishment of National Stock Exchange of India (NSEI) and Indian new issue market recorded sharp growth in the 1980s and the subsequent years so much so that as against an annual average of just Rs.90 crores raised through floatation of new issues in the seventies, as high as Rs.7516 crores were raised during 1989-90. There was a sharp decline in the resources raised by the corporate sector from the primary market in 1990-91. Total amount raised during the year was Rs.2367 crores. This was [primarily because of the Gulf war and political uncertainty. The other factor that affected the market was the oil crisis, the balance of payment situation, the resultant squeeze on the import of various industrial input, the interim fiscal measures, etc.

Commercial banks were also permitted to raise equity share capital from the capital market. Banking Companies Act was amended in May 1994 for providing the privatization of nationalized banks. As such private individuals and companies including NRIS could hold shares in the banks upto 40 per cent.

Establishment of SEBI, abolition of capital issues controls, ushering in free issue pricing era and constitution of OTCEI and formation of National Stock Exchange of Indian provided further boost to primary market in India.

Expansion, Institutionalisation and Sophistication of the Stock Market: Buoyancy in the new issue market has been supported by tremendous growth of stock market in the country. Not only has number of stock exchanges increased from 8 in 1970 to 2 at present (in addition to National Stock Exchange) number of listed companies surged from 1203 to over 8500 during the corresponding period. Number of investors also shot up from less than 10 lakhs in 1970 to over 1.5 crores at present. The stock prices almost multiplied more than five times, with BSE sensitivity index of 188 in 1981 to 1113 in 1990.

The secondary market reached its peak at the beginning of the year 1992-93, when the Bombay Stock Exchange Sensitivity Index 4547 points. However, detection or irregularities in securities

transactions subdued the market which was further dampened by poor partly be due to higher investments in the primary markets including mutual funds instruments.

Another recent development in Indian market is institutionalization of the stock markets, this has fostered by the entry of foreign institutional investors (FIIs) foreign funds private mutual pension funds new technology and the securities and exchange board of India (SEBI). Stock markets all over the country are modernizing themselves. Increasingly, many of them are being overrun by institutional investors. And merchant bankers and stock brokers, underwriters and jobbers are being forced to metamorphose themselves into corporate structure or institutions.

Innovation and Diversification of Term-Financing Corporations: Growing deregulation and economic liberalization coupled with radical reforms in financial sector, expanding technology and fierce competition following sharp acceleration in the pace of innovation and structural changes in the international financial markets have brought about tremendous changes in corporate policies and strategies and so also business mix of Indian financial institutions thereby blurring the distinction between money and capital market institutions and changing their basic charactr from leading institutions to catalytic agents of growth.

In order to meet the challenges of the emerging competitive environment financial corporations reoriented their strategies to bring innovation in their products and diversify their activities both based and non-fund based. Until recently these institutions operated primarily as term lending institutions confining themselves to dispensing loans to traditional industrious; sectors situated in a few advanced regions of the country. Except UTI no financial institutions had endeavored to mobilize savings of the community. In fact they performed the role of a canalize rather a financial intermediary. However, financial institutions sensing the ferocity of competition ushered in by changed in the government policy transcended their traditional role to assume the role of a full-fledged financial institution to render various financial services to the needy entrepreneurs in addition to project finance.

Thus, Industrial Finance Corporation of India (IFCI), Industrial Credit and Investment Corporation of Indian (ICICI), and Industrial Development Bank of India have made direct access to new issue market, since the tradition source of government guaranteed and other low cost funds were on the wane to raise funds. The IDBI Act was amended in 1995 to enable them to undertake fund raising functions. The IFCI was reconstituted as company under the companied Act to impart bigger degree of operational flexibility.

In their endeavour to tap more and more savings, IDBI, IFCI and ICICI launched mutual funds schemes and set up asset management companies to manage these schemes.

Widening and Deepening of Money Market in India: In recent years the RBI initiated a host of measures to widen and deepen the money market of the country. The first such measure was setting up in 1988, the Discount and Finance House of India (DFHI) as a money market institution by the RBI in association with public sector bank and financial institutions. The reserve bank has since divested its shareholding and is only a minority shareholder now.

Another important step taken by the RBI was increasing the range of money markets instruments by introducing in 1988-89 commercial papers, certificates of deposits and interbank participation certificates.

So as to enable price discovery, the interest rate ceiling on call money was freed in states from Oct, 1988, as a first step operations of DFHI in the call/ notice money market were freed from the interest rate ceiling in 1988, and in May 1989 the interest rate ceiling was completely withdrawn for all operation in the call/ notice money market and on interbank term money, rediscounting of commercial banks and interbank participation certificate without risk. Currently, all the money market interest rates are by and large determined by market forces.

Recent Trends in Indian Commercial Banks: In the banking field too there has been an unprecedented growth and diversification of banking industry has been so stupendous it has no parallel in the annuals of banking any where in the world. During the last 30 years, since nationalization tremendous changes have taken place in the banking industry. The banks have shed their traditional functions and have been innovating improving and coming out with new types of the services to cater to the emerging needs of their customers.

Massive branch expansion in the rural and underdeveloped areas, mobilization of savings and expansion of credit facilities particularly in priority sector have resulted in the widening and deepening of the financial infrastructure and transferred the fundamental character of class banking into mass banking.

There has been considerable innovation and diversification in the business of major commercial banks. Some of them have engaged in the areas of consumer credit, credit cards, merchant banking, leasing, mutual funds, etc. A few banks already set up subsidiaries for merchant banking, leasing and mutual funds and many more are in the process of doing so. Banks have of late commenced factoring and securitization. They have also business ventures into projects financing some banks are contemplating to add life insurance to other existing product range.

1.10 Capital Market:

A good capital market is an essential pre-requisite for industrial; and commercial development of a country. Credit is generally required and supplied on short-term and long-term basis. The money market caters to the short-term market. Is a central coordinating and directing mechanism for free and balanced flow of financial resources into the economic system operating in a country.

The development of a good capital market in a country is dependent upon the availability of savings, proper organization of its constituent units and the entrepreneurship qualities of its people. Before independence, the capital market of India was ill-developed because of its certain defects. But in recent years since independence, the capital market of India has substantially changed and has been changing for the better.

1.11 Meaning of Capital Market:

The term capital market refers to the institutional arrangements for facilitating the borrowing and the lending of long-term funds. In the widest sense, it consists of a series of channels through which the savings of the community are made available for industrial and commercial enterprises and public authorities. It is concerned with those private savings, individuals as well as corporate, that are turned into investments through new capital issues and also new public loans floated by government and semi-government bodies.

A capital market may be defined as an organized mechanism for effective and efficient transfer of money-capital or financial resources from the investing parties, i.e., individuals or institutional savers to the entrepreneurs (individuals or institutions) engaged in industry or commerce in the business either in the private or public sectors of an economy.

1.12 Objectives and Importance of Capital Market:

An efficient capital market is a pre-requisite of economic development. An organized and well developed capital market operating in a free market economy, (i) ensures best possible coordination and balance between the flow of savings on the one hand and the flow of investment leading to capital formation on the other; (ii) directs the flow of savings into most profitable channels and thereby ensures optimum utilization of financial resources.

Thus an ideal capital market is one where finance is used as a hand made to serve the need of industry. Finance is available at reasonable rate of return for any propositions which offers a prospective yield sufficient to make borrowing worthwhile. The development of savings proper organization of intermediary institutions and the entrepreneurial qualities of the people. The capital market must facilitate the movement of capital to the point of highest yield. Thus a capital market strives for (i) the mobilization or concentration of national savings or economic development, and (ii) the mobilization and import of foreign capital and investment to augment the deficit in the required financial resources so as maintain the expected rate of economic growth.

1.13 Function of Capital Market:

The major functions performed by a capital market are:

Mobilization of financial resource on a nation-wide scale.

Securing the foreign capital and know-how to fill up the deficit in the required resources for economic growth at a faster rate.

Effective allocation of the mobilized financial resources, by directing the same to projects yielding highest yield or to the projects needed to promote balanced economic development.

1.14 Primary Securities Market:

The Primary Capital Market (PCM) plays an important role in the overall functioning of securities market. Despite several measures the primary market remained lackluster till recently and the pick up is gradual. According to the SEBI annual report, fewer number of issues accessed the primary market during the year and the significantly lower than that of the previous financial year. Share of the equity issues, in terms of number and amount mobilized, however, was higher in this financial year compared to the previous one. More than three-fourths of the total amount was occupied second and no resourced were in the previous years, banks and financial institutions continued for 84.5% of the resourced mobilized compared to 68.1% in 2001-02. All other industries shared the remaining portion.

1.15 Capital Rose During 2002-03:

During the financial year 2002-03, primary market witnessed a decrease of 46.0% in the amount raised and also a decrease of 25.7% in the number of issues launched compared to the same period in 2001-02. A total of 26 issues (14 public issues and 12 rights issues) opened during the financial year 2002-03 raising Rs. 4070.29 crore (Rs. 3638.6 crore through public issues and 431.6 crore through rights issues). In 2001-02 a total of 35 issues opened for raising Rs. 7543.0 crore (20 public issues – Rs. 6501.8 crore and 15 rights issues – Rs. 1041.2).

1.16 Industry Wise Capital Mobilization:

Three industries, viz., Banks/FIs, Engineering and Telecommunications accounted for 93.2 per cent of the resourced mobilized in 2001-02. In the current year, the same three industries accounted for 84.7 per cent of the funds raised. With the banks and FIs, increasing their share from 68.3 per cent to 84.5 per cent and companies in the Telecommunications sector and raising any resourced. In 2002-03 the three industries which accounted for 95.3 per cent of the resources were Banking/FIs, Information Technology, Paper and Pulp.

1.17 Secondary Market:

Secondary Market refers to a market where securities are traded after being initially offered to the public in the primary market and/or listed on the Stock Exchange. Majority of the trading is done in the secondary market. Secondary market comprises of equity markets and the debt markets.

For the general investor, the secondary market provides an efficient platform for trading of his securities. For the management of the company, Secondary equity markets serve as a monitoring and control conduit—by facilitating value-enhancing control activities, enabling implementation of incentive-based management contracts, and aggregating information (via price discovery) that guides management decisions.

1.18 The Products Dealt in the Secondary Markets:

Following are the main financial products/instruments dealt in the secondary market:

Equity: The ownership interest in a company of holders of its common and preferred stock. The various kinds of equity shares are as follows –

Equity Shares: An equity share, commonly referred to as ordinary share also represents the form of fractional ownership in which a shareholder, as a fractional owner, undertakes the maximum entrepreneurial risk associated with a business venture. The holders of such shares are members of the company and have voting rights. A company may issue such shares with differential rights as to voting, payment of dividend, etc.

Rights Issue/ Rights Shares: The issue of new securities to existing shareholders at a ratio to those already held.

Bonus Shares: Shares issued by the companies to their shareholders free of cost by capitalization of accumulated reserves from the profits earned in the earlier years.

Preferred Stock/ Preference Shares: Owners of these kind of shares are entitled to a fixed dividend or dividend calculated at a fixed rate to be paid regularly before dividend can be paid in respect of equity share. They also enjoy priority over the equity shareholders in payment of surplus. But in the event of liquidation, their claims rank below the claims of the company's creditors, bondholders/debentureholders.

Cumulative Preference Shares: A type of preference shares on which dividend accumulates if remains unpaid. All arrears of preference dividend have to be paid out before paying dividend on equity shares.

Cumulative Convertible Preference Shares: A type of preference shares where the dividend payable on the same accumulates, if not paid. After a specified date, these shares will be converted into equity capital of the company.

Participating Preference Share: The right of certain preference shareholders to participate in profits after a specified fixed dividend contracted for is paid. Participation right is linked with the quantum of dividend paid on the equity shares over and above a particular specified level.

- **Security Receipts:** Security receipt means a receipt or other security, issued by a securitisation company or reconstruction company to any qualified institutional buyer pursuant to a scheme, evidencing the purchase or acquisition by the holder thereof, of an undivided right, title or interest in the financial asset involved in securitisation.
- **Government Securities (G-Secs):** These are sovereign (credit risk-free) coupon bearing instruments which are issued by the Reserve Bank of India on behalf of Government of India, in lieu of the Central Government's market borrowing programme. These securities have a fixed coupon that is paid on specific dates on half-yearly basis. These securities are available in wide range of maturity dates, from short-dated (less than one year) to long-dated (upto twenty years).
- **Debentures:** Bonds issued by a company bearing a fixed rate of interest usually payable half yearly on specific dates and principal amount repayable on particular date on redemption of the debentures. Debentures are normally secured/charged against the asset of the company in favour of debentureholder.
- **Bond:** A negotiable certificate evidencing indebtedness. It is normally unsecured. A debt security is generally issued by a company, municipality or government agency. A bond investor lends money to the issuer and in exchange, the issuer promises to repay the loan amount on a specified maturity date. The issuer usually pays the bond holder periodic interest payments over the life of the loan. The various types of Bonds are as follows-
- **Zero Coupon Bond:** Bond issued at a discount and repaid at a face value. No periodic interest is paid. The difference between the issue price and redemption price represents the return to the holder. The buyer of these bonds receives only one payment, at the maturity of the bond.
- **Convertible Bond:** A bond giving the investor the option to convert the bond into equity at a fixed conversion price.
- **Commercial Paper:** A short term promise to repay a fixed amount that is placed on the market either directly or through a specialized intermediary. It is usually issued by

companies with a high credit standing in the form of a promissory note redeemable at par to the holder on maturity and therefore, doesn't require any guarantee. Commercial paper is a money market instrument issued normally for tenure of 90 days.

- **Treasury Bills:** Short-term (up to 91 days) bearer discount security issued by the Government as a means of financing its cash requirements.

1.19 Summary:

It is evident from the above that Indian financial market have undergone sea changes in recent years exhibiting tremendous potentiality, resilience, vibrancy and dynamism and blurring of distinction between money market and capital market operations to cope with tectonic changes in size and pattern of demand of various sectors of the economy and competitive challenges thrown open by the new players. Banks and financial institutions are moving closer to each other in the scope of their activities. Under the circumstance it is being strongly felt in recent few years that financial institutions should be restructured into universal banks so that may be able to satisfy the varied financial needs of the customers under one umbrella. This will also enhance cost effectiveness of these institutions and so also their competitive ability to thwart challenges from the new players.

The RBI therefore constituted in December 1997 a working group under the chairmanship and Managing Director of IDBI, Shri.S.H.Khan. The group recommended that financial institutions should be eventually converted into banks and a full banking licensing be granted to them. In the interim period, these institutions may be permitted to have banking subsidiaries while they themselves may continue to play their existing role. It also recommended management and shareholders of banks and financial institutions should be permitted to explore and enter into gainful mergers. These mergers, the group felt, should be possible between banks but also between banks and financial institutions, and not only between strong and weak though viable entities but even between two strong banks and financial institutions. Thus the khan working group on universal banking has opened new vistas raising a question mark on the continued role of existing financial institutions as development financial corporation in future.

However, the Indian money market has a long way to develop. In particular, there is need for a larger number of players in the market and a greater variety of instruments. There is dire need to promote the bill culture which may be promoted both through inducement measures and legislative provisions. In any case, the role of the RBI will continue to be of paramount importance. The globalization of the financial markets can go along way in developing the market further. Further measures are required to secure a larger degree of integration and coordination between the various sub-markets.

1.20 Self Assessment Questions:

1. What are the different types of financial instruments exists in financial market?
2. What are the different dealt in the secondary market?
3. Briefly explain about capital markets? What are the various functions of secondary market?
4. What are the recent trends in Indian financial markets?
5. What are the different types of financial instruments exists in financial markets?

Lesson - 2

Depository System

2.0 Objectives

The objectives of this unit are to enable you:

- To understand the meaning and importance of Depository system.
- To know the constituents of depository system.
- To know the advantage of the depository system.

Structure:

- 2.1 Introduction
- 2.2 Depository System
- 2.3 Constituents of Depository System
- 2.4 Advantages of the Depository System
- 2.5 Summary
- 2.6 Self Assessment Questions

2.1 Introduction:

One of the biggest problems faced by the Indian capital market has been the manual and paper based settlement system. Under this system the clearing and settlement of transactions take place only with the use of paper work. The system of physical delivery of scripts poses many problems for the purchaser as well as the seller in the form of delayed settlement, long settlement periods, high level of failed trade, high cost of transactions, bad deliveries etc. In many cases, transfer process takes much longer time than two months as stipulated in Section 113 of the Companies Act, 1956 or section 22 a of the Securities Contracts (Regulations) Act, 1956. Moreover a large number of transactions end up as bad deliveries due to faulty compliance of paper work, mismatch of signatures on transfer deed with specimen record of the issuer or other procedural reasons. Besides, theft, forgery, mutilation of certificated and other irregularities have also become rampant.

However, as a consequence of implementation of reforms measures, the Indian capital market has shown rapid growth in the recent past with foreign investors, more stock exchanges and increased market intermediaries. The old manual system of settlement and transfer has almost failed to handle the growing volume of paper that has loaded the market. Thus to eliminate paperwork, facilitate scrip less trading and electronic book entry of the transfer of securities, shorten settlement periods, and to improve liquidity in the stock market, it was found necessary to replace the old system of transfer and settlement with the new and modern system of depositories. Accordingly the Government of India enacted the Depositories Act in 1990 for the orderly growth and development of the Indian capital market.

Depository System

A major reform of the Indian stock markets has been the introduction of the depository system and scripless trading mechanism, since 1996. This system of trading based on physical transfer/custody of securities militated against the efficient functioning of markets, particularly in the context of the large scale entry of Foreign Institutional Investors (FIIs). The main problems faced the investors in general and FIIs in particular were.

To overcome the problem of a large number of transfer deeds and share certificates, the concept of jumbo transfer deed and jumbo certificate had been introduced. In a jumbo transfer deed only one transfer deed is to be executed for a large number of transfer, while a jumbo certificate reflects a large number of certificates. However, physical dealing in securities had to be completely eliminated to bring the Indian stock markets at par with the international markets, through scripless trading in which transactions in securities take place by a book entry method, without the physical delivery of securities or movement of cheques for payment. The essential part of scripless trading is the dematerialization of share certificates through depositories. All certificates are fur rendered to the issuer company that has issued the securities. On the receipt of the certificates through the depository participants and on the advice of the depository with whom the company has already entered into an agreement, the certificates are cancelled. The depositories, name is entered in the Register of Members of the company in respect of these securities, and the name of the beneficial owners whose name is recorded as such with a depository are deleted. The depository system in India operates within the framework of Depositories Act, 1996 and the SEBI Depositories and Participants Regulation, 1996.

Depositories Act

The objective of the Depositories Act is to provide for the regulation of depositories in securities and connected/incidental matters.

Certificate of Commencement of Business: To act as a depository, a certificate of commencement of business from the SEBI, under regulations framed by it, is necessary. Before granting a certificate, the SEBI must satisfy that the depository has set up a company that has adequate systems and safeguards to prevent the manipulation of records in the form of books/store in a computer or in such other forms and transactions.

Rights/Obligations of Depositories, Participants, Issuers and Beneficial Owners: A depository should enter into an agreement with depository participants (DPs) as its agent. Any person can avail of depository services connected with the recording of allotment or transfer of securities in the record of depository, through a DP, by surrendering the certificate of security to the issuer company in the specified manner. The issuer would cancel the certificate and substitute, in its records, the name of the depository as a registered owner in respect of that security. The depository would record the name of the person surrendering the certificate as the beneficial owner.

On receipt of information from any DP, a depository would register the transfer of security in the name of the transferee. If a beneficial owner/transferee seeks to have the custody of such security, the depository would inform the issuer company. Persons subscribing to securities have the option either to receive the certificates or hold them with a depository. In the latter case, the company should inform the depository about the details of allotment and the depository should enter in its record the name (s) of the allottee (s) as the beneficial owners of that security. All securities held by the depository would be dematerialized and would be in fungible form. A depository would be deemed to be the registered owner for the purposes of transfer of ownership of a security on behalf of a beneficial owner, though he would not have any voting rights in respect of the securities held. The beneficial owner, entitled to all rights/benefits and subjected to all liabilities in respect of such securities. Every depository should maintain a register and an index of beneficial owners in the manner provided by the Companies Act.

A beneficial owner, with the prior approval of the depository, can create a pledge / hypothecation held in a depository that would make entries in its records accordingly. This entry would be evidence of a pledge / hypothecation.

The depository should be furnished to the issuing company with information about the transfer of securities in the name of the beneficial owners at intervals and in a manner specified by its bye-laws. The issuer should make copies of the relevant records (with respect to the securities held by it) available to the depository.

A beneficial owner can opt out of a depository. Within 30 days of receipt of information to this effect from the depository, and on fulfillment of conditions and on the payment of fee specified by the SEBI regulations, the issuer would issue a certificate for the securities to the beneficial owner/transferee. Depositories would be treated as banks in terms of Section 2 of the Bankers Book Evidence Act, 1891. The depository would indemnify the beneficial owners (s) for any loss caused to him due to negligence of the depository/DP. It would have the rights/ obligations of depositories /participants/issuers and the eligibility criterion for the admission of securities into the depository would be specified by the SEBI regulations.

Enquiry and Inspection: On being satisfied that it is necessary in public interest/in the interest of the investors, the SEBI can call for information from, or make an enquiry or inspection in relation to the affairs of, the issuer/beneficial owner/depository participant. It may also give appropriate directions (i) in the interest of investors or orderly development of the securities market or (ii) to prevent the affairs of any depository/participant being conducted in a manner detrimental to the interest of the investors or securities market. Any person aggrieved by an order of the SEBI may like to appeal to the SAT.

Penalty for failure (a) by a person to (i) furnish any information/document/book/returns/report to the SEBI within the specified time, (ii) file any return/furnish any information, books, other documents within the time specified by the regulations/bye – laws, (iii) maintain books of accounts/records; (b) by a depository participant, issuer/agent/any person registered with the SEBI as an intermediary to enter into an agreement under the SEBI Act/regulations/redress inventor's grievances/dematerialize or issue the security certificate on opting out of depository by the investors within the specified time or abatement in delaying the process of dematerialization/rematerialisation/reconcile the records of dematerialized securities, and (c) comply with directions issued by the SEBI is Rs 1 lakh for each of default or Rs 1 crore whichever is less. Penalty for contravention where no separate penalty has been provided may be upto Rs. 1 crore.

Penalties: Contravention/attempt to or abatement of contravention of the provisions of this Act/any regulations/bye – laws is punishable with imprisonment for a term up to five years or with fine, or with both.

In case of an offence under the Depositories Act by a company, the company as well as every person who was in charge of/responsible for the conduct of business would be deemed guilty and liable for punishment.

Power of the SEBI: To carry out the purposes of this Act, the SEBI can make regulations, in particular, to provide for (i) the form in which the record is to be maintained/certificate of commencement of business issued, (ii) the manner of surrendering a security certificate / creating pledge, hypothecation by beneficial owners, (iii) conditions / fee payable for the issue of certificate of securities, (iv) rights/obligations of depositories/participants/issuers and (v) eligibility criteria for the admission of securities into the depository.

Power of Depositories to Make Bye-laws: With the prior approval of the SEBI, the depositories can make bye-laws consistent with the provisions of this (Depositories) Act/SEBI regulation, and in particular to provide for:

Where the SEBI considers it expedient so to do, it may, by order in writing, direct a depository to make any bye- laws or to amend or revoke any bye-laws already made within such a period as it may specify in this behalf. If the depository fails or neglects to comply with such an order within the specified period, the SEBI may make the bye-laws or amend or revoke the bye-laws made either in the form specified in the order or with such modifications there of as the it thinks fit.

SEBI Depositories and Participants Regulation

The main provisions of the SEBI regulation are as follows:

Registration of Depository: Depositories must be registered with the SEBI. The application for the grant of certificate of registration, in the prescribed form, should be accompanied by an

application fee of Rs. 50,000 together with draft bye-laws of the proposed depository. The sponsors of depositories who act alone or in combination with others proposing to establish a depository and undertaking to perform the obligations under these regulations can be: (1) public financial institution, (ii) bank, (iii) foreign bank operation in India with RBI's approval, (iv) recognized stock exchange, (v) body corporate engaged in financial services, at least 75 per cent of whose capital is held by institutions in categories (i) to (iv) jointly or severally, (vi) body corporate constituted/recognized in a foreign country for providing custodial, clearing or settlement services in the securities market and approved by the Government. The applicant should be a fit and proper person. The provisions of the SEBI Criteria for Fit and proper person Regulation apply to all applicants/depositors and participant. The registration of a depository is subject to the following conditions.

Certificate of Commencement of Business: Within a year of registration with the SEBI, the depository is required to apply for a certificate of commencement of business. While granting the certificate, the SEBI would consider all matters relevant to the efficient and orderly functioning of the depository and in particular the following, namely, whether:

Before granting the certificate, the SEBI would make a physical verification of the infrastructure facilities and systems established by the depository.

Registration of Participants: An application for registration as a participant should be made to the SEBI in the prescribed form together with a fee of Rs 5,000, through the depository. The depository should forward the application to the SEBI within 30 days along with its recommendations and certifying that the participant – applicant complies with the eligibility criteria, including adequate infrastructure, as provided for in the regulations and the bye-laws of the depository.

Consideration of Application: All matters which are relevant to or related to the efficient and orderly functioning of a participant would be taken into account by the SEBI for granting registration. In particular, the SEBI insist that the applicant:

Conditions: The registration of participant with the SEBI is subject to the under mentioned conditions. The participant should pay a registration fee of Rs. 1,00,00 within 15 days and comply with the provisions of the Depositories Act, bye-laws, agreements and regulations. The depository, through whom the registration is obtained, holds a certificate of commencement of business from the SEBI. He should forth with inform the SEBI if any information already submitted to it is found to be false/misleading in any material respect or if there is any change in such information.

The grievances of beneficial owners should be redeemed within 30 days and the depository kept informed about the number/nature of redressals of complaints. The participant has to pay the SEBI an annual fee of Rs. 1,000. The registration of a depository participant is valid for five years. It can be renewed on payment of a fee of Rs. 10, 00, 000, for a period of five years.

Rights/Obligations of Depositories/Participants/Issuers/Surrender of Certificate of Security and Creation of Pledge/Hypothecation The depositories, participants, issuers and their agents have, in addition to the rights and obligations laid down in the Depositories Act and the bye-laws, all the rights and obligations arising from the agreements entered into by them.

Depositories: They should state, in the bye-laws, the specific securities eligible for being held in dematerialized form in the depository, namely: (a) shares, scrips, stocks, bonds, debentures, reagent e stock or other marketable securities of a like nature in/or of any company, (b) units of mutual funds, rights under collective investment scheme and venture capital funds, commercial

papers, certificates of deposit, securitized debt, money market instruments, Government securities and unlisted securities, and (c) any other security specified by the SEBI from time to time.

The issuers should enter into an agreement with the depository to enable the investor to dematerialize the securities except where the depository itself is an issuer of securities where the issuer has appointed a SEBI approved register to the issue and share transfer (RISTA). The depository would enter into tripartite agreement with the issuer the RISTA with respect to the securities to be declared by the depository as eligible to be held in dematerialized form.

The depository should have systems/procedures to coordinate and reconcile the records of ownership of securities with the issuer/its agent and the participants on a daily basis. It should also maintain means of continuous electronic communication with all its participants/issuers or their agents, clearing houses/corporations of stock exchange and with other depositories. Moreover, a depository should:

Participants: Every participant should enter into an agreement with a beneficial owner before acting as a participant on his behalf in a manner specified by the bye-laws of the depository.

Separate accounts should be opened by the participants for each beneficial owner and his securities segregated and not mixed up with those of others, including participants. The transfer of securities to or from a beneficial owners' account should be registered by the participants only on instructions from him, and the same should be confirmed in a manner specified by the bye-laws of the depository. Every entry in his account should be supported by electronic instructions or any other mode of instruction from him in accordance with the agreement with him. Every participant should.

Issuers: All issuers whose securities have been declared as eligible to be held in a dematerialized form should enter into an agreement with a depository. However, no such agreement would be required where the issuer of securities is (i) the depository itself or (ii) the Central / State Government.

All matters relating to transfer of securities; maintenance of records of holders of securities, handling of physical securities and establishing connectivity with the depositories should be handled and maintained at a single point, that is, either in-house by the issuer or by SEBI- registered share transfer agent.

Every issuer/agent/any person registered as an intermediary under SEBI Act should redress the grievances of the beneficial owners within 30 days of the date of receipt of the complaint and keep the depository informed about the number and nature of grievances redressed by it/pending before it.

The beneficial owners have to inform the details of the security certificates to be dematerialized and surrender the same to the participants, either directly or through the custodians of the securities. On receipt of this information, the participant forwards the details to the depository along with a confirmation of the agreement with the beneficial owner. The participant maintains records indicating the names of beneficial owners of securities surrendered, number of securities and details of security certificates received. The participants should within 7 days of the receipt of the certificate of security furnish to the issuer details of the security together with the certificate of security.

Within 15 days of the receipt of the certificate from the participant, the issuer should (i) confirm to the depository the listing of the securities on the stock exchange (s) where the securities issued earlier are listed, (ii) after due verification immediately mutilate and cancel the certificate, (iii) substitute in its record the name of the depository as the registered owner and (iv) send a certificate to this effect to the depository and the stock exchange (s) where the security is listed. In the case of unlisted companies, the condition of listing on all the stock exchange where earlier issued securities are listed would not be same.

2.2 Depository System:

It is a system whereby the transfer and settlement of scrip's take place not through the traditional method of transfer deeds and physical delivery of scrip's but through the modern system of effecting transfer of ownership of securities by means of book entry on the ledgers or the depository without the physical movement of scrip's. The new system thus eliminate paper work, facilitates automatic and transparent trading in scrips, shortens the settlement period and ultimately contributes to the liquidity of investment in securities. This system is also known as "scripless trading system".

2.3 Constituents of Depository System:

There are essentially four players in the depository system:

- (i) The Depository Participant
- (ii) The Beneficial Owner/Investor
- (iii) The Issuer
- (iv) The Depository

The functions/activities performed by each of them are explained in the following in the following pages:

1. The Depository Participant (DP):

A DP is an agent of the depository. If an investor wants to avail the services offered by the depository, the investor has to open an account with a DP. This is similar to opening an account with any branch of a bank in order to utilise the bank services. DP functions as a bridge between the depository and the beneficial owners. He maintains the ownership records of every beneficial owner in book entry form. Both the depository and the participant's have to be registered with the Securities and Exchange Board of India. SEBI grants necessary approval for the same only on the satisfaction of the condition that adequate system and safeguards are available in such companies in order to ensure against manipulation of records and transactions.

The investors can select any DP to open a demat account. While selecting a DP, the investor should take into account cost, convenience and benefits comforts derived from the DP. At the time of opening a demat account, the investors have to sign an agreement with DP in a NSDL prescribed form, which details the sign an agreement with DP's rights and duties. All investors have to furnish proof of identity, proof of residential address and passport size photograph along with the prescribed account opening form.

There are no restrictions on the number of DP's, the investors a clearing corporation, a stock broker, or a non-banking finance company. A depository participant is an intermediary between the investor and NSDL and is authorised to maintain accounts of dematerialised shares. The investor can choose any DP.

- (i) ANZ Grindlays Bank
- (ii) Canara Bank
- (iii) Citi Bank N.A.
- (iv) Deutsche Bank A.G.
- (v) ICICI Bank
- (vi) IDBI
- (vii) Infrastructure Leasing & Financial Services
- (viii) Standard Chartered Bank
- (ix) State Bank Of India
- (x) HDFC Bank Ltd.

2. The Beneficial Owner:

Beneficial owner means a person whose name is recorded as such with a depository. A beneficial owner is the real owner of the securities who has lodged his securities with the depository in the form of book entry. He has all the rights and liabilities associated with the securities.

3. The Issuer:

The issuer is the company which issues the security. It maintains a register for recording the names of the registered owners of securities, the depositories. The issuer sends a list of shareholders who opt for the depository system, to the depositories. SEBI regulations 53 to 57 with regard to the issue are as below:

(a) Agreement by issuer: Every issuer whose securities have been declared as eligible to be held in dematerialised form in a depository shall enter into an agreement with the depository.

Provided that no agreement shall be required to be entered into in case:

- (i) the depository is the issuer of securities; or
- (ii) the state or the central government is the issuer of government securities.

(b) Manner of handling share registry work: All matters relating to transfer of securities, maintenance of records of holders of securities, handling of physical securities and establishing connectivity with the depositories shall be handled and maintained at single point, i.e., either in-house by the issuer or by a share transfer agent registered with the board.

(c) Redressal of investor grievances: Every issuer or its agent or any persons who is registered as an intermediary under this Act, shall redress the grievances of beneficial owners within thirty days of the date of receipt of the complaint and keep the depository informed about the number and nature of grievances redressed by it the about the number and nature of grievances redressed by it and the number of grievances pending before it.

(d) Manner of surrender of certificate of security: (1) Any beneficial owner who has entered into an agreement with a participant, shall inform the participant of the details of the certificate of security which is to be dematerialised and shall surrender such certificate to the participant:

Provided that where a beneficial owner has appointed a custodians of securities, then he may surrender the certificates of security to the participant through his custodian of securities.

(2) The participant shall, on receipt of information under sub-regulation (1), forward such details of the certificate of security to the depository and shall confirm to the depository that an agreement has been entered into between the participant and the beneficial owner.

(3) The participant shall maintain records indicating the names of beneficial owners of the securities, surrendered the number of securities and other details of the certificate of security received.

(4) The participants shall within seven days furnish to the issuer details specified in sub-regulation (2) along with the certificate of security referred to in sub-regulation (1) within seven days of the receipt securities.

(5) Within 15 days of receipt of the certificate of security from the participant, the issuer shall confirm to the depository that securities comprised in the said certificate have been listed on the stock exchange or exchanges where the earlier issued securities are listed and shall also after due verification immediately mutilate and cancel the certificate of security and substitute in its record the name of the depository as the registered owner and shall send a certificate to this effect to the depository and to every stock exchange where the security is listed.

Provided that in case of unlisted companies the condition of listing on the stock exchange where earlier issued shares are listed, shall not be applicable.

(6) Immediately upon receipt of information from the issuer under sub-regulation (5) the depository shall enter in its records the name of the person who has surrendered the certificate of security as the beneficial owner as well as the name of the participant from whom it has received intimation under sub-regulation (2) and shall send an intimation of the same to the participant.

(7) The issuer shall maintain a record of certificate of securities which have been dematerialised.

(e) Reconciliation: The issuer or its agent shall reconcile the records of dematerialised securities with all the securities issued by the issuer on a daily basis:

(f) Connectivity: Every issuer or its agent shall establish continuous electronic means of communication with the depository with which it has entered into an agreement.

(g) Information: Every issuer whose securities have been declared as eligible for dematerialization in a depository shall give information to the depository about book closures record dates, dates for the payment of interest or dividend dates for annual general meetings and other meetings dates for redemption of debentures, dates for conversion of debentures and warrants, call money dates and such other information at the time and in the manner as may be specified by the depository in its bye-laws or agreement.

Provided that no such information would be required to be given to the depository where the state or the central government is the issuer of government securities.

(1) Every issuer shall submit audit report on an quarterly basis, starting from September 30, 2003, to the concerned stock exchange audited by qualified chartered accountant or a practicing company secretary for the purpose of reconciliation of the total issued capital listed capital d capital held by of the total issued capital listed capital and capital held by depositories in dematerialized form, the details of changes in share capital during the quarter and the in-principle approval obtained by the issuer from all the stock exchange where it is listed in respect of such further issued capital.

(2) The audit report under sub-regulation (1) shall also give the updated status of the register of members of the issuer and confirm that securities have been dematerialized as per requests within 21 days from the date of receipt of requests by the issuer and where the dematerialized has not been effected within the said stipulated period, the report shall disclose the reasons for such delay.

(3) The issuer shall immediately bring to the notice of the depositories and the stock exchanges, any difference observed in its issued, listed and the capital held by depositories in dematerialised form.

4. The Depository:

A depository is a firm wherein the securities of an investor are held in electronic form in the same way a bank holds money. It carries out the securities. The depository based settlement system is also called 'book entry transfer settlement'. The depository acts as a defacto owner of the securities lodged with it for the limited purpose of transfer of ownership. It functions as a custodian of securities of its clients, the name of the depository appears in the records. With increase in the number of transaction in the stock market, it had become difficult for the investors to hold share certificates and debt instruments in bulk. But now, depository institutions handle this job. At present there are two depositories in India.

(a) National Securities Depository Ltd. (NSDL).

(b) Central Depository Services (India) Ltd. (CDSL).

2.4 Advantages of the Depository System:

The introduction of the depository system, it is claimed would take way many of the ailment facing the percent system, make the trading in scrip's foolproof, would serve as a panacea and would ultimately contribute to the emergence of highly of a highly efficient capital market. The system is expected to offer the much awaited custodial services to Indian and foreign investors together. It is likely to bring about the following benefits to various investors, issuing companies as well as the nation.

1. Advantages to the Investors:

- (i) **Quick transfer of funds and securities:** Once the securities are credited to the investors account on payout, he becomes the legal owner of the securities. There is no need to send it to the company registrar for registration. The usual practice is to hold the securities and not to register the change of ownership. As a comparison to this, purchase of securities in physical form requires registration with registrar which takes three to four months. The investors might loose an opportunity to earn gain by selling the securities during the transfer period. Moreover, they are always exposed to the risk of loss in transit.

- (ii) **Elimination of all risk associated with physical certificates:** An investor is always exposed to risk of theft of stock mutilation of certificates, loss in transit or loss of certificates during movement through or from the registrars etc. While dealing in physical securities an investor has to incur costs for obtaining duplicate certificate and advertisement, etc. Such problems are not faced under depository system.
- (iii) **No stamp duty:** No stamp duty is payable by the investors for getting the equity shares and units of mutual funds transferred under the depository system. In case of physical shares, stamp duty of 0.5% is payable on transfer of shares.
- (iv) **Minimised chances of fraud, theft and counterfeiting of securities:** Holding of securities in electronic form minimises the chance of theft. DPs can affect debit or credit to demat only after receiving valid instruction slip from the client. Thus the risk of frauds, theft and also counterfeiting of securities is minimised.
- (v) **Provides insurance cover:** NSDL has taken up a comprehensive insurance policy to protect the interest of the investors in case the depository participants fail to resolve genuine loss.
- (vi) **Statement of account:** Investors receive statements of accounts periodically from the depository participants. Every month NSDL sends statement of accounts to investors selected at random as a counter check.
- (vii) **Direct disbursement of non-cash benefits:** An investor entitled to receive right shares and bonus shares, is directly credited with such number of shares in his demat account. Similarly, any dividend or interest receivable is directly deposited by depositories in demat account of the shareholders.
- (viii) **Faster settlement cycle:** A settlement cycle of T+ 5 is followed for demat shares i.e. settlement of trading whether for purchase or sale is done on the 5th working day from the trade day. This not only provides liquidity to the investors, but also leads to increased stock turnover.
- (ix) **Reduction in brokerage:** Investors dealing in dematerialized securities are relieved from the botheration of handling huge volume of paper. Moreover, it reduces the back office cost of the broker who in turn may provide a reduction in the brokerage of 0.25% to 0.50%.
- (x) **Other Benefits:** Other benefits enjoyed by investors include:
 - (a) A natural guardian is not required to take approval of court for selling demat securities on behalf of a minor.
 - (b) Statement of accounts by DP helps investors to monitor his holdings regularly.
 - (c) Any change in address may be informed by investor to DP who will make the required changes in the database of all the companies where the investor is registered holder of securities.
 - (d) Facilities like pledge/hypothecation and stock lending are available to the investors in a depository system.

2. Advantages to the Issuer:

- (i) The costs of registration and transfer of shares get reduced which were earlier incurred by the issuer company.
- (ii) There is saving in costs involved at the time of public issues.
- (iii) It is easy to attract foreign investors without incurring any costs of issuance in overseas market.
- (iv) Reduction in the cost of registry and transfer, which are presently undertaken by the issuer.

3. Advantages to the Intermediaries:

- (i) Faster settlement.
- (ii) Less risk of bad delivery.
- (iii) Reduced chances of forgery, counterfeit certificates, loss in transit, theft, etc.

4. Advantages to the Country:

- (i) A country can earn foreign exchange because investors invest their money in offshore funds with the help of depository.
- (ii) It has become easy for an investor to invest in shares because number of depository participants is providing dematerialisation of shares services. This has led to the development of capital market.
- (iii) The concept of DP has created tough competition among various issuers. This has led to international competitiveness. For India to survive in this competition, it will have to raise Indian capital market to global standards.

2.5 Summary:

Implementation of reforms measures brought and shown rapid growth in the Indian capital market in the recent past with foreign investors, more stock exchanges and increased market intermediaries. The old manual system of settlement and transfer has almost failed to handle the growing volume of paper that has loaded the market. Thus to eliminate paperwork facilitate scrip less trading and electronic book entry of the transfer of securities, shorten settlement periods, and to improve liquidity in the stock market, it was found necessary to replace the old system of transfer and settlement with the new and modern system of depositories. Accordingly the Government of India enacted the Depositories Act in 1990 for the orderly growth and development of the Indian capital market.

2.6 Self Assessment Questions:

1. What are the advantages of the depository system? Discuss.
2. What are the constituents of depository system?
3. Discuss the various players involved in the depository system?

Lesson - 3

SEBI (Securities Exchange Board of India)

3.0 Objectives

The objectives of this unit are to enable you:

- To understand the meaning and importance of stock exchanges
- To know the role of SEBI
- To know the structure of stock exchanges
- To understand the SEBI risk management system

Structure:

- 3.1 Introduction
- 3.2 Definitions of Stock Exchange
- 3.3 Characteristics of Stock Exchange
- 3.4 Role of SEBI
- 3.5 The Regulatory Requirements Specified by SEBI for Corporate Debt Securities
- 3.6 Margin Trading Facility
- 3.7 SEBI Risk Management System
- 3.8 "Securities Lending Scheme"
- 3.9 The Traditional Structure of the Stock Exchanges in India:
- 3.10 Corporatisation of Stock Exchanges
- 3.11 Demutualisation of Stock Exchanges
- 3.12 Demutualised Exchange Different From a Mutual Exchange
- 3.13 Demutualised Stock Exchanges in India
- 3.14 Money Market: Conclusion
- 3.15 Self Assessment Questions

3.1 Introduction:

Stock market represents the secondary market where existing securities (shares and debentures) are traded, Stock exchange provides an organised mechanism for purchase and sale of existing securities. By now, we have 23 stock exchanges in our country.

The investors want liquidity for their investment. The securities which they hold should easily be sold when they need cash. Similarly, there are others who want to invest in new securities. There should be a place where the securities may be purchased and sold. Stock exchanges provide such a place where securities of different companies can be purchased and sold. Stock exchange is a body of persons, whether incorporated or not formed with a view to helping, regulating and controlling the business of buying and selling of securities.

Stock exchanges are organised and regulated markets for various securities issued by corporate sector and other institutions. The stock exchange enable free purchase and sale of securities as commodity exchange allow trading in commodities. The following definitions explain the meaning and scope of stock exchange.

Secondary Market: Section 3 of SEBI Act protects the interests of the investors in securities and also promotes the development of, and regulates, the securities market and related matters. The following are the financial products/instruments which the secondary market deals with.

- Equity Shares
- Rights Issue/ Rights Shares
- Bonus Shares
- Preferred Stock/Preference shares
- Cumulative Preference Shares
- Cumulative Convertible Preference Shares
- Participating Preference Shares
- Bonds
- Zero Coupon Bonds
- Convertible Bonds
- Debentures
- Commercial Papers
- Coupons
- Treasury Bills

The Central Listing Authority: (CLA) is set up to address the issue of multiple listing of the same security and to bring about uniformity in the due diligence exercise in scrutinizing all listing applications on any stock exchanges. The functions of CLA as enumerated in SEBI (Central Listing Authority) Regulations, 2003 include:

- processing the application made by any body corporate, mutual fund or collective investment scheme for the letter of recommendation to get listed at the stock exchange,
- making recommendations as to listing conditions, and
- any other functions that may be specified by the SEBI Board from time to time.

Exit opportunity available for investors in case a company gets delisted: SEBI (Delisting of Securities) Guidelines, 2003 provide an exit mechanism, whereby the exit price for voluntary delisting of securities is determined by the promoter of the concerned company which desires to get delisted, in accordance to book building process. The offer price has a floor price, which is average of 26 weeks average of traded price quoted on the stock exchange where the shares of the company are most frequently traded preceding 26 weeks from the date public announcement is made. There is no ceiling on the maximum price. For infrequently traded securities, the offer price is as per Regulation 20(5) of SEBI (Substantial Acquisition and Takeover) Regulations. Regarding this, infrequently traded securities is determined in the manner as provided in Regulation 20(5) of SEBI (Substantial Acquisition and Takeover) Regulations.

3.2 Definitions of Stock Exchange:

Securities Contract (Regulation) Act, 1956: "Stock exchange means any body of individuals, whether incorporated or not, constituted for the purpose of assisting, regulating or controlling the business of buying, selling in securities."

Hartely Withers. "A Stock exchange is something like a vast warehouse where securities are taken away from the shelves and sold across the countries at a fixed price in a catalogue which is called the official list."

3.3 Characteristics of Stock Exchange:

From the definitions given earlier, the following characteristics or salient features of stock exchange come out:

1. It is a place where securities are purchased and sold.
2. A stock exchange is an association of persons whether incorporated or not.
3. The trading in a stock exchange is strictly regulated and rules and regulations prescribed for various transactions.
4. Both genuine investors and speculators buy and sell shares.
5. The securities of corporations, trusts, government, municipal corporations etc. are allowed to be dealt at stock exchanges.

3.4 Role of SEBI:

The SEBI is the regulatory authority established under Section 3 of SEBI Act, 1992 to protect the interests of the investors in securities and to promote the development of, and to regulate, the securities market and for matters connected therewith and incidental thereto.

The following departments of SEBI take care of the activities in the secondary market:

Sr.No.	Name of the Department	Major Activities
1.	Market Intermediaries Registration and Supervision Department (MIRSD)	Registration, supervision, compliance monitoring and inspections of all market intermediaries in respect of all segments of the markets, viz., equity, equity derivatives, debt and debt related derivatives.
2.	Market Regulation Department (MRD)	Formulating new policies and supervising the functioning and operations (except relating to derivatives) of securities exchanges, their subsidiaries, and market institutions such as Clearing and settlement organizations and Depositories (Collectively referred to as 'Market SROs').
3.	Derivatives and New Products Departments (DNPD)	Supervising trading at derivatives segments of stock exchanges, introducing new products to be traded, and consequent policy changes.

3.5 The Regulatory Requirements Specified by SEBI for Corporate Debt Securities:

The issue of debt securities having maturity period of more than 365 days by listed companies (i.e. which have any of their securities, either equity or debt, offered through an offer document, and listed on a recognized stock exchange and also includes Public Sector Undertakings whose securities are listed on a recognized stock exchange) on private placement basis must comply with the conditions prescribed by SEBI from time to time for getting them listed on the stock exchanges. Further, unlisted companies/statutory corporations/other entities, if they so desire, may get their privately placed debt securities listed on the stock exchanges, by complying with the relevant conditions. Briefly, these conditions are:

- Compliance with disclosure requirements under Chapter VI of the SEBI (Disclosure and Investor Protection) Guidelines, 2000, Listing Agreement with the exchanges and provisions of the Companies Act.
- Such disclosures may be made through the web site of the stock exchanges where the debt securities are sought to be listed if the privately placed debt securities are issued in the standard denomination of Rs. 10 lakhs.
- The company shall sign a separate listing agreement with the exchange in respect of debt securities.
- The debt securities shall carry a credit rating from a Credit Rating Agency registered with SEBI.
- The company shall appoint a debenture trustee registered with SEBI in respect of the issue of the debt securities.
- The debt securities shall be issued and traded in demat form.

- All trades with the exception of spot transactions, in a listed debt security, shall be executed only on the trading platform of a stock exchange.

3.6. Margin Trading Facility:

Margin Trading is trading with borrowed funds/securities. It is essentially a leveraging mechanism which enables investors to take exposure in the market over and above what is possible with their own resources. SEBI has been prescribing eligibility conditions and procedural details for allowing the Margin Trading Facility from time to time.

Corporate brokers with net worth of at least Rs 3 crore are eligible for providing margin trading facility to their clients subject to their entering into an agreement to that effect. Before providing margin trading facility to a client, the member and the client have been mandated to sign an agreement for this purpose in the format specified by SEBI. It has also been specified that the client shall not avail the facility from more than one broker at any time.

The facility of margin trading is available for Group 1 securities and those securities which are offered in the initial public offers and meet the conditions for inclusion in the derivatives segment of the stock exchanges.

For providing the margin trading facility, a broker may use his own funds or borrow from scheduled commercial banks or NBFCs regulated by the RBI. A broker is not allowed to borrow funds from any other source.

The "total exposure" of the broker towards the margin trading facility should not exceed the borrowed funds and 50 per cent of his "networth". While providing the margin trading facility, the broker has to ensure that the exposure to a single client does not exceed 10 per cent of the "total exposure" of the broker.

Initial margin has been prescribed as 50% and the maintenance margin has been prescribed as 40%.

In addition, a broker has to disclose to the stock exchange details on gross exposure including name of the client, unique identification number under the SEBI (Central Database of Market Participants) Regulations, 2003, and name of the scrip.

If the broker has borrowed funds for the purpose of providing margin trading facility, the name of the lender and amount borrowed should be disclosed latest by the next day.

The stock exchange, in turn, has to disclose the scrip-wise gross outstanding in margin accounts with all brokers to the market. Such disclosure regarding margin-trading done on any day shall be made available after the trading hours on the following day.

The arbitration mechanism of the exchange would not be available for settlement of disputes, if any, between the client and broker, arising out of the margin trading facility. However, all transactions done on the exchange, whether normal or through margin trading facility, shall be covered under the arbitration mechanism of the exchange.

3.7 SEBI Risk Management System:

The primary focus of risk management by SEBI has been to address the market risks, operational risks and systemic risks. To this effect, SEBI has been continuously reviewing its policies

and drafting risk management policies to mitigate these risks, thereby enhancing the level of investor protection and catalyzing market development. The key risk management measures initiated by SEBI include:-

- Categorization of securities into groups 1, 2 and 3 for imposition of margins based on their liquidity and volatility.
- VaR based margining system.
- Specification of mark to Market margins.
- Specification of Intra-day trading limits and Gross Exposure Limits.
- Real time monitoring of the Intra-day trading limits and Gross Exposure Limits by the Stock Exchanges.
- Specification of time limits of payment of margins.
- Collection of margins on T+1 basis.
- Index based market wide circuit breakers.
- Automatic de-activation of trading terminals in case of breach of exposure limits.
- VaR based margining system has been put in place based on the categorization of stocks based on the liquidity of stocks depending on its impact cost and volatility. It addresses 99% of the risks in the market.
- Additional margins have also been specified to address the balance 1% cases.

SEBI issued a circular modifying the above mentioned present risk management framework to move to upfront collection of VaR margins (instead of margin collection on T+1 basis). The entire details of the new framework which was made effective from May 30, 2005 is given in SEBI Circular MRD/DoP/SE/Cir-07/2005 dated February 23, 2005. In the revised framework, the liquid assets deposited by the broker with the exchange should be sufficient to cover upfront VaR margins, Extreme Loss Margin, MTM (Mark-to-Market Losses) and the prescribed BMC. The Mark to Market margin would be payable before the start of the next day's trading. The Margin would be calculated based on gross open position of the member. The gross open position for this purpose would mean the gross of all net positions across all the clients of a member including his proprietary position. The exchanges would monitor the position of the brokers online real time basis and there would be automatic deactivation of terminal on any shortfall of margin.

3.8 "Securities Lending Scheme":

Securities Lending and Borrowing is a scheme which enables lending of idle securities by the investors to the clearing corporation and earning a return through the same. For securities borrowing and lending system, clearing corporations of the stock exchange would be the nodal agency and be registered as the "Approved Intermediaries"(AIs). The clearing corporation can borrow, on behalf of the members, securities for the purpose of meeting shortfalls. The defaulter selling broker may make the delivery within the period specified by the clearing corporation. In the event of the defaulted selling broker failing to make the delivery within the specified period, the clearing corporation has to buy the securities from the open market and return the same to the lender within seven trading days. In case of an inability to purchase the securities from the market, the transaction shall be closed out.

3.9 The Traditional Structure of the Stock Exchange in India:

According to legal structure, the stock exchanges in India could be segregated into —

- 2 broad groups
- 20 stock exchanges which were set up as companies, either limited by guarantees or by shares
- 3 stock exchanges which are functioning as associations of persons (AOP), viz., BSE, ASE and Madhya Pradesh Stock Exchange

The 20 stock exchanges which are companies are the stock exchanges of:

- Bangalore
- Bhubaneswar
- Calcutta
- Cochin
- Coimbatore
- Delhi
- Gauhati
- Hyderabad
- Interconnected SE
- Jaipur
- Ludhiana
- Madras
- Magadh
- Managalore
- NSE
- Pune
- OTCEI
- Saurashtra-Kutch
- Uttar Pradesh
- Vadodara

Apart from NSE, all stock exchanges whether established as corporate bodies or Association of Persons (AOPs), are non-profit making organizations.

3.10 Corporatisation of Stock Exchanges:

Corporatisation is the process of converting the organizational structure of the stock exchange from a non-corporate structure to a corporate structure.

Traditionally, some of the stock exchanges in India were established as "Association of persons", e.g., the Stock Exchange, Mumbai (BSE), Ahmedabad Stock Exchange (ASE) and Madhya Pradesh Stock Exchange (MPSE). Corporatisation of such exchanges is the process of converting them into Incorporated Companies.

3.11 Demutualisation of Stock Exchange:

Demutualisation refers to the transition process of an exchange from a "mutually-owned" association to a company "owned by shareholders". In other words, transforming the legal structure of an exchange from a mutual form to a business corporation form is referred to as demutualisation. The above, in effect means that after demutualisation, the ownership, the management and the trading rights at the exchange are segregated from one another.

3.12 Demutualised Exchange Different From a Mutual Exchange:

In a mutual exchange, the three functions of ownership, management and trading are intervened into a single group. Here, the broker members of the exchange are both the owners and the traders on the exchange and they further manage the exchange as well. A demutualised exchange, on the other hand, has all these three functions clearly segregated, i.e., the ownership, management and trading are in separate hands.

3.13 Demutualised Stock Exchanges in India:

Currently, two stock exchanges in India, the National Stock Exchange (NSE) and Over the Counter Exchange of India (OTCEI) are not only corporatised, but also demutualised with segregation of ownership and trading rights of members.

The Corporatisation and Demutualisation Schemes of 19 stock exchanges (other than NSE, OTCEI, Mangalore Stock Exchange and Coimbatore Stock exchange) have been notified by SEBI and are at various stages of implementation.

3.14 Money Market : Conclusion:

We hope this tutorial has given you an idea of the securities in the money market. It's not exactly a sexy topic, but definitely worth knowing about, as there are times when even the most ambitious investor puts cash on the sidelines.

The money market specializes in debt securities that mature in less than one year.

Money market securities are very liquid, and are considered very safe. As a result, they offer a lower return than other securities.

The easiest way for individuals to gain access to the money market is through a money market mutual fund.

T-bills are short-term government securities that mature in one year or less from their issue date.

T-bills are considered to be one of the safest investments. They don't provide a great return.

A Certificate of Deposit (CD) is a time deposit with a bank.

Annual Percentage Yield (APY) takes into account compound interest, annual percentage rate (APR) does not.

CDs are safe, but the returns aren't great, and your money is tied up for the length of the CD.

Commercial paper is an unsecured, short-term loan issued by a corporation. Returns are higher than T-bills because of the higher default risk.

Banker's acceptances (BAs) are negotiable time draft for financing transactions in goods.

BAs are used frequently in international trade and are generally only available to individuals through money market funds.

Eurodollars are U.S. dollar-denominated deposit at banks outside of the United States.

The average Eurodollar deposit is very large. The only way for individuals to invest in this market is indirectly through a money market fund.

Repurchase agreements (repos) are a form of overnight borrowing backed by government securities.

SEBI Proposes To Launch Real Estate Investment Trusts In India:

(RTT News) - Thursday, The Chairman of the Securities and Exchange Board of India, M. Damodaran, while addressing a conference on capital markets organized by the CII, said that SEBI was considering proposals to allow Real Estate Investments Trusts - REITs - in India and would reveal the first set of proposals on the same.

Real Estate Investment Trusts

An REIT offers common shares to the public, representing ownership in an operating business and divide most of the profits in the form of dividends. As these shares can be bought or sold in stock exchanges, REITs provide easy liquidity to investors.

The SEBI chief also stated that the rules on listing and trading of securitised debt market instruments would be finalized by December. The regulator has prepared a consultative paper on securitised debt in June this year. The draft regulations proposed a system of registration of special purpose distinct entities, which were planning to offer securitised debt instruments to the public or seeking the listing of such instruments issued earlier.

Damodaran further stated that select companies could opt for fast track issuances. As per fast track share issuance programme allowed by SEBI in August this year, companies with a 3-year track record on NSE and BSE and with free-float market capitalization of at least Rs. 10,000 crores, can raise funds through rights and follow-on issues, without having to wait for the market regulator's clearance.

Real Estate Mutual Funds

REMFs will be close-ended funds and will invest directly in real estate properties in India, mortgage backed securities, equity shares/bonds/debentures of listed/unlisted companies, which deal in properties and undertake property development and in other securities.

SEBI in its board meeting in June 2006 had approved guidelines making it mandatory for real estate mutual funds-REMFs-to be listed on the stock exchanges. But the absence of valuation norms delayed the introduction of REMFs in the country. The Institute of Chartered Accountants of India is looking into the valuation issue and once it approves, SEBI will be in a position to come out with specific rules.

Damodaran added that it is not going to be a REIT versus REMF. He said that the first set of proposals will be out shortly and consultations with eminent persons who are well versed with these products are already progressing.

The SEBI's move comes in the midst of plans by a clutch of companies to raise funds from the Indian market for listing REIT-like vehicles on the Singapore Stock Exchange. The Bangalore-based Ascendas and the Delhi-based DLF and Unitech have announced plans to list their fund structures, mainly REITs on the SGX, banking on its recent easing norms.

Certain important and recent development in this area is set out below.

Amendments to the SEBI (Disclosure and Investor Protection) Guidelines, 2000

Certain amendments have been made in the SEBI (Disclosure and Investor Protection) Guidelines, 2000 primarily pertaining to the book building process. The amendments, inter alia, include the following:

- The allocation to Retail Individual Investors ("RIIs") has been increased from the existing 25 per cent to 35 per cent and correspondingly the allocation to Non Institutional Investors ("NIIs") has been reduced from the existing 25 per cent to 15 per cent. Further, in case the book built issues are made pursuant to the requirement of mandatory allocation of 60 per cent to Qualified Institutional Buyers ("QIBs"), then figures for RIIs and NIIs are 30 per cent and 10 per cent respectively.
- RII has now been redefined as one who can apply up to Rupees 100,000.
- The bidding period has been reduced from current 5-10 days (including holidays) to 3 -7 working days.
- The listed issuers now have an option to either disclose price band in Red Herring Prospectus ("RHP")/application form/abridged prospectus (current practice) or to disclose the price band/ floor price at least one day before bid opening.
- The data displayed on the websites of stock exchanges should be uniform and should be available for 3 more days after the closure of the bids/issue.

All the aforesaid guidelines in relation to Book Building shall be applicable to those public issues whose draft offer documents are filed with SEBI on or after April 4, 2005.

Case Laws

Standard Chartered Bank Vs. Directorate of Enforcement

The Division Bench of Bombay High Court referred the matter of *ANZ Grindlays Bank Ltd. Vs. Directorate of Enforcement* along with some other cases to the Constitutional Bench of the Supreme Court of India. The issue to be decided in the said case was whether a juristic entity like a company

could be prosecuted for offences for which the mandatory punishment prescribed is imprisonment and fine.

The Constitutional Bench, while overruling an earlier decision of the Supreme Court in *ACIT Vs. Velliapa Textile Ltd.*, held that as the company cannot be sentenced to imprisonment, the court cannot impose that punishment, but where the statute provides imprisonment and fine as the prescribed punishment, the Court can impose the punishment of fine which could be enforced against the Company. The Constitutional Bench further held that there is no immunity to the companies from prosecution merely because the prosecution is in respect of offences for which the punishment prescribed is mandatory imprisonment.

The Securities and Exchange Board of India (SEBI) has proposed to impose a 20% circuit filter on the first day of re-commencement of stocks trading in all the cases of de-merger, amalgamation, capital reduction, scheme of arrangements, revocation of suspension (other than initial public offerings) (IPOs), as decided by the Stock Exchanges (SEs) from time to time.

In case of circuit filters on the first day of the listing of IPOs, SEBI's surveillance committee is to soon take a decision on the issue, sources close to the development, said.

The SEBI move follows recent developments in the market where on the day of re-commencement of trading, there was a high amount of volatility in the absence of any circuit filter. Recently, SEBI said that it has noticed significant price spikes on the first day of re-commencement of trading in certain securities.

In view of such large price rises on the first day of trading, it would be appropriate to apply circuit filters upon the re-commencement of trading for cases other than IPOs.

The matter has been discussed with the SEs and they have indicated that it would require a base price for implementing circuit filters. When trading of Ahluwalia Contracts' stock re-commenced on the BSE on February 22, it opened at Rs. 101.50 and Tuesday's high of Rs. 611.90, before closing at Rs. 577.80. The counter recorded a volume of 7.21 lakh shares.

The stock closed at Rs 453.55 on Tuesday with a volume of 8,306 shares.

SEBI has framed a draft policy for fixing the base price for cases other than IPOs. The company shall obtain a valuation certificate from any of the SEBI-registered merchant bankers which will be considered as base price for applying actual circuit filters upon the re-commencement of trading.

Merchant bankers will undertake due diligence based on the financial and other relevant information for the purpose of valuation. SEBI stated that the merchant banker will adopt a policy which in its opinion will be appropriate in arriving at the valuation and they will furnish to SEs, the methodology adopted in arriving at such a valuation.

3.15 Self Assessment Questions:

1. Briefly explain the Stock Exchange? What are the characteristics of stock exchanges?
2. What is the role of SEBI?
3. What is the traditional structure of the stock exchange in India?
4. Explain about the SEBI risk management system?

Lesson - 4

Derivatives

4.0 Objectives

The objectives of this unit are to enable you:

- To understand the meaning and importance financial derivatives.
- To know about the derivatives and other derivatives.
- To know about the benefits from derivatives.
- To ascertain the growth involved in the financial market

Structure:

- 4.1 Introduction
- 4.2 Futures Contracts
- 4.3 Other Derivatives
- 4.4 Currency Swaps
- 4.5 Growth in Derivatives Market
- 4.6 Case Studies
- 4.7 Summary
- 4.8 Self Assessment Questions

This unit introduces to the basic meaning, nature and concept of Financial Derivatives. The importance of Derivatives and its influence on stocks is covered in detail. It is essential for the management student to understand the derivatives concept, which is a latest topic in the finance.

4.1 Introduction:

The textbook definition of a 'financial derivative' is a financial instrument, the value of which is based on the value or values of one or more underlying assets or indexes of assets. Derivatives can be based on equities (stocks), debt (bonds, bills, and notes), currencies, and even indexes of these various things, such as the Dow Jones Industrial Average. Derivatives can be sold and traded either on a regulated exchange, such as the Chicago Board of Trade, or off the exchanges, directly between the different counterparties, which is known as "over-the-counter" (OTC). The textbook explanation of the purpose of derivatives is that they serve to reduce the risk inherent in fluctuations of foreign exchange rates, interest rates, and market prices. Derivatives traded on exchanges also are said to serve as a "price discovery" mechanism.

According to the Bank for International Settlements' October 1992 report, *Recent Developments in International Interbank Relations*, "swaps" are the largest type of derivatives, as measured by the *notional principal amount* outstanding.

A generation or so ago, the matter of what derivatives are might have been adequately summarized by contrasting the difference between investment, on the one hand, and gambling or speculation, on the other.

The instruments which "underlie" derivatives — stocks, bonds, commodities, money — represent a claim, usually through ownership, on wealth produced in the economy. Such claims can be purchased. Thus, shares in a company can be bought, as can bonds issued by governments or corporations, or hard commodities produced by agriculture, forest industries, or minerals extractors and refiners.

The instrument so purchased provides a means by which the wealth produced may be turned into money. In the case of stock, this may take the form of the company's dividend payment, the part of after-tax profits distributed to shareholders, or it might take the form of capital gains realized through the appreciation of the stock's value. Formerly, such monetization, or potential for monetization, would have been more or less directly related to the economic performance of the company, in contributing to an increasing overall rate of wealth generation through productivity-enhancing increases in the powers of labour. So too are bonds directly related to economic activity, though where stocks represent equity ownership, bonds represent indebtedness. The interest paid corresponds, more or less, to the dividend yield of a stock. And like stocks, bonds can provide capital appreciation.

A generation ago, such financial instruments were the means for transforming economic surplus into monetized net profit. "Hard" commodities are different, because they are part of the materials-flow needed to sustain production and consumption, which ought to be bought and sold so that production might proceed — outputs of production on the one side, are also the inputs for the next level of productive transformation on the other: Wheat becomes flour, flour becomes bread; iron ore becomes steel, steel becomes machinery, buildings, automobiles, and household appliances. Such activities used to contribute to generation of surplus, but their monetization is not part of after-tax profits.

Purchases of stocks and bonds would once have been seen as investment for the long haul. Trade in commodities would have been seen not as investment, but as purchases and sales.

With what are now called derivatives, we move from investment, and purchases and sales of hard commodities, to speculating on the future price or yield performance of what were once investments, and relatively simple, economically necessary transactions.

All derivatives are actually variations on futures trading, and, much as some insist to the contrary, all futures trading is inherently speculation or gambling. Thus, until late in 1989, all futures trading, of any sort, was outlawed in Germany, under the country's gambling laws. Such activities were not treated as a legitimate part of business activity. And, who will contend against the observation, that Germany did quite well without them?

There are two types of futures trading; each can be applied to each of the instruments, like stocks and bonds, which, bought directly for cash, monetize what used to be after-tax profits. The first type is, as it were, a second step removed from economic activity as such. This is futures trading per se: contracting to buy or sell at a future date, at a previously negotiated price. Here the presumption used to hold, that commodities, for example, would actually change hands for money, as the agreed-on contracts fell due.

The other kind of futures contract, called an option, moves another step further away from economic activity as such. Now what is bought or sold is the right, but not the obligation, to buy or sell a commodity, stock, bond, or money, at a future price on an agreed-on date.

Where the futures contract speculates on what the price that would have to be paid against delivery will be, the option simply speculates on the price.

At yet another remove from economic activity per se is an index. An index is not the right to buy a commodity or stock in the future which is traded, but the future movement of an index based on a basket of stocks, commodities, bonds, or whatever.

4.2 Futures Contracts:

In the United States, futures contracts on corn, oats, and wheat began to be traded on an organized exchange, the Chicago Board of Trade (CBOT), in 1859. "Notional principal amount" refers to the value of the underlying assets in a futures contract. For example, in a corn futures contract to take future delivery of 5,000 bushels three months hence, the notional principal amount of the contract would be the price of a bushel of corn times 5,000. If the price of corn were, for example, \$2.00, the notional principal value of the corn futures contract would be \$10,000. But the actual price of the contract, however, is the *margin* set by the exchange; the CBOT, for example, requires \$270 be paid to purchase a futures contract that on May 15 had a notional value of \$11,637.50.

Since financial deregulation in the 1970s, futures contracts have been developed for things that are not assets or commodities. The first move was the introduction of futures contracts on foreign exchange rates. In May 1972, the International Monetary Market of the Chicago Mercantile Exchange (CME) began trading in the first financial futures: futures contracts on the British pound, Canadian dollar, German mark, Dutch guilder, Japanese yen, Mexican peso, and Swiss franc.

In October 1975, the CBOT introduced trading in the first futures on interest rates, on the Government National Mortgage Association's (GNMA) mortgage-backed certificates. In January

1976, the CME began futures trading in 90-day U.S. Treasury Bills. Trading in futures contracts on 15-year U.S. Treasury Bonds began on the CBOT in August 1977. Trading in such interest rate futures, as they are called, quickly grew to become the most heavily traded futures contracts in the world. On the CBOT, trading in Treasury bond futures and options has risen from 28.3% of total volume in 1981, to 64.4% of total volume in 1991.

In February 1982, futures contracts for *indexes* of asset values began trading, with the introduction of futures contracts based on the Value Line Average Stock Index, on the Kansas City Board of Trade. Two months later, the CME began trading in the Standard and Poor's 500 Stock Price Index, which is now one of the most heavily traded futures contracts at the CME. Trading in this contract is considered so important, that the CME set up a special room in a different building to allow continued trading in the S&P 500, when the CME was forced out of its building by the flooding waters of the Chicago River in May 1992, closing trading in all other futures contracts. Not coincidentally, the S&P 500 Stock Price Index futures contracts is one of the instruments the U.S. Federal Reserve has reportedly used since October 1987 to reverse collapses on the New York Stock Exchange.

4.3 Other Derivatives:

There are other types of derivatives which are not traded on exchanges, but are negotiated between contracting parties, usually large banks. These are called "over-the-counter" instruments. "Swaps" are designed to transform a nominally long or medium-term contract into a succession of shorter-term maturities.

For example, swapping a floating rate Swiss franc-denominated obligation for a fixed-rate dollar instrument between banks, involves the Euromarket, the currency markets, the swap market, and perhaps also the interest rate futures and/or options markets. The intrepid might want to try to calculate how far we now have moved from the first level of cash purchases of stocks and bonds.

An *interest rate swap* is a transaction in which two counterparties agree to exchange two different types of interest payment streams based on an underlying notional principal amount. For example, assume that a bank with a portfolio full of Adjustable Rate Mortgages (ARMs) wished to receive an income stream of fixed-rate interest payments. The bank would package together, say, \$10 million of such mortgages, all paying interest currently at 6.5%, and exchange the ownership of the interest payment stream from that package of ARMs with a corporation that would give the bank in return the ownership of an interest payment stream fixed at, say, 8%. The notional principal amount of the swap would be \$10 million, but the actual amount of money that exchanges hands would be limited to the interest payments each counterparty owed to the other over the life of the swap.

Swapping of interest rates is said to have begun in connection with the Eurobond market in the early 1980s, when high interest rates dictated that only the highest quality borrowers could qualify for long-term, fixed-rate financing. Borrowers of lesser quality, who were excluded from such financing, were able to obtain it indirectly through swaps.

However, it was not until the U.S. Student Loan Marketing Association (Sallie Mae), began using swaps in 1982, that they began to be widespread. Sallie Mae was seeking a way to avoid having to borrow longer-term, higher-priced funds, to lend out for shorter terms at lower rates. The

swaps used by borrowers in the Eurobond markets proved to be the perfect vehicle for Sallie Mae, which, as a quasi-government agency, is perceived by the markets to be an extremely high-grade borrower. The first swap for Sallie Mae was arranged through an investment bank in the summer of 1982, with ITT as a counterparty. ITT reportedly saved 17 basis points (17 and 100 of 1%) in borrowing costs in the deal.

4.4 Currency Swaps:

Currency swaps have been used by central banks for decades. The Bank of England, for example, would receive a set amount of dollars from the U.S. Federal Reserve in exchange for a set amount of pounds, in order to have dollars to use on the foreign exchange markets. After a period of time, the Bank of England would return the dollars to the U.S. Federal Reserve, and receive back its pounds. The accepted definition of a currency swap is a transaction in which one counterparty exchanges its principal and cash flows denominated in one currency, for the differently denominated principal and cash flows of another counterparty. At an agreed upon future date, the two counterparties close out the transaction by reversing the swap of the principal.

In the 1970s, a small number of currency swaps were arranged that were not related to central bank activity. A U.S. dollar/French franc swap, for example, was arranged for the Republic of Venezuela to help meet payment obligations arising from the construction of a commuter rail system in Caracas. The details of these swaps were largely kept from the public view, for fear of disclosing proprietary operating information.

After the debt bomb exploded, when Mexico threatened a debt moratorium in 1981, however, the World Bank widely publicized a swap arranged by Salomon Brothers between itself and IBM. The motivations of the World Bank and IBM to conclude the transaction made the swap exceptional at the time. The World Bank was seeking to maximize the rate of interest on its debt, and IBM was seeking to hedge its Swiss franc and German mark debt, while at the same time capturing a paper profit from the appreciation of the dollar against both currencies. As Michael Wood, senior manager of International Financial Markets at Dresdner Bank in Frankfurt, noted in the 1992 textbook "*Cross Currency Swaps*", by Lehigh University Professor Carl Beidleman, it was "the first time that a currency swap was used to arbitrage between capital markets, that is, where a capital market issue was done solely for the purpose of swapping into another currency."

And then there are caps, floors, and collars, options on the anticipated interest rate movements which make up the swap:

Caps, in which the buyer will receive from the seller the difference between current interest rates, and some agreed-upon rate, in the event interest rates move above the agreed upon rate. In return for thus limiting its exposure to interest rate increases, the buyer pays to the seller a onetime fee.

Floors, in which the buyer is protecting himself from decreases in interest rates. That is, if interest rates fall below an agreed-upon level, the seller is obligated to make up the difference to the buyer, in exchange for the up-front fee paid by the buyer.

Collars, in which the buyer of a cap simultaneously sells a floor at the same time, or vice versa, with the object of maintaining interest rates within some defined band.

Currency forwards are perhaps the simplest derivative instruments, and perhaps the one with the greatest utility for companies involved in producing and shipping goods in foreign trade, given the insanity of floating exchange rates. Assume that Boeing has sold an airliner to Lufthansa. Rather than go through the trouble of converting the deutschmarks paid by Lufthansa into dollars—and being subjected to the risk of changing exchange rates if Lufthansa is paying Boeing back over a period of time — Boeing pays a fee to an intermediary (a swap dealer) to find a German company that has sold something in the United States that is of comparable value to the Boeing airliner purchased by Lufthansa. Let us assume that Siemens has sold some power-generating equipment to a U.S. utility. Under a currency forward, the utility that had bought equipment from Siemens, will pay dollars to Boeing instead of Siemens, and Lufthansa will pay deutschmarks to Siemens instead of Boeing. In other words, Boeing gets Siemens's U.S. income stream in the United States, in exchange for which Siemens gets Boeing's deutschmark income stream in Germany.

Thus, the definition of a currency forward is a contract in which two counterparties agree to exchange differently denominated income streams at an agreed upon exchange rate at some point in the future. There is no swapping of principal involved.

Within the United States, the entire "over-the-counter market" is quite illegal, since by the current version of the Commodity Exchange Act, banks and related agencies are prohibited from engaging in off-exchange futures contracts. Thanks to Sen. Phil Gramm's wife Wendy, former head of the Commodity Futures Trading Commission, regulatory agencies have successively undermined that exclusion through so-called interpretation and exemption, just as the earlier prohibition of options was undermined, or just as the 1930s Glass-Steagall Act, which divided U.S. banks into two, mutually exclusive types—commercial banks and investment banks—is now being disregarded, even though it remains on the books.

4.5 Growth in Derivatives Market:

According to the October 1992 report of the Bank for International Settlements, "*Recent Developments in International Interbank Relations*", since the mid-1980s, the growth of turnover and of volumes outstanding in markets for derivatives instruments, including over-the-counter (OTC) markets that offer more customized products, has outpaced the growth of most other financial activity., the "notional principal amount" (referring to the value of underlying assets) of derivatives outstanding had exceeded the total market capitalization of the New York Stock Exchange. By 1989, the notional value of derivatives outstanding was almost one-third larger than the total market value of all publicly listed companies in the United States. By the end of 1991, the notional value of derivatives was soaring toward being double the market capitalization of all U.S. publicly listed companies.

In other words, if the phenomenal growth rate derivatives exhibited from 1986 to 1991 has continued in the past two years, *the amount of derivative paper outstanding—none of which is carried on corporate balance sheets—is now somewhere around twice the total market value of all publicly listed companies in the United States.*

The financial derivatives have grown to such an extent is all the more amazing, considering that these instruments simply did not exist 25 years ago. The largest single type of derivatives, interest rate swaps, did not get off the ground until the summer of 1982. Futures on currencies did not come into use until May 1972. Interest rate futures first came into being in October 1975.

Oddly enough, there are no official figures available for the *dollar volume* of futures trading in the United States. Not even the Commodities Futures Trading Commission, the federal government agency charged with regulating the futures markets, has figures for the dollar volume of futures trading. Neither do the Chicago Board of Trade or the Chicago Mercantile Exchange, the two largest futures exchanges. By multiplying the number of contracts traded of a certain basic type—agricultural commodities, precious metals, energy products, currencies, and financial products—by an average price for each basic type, *EIR* has estimated that the U.S. futures markets have an annual turnover of around \$25 trillion. This is a major revision from *EIR*'s original estimate of \$152 trillion, published in December 1992. Still, it demonstrates that the futures markets dwarf the New York Stock Exchange, which had a market capitalization of \$3.713 trillion, and total value of shares traded of \$1.520 trillion in 1991.

The futures markets are also some five times larger than the U.S. Gross National Product, which was \$5.519 trillion in 1991.

These gigantic markets are highly concentrated, with a mere handful of firms completely dominant. A report by the Board of Governors of the Federal Reserve System, the Federal Deposit Insurance Corp., and Office of the Comptroller of the Currency, *Derivative Product Activities of Commercial Banks*, issued on Jan. 27, 1993, revealed that the ten largest commercial banks in the U.S. control 95.2% of all derivatives activities by U.S. commercial banks.

The same situation probably exists on the investment bank side. In a listing of the 40 largest institutions in the futures markets, ranked by customer equity (the futures markets define equity as the residual dollar value of a futures account, assuming it were liquidated at prevailing market prices), in the March 1993 issue of *Futures* magazine, the five largest were investment banks: (1) Merrill Lynch Futures, Inc. (\$2,176.9 million); (2) Goldman Sachs and Co. (\$1,581.3 million); (3) Shearson Lehman Brothers, Inc. (\$1,527.7 million); (4) Dean Witter Reynolds, Inc. (\$1,120.1 million); and (5) Prudential Securities, Inc. (\$1,106.1 million).

These were followed by (6) Refco, Inc. (\$1,071.3 million); (7) Morgan Stanley and Co. (\$844.7 million); (8) Cargill Investors Service, Inc. (\$804.5 million); (9) Daiwa Securities America, Inc. (\$588.5 million); (10) PaineWebber Inc. (\$576.2 million); (11) Bear Stearns Securities Corp. (\$539.4 million); and (12) Salomon Brothers, Inc. (\$488.6 million).

Of these firms, the three with the largest net adjusted capital (the amount of liquid capital established by Commodities Futures Trading Commission capital requirements) were Salomon Brothers (\$999.6 million), Goldman Sachs (\$963.6 million), and Shearson Lehman (\$859.4 million).

EIR's revision of its estimate of the size of the futures markets means that the largest market in the world remains the foreign exchange, or currency, markets. In March, the Bank for International Settlements (BIS) issued a new report, "*Central Bank Survey of Foreign Exchange Market Activity in April 1992*", which states that foreign exchange trading increased 42% from 1989 to 1992, to an estimated \$880 billion per business day. This figure includes derivatives trading in currencies (i.e., futures contracts on currencies, swaps, and options), but also excludes offsetting positions. The actual total gross turnover reported by the 26 central banks which conducted the surveys, was \$1.354 trillion a day.

According to the BIS report, London now trades more dollars and deutschemarks than the United States or Germany does. London has increased its share of world trading, from 25% or

\$187 billion in 1989, to over 40% or \$300 billion in 1992. Trading in London is also increasingly concentrated, with the 10 most active banks in the City of London accounting for 43% of trading in 1991, compared to 36% in 1986, according to a report issued last year by the Bank of England. That means 10 London Banks accounted for 18% of all world currency trading in April 1992.

The second largest currency market was the United States, reporting a daily volume of \$129 billion in 1989, and \$192 billion in 1993. Japan was the third largest, with daily volume in April 1989 of \$115 billion, and \$126 billion in 1993.

The fifth and sixth largest markets were two key members of the British Commonwealth: Singapore and Hong Kong, with \$76 billion and \$61 billion in daily trading in April 1992, respectively. If the figures for Britain, Singapore, and Hong Kong are added together, it will be seen that the British Empire controlled almost exactly half of the \$880 billion in foreign exchange trading that took place every day in April 1992.

In December 1992, for the occasion of the meeting of the finance and bank ministers of the Group of Seven, the BIS issued a new estimate of daily world currency trading, of \$1 trillion a day.

4.6 Case Studies:

Derivatives and Agricultural Commodity Trading

How much does the trading activity on the futures markets contribute to "making the economy more efficient?" Just how many grain futures contracts—covering corn, wheat, oats, soybeans, barley, and sorghum—that are traded on the futures markets, are real, representing the movement of agricultural produce, and how many are purely speculative trades?

Most American farmers will tell you that the agricultural futures markets, whether for grain, livestock products, oilseed products, orange juice, coffee, or sugar, are the farmers' worst opponents, forcing the price of grain products down below production cost. Only 5-15% of farmers even bother to use the futures market to sell their products.

Normally, in theory, the agricultural futures market would work in the following way. A wheat farmer, at planting time in the spring, might see that the price of wheat is but \$2.25 per bushel. He might buy a September or December wheat futures contract (a "put") that will pay him \$2.75 for his wheat at the month at which the contract expires. This way the farmer has guaranteed himself a minimum price for his wheat when it comes time to sell.

However, most farmers know that the theory does not work out that way in practice. The eighth largest futures trading firm in America, for futures trading of all kinds, is Cargill Investor Services, Inc., run by the Cargill grain cartel. The 34th largest futures trading firm is ADM Investor Services, Inc., of Archer Daniels Midland. They directly manipulate prices against the farmer.

Consulting the statistics provided by the Commodity Futures Trading Commission, which regulates the futures and options industry, in 1992, there were 17,552,356 grain futures contracts traded. Of that total, only 64,200 were settled by delivery/cash settlement, meaning that the actual grain produce of the contract was taken for physical delivery. That is but 0.36% of all contracts traded.

However, at the level of the farmer selling his grain to an elevator, for each sale of real grain—called a hedge—there has to be an offsetting speculative trade to make the market. So, on that first

level, there are 128,400 legitimate trades. Then, the local elevator usually sells the grain to the sub-terminal or terminal, such as in Omaha, Nebraska or Kansas City, Missouri, and sale by the local elevator operator must be offset by a speculative sale. Plus, the sub-terminal or terminal might have to sell the grain one more time. So, there are three times 128,400 contracts which can be considered legitimate. That is 2.2% of all trades; so 97.8% of all trades are purely speculative, having no connection to the real process involving the farmer and his produce. They involve speculators, often linked to the grain cartels, moving paper back and forth, attempting to capture spreads, or drive down the grain price for farmers.

The Bank of New England blowout

The January 1991, failure of the Bank of New England (BNE), which had until its collapse been one of the 10 largest bank holding companies in the United States, provides a good example of the way federal regulators have propped up the banking system, and of the risks faced by banks which play in the world derivatives markets.

The collapse of the speculative real estate market, which virtually wiped out the Texas banking system in the late 1980s, spread to New England by the end of the decade, bringing to a close the speculative bubble known as the "Massachusetts miracle." Boston-based BNE, which had lent heavily in the regional real estate market, suddenly found itself with overwhelming losses on its real estate portfolio. The bank, which had grown rapidly thanks to the real estate bubble, was dying with the collapse of that bubble.

In October 1989, BNE, which then had \$31.4 billion in assets, announced plans to dramatically downsize the bank through massive asset sales and employee cutbacks. The plans included selling some 10% of its branches, closing loan production offices in Chicago, New York, and Philadelphia, and reducing its work force by more than 20%.

In late December 1989, BNE took the extraordinary step of rescinding a previously announced 34 Act quarterly stockholder dividend. The step was forced by federal regulators, who were already making preparations for the inevitable failure of the insolvent bank. Federal regulators also threw out the chairman of the bank, and replaced him with an interim chairman, H. Ridgely Bullock.

In early February 1990, in an attempt to calm public fears and prevent depositor runs, Bullock declared that the bank was "off the critical list and getting better.... We're in a fix-it mode. We're not going to be as big, but we're going to be better."

BNE was not "off the critical list," however; the only thing keeping its doors open was a massive covert bailout from the Federal Reserve. By the time Bullock made his statement, the bank had already received nearly \$1 billion from the Fed.

Beginning in mid-January, the Fed had begun pumping vast amounts of money into BNE via loans from the Boston Federal Reserve. Federal Reserve statistics show that the Boston Fed lent banks in its region \$478 million the week ended Jan. 24, compared to just \$3 million the week before. While the Fed does not reveal to which banks the money was lent, it is clear that most, if not virtually all, went to prop up BNE.

The weekly bank lending by the Boston Fed rose dramatically in the following weeks: \$440 million the week ended Jan. 31, then \$723 million the next week, then \$930 million, and \$1,280 million the week ended Feb. 21. During each of the next seven weeks, the Fed pumped between \$1.5 billion and \$1.85 billion into the bank; by April 11, the Boston Fed had lent \$15.6 billion to its regional banks, the vast majority going to the Bank of New England.

By March, after some \$5 billion of bailout funds had already been injected into the bank, the Office of the Comptroller of the Currency and the Fed issued formal cease-and-desist orders to the bank. The Fed order stipulated that the bank could not pay stock dividends without permission from the Fed—a requirement that had already been in effect for more than three months.

Even more comical was the bank's admission in its second quarter 1990 report to the Securities and Exchange Commission, that it may need government assistance to survive. This, after some \$18 billion had already been funnelled into the bankrupt bank.

The end for the Bank of New England came on Jan. 4, 1991, when Chairman Lawrence Fish told federal regulators that the \$450 million loss the bank suffered in the fourth quarter of 1990, had wiped out its \$225 million in equity, making the bank officially insolvent. At this point, the bank had just \$23 billion in assets, and had fallen from 10th place on the list of largest U.S. Banks, to 33rd place.

Not surprisingly, the announcement triggered massive depositor runs at the banks, with long lines forming at its corporate offices. Two days later, on Sunday, Jan. 6, 1991, federal regulators officially closed the bank. Federal Deposit Insurance Corp. Chairman William Seidman estimated the ultimate cost to the agency of the failures at \$2.3 billion, at the time the second most-costly bank failure in U.S. history, after the 1988 failure of First Republic Bank Corp. of Dallas.

Why did federal regulators pump more than \$18 billion into the Bank of New England, and then close it? If they were going to close it anyway, why did the regulators keep the bank open for a year after it was insolvent?

The answer is: derivatives

The *Wall Street Journal*, in a June 18, 1991, article by Craig Torres, revealed that regulators had propped the bank up for a year in order to unwind its portfolio of "off-balance sheet" derivatives transactions.

"Everybody knew we had \$30 billion in assets" on the balance sheet, BNE head of treasury operations Arthur Meehan told the *Journal*. "But nobody but a small cadre of regulators and analysts knew we had \$36 billion in off-balance sheet activity."

During November and December 1989, before BNE publicly revealed the size of its fourth-quarter losses, BNE chief currency and derivatives trader David Pettit was able to trim his off-balance sheet exposure by \$6 billion; getting rid of the remaining \$30 billion was not so easy.

The bank, under the close supervision of federal bank regulators, began attempting in January to cash out thousands of derivative transactions. However, as word of its financial troubles spread in financial circles, banks all over the world denied BNE credit, and demanded cash upfront. Not surprisingly, this is when the Boston Fed began pumping money into BNE.

Having become a pariah on world financial markets, BNE enlisted the help of Shearson Lehman and Prudential Securities to help it unwind its currency swaps on the Chicago Mercantile Exchange's International Monetary Market. By doing so, Meehan acknowledged, "we moved the risk out of the interbank system into the exchanges; but had we not, he said, regulators would have been forced to take over BNE's trading positions".

By the end of 1990, BNE had reduced its derivatives portfolio to \$6.7 billion. A week later, the bank was closed.

The collapse of the BNE nearly sent the global banking system into "gridlock," the *Journal* warned, adding, "It all sounds far-fetched. But that's just what nearly happened, federal regulators say, in the months before they seized the Bank of New England."

If BNE, with its \$36 billion in derivatives, nearly sent the global banking system into gridlock, imagine what would happen were Citicorp, with its \$1.4 trillion in derivatives, to fail.

"For certain banks there is a lot of exposure" in the derivatives market, a senior examiner at the Office of the Comptroller of the Currency told reporter Torres. "If we had a real problem with one of the larger banks, a meltdown scenario would be a possibility."

That meltdown scenario is not just a possibility. It is, in fact, well under way.

The History of the Fight Against Derivatives

The fight to institute Lyndon LaRouche's proposal for a one-tenth of 1% tax on financial derivatives comes after intense warfare over this issue by many nations that were fighting to preserve their national sovereignty. In the United States, trading in options on agricultural commodities had been banned in 1936, and the ban was not officially lifted until 1983.

Farmers had opposed the highly destructive effect of options, one of the earliest forms of the derivative market, starting in the 1920s, long before they became as large as they are today; even then, farmers still exercised significant influence within the United States. In 1933, an attempt was made to manipulate the wheat futures market using options, which resulted in an opportunity for farmers to force the U.S. Government to ban trading in these options. There were attempts to re-introduce trading in agricultural options during the 1970s, but the plan met with only limited success.

It was only in January 1983, when President Ronald Reagan signed the 1982 Futures Trading Act, that the ban was officially lifted. This was a major feature in the disastrous Reagan-era deregulation of the U.S. economy.

America had, for a short time, a small financial transaction tax, and the fight to impose a larger financial transaction tax was very intense in the late 1980s. Throughout the 1950s and early 1960s, the United States had a low-rate transaction tax—called a stamp tax—on the issuance and transfer of stocks and debt. The tax was revealed in 1965.

Rumblings from Congress

However, in the late 1980s, the fight broke out more intensely for a transaction tax of a greater size. In 1987, Speaker of the House Jim Wright of Texas called for a transaction tax on the financial markets. Wright's proposal called for a 0.5% tax on both the seller and the buyer in the same transaction, thus, effectively, amounting 1%. For six months, there was a heated public debate over Wright's proposal. Wright was soon driven from office in what is generally agreed to be an overblown scandal. The Oct. 16-19, 1987 stock market crash confirmed Wright's warnings of the instability of the financial markets.

Also in the 1989-90 period, during discussion of the 1990 Budget Reconciliation Act, Sen. Lloyd Bentsen, then chairman of the Senate Finance Committee and now secretary of the treasury, raised a proposal for a transaction tax on selected financial instruments on the floor of the Senate.

In February 1990, partly in response to the furor over this issue, the Congressional Budget Office, in its report "Reducing the Deficit: Spending and Revenue Options", had a section on pages

388-89, entitled "Impose a 0.5% Tax on the Transfer of Securities." Its analysis of the tax reported that "the tax would have to be broad-based, applying to stocks, debt, options and trades by Americans on foreign exchanges."

In June 1993, Rep. Henry Gonzalez (D-Tex.) proposed an investigation of derivatives high roller George Soros, and the derivatives phenomenon. Derivatives, Gonzalez told the House on June 10, is "a fancy name for a ... contract in which two parties agree that they will bet on the future value of some market activity—futures—all the way from some commodity, to such things as the currency futures which are volatile ... Is there money out there in these international markets for the procurement of goods, for firing the engines of manufacturing and production? No, It is paper chasing paper."

What Other Nations Have Done?

Various nations have taken action to tax and/or ban some of the instruments traded in the financial derivatives market, in an attempt to assert sovereign control over their national credit and finances.

In 1986, the Government of Sweden doubled its equity transaction tax, which is the tax on trade of stocks on the Swedish stock market. In 1989, Sweden extended the tax to futures and options trades. The effect of this new tax was to substantially reduce the trading of futures on Sweden's Stockholm market. Furthermore, the tax closed the Swedish Option and Future Exchange (SOFE) for two years. But in 1990, apparently under pressure from financiers, Sweden abolished the derivative tax, and trading in the derivatives market exploded, helping to deepen Sweden's financial problems.

Until as late as 1989, the German government held firm and refused to legalize the trading of some financial derivatives within the country. As a result of pressure from the trading of German government bond futures in the London markets, amendments to Germany's gambling law in 1989 made changes and permitted retail participation in derivative markets, followed by the opening of Germany's first financial exchange, Deutsche Terminbo@urse in 1990.

At present, derivative taxes are assessed in Finland, France, Hong Kong, and Japan, although, on the whole, they are not very large. The exception is France, which assesses a significant 2% transaction fee. So far, however, the fee is only used to finance the annual budget for CMT, the French regulatory body for the futures and options markets. Once the CMT's budget requirement is met, the fee is no longer levied.—*Richard Freeman*.

Derivatives Create Mass Global Unemployment

Unemployment, which was already at high levels globally throughout the 1970s and 1980s, has exploded within the past six years, the very time that the derivatives market has risen within the United States from a few trillion to currently \$12 trillion outstanding, with a yearly trading volume of greater than \$125 trillion. The derivatives market is the leading edge of the global financial bubble, which has caused mass unemployment and underemployment of between one-half and three-quarters of a billion people around the globe. About 55 million are unemployed in the advanced sector, and above 500 million in the developing sector.

In the U.S.A., the official unemployment rate was 4.4 per cent in the decade of the 1950s, 4.7 per cent in the decade of the 1960s and 7 per cent today. In the 12 nations that make up the

European Community, the effect is even more dramatic; unemployment has risen from an official rate of 2.0 per cent in 1965 to 11.8 per cent today. If one adds the officially reported unemployment levels for the European Community of 12 nations to the levels of unemployed in Canada, Japan, and the United States, then the total level of unemployment in the West, with the addition of Japan, is a staggering 29 million people. But even that enormous official number is an understatement: *The unofficial, real unemployment level is somewhere between 50 and 55 million.* This represents a criminal waste of resources. The European Community reports that just a shade under one-half of the 17 million officially reported unemployed European workers have been out of work for one year or more.

Terrified that they cannot think of how to put their own people back to work, at least two countries, France and the United States, have in the last month initiated discussion of immigration restriction laws.

As the table shows, in every nation but Japan, unemployment has skyrocketed since 1989. To some nations with a large labor force, Canada's officially reported level of unemployment of 1.6 million may not seem much; but consider that against Canada's working population of 13.9 million. This represents 11.4 per cent of its work force. Six European Community members have an officially posted rate of greater than 10 percent. They are: Britain, 10.5 per cent; Italy, 13.6 per cent; France, 10.9 per cent; Spain, 21 per cent; Ireland 19 per cent; and Denmark, 11.5 per cent.

The most worrisome part of the explosion in unemployment since 1989 is the layoff of manufacturing workers. In 1989, the United States had 19.39 million manufacturing workers; today it has 17.82 million, a loss of 1.56 million. In 1989, according to the British Information Office, Britain had 5.1 million manufacturing workers. In January 1993, it had only 4.1 million—a loss of one-fifth in four years. Britain is truly the junk-heap of Europe. In the western portion of Germany, between 1989 and the present the number of manufacturing jobs declined from 7.203 million to 6.977 million, a loss of nearly a quarter million. An estimated 1 million manufacturing jobs may have been lost in the former East Germany during this same time frame.

And these are only the official figures. The United States, for example, reports 8.858 million unemployed, representing 6.9 per cent of the labor force. But, if one adds in 6.580 million workers who work part-time for economic reasons, and 6.378 million workers who are "not in the labour force," but who answer government surveys saying that "they want a job," the total number of unemployed and underemployed is 21.816 million. For a labour force of 128.3 million, that is 17.0 per cent, not the official U.S. Government figure of 6.9 per cent.

If the real unemployed in the other nations under consideration are brought to light, the total unemployed in the West, with Japan, is between 50 and 55 million.

Unemployment in East Bloc and Developing Sector

The reader should recall that derivatives trading and IMF conditionalities operate in tandem and are just two sides of the same coin. Leading derivatives speculator, George Soros has helped implement the IMF's shock therapy program, especially in former Yugoslavia, throughout the former East bloc.

Take the case of Poland, where IMF conditionalities and the speculative/derivatives market are raging at the same time. Just a few years ago, in this nation of 39 million people, with a labour

force of 20 million, unemployment was less than half a million, though some of the jobs were of poor quality. Today, the official unemployment level is 2.3 million, and many believe it is two to three times that rate. 43 per cent of all households can food only on the condition that other expenses are cut down to a minimum, or are not even paid, such as rents and electricity bills.

Mexico, where speculator George Soros has been a big player causing the gigantic speculative run-up in the Mexican stock market, is another exemplary case. In Mexico, today, the Government reports an official unemployment rate of 2.9 per cent. Nobody believes this. In 1980, Mexico had a labour force of 22 million and an official unemployment level of 3.5 million. Since that time, 10 million workers entered the work-force, but the economy has stagnated. These 10 million workers are either unemployed or part of the burgeoning "informal economy," i.e., street vendors, criminals, etc. If one adds this 10 million, the unemployment and underemployment level is 13.5 million. There are 2 million additional uncounted workers in the agricultural sector who are unemployed or underemployed. The final result: Mexico has 15.5 million unemployed or underemployed in a labour force of 32 million; nearly 50 per cent unemployment. Such levels of unemployment, or only slightly lower, exist in many Ibero-American nations. With an Ibero-American workforce in 1990 of 174 million, assuming an unemployment rate of only 33 per cent for Ibero-America, then the level of unemployed and underemployed on that continent is 58 million.

Finally, China and India are two other examples. Both countries are the victims of forced underdevelopment which is the flip side of the speculative derivatives markets. In 1990, together these two huge nations, had 1.987 billion people (37 per cent of the world total), and a combined workforce of 1.003 billion (41 per cent of the world total). In July 1993, the Chinese Ministry of Labour reported that China has already 170 million surplus agricultural labourers and the number will swell to 400 million by the year 2000. Between 100 to 150 million of these agricultural workers, swarm in mass migrations from city to city desperately looking for work and food. They are the human fodder that is fed into China's slave-labour special economic zones to keep workers' wages at 10 cents an hour: If a worker doesn't want to take a job at that level, an unemployed agricultural worker surely will. Moreover, while some of China's 92 million member industrial workforce is employed in special economic zones, the backbone of old smokestack industry is cracking, and large numbers of Chinese are being laid off there. Total unemployment and underemployment in China exceeds 250 million.

In India, the government admits an unemployment rate of 11 per cent, which in a country with a 323 million workforce is 30 million. But in India, 70 percent of the farms are less than 1 acre, a very small area. This means that there is a good part of the year, when there is nothing for the Indian farmer to do on his small plot of land. About 65 per cent of India's agricultural population is underutilized if not downright unemployed. Many of them look around desperately for other work. One could conservatively say that the level of unemployed and underemployment in India is 80 million.

In Africa, proportionally, the numbers are as large. In each instance, the conditionality of the IMF and the imposition of Anglo-American speculative markets, led by derivatives are the cause of this misery. The suffering is needless: shut down the derivatives markets and return to the Great Projects perspective of infrastructure building and technology transfer, and the world suddenly has the availability of one-half to three-quarters of a billion of human being.

4.7 Summary:

The textbook explanation of the purpose of derivatives is that they serve to reduce the risk inherent in fluctuations of foreign exchange rates, interest rates, and market prices. Derivatives traded on exchanges also are said to serve as a "price discovery" mechanism.

4.8 Self Assessment Questions:

1. Briefly explain the concept of Derivatives? What are the other derivatives included in it?
2. Evaluate growth in the derivative market?

Lesson - 5

Forwards and Futures

5.0 Objectives

The objectives of this unit are to enable you:

- To understand the concept of forwards and futures
- To know definitions of forwards and futures..
- To know the salient features of forwards market.
- To ascertain the limitation of forwards market.

Structure:

5.1 Introduction

5.2 Definitions

5.3 Legal Definitions of Forward Contracts

5.4 The Salient Features of Forward Contracts are

5.5 Limitations of Forward Markets

5.6 Summary

5.7 Self Assessment Questions

In recent years, derivatives have become increasingly important in the field of finance. While futures and options are now actively traded on many exchanges, forward contracts are popular on the OTC market.

5.1 Introduction:

A forward contract is an agreement to buy or sell an asset on a specified price. One of the parties to the contract assumes a long position and agrees to buy the underlying asset on a certain specified future date or a certain specified price. The other party assumes a short position and agrees to sell the asset on the same date for the same price. Other contract details like delivery date, the parties to the contract negotiate price and quantity bilaterally. The forward contracts are normally traded outside the exchanges.

5.2 Definitions:

A forward contract is an agreement between two parties to buy or sell, as the case may be, a commodity (or financial instrument or currency) at a pre-determined future date at a price agreed when the contract is entered into.

The key elements are that:

The date on which the commodity will be bought/sold is determined in advance.

The price to be paid/received at that future date is determined at present.

Example: In the month of August, a rice mill agrees to buy one tonne of paddy from a farmer in the following February at a price of Rs.3000. This is a forward contract. Note that the farmer will receive Rs.3000 in February irrespective of whether the market price in February is Rs.2000 or Rs.4000.

5.3 Legal Definitions of Forward Contracts:

Under the forward contracts (regulation) Act, 1952, forward contracts are classified into:

Hedge Contracts: These are freely transferable and do not specify any particular lot, consignment or variety for delivery. Delivery in such contracts (which may be of any of the approved deliverable varieties) is unnecessary, except in a residual or optional sense. Hedge contracts are subject to the regulatory provisions of the Forward Contracts (Regulation) Act.

Transferable Specific Delivery (TSD) Contracts: These are contracts, which, though freely transferable from one party to another, are concerned with a specific and pre-determined consignment or variety of the commodity. Delivery of the agreed variety is mandatory. Such contracts are normally subject to the regulatory provisions of the Act but may be exempted from regulation. (in specified cases) by the central government.

Non-transferable Specific Delivery (NTSD) Contracts: These are concerned with a specific variety or consignment and are not transferable at all. Contract terms are highly specific. Delivery is mandatory. NTSD contracts are normally exempted from the regulatory provisions of the Act, but may be brought under regulation by the central government, wherever felt necessary (in practice, NTSD contracts in most items have been brought under regulation).

As will be obvious, the legal definition of hedge contracts corresponds to the analytical definition of futures contracts, while the latter two categories are not 'futures' contracts or hedge contracts does not specify precisely which variety or consignment will actually be delivered because the limits are set by the rules of the exchange on which types can or cannot be delivered. Where a variety superior or inferior to the basis variety is tendered for delivery, prices are adjusted by means of premia or discounts, as the may be, these are commonly known as tendering differences.

Thus, every futures contract is a forward contract, not every forward contract is a future contract.

5.4 The Salient Features of Forward Contracts are:

A forward contract is one to one bi-partite contract, to be performed in the future, at the terms decided today. (E.g. forward currency market in India).

Forward contracts offer tremendous flexibility to the parties to design the contract in terms of the price, quantity, quality (in case of commodities), delivery time and place.

Forward contracts suffer from poor liquidity and default risk.

If the party wishes to reverse the contract, it has to compulsorily go to the same counter party, which often results in high prices being charged.

However forward contract in certain markets have become very standardized, as in the case of foreign exchange, thereby reducing transaction costs and increasing transactions volume. This process of standardization reached its limit in the organized futures market.

Forward contracts are very useful in hedging and speculation. The classic hedging application would be that of an exporter who expects to receive payment in dollars three months later. He is exposed to the risk of exchange rate fluctuations. By using the currency forward market to sell dollars forward, he can lock on to a rate today and reduce his uncertainty. Similarly, an importer who is required to make a payment in dollars two months, hence can reduce his exposure to exchange rate fluctuations by buying dollars forward.

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 cast market. The speculator would go long on the forward, wait for the price to rise, and then take a reversing transaction to book profits. Speculators may well be required to deposit a margin upfront. However, this is generally a relatively small proportion of the value of the assets underlying the forward contract. The use of forward markets here supplies leverage to the speculator.

5.5 Limitations of Forward Markets:

Forward markets worldwide are affected by several problems:

- Lack of centralization of trading,
- Ill-liquidity, and
- Counter party risk

In the first two of these, the basic problem is that of too much flexibility and generality.

5.6 Summary:

The forward market is like a real estate market in that any two consenting adults can form a contracts against each other. This often makes design terms of the deal, which are very convenient in that specific situation, but makes the contracts non-tradable.

Counter party risk arises from the possibility of default by any one party to the transaction. When one of the two sides to the transaction declares bankruptcy, the other suffers. Even when forward markets trade standardized contracts, and hence avoid the problem of ill-liquidity, still the counter party risk remains a very serious issue.

5.7 Self Assessment Questions

1. Define Forward contract? Moreover, what its different legal definitions of forward contracts?
2. What are the salient features of forward contract?
3. Describe the Forward contract and what is its limitation?

Lesson - 6

Futures

6.0 Objectives

The objectives of this unit are to enable you:

- To know and understand the concept of futures.
- To know the difference between the forward and future contracts.
- To assess the margining in the future market.
- To identify the operators in the derivative market.

Structure:

- 6.1 Introduction
- 6.2 Introduction of Futures in India
- 6.3 Features of Future Contracts
- 6.4 The Classical View Constructive Speculation
- 6.5 Forward/Future Contracts
- 6.6 Concept of Basis in Futures Market
- 6.7 Operators in the Derivatives Market
- 6.8 Margining in Futures Market
- 6.9 Liquid Assets and Broker's Network
- 6.10 Expected Advantages of Derivatives to the Cash Market
- 6.11 Summary
- 6.12 Self Assessment Questions

6.1 Introduction:

Futures markets were designed to solve the problems that exist in forward markets. A futures contract is a agreement between two parties to buy or sell as asset at a certain time in the future at a certain price. But unlike forward contracts, the futures contracts are standardized and exchange traded. To facilitate liquidity in the futures contracts, the exchange specifies certain standard features of the contract. It is a standardized contract with standard underlying instrument, a standard quantity and quality of the underlying instrument that can be delivered (or which can be used for reference purposes in settlement) and a standard timing of such settlement. A futures contract may be offset prior to maturity by entering into an equal and opposite transaction. More than 99% of futures transactions are offset this way.

Merton Miller, the 1990 Nobel laureate has said, "Financial futures represent the most Significant financial innovation of the last twenty years." The first exchange that traded financial derivatives was launched in Chicago in the year 1972. A division of the Chicago Mercantile Exchange. It was called the International Monetary Market (IMM) and traded currency futures. The brain-behind this was a man called Leo Melamed, acknowledged as the "father of financial futures", who was then the Chairman of as the Chicago Mercantile Exchange. Before IMM opened in 1972, the Chicago Mercantile Exchange traded at the Chicago Mercantile Exchange totalled 50 trillion dollars.

These currency futures paved the way for the successful marketing of the dizzying array of similar products at the Chicago Mercantile Exchange, the Chicago Board of Trade, and the Chicago Board Options Exchange. By the 1990s, these exchange were trading futures and options on everything from Asian and American stock indexes to interest-rate swaps, and their success transformed Chicago almost overnight into the risk transfer capital of the world.

Box: 6.1: The first financial futures market

6.2 Introduction of Futures in India:

The first derivative product to be introduced in the Indian securities market is going to be "INDEX FUTURES".

In the world, first index futures were traded in U.S. on Kansas City Board of Trade (KCBT) on Value Line Arithmetic Index (VLAI) in 1982.

6.3 Features of Future Contracts:

Future contracts are organized/standardized contracts, which are traded on the exchanges.

These contracts, being standardized and traded on the exchanges are very liquid in nature.

In futures market, clearing corporation/ house provides the settlement guarantee.

Every futures contract is a forward contract. They:

- Are entered into through exchange, traded on exchange and clearing corporation/house provides the settlement guarantee for trades.
- Are of standard quantity; standard quality (in case of commodities).

- Have standard delivery time and place.
- Economic functions of Futures Markets.

It goes without saying that an elaborate structure of future of futures markets would not exist without some definite function or purpose (other than providing a fertile ground for authors to write complicated books about). What then, are the purposes and are they economically useful?

The primary economic function and *raison d'être* of futures markets is the hedging function also known as the price insurance, risk-shifting or risk transferable function. Futures markets provide a vehicle by which participants can hedge, i.e., protect themselves from adverse price movements in a commodity or financial instrument in which they face a price risk.

Price Discovery Function: Futures markets provide a mechanism by which diverse and scattered opinions of the future are coalesced into one readily discernible number, which provide a "consensus of knowledgeable thinking". Organized spot market perform a price discovery function too, but only in respect of the spot (i.e., current) price. Future price provide an expression of the consensus of today's expectations about some point in the future. By publishing and disseminating this, they also perform an information or publicity function. The process of price discovery also leads to the inter-temporal inventory allocation function, by which market participants are able to compare the current and future prices and decide the optimal allocation of their stocks between immediate sale and storage for future sale.

Financing Function: The use of standardized contracts makes it easier to raise finance against stocks of commodities, since lenders have an assurance of standardized quality and quick liquidity. Again, this function is not unique to futures: organized spot markets perform the same function. However there is a small part of the financing function that is unique to forward/future market- this is the fact that lenders are often more willing to finance hedged stock than unhedged stocks, since the former are protected against risk of loss of value.

Liquidity Function: Futures markets operate on a fractional margin whereby the buyer and seller deposits only a fraction of the contract value (say 10%) at the time of entering into it. This enables traders to buy and sell a much larger volume of contracts than in a spot market, and makes markets more liquid, so that large transactions can be put through with ease.

Price Stabilization Function: Futures markets generally exercise a stabilizing influence on spot prices by reducing the amplitude of short-term fluctuations.

Of the four secondary functions, it is the price stabilization (or alleged destabilization) function that is the most important for purposed of economic policy. The effect of futures markets on spot prices has often been misunderstood, particularly (but not exclusively) in India. The theory underlying the price stabilizing function is presented.

Futures Trading and Price Stabilization: Speculation can and does exist without a futures market. After all, speculation is common in the stock market. Speculation is possible even in spot commodity market. A speculator may buy and hold stocks in anticipation of a price rise. However, futures trading (or organized forward trading) greatly facilitates speculation and increases possible in a spot market. Secondly, it greatly reduces the transaction costs associated with speculation. Suppose a speculator anticipates a rise in pepper prices. In the absence of a forward or futures market, he has to:

- Buy pepper in the spot market
- Find a place for storage
- Transport it to the storage site
- Pay carrying costs
- Insure the stock
- Transport it back to the selling point
- Arrange for sale, etc.

Thus, he has to go through a number of transactions, involving a lot of time, energy and resources. On the other hand, if there is a futures market he simply places an order with a broker. Because of this enhances speculation.

6.4 The Classical View Constructive Speculation:

A long line of distinguished economists, including such luminaries as Adam Smith, J.S. Mill and Alfred Marshall propounded the view that speculation had a stabilizing influence on prices. The essence of that view is that speculators tend to buy when a good is cheap (thus increasing demand at a time of glut) and sell when it is costly (thus increasing supply at a time of scarcity). Speculators take efforts to acquire information on market conditions and prospects, in their own interests. They then use this information to buy cheap and sell dear, thereby reducing the extremes of price movements. Marshall termed this twin activity- collection of information and this use in a stabilizing manner- constructive speculation.

Stabilizing Speculation and Profitability

Several leading economists, including Milton Friedman, have shown that speculators can only make profits if their activities are stabilizing in nature. Though Friedman's conclusion is based on certain assumptions and in some conditions even destabilizing speculation can be profitable, it is nevertheless true that in most circumstances, destabilizing speculation results in losses for the speculator. Over a period of time, destabilizing (loss making) speculators are eliminated from the market.

Destabilizing Speculation Through Movement Trading

It has been argued that professional speculators often engage in movement trading. According to Irwin, movement traders are professional speculators, who go with the market, i.e., follow the movement. When they see a rising trend, they buy thereby exacerbating the trend. When they see a falling trend, they sell again exacerbating the downward tendency. Using their superior agility entering and leaving the market, they then take profits before the movement comes to an end, but after attracting a lot of others into the market. They thus make profits through destabilizing speculation.

A closer examination shows that, even if movement trading were commonplace in real life, it does not negate the view that, in general, destabilizing speculators lose money. As 'Goss and Yamey', point out, "this theory does not imply that speculators as a whole make profits from their

destabilizing activities; it implies no more than that one important category of speculators- the professionals and then only the agile ones- make profits in the circumstances. Besides, there is a difference between stock (and pure spot) markets and futures markets. Assume, there is a bullish phase in a market and a professional speculator think (or knows) it is not justified by fundamentals, but feels that it will continue for some time due to the mass bullish psychology. In the futures market he can go with the market, by buying in the near futures contract and simultaneously go against the mass psychology and sell in a distant futures contract. If he is right, he can gain twice- initially by joining the crowd in the near month, and later by reaping the benefit of the correction of the overvaluation. As 'Goss and Yamey' put it the " second gain arises from 'correct' behaviour which tends to off-set the results of the 'incorrect' behaviour. " Such simultaneous buying and selling is not possible in spot market. The actions of the speculators in simultaneously buying near and selling distant futures will reduce the contango or increase the backwardation, which itself will send a signal to the market that the current price is overvalued and expedite a correction. This makes it difficult for inappropriate price levels to persist for long.

Numerous empirical studies have found little support for the 'movement trading theory'. No doubt, from anecdotal evidence, it appears that movement trading does occur on stock and futures markets from time to time trading does occurs on stock and futures markets from time to time. However it is general prevalence, except for very brief and sporadic interludes, is extremely doubtful.

Similar to the concept of 'Perfect Competition' in economics will be able to see that modern active futures markets are probably the closest real life approximation to perfect competition. All participants in the market deal with an identical, non-differentiated standardized product. Their is near-instantaneous and universal dissemination of the price data, participants are price-takers since no one buyer or seller is large enough to influence the price, and there is complete freedom of entry and exit.

For analytical purposes, it would be useful to define a 'perfect' future market, one that performs its functions perfectly in accordance with futures trading theory. From the point-of-view of a financial analyst, a futures market would be 'perfect', if it was perfectly efficient on two criteria: hedging efficiency and absence of hedging bias. A perfect futures market would be one, which (a) compensates fully for spot market price risk (adjusting for carrying costs) and (b) shows no bias between long and short hedgers. An economic analyst would also be interested in the price stabilizing effect of the market. From the economists point-of-view, the third criterion of perfection would be the elimination of short-term price fluctuations.

The three criteria are clearly unattainable and utopian, but like most criteria of perfection in economics, their real purpose is as a yardstick against which to measure actual performance.

In terms of empirical indicators, a perfect futures market can be defined as one where:

Average hedging efficiency is 100%

Index of bias is 0

Elasticity of expectations is 0

Criterion (1) means that price risks would be fully compensated on the average; (2) means that upward and downward price risks would be equally compensated for criterion; and (3) means that changes in spot prices are so firmly smoothened by futures trading that a change in spot price leads to no change in expected future prices.

6.5 Forward/Future Contracts:

Forward contracts are often confused with futures contracts. The confusion primarily because both serve essentially the same economic function risk in the presence of future price uncertainty. However futures are a significant improvement over the forward contract as they eliminate counter party risk and offer more liquidity. Its distinctions listed in the following table.

Features	Forward Contract	Future Contract
Operational Mechanism	Not traded on exchange	Traded on exchange
Contract Specifications	Differs from trade to trade.	Contracts are standardized contracts.
Counter party Risk	Exists	Exists, but assumed by Clearing Corporation/ house.
Liquidation Profile	Poor Liquidity as contracts are tailor made contracts.	Very high liquidity as contracts are standardized contracts.
Price Discovery	Poor; as markets are fragmented.	Better; as fragmented markets are brought to the common platform.

Forward/Future Contracts

Analyze the different dimensions of Forward and Future Contracts:

(Risk; Liquidity; Leverage; Margining etc....)

Assign value to each factor to arrive at the contract price.

(Perception plays a crucial role in price determination)

Any substantial difference in the Forward and Future prices will trigger arbitrage.

Frequently used terms in Index Futures market

Contract Size - The value of the contract at a specific level of Index. It is Index level * Multiplier.

Multiplier - It is a pre-determined value, used to arrive at the contract size. It is the price per index point

Spot price- The price at which an asset trades in the spot market.

Futures price- The price at which the futures contract trades in the futures market.

Tick Size - It is the minimum price difference between two quotes of similar nature.

Contract Month - The month in which the contract will expire.

Expiry Day - The last day on which the contract is available for trading.

Open interest - Total outstanding long or short positions in the market at any specific point in time. As total long positions for market would be equal to total short positions, for calculation of open interest, only one side of the contracts is counted.

Volume - Number of contracts traded during a specific period of time. During a day, during a week or during a month.

Long position - Outstanding/unsettled purchase position at any point of time.

Short position - Outstanding/unsettled sales position at any point of time.

Open position - Outstanding/unsettled long or short position at any point of time.

Physical delivery - Open position at the expiry of the contract is settled through delivery of the underlying. In futures market, delivery is low.

Cash settlement - Open position at the expiry of the contract is settled in cash. These contracts are designated as cash settled contracts. Index Futures fall in this category.

Alternative Delivery Procedure (ADP) - Open position at the expiry of the contract is settled by two parties - one buyer and one seller, at the terms other than defined by the exchange. World wide a significant portion of the energy and energy related contracts (crude oil, heating and gasoline oil) are settled through Alternative Delivery Procedure.

6.6 Concept of Basis in Futures Market:

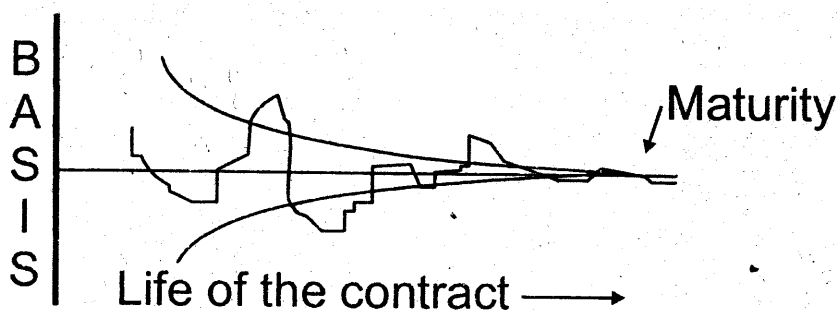
Basis is defined as the difference between cash and futures prices:

$\text{Basis} = \text{Cash prices} - \text{Future prices}$.

Basis can be either positive or negative (in Index futures, basis generally is negative).

Basis may change its sign several times during the life of the contract.

Basis turns to zero at maturity of the futures contract i.e. both cash and future prices converge at maturity.



Life of the contract

6.7 Operators in the Derivatives Market:

Hedgers - Operators, who want to transfer a risk component of their portfolio.

Speculators - Operators, who intentionally take the risk from hedgers in pursuit of profit.

Arbitrageurs - Operators who operate in the different markets simultaneously, in pursuit of profit and eliminate mis-pricing.

Risk management through Futures

Basic objective of introduction of futures is to manage the price risk.

Index futures are used to manage the systemic risk, vested in the investment in securities.

Hedge Terminology

Long Hedge- When you hedge by going long in futures market.

Short Hedge - When you hedge by going short in futures market.

Cross Hedge - When a futures contract is not available on an asset, you hedge your position in cash market on this asset by going long or short on the futures for another asset whose prices are closely associated with that of your underlying.

Hedge Contract Month- Maturity month of the contract through which hedge is accomplished.

Hedge Ratio - Number of future contracts required to hedge the position.

Some Specific Uses of Index Futures

Portfolio Restructuring - An act of increasing or decreasing the equity exposure of a portfolio, quickly, with the help of Index Futures.

Index Funds - These are the funds which imitate/replicate index with an objective to generate the return equivalent to the Index. This is called Passive Investment Strategy.

Speculation in the Futures Market

Speculation is all about taking position in the futures market without having the underlying. Speculators operate in the market with motive to make money. They take:

Naked positions - Position in any future contract.

Spread positions - Opposite positions in two future contracts. This is a conservative speculative strategy.

Speculators bring liquidity to the system, provide insurance to the hedgers and facilitate the price discovery in the market.

Arbitrageurs in Futures Market

Arbitrageurs facilitate the alignment of prices among different markets through operating in them simultaneously.

6.8 Margining in Futures Market:

Whole system dwells on margins:

- Daily Margins
- Initial Margins

- Special Margins
- Compulsory collection of margins from clients including institutions.
- Collection of margins on the Portfolio basis not allowed by L. C. Gupta committee.

Daily Margins

Daily margins are collected to cover the losses, which have already taken place on open positions.

Price for daily settlement - Closing price of futures index.

Price for final settlement - Closing price of cash index.

For daily margins, two legs of spread positions would be treated independently.

Daily margins should be received by CC/CH and/or exchange from its members before the market opens for the trading on the very next day.

Daily margins would be paid only in cash.

Initial Margins

Margins to cover the potential losses for one day.

To be collected on the basis of value at risk at 99% of the days.

Different initial margins on:

Naked long and short positions.

Spread positions.

Naked positions

Short positions $100 [\exp(3s_t) - 1]$

Long positions $100[1 - \exp(-3s_t)]$

Where, $(s_t)^2 = l(s_{t-1})^2 + (1-l)(r_t^2)$

s_t is today's volatility estimates.

s_{t-1} is the volatility estimates on the previous trading day.

l is decay factor which determines how rapidly volatility estimates change and is taken as 0.94 by Prof. J. R. Verma.

r_t is the return on the trading day $[\log(I_t/I_{t-1})]$

Because volatility estimate s_t changes everyday, Initial margin on open position will change every day. (for first 6 months of futures trading, minimum initial margin on naked positions shall be 5%)

Spread Positions

Flat rate of 0.5% per month of spread on the far month contract.

Minimum margin of 1% and maximum margin of 3% on spread positions.

A calendar spread would be treated as open position in the far month contract as the near month contract approaches maturity.

Over the last five days of trading of the near month contract, following percentages of the spread shall be treated as naked position in the far month contract:

100% on the day of expiry

80% one day before the expiry

60% two days before the expiry

40% three days before the expiry

20% four days before the expiry

Margins on the calendar spread are to be reviewed after 6 months of futures trading.

6.9 Liquid Assets and Broker's Network:

Liquid Assets

Cash, fixed deposits, bank guarantee, government securities and other approved securities.

50% of Liquid assets must be cash or cash equivalents. Cash equivalents means cash, fixed deposits, bank guarantee and government securities.

Liquid network = Liquid asset - Initial margin

Continuous requirement for a clearing member:

Minimum liquid network of Rs. 50 Lacs.

The mark to market value of gross open position shall not exceed 33.33 times of member's liquid network.

Basis for Calculation of Gross Exposure

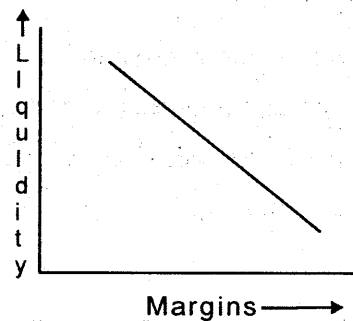
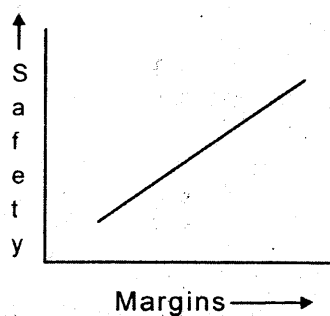
For the purpose of the exposure limit, a calendar spread shall be regarded as an open position of one third of the mark to market value of the far month contract.

As the near month contract approaches expiry, the spread shall be treated as a naked position in the far month contract in the same manner as defined in slide no. 49.

Margining in Futures Market

Initial Margin (Value at risk at 99% of the days)

Daily Margin

Special Margins

Striking an intelligent balance between safety and liquidity while determining margins, is a million dollar point.

Position limits in Index Futures**Customer level**

No position limit. Disclosure to exchange, if position of people acting in concert is 15% or more of open interest.

Trading member level

15% of open interest or 100 crore whichever is higher.

to be reviewed after 6 months of futures trading.

Clearing member level

No separate position limit. However, C.M. should ensure that his own positions (if C.M. is a T.M. also) and the positions of the T.Ms. clearing through him are within the limits specified above for T.M.

Market level

No limit. To be reviewed after 6 months of trading in futures.

6.10 Expected Advantages of Derivatives to the Cash Market:

Higher liquidity.

Availability of risk management products attracts more investors to the cash market.

Arbitrage between cash and futures markets fetches additional business to cash market.

Improvement in delivery based business.

Lesser volatility.

Improved price discovery.

What Makes a Contract Click?

- Risk in the underlying market.
- Presence of both hedgers and speculators in the system.
- Right product specifications.
- Proper margining.

Future

Multiple indices trading on the same exchange even the same index with different contract designs:

- Dedicated funds
- Future funds
- Options funds
- Hybrid funds

6.11 Summary:

A futures contract is a agreement between two parties to buy or sell as asset at a certain time in the future at a certain price. But unlike forward contracts, the futures contracts are standardized and exchange traded. To facilitate; liquidity in the futures contracts, the exchange specifies certain standard features of the contract. It is a standardized contract with standard underlying instrument, a standard quantity and quality of the underlying instrument that can be delivered (or which can be used for reference purposes in settlement) and a standard timing of such settlement. A futures contract may be offset prior to maturity by entering into an equal and opposite transaction. More than 99% of futures transactions are offset this way.

6.12 Self Assessment Questions:

1. Describe the futures and also the features of futures contract?
2. What are different Economic Function of Future Contract?
3. Explain price stabilization function under the Future Contract?
4. What are the attributes of a "Perfect Future Market"?
5. Distinguish between the Forward & Future Contracts?
6. What are different Margining in Future Market?

Lesson - 7

Pricing Futures

7.0 Objectives

The objectives of this unit are to enable you:

- To know the methods of pricing the futures.
- To know the concept of cost of carry model.
- To know the pricing equity index futures.
- To know the difference between the commodity and equity index futures.

Structure:

7.1 Introduction

7.2 The Cost of Carry Model

7.3 Cost and Carry Model of Futures Pricing

7.4 Pricing Equity Index Futures

7.5 The Main Difference Between Commodity and Equity Index Futures

7.6 Pricing Stock Futures

7.7 Summary

7.8 Self Assessment Questions

7.1 Introduction:

Stock index futures began trading on NSE on the 12th June, 2000. Stock futures were launched on 9th November, 2001. The volumes and open interest on this market has been steadily growing. Looking at the futures prices on NSE's market, have you ever felt the need to know whether the quoted prices are a true reflection of the price of the underlying index/stock? Have you wondered whether you could make risk-less profits by arbitraging between the underlying and futures market? If so, you need to know the cost-of-carry to understand the dynamics of pricing that constitute the estimation of fair value of futures.

7.2 The Cost of Carry Model:

We use fair value calculation of futures to decide the no-arbitrage limits on the price of a futures contract. This is the basis for the cost-of-carry model where the price of the contract is defined as:

$$F = S + C$$

Where

F=Future Price, S= Spot price, C=Holding costs or carry costs.

This can also be expressed as:

$$F = S(1+r)^T$$

Where

r=Cost of financing

T=Time till expiration

7.3 Cost and Carry Model of Futures Pricing:

Fair price = Spot price + Cost of carry - Inflows

$$FP_{tT} = CP_t + CP_t * (R_{tT} - D_{tT}) * (T-t)/365$$

FP_{tT} - Fair price of the asset at time t for time T.

CP_t - Cash price of the asset.

R_{tT} - Interest rate at time t for the period up to T.

D_{tT} - Inflows in terms of dividend or interest between t and T.

Cost of carry = Financing cost, Storage cost and insurance cost.

If Futures price > Fair price; Buy in the cash market and simultaneously sell in the futures market.

If Futures price < Fair price; Sell in the cash market and simultaneously buy in the futures market.

This arbitrage between Cash and Future markets will remain till prices in the Cash and Future markets get aligned.

Set of Assumptions

No seasonal demand and supply in the underlying asset.

Storability of the underlying asset is not a problem.

The underlying asset can be sold short.

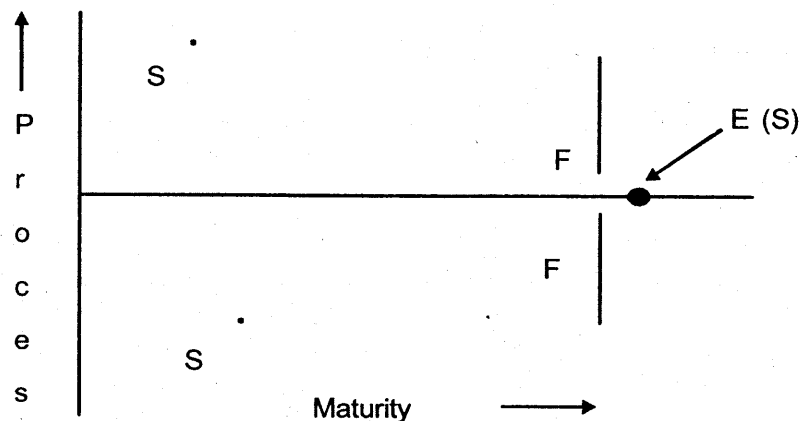
No transaction cost; No taxes.

No margin requirements, and so the analysis relates to a forward contract, rather than a futures contract.

Index Futures, Cost, and Carry Model

In the normal market, relationship between cash and future indices is described by the cost and carry model of futures pricing.

Expectancy Model of Futures Pricing



S - Spot prices.

F - Future prices.

$E(S)$ - Expected Spot prices.

Expectancy model says that many a times it is not the relationship between the fair price and future price but the expected spot and future price, which leads the market. This happens mainly when underlying is not storable or may not be sold short. For instance, in commodities market.

$E(S)$ can be above or below the current spot prices. (This reflects market's expectations)

Contango market- Market when Future prices are above cash prices.

Backwardation market - Market when future prices are below cash prices.

Pricing Futures Contracts on Commodities

Let us take an example of a futures contract on a commodity and work out the prices of the contract. The spot price of silver is Rs.7000/Kg. If the cost of financing is 15% annually, what should be the future price of 100gms of silver one month down the line? Let us assume that we on

1st January, 2002. How would we compute the price of a silver futures contract expiring on 30th January? From the discussion above we know that the future price is nothing but the spot price plus the cost of carry. Let us first try to work out the components of the cost-of-carry model.

What is the spot price of silver? The spot price of silver, $S = \text{Rs}7000/\text{Kg}$.

What is the cost of financing for a month? $(1+0.15)^{30/365}$.

What are the holding costs? Let us assume that the storage cost = 0.

In this case the fair value of the futures price, works out to be = Rs.708.

$$F = S(1+r)^T + C = 700(1.15)^{30/365} = \text{Rs.}708$$

If the contract was for a three month period i.e. expiring on 30th march, the cost of financing would increase the futures price. There fore, the futures price would be $F = 700(1.15)^{90/365} = \text{Rs.}724.5$. On the other hand, if the one-month contract was for 10000 Kg. of silver instead of 100 gms, then it would involve a non-zero storage cost, and the price of the futures contract would be Rs.708 plus the cost of storage.

7.4 Pricing Equity Index Futures:

A future contract on the stock market index its owner the right and obligation to buy or sell the portfolio of stocks characterized by the index. Stock index futures are cash settled; there is no delivery of the underlying stocks.

In their short history of trading, index futures have had a great impact on the world's securities markets. Indeed, index futures trading have been accused of a making the world's stock markets more volatile than ever before. The critics claim that individual investors have been driven out to the equity markets because the actions of institutional traders in both the spot and futures markets cause stock values to gyrate with no links to their fundamental values. Whether stock index futures trading are a blessing or a curse is devisable. It is certainly true, however that its existence has revolutionized the art and science of institutional equity portfolio management existence has revolutionized the art and science of intuitional equity portfolio management.

7.5 The Main Difference Between Commodity and Equity Index Futures:

There are no costs of storage involved in holding equity.

Equity comes with a dividend stream, which is negative cost if you are long the stock and a positive cost if you are short the stock.

Therefore, Cost of Carry = Financing Cost – Dividends. Thus, a crucial aspect of dealing the equity futures as opposed to commodity futures is an accurate forecasting of dividends. The better the forecast of dividend offered by a security, the between is the estimate of the future price.

Pricing Index Futures Given Expected Dividend Amount

The pricing of index futures is also based on the cost-of-carry model, where the carrying cost is the cost of financing the purchase of the portfolio underlying the index, minus the present value of dividends obtained from the stock in the index portfolio.

Example

Nifty futures trade on NSE as one, two and three-month contracts. Money can be borrowed at a rate of 15% per annum. What will be the price of new two-month futures contracts on Nifty?

Let us assume that M&M will be declaring a dividend of Rs.10 per share after 15 days of purchasing the contract.

Current value of Nifty is 1200 and Nifty trades with a multiplier of 200.

Since Nifty is traded in multiples of 200, value of the contract is $200 \times 1200 = \text{Rs. } 240000$.

If M & M has a weight of 7% in Nifty, its value in Nifty is Rs. 1680, i.e., (240000×0.07)

If the market price of M \$ M is Rs.140, then a traded unit of Nifty involves is 20 shares of M & M, i.e., $(16800/140)$.

To calculate the futures price, we need to reduce the cost-of carry to the extent of dividend received. The amount of dividend received is Rs.1200, i.e., (120×10) . The dividend is received 15 days later and hence compounded only for the remainder of 45 days. To calculate the future price we need to compute the amount of dividend received per unit of Nifty. Hence we divide the compounded dividend figure by 200.

Thus, future price $F = 1200(1.15)^{60/365} - (120.10(1.15)^{45/365}) = \text{Rs } 1221.80$.

Pricing Index Futures Given Expected Dividend Yield

If the dividend flow throughout the year is generally uniform, i.e., if there are few historical cases of clustering of dividend in any particular month, it is useful to calculate the annual dividend yield.

$$F = S(1 + r - q)$$

Where

F= future price, S= Spot index value, r= cost of financing, q= expected dividend yield,

T= holding period.

Example

A two-month futures contract trades on the NSE. The cost of financing is 15% and the dividend yield on Nifty is 2% annualized. The spot value of Nifty 1200. What is the fair value of the futures contract? Fair value = $1200 (1 + 0.15 - 0.02)^{60/365} = \text{Rs. } 1224.35$

The cost-of-carry model explicitly defines the relationship between the futures price and the related spot price. As we know, the difference between the spot price and the future price is the basis.

7.6 Pricing Stock Futures:

A futures contract on a stock gives its owner the right and obligation to buy or sell the stocks. Like index futures, stock futures are also cash settled; there is no delivery of the underlying stocks. Just as in the case of index futures, the main difference between commodity and stock futures are that:

There are no storage involved in holding stock

Stock come with a dividend stream, which is a negative cost if you are long the stock and a positive cost if you are short the stock.

Therefore, $\text{Cost of Carry} = \text{Financing Cost} - \text{Dividends}$. Thus, a crucial aspect of dealing with stock futures as opposed to commodity futures is an accurate forecasting of dividend. The between the forecast of dividend offered by a security, the better is the estimate of the future price.

7.7 Summary:

The volumes and open interest on this market has been steadily growing. Looking at the futures prices on NSE's market, have you ever felt the need to know whether the quoted prices are a true reflection of the price of the underlying index/stock? Have you wondered whether you could make risk-less profits by arbitraging between the underlying and futures market? If so, you need to know the cost-of-carry to understand the dynamics of pricing that constitute the estimation of fair value of futures.

7.8 Self Assessment Questions:

1. What are the different pricing models under pricing futures?
2. Explain the concept of cost of carrying model under the pricing futures?

Swaps

8.0 Objectives

The objectives of this unit are to enable you:

- To know the concept of swaps.
- To know the different types of swaps.

Structure:

- 8.1 Introduction
- 8.2 Types of Swaps
- 8.3 Summary
- 8.4 Self Assessment Questions

8.1 Introduction:

A Swap is an agreement to exchange a sequence of cash flows over a period of time in the future in same or different currencies mainly used for hedging various interest rate exposures. They are very popular and highly liquid instruments. Some of the very popular swap types are:

8.2 Types of Swaps:

Fixed-Float (Same currency): Party P pays/receives fixed interest in currency A to receive/pay floating rate in currency A indexed to X on a notional N for a tenor T years. For example, you pay fixed 5.32% monthly to receive USD 1M Libor monthly on a notional USD 1 mio for 3 years. Fixed-Float swaps in same currency are used to convert a fixed/floating rate asset/liability to a floating/fixed rate asset/liability. For example, if a company has a fixed rate USD 10 mio loan at 5.3% paid monthly and a floating rate investment of USD 10 mio that returns USD 1M Libor +25 bps monthly, and wants to lock in the profit as they expect the USD 1M Libor to go down, then they may enter into a Fixed-Floating swap where the company pays floating USD 1M Libor + 25 bps and receives 5.5% fixed rate, locking in 20 bps profit.

Fixed-Float (Different Currency): Party P pays/receives fixed interest in currency A to receive/pay floating rate in currency B indexed to X on a notional N at an initial exchange rate of FX for a tenor T years. For example, you pay fixed 5.32% on the USD notional 10 mio quarterly to receive JPY 3M Tibor monthly on a JPY notional 1.2 bio (at an initial exchange rate of USDJPY 120) for 3 years. For Non-deliverable swaps, USD equivalent of JPY interest will be paid/received (as per the FX rate on the FX fixing date for the interest payment day). Note in this case, no initial exchange of notional takes place unless the FX fixing date and the swap start date fall in the future. Fixed-Float swaps in different currency are used to convert a fixed/floating rate asset/liability in one currency to a floating/fixed rate asset/liability in a different currency. For example, if a company has a fixed rate USD 10 mio loan at 5.3% paid monthly and a floating rate investment of JPY 1.2 bio that returns JPY 1M Libor + 50 bps monthly, and wants to lock in the profit in USD as they expect the JPY 1M Libor to go down or USDJPY to go up (JPY depreciate against USD), then they may enter into a Fixed-Floating swap in different currency where the company pays floating JPY 1M Libor+ 50 bps and receives 5.6% fixed rate, locking in 30bps profit against the interest rate and the FX exposure.

Float-Float (Same Currency, Different Index): Party P pays/receives floating interest in currency A Indexed to X to receive/pay floating rate in currency B indexed to Y on a notional N for a tenor T years. For example, you pay JPY 1M Libor monthly to receive JPY 1M Tibor monthly on a notional JPY 1 bio for 3 years.

In this case, company wants to lock in the cost from the spread widening or narrowing. For example, if a company has a floating rate loan at JPY 1M Libor and the company has an investment that returns JPY 1M Tibor + 30 bps and currently the JPY 1M Tibor = JPY 1M Libor +10 bps. At the moment, this company has a net profit of 40 bps. If the company thinks JPY 1M Tibor is going to come down or JPY 1M Libor is going to increase in the future and wants to insulate from this risk, they can enter into a Float swap in same currency where they pay JPY Tibor +10 bps and receive JPY Libor+35 bps. With this, they have effectively locked in a 35bps profit instead of running with a current 40 bps gain and index risk. The 5bps difference comes from the swap cost which includes the market expectations of the future rates in these two indices and the bid/offer spread which is the swap commission for the swap dealer.

Float- Float (Different Currency): Party P pays/receives floating interest in currency A indexed to X to receive/pay floating rate in currency A indexed to Y on a notional N at an initial exchange rate of FX for a tenor T years. For example, you pay floating USD 1M libor on the USD notional 10 mio quarterly to receive JPY 3M Tibor monthly on a JPY notional 1.2 bio (at an initial exchange rate of USDJPY 120) for 4 years.

To explain the use of this type of swap, consider a US company operating in Japan. To fund their Japanese growth, they need JPY 10 bio, the easiest option for the company is to issue debt in Japan. As the company might be new in the Japanese market without a well known reputation among the Japanese investors, this can be an expensive option. Added on top of this, the company might not have appropriate Debt issuance program in Japan and they might lack sophisticated treasury operation in Japan. To overcome the above problems, they can issue USD debt and convert to JPY in the FX market. Although this option solves the first problem, it introduces two new risks to the company. (1) FX risk: If this USDJPY spot goes up at the maturity of the debt, then when the company converts the JPY to USD to pay back its matured debt, it receives less USD and suffers a loss (2) USD and JPY interest rate risk: If the JPY rates come down, the return on the investment in Japan might go down and this introduces an interest rate risk component.

First exposure in the above can be hedged using long dated FX forward contracts, but this introduces a new risk where the implied rate from the FX Spot and the FX Forward is a fixed rate but the JPY investment returns a floating rate. Although there are several alternatives to hedge both the exposures effectively without introducing new risks, the easiest and the most cost effective alternative would be to use a Float-Float swap in different currencies. In this, the company raises USD by issuing USD Debt and swaps it to JPY. It receives USD floating rate (so matching the interest payments on the USD Debt) and pays JPY floating rate matching the returns on the JPY investment.

Fixed- Fixed (Different Currency): Party P pays/receives fixed interest in currency A to receive/pay fixed rate in currency B for a tenor T years. For example, you pay JPY 1.6% on a JPY notional of 1.2 bio and receive USD 5.36% on the USD equivalent notional of 10 mio at an initial exchange rate of USDJPY 120.

Usage is similar to above, but you receive USD fixed rate and pay JPY fixed rate.

8.3 Summary:

Primarily used as hedging instruments, against varying interest payments. The basic concept is quite easy to follow; you swap a fixed rate for a floating rate or *vice-versa*. In the case of companies that offer Variable Rate Bonds, they can enter into a swap agreement with a broker/dealer; where the company pays the broker a fixed rate as per agreement and the broker provides them with the floating rate, which can be used to make periodic coupon payments. In essence, the company has hedged its risk against a sudden rate increase, as it is locked in a fixed rate over time. Swaps may be terminated with one party paying its counterpart a certain fee, which may have been determined at the time of initial agreement or may be based on future payments if interest rates were to remain constant.

8.4 Self Assessment Questions:

1. Define the concept of Swaps?
2. What are the different types of Swaps?

Lesson - 9

Index Futures

9.0 Objectives

The objectives of this unit are to enable you:

- To know the concept of index futures.
- To study the different of trading on the index futures market.
- To know the position of futures on different trading.

Structure:

9.1 Introduction

9.2 Models of Trading on the Index Futures Market

9.3 Summary

9.4 Self Assesment Questions

9.1 Introduction:

Index futures are the future contracts for which underlying is the cash market index.

For example: BSE may launch a future contract on "BSE Sensitive Index" and NSE may launch a future contract on "S&P CNX NIFTY".

9.2 Models of Trading on the Index Futures market:

There are eight basic models of trading on the index futures market:

Hedging

- Long security, Short Nifty futures
- Short security, Long Nifty futures
- Have portfolio, Short Nifty futures
- Have funds, Long Nifty futures

Speculation

- Bullish index, Long Nifty futures
- Bearish index, Short Nifty futures

Arbitrage

- Have funds, lend them to the market
- Have securities; lend them to the market

1. Hedging: Long Security, Short Nifty Futures

Investors studying the market often come across a security, which they believe is intrinsically undervalued. It may be the case that the profits and the quality of the company make it seem worth a lot more than what the market think. A stock picker carefully purchases securities based on a sense that they are worth more than the market price. When doing so, he faces two kinds of risks:

His understanding can be wrong, and the company is really not worth more than the market price; or

The entire market moves against him and generates losses even though the underlying idea was correct.

The second outcome happens all the time. A person may buy Reliance at Rs. 190 thinking that it would announce good results and the security price would rise. A few days later, Nifty drops, so he makes losses, even if his understanding of Reliance was correct.

There is a peculiar problem here. Every buy position on a security is simultaneously a buy position on Nifty. This is because a LONG RELIANCE position generally gains, if Nifty rises and generally loses, if Nifty drops. In this sense, along NIFTY position along with it as incidental baggage. This stock picker may be thinking he wants to be LONG RELIANCE, but a long position on Reliance effectively forces him to be LONG RELIANCE + LONG NIFTY.

Even if you think WIPRO is undervalued, the position LONG WIPRO is not purely about WIPRO; it is also partly about Nifty. Every trader who has a LONG WIPRO position is forced to be an index speculator, even though he may have no interest in the index. It is useful to ask: does the person feel bullish about WIPRO or about the index?

Those who are bullish about the index should just buy Nifty futures; they need not trade individual securities.

Those who are bullish about WIPRO do wrong by carrying along position on Nifty as well.

There is a simple out. Every time you adopt a long position on a security, you should sell some amount of Nifty futures. This offsets the hidden exposures that are inside every long- security position. Once this is done, you will have a position, which is purely about the performance of the security. The position LONG WIPRO + SHORT NIFTY is a pure play on the value of WIPRO, without any extra risk from fluctuations of the market index, when this is done, the stock picker has "hedged away" his index exposure. The basic point of this hedging strategy is that the stock picker proceeds with his core skill, i.e., picking securities, at the cost of lower risk.

Warning: Hedging does not remove losses. The best that can be achieved using hedging is the removal of unwanted exposure, i.e., unnecessary risk. The hedged position will make less profit than the un-hedged position, half the time. One should not enter into a hedging strategy hoping to make excess profits for sure; all that can come out of hedging is reduced risk.

2. Hedging: Short Security, Long Nifty Future

Investors studying the market often come across a security, which they believe is intrinsically over-valued. It may be the case that the profits and the quality of the company make it worth a lot less than what the market thinks. A stock picker carefully sells securities based on a sense that they are worth less than the market price. In doing so he faces two kinds of risks:

His understanding can be wrong, and the company is really worth more than the market price; or,

The entire market moves against him and generates losses even though the underlying idea was correct.

The second outcome happens all the time. A person may sell Reliance at Rs.190 thinking that Reliance would announce poor results and the security price would fall. A few days later, Nifty rises, so he makes losses, even if his intrinsic understanding of Reliance was correct.

There is a peculiar problem here. Every sell position on a security is simultaneously a sell position on Nifty. This is because a SHORT RELIANCE position is not a focused play on the valuation of Reliance. It carries a SHORT NIFTY position along with it, as incidental baggage. The stock picker may be thinking he wants to be SHORT RELIANCE, but a short position on Reliance on the market effectively forces him to be SHORT RELIANCE + SHORT NIFTY.

Even if you think WIPRO is over-valued, the position SHORT WIPRO position is not purely about WIPRO; it is also partly about Nifty. Every trader who has a SHORT WIPRO is forced to be an index speculator, even though he may have no interest in the index. It is useful to ask; does the person feel bearish about WIPRO or about the index?

Those who bearish about the index should just sell nifty futures; they need not trade individual securities.

Those who are bearish about WIPRO do wrong by carrying along a short position on Nifty as well.

There is a simple way out. Every time you adopt a short position on a security you should buy some amount of Nifty futures. This offsets the hidden Nifty exposure that is inside every short-security position. Once this is done, you will have a position, which is purely about the performance of the security. The position $\text{SHORT WIPRO} = \text{LONG NIFTY}$ is a pure play on the value of WIPRO, without any extra risk from fluctuations of the market index. When this is done, the stock picker has "hedged away" his index exposure. The basic point of this hedging strategy is that the stock picker proceeds with this core skill, i.e., picking securities, at the cost of lower risk.

Warning: Hedging does not remove losses. The best that can be achieved using hedging is the removal of unwanted exposure, i.e., unnecessary risk. The hedged position will make less profit than the un-edged position, half the time. One should not enter into a hedging strategy hoping to make excess profits for sure; all that can come out of hedging is reduced risk.

3. Hedging: Have Portfolio, Short Nifty Futures

The only certainty about the capital market is that it fluctuates. A lot of investors who own portfolios experience the feeling of discomfort about overall market movements. Sometimes, they may have a view that security prices will fall in the near future. At other times, they may see that the market is in for a few days or weeks of massive volatility, and they do not have an appetite for this kind of volatility. The union budget is a common and reliable source of such volatility: market volatility is always enhanced for one week before and two weeks after a budget. Many investors simply do not want the fluctuations of these three weeks.

This is particularly a problem if you need to sell shares in the near future, for example, in order to finance a purchase of a house. This planning can go wrong if by the time you sell shares, Nifty has dropped sharply.

When you have such anxieties, there are two alternatives:

Sell shares immediately. This sentiment generates panic selling which is rarely optimal for the investors.

Do nothing, i.e., suffer the pain of the volatility. This leads to political pressures for government to 'do something' when security prices fall.

Remove your exposure to index fluctuations temporarily using index futures. This allows a rapid response to market conditions, without 'panic selling' of shares. It allows investors to be control of his risk, instead of doing nothing and suffering the risk.

The idea here is quite simple. Every portfolio contains a hidden index exposure. This statement is true for all portfolios, whether a portfolio is composed of index securities or not. In the case of portfolios, most of the portfolio risk is accounted for by index fluctuations (unlike individual securities, here only 30-60% of the securities risk is accounted for by index fluctuations). Hence, a position $\text{LONG PORTFOLIO} + \text{SHORT NIFTY}$ can often become one-tenth as risky as the LONG PORTFOLIO positions.

Suppose we have a portfolio of Rs. 1 million which has a beta of 1.25. Then a complete hedge is obtained by selling Rs. 1.25 million of Nifty futures.

Warning: Hedging does not always make money. The best that can be achieved using hedging is the removal of unwanted exposure, i.e., unnecessary risk. The hedged position will make less profit than the unhedged position, half the time. One should not enter into a hedging strategy hoping to make excess profits for sure; all that can come out of hedging is reduced risk.

4. Hedging: Have Funds, Buy Nifty Futures

Have you been in a situation where you had funds, which needed to get invested in equity? Or of expecting to obtain funds in the future which will get invested in equity. Some common occurrences of this include:

A closed-end fund, which just finished its initial public offering, has cash, which is not invested.

Suppose a person plans to sell land and buy shares. The land deal is slow and takes weeks to complete. It takes several weeks from the date that it become sure that the funds will come to the date that the funds actually are in hand.

An open-ended fund has just sold fresh units and has received funds.

Getting invested in equity ought to be easy, but there are three problems:

A person may need time to research securities, and carefully pick securities that are expected to do well. This process takes time. For that time, the investor is partly invested in cash and partly invested in securities. During this time, he is exposed to the risk of missing out if the overall market index goes up.

A person may have made up his mind on what portfolio he seeks to buy, but going to the market and placing market orders would generate –large, 'impact costs'. The execution would be improved substantially if he could instead place limit orders and gradually accumulate the portfolio at favourable prices. This takes time, and during this time, he is exposed to the risk of missing out if the Nifty goes up.

In some cases, such as the land sale above, the person may simply not have cash to immediately buy shares. Hence, he is forced to wait even if he feels that Nifty is unusually cheap. He is exposed to the risk of missing out if Nifty rises,

So far in India, we have had exactly two alternatives strategies which an investor can adopt: to buy liquid securities in a hurry, or to suffer the risk of staying in cash, with Nifty futures, a third alternative becomes available:

The investor would obtain the desired equity exposure by buying index futures, immediately. A person who expects to obtain Rs.5 million by selling land would immediately enter into a position LONG NIFTY worth Rs.5 million. Similarly, a closed-end fund which has finished its public offering and has cash which is not yet invested, can immediately enter into a LONG NIFTY to the extent it wants to be invested in equity. The index futures market is likely to be more liquid than individual securities so it is possible to take extremely large positions at a low impact cost.

Later, the investor/closed-end fund can gradually acquire securities (either based on detail research and/or based on aggressive limit orders). As and when shares are obtained, one would scale down the LONG NIFTY position correspondingly. No matter how slowly securities are purchased, this strategy would fully capture a rise in Nifty. So, there is not risk of missing out on a broad rise in the securities market while this process is taking place. Hence, this strategy allows

the investor to take more care and spend more time in choosing securities and placing aggressive limit orders.

Hedging is often thought of as a technique that is used in the context of equity exposure. It is common for people to think that the owner of shares needs index futures to hedge against a drop in Nifty. Holding money in hand, when you want to be invested in shares, is a risk because Nifty may rise. Hence, it is equally important for the owner of money to use index-futures to hedge against a rise in Nifty.

Warning: Hedging does not always make money. The best that can be achieved using hedging is the removal of unwanted risk. The hedged position will make less profit than the unhedged position, half the time. One should not enter into a hedging strategy hoping to make excess profits for sure; all that can come out of hedging is reduced risk.

5. Speculation: Bullish Index, Long Nifty Futures

Do you sometimes think that the market index is going to rise? That you could make a profit by adopting a position on the index? After a good budget, or good corporate results, or the onset of a stable government, many people feel that the index would go up, how does one implements a trading strategy to benefits from an upward movement in the index? Today you have two choices:

Buy selected liquid securities, which move with the index, and well them at a later date; or

Buy the entire index portfolio and then sell it at a later date.

The first alternative is widely used a lot of the trading volume on liquid securities is based on using these liquid securities as an index proxy. However, these positions run the risk of making losses owing to company-specific news; they are not purely focused upon the index. The second alternative is cumbersome and expensive in terms of transaction cost.

Taking a position on the index is effortless using the index futures market. Using index futures, an investors can "buy or sell" the entire index by trading on owner single security. Once a person is LONG NIFTY using the future market, he gains if the index rises and losses if the index falls.

6. Speculation: Bearish, Short Nifty Futures

Do you sometimes think that the market index is going to fall? That you could make a profit by adopting a position on the index? After a bad budget, or bad corporate results, or the onset of a coalition government, many people feel that the index would go down. How does one implement a trading strategy to benefit form a downward movement in the index? Today, you have two choices:

Sell selected liquid securities which move with the index, and buy them at a later date or,

Sell the entire index portfolio and then buy it at a later date.

The first alternative is widely used- a lot of the trading volume on liquid securities is based on using these securities as an index proxy. However, these positions run the risk of making losses owing to company-specific news; they are not purely focuses upon the index.

The second alternative is hard to implement. This is strategy is also cumbersome and expensive in terms of transactions costs. Taking a position on the index is effortless using the index futures market. Using index futures, investors can buy or sell the entire index by trading on one single security. Once a person is SHORT NIFTY using the futures market, he gains if the index falls and loses if the index rises.

7. Arbitrage: Have Funds, Lend Them to the Market

Most people would like to lend into the security market, without suffering the risk. Traditional methods of loaning money into the security market suffer from: (a) price risk if shares, and (b) credit risk of default of the counter-party. What is new about the index futures market is that it supplies a technology to lend money into the market without suffering any exposure to Nifty and without bearing any credit risk.

The basic idea is simple. The lender buys all 50 securities of Nifty on the cash market, and simultaneously sell them at a future date on the future market. It is like a repo. There is no price risk since the position is perfectly hedged. There is no credit risk since the counter-party on both legs is the NSCCL, which supplies clearing services on NSE. It can be an ideal lending vehicle for entities which are shy of price risk and credit risk, such as traditional banks and the most conservative corporate treasuries.

8. Arbitrage: Have Securities, Lend Them to the Market

Owners of a portfolio of shares often think in terms of juicing up their returns by earning revenues from stock stockholding. However, stock lending schemes that are widely accessible do not exist in India.

The index futures market offers a reckless mechanism for (effectively) loaning out shares and earning a positive returns from them. It is like a repo; you would sell off your certificates and contract to buy them back in the future at a fixed price. There is no price risk (since you are perfectly hedged) and there is no credit risk (since your counter-party on both legs of the transaction is the NSCCL).

9.3 Summary:

The basic idea is quite simple. You would sell off all 50 securities in Nifty and buy them back at a future date using the index futures. You would soon receive money for the shares you have sold. You can deploy this money, as you like until the futures expiration. On this day, you would buy back your shares, and pay for them.

9.4 Self Assessment Questions:

1. What do you mean by indexing in Futures?
2. What are different models under Hedging-trading on the index future market?
3. What are different models under Speculation trading on the index future market?
4. What are different models under Arbitrage-trading on the index future market?

Lesson - 10

Options

10.0 Objectives

The objectives of this unit are to enable you:

- To know the concept of option.
- To identify the options styles.
- To know the relationship between the strike price and market price.
- To know the historical uses of options.

Structure:

10.1 Introduction

10.2 Types of Options

10.3 Options Styles

10.4 Relationship Between Strike Price and Market Price

10.5 Technical Terms Used in Option Trading

10.6 Historical Uses of Options

10.7 Summary

10.8 Self Assessment Questions .

10.1 Introduction:

Although options have existed for a long time, they were traded OTC, without much knowledge of valuation. The first trading in options began in Europe and the US as early as the seventeenth century. It was only in the early 1900s that a group of firms set up what was known as the put and call brokers and Dealers Association with the aim of providing a mechanism for bringing buyers and sellers together. If some one wanted to buy an option, he or she would contact one of the member firms. The firm would then attempt to find a seller could be found, the firm would undertake to write the option itself in return for a price.

This market however suffered from deficiencies. First, there was no secondary market and second, there was no mechanism to guarantee that the writer of the option would honour the contract.

In 1973, Black, Merton and Scholes invented the famed Black-Scholes formula. In April 1973; CBOE was set up specifically for the purpose of trading options. The market for options developed so rapidly that by early 80s, the number of shares underlying the option contract sold each day exceeded the daily volume of shares traded on the NYSE. Since then, there has been no looking back.

Meaning of Option: An option is a contract between two parties whereby one party acquires the right but not obligation to buy or sell a particular commodity or instrument or asset, at a specified price, on or before a specified date. The person who acquires the right is known as the option buyer or holder while the counter-party (who confers the right) is known as the seller or writer. In return for giving such an option to the buyer, the seller charges an amount, which is known as the option premium. The specified price is called the exercise price or strike price. The commodity or instrument or asset covered by the contract is called the underlying commodity or instrument or asset. The specified date is called the maturity date (or 'expiration date' or strike date).

Major Options Exchanges

Location	Name of Exchange	Major underlying Asset
London	London International Financial Futures (LIFFE)	Short-term interest rates (sterling), dollar, mark.
Swiss	Options Exchange	(franc), German gilts, Stock Index, equities.
Chicago	Chicago Board Options Exchange (CBOE)	Commodities, stocks, stock indices, T-Bonds, T-Notes and currencies.
New York	International Monetary Market (IMM) American Stock Exchange (AMEX)	Interest rate (short-and long-term) Stocks, Stock indices
San Francisco	Pacific Options Exchange (PSE)	Stock indices

10.2 Types of Option:

Real Option: It is a choice that an investor has when investing in the real economy (i.e., in the production of goods or services, rather than in financial contracts). This option may be something as simple as the opportunity to expand production, or to change production inputs. Real options are an increasingly influential tool in corporate finance. They are typically difficult or impossible to trade, and lack the liquidity of exchange-traded options.

Traded Options: It is also called "Exchange-Traded Options" or "Listed Options". It is a class of Exchange traded derivatives. As for other classes of exchange-traded derivatives, trade options have a standardized contract, quick systematic pricing and are settled through a clearing house (ensuring fulfillment). Trade options include. Stock options, discussed below in the following chapters:

- Commodity options,
- Bond options,
- Interest rate options,
- Index (equity) options, and
- Currency cross rate options,

Swaption

Vanilla Options: It is 'simple' well understood, and traded options; Exotic options are more complex, or less easily understood. Asian options, look back options, barrier options are considered to be exotic, especially if the underlying instrument is more complex than simple equity or debt.

Employee Stock Options: A company issues these to its employees as compensation.

Options are of two basic types: The Call and the Put Option

A call option gives the holder the right to buy an underlying asset by a certain date for a certain price. The seller is under an obligation to fulfill the contract and is paid a price of this, which is called "the call option premium or call option price".

A put option, on the other hand gives the holder the right to sell an underlying asset by a certain date for a certain price. The buyer is under an obligation to fulfill the contract and is paid a price for this, which is called "the put option premium or put option price".

The price at which the underlying asset would be bought in the future at a particular date is the "Strike Price" or the "Exercise Price". The date on the options contract is called the "Exercise date", "Expiration Date" or the "Date of Maturity".

There are two kind of options based on the date. The first is the European Option, which can be exercised only on the maturity date. The second is the American Option, which can be exercised before or on the maturity date.

In most exchanges the options trading starts with European Options, as they are easy to execute and keep track of. This is the case in the BSE and the NSE.

Cash settled options are those where, on exercise the buyer is paid the difference between stock price and exercise price (call) or between exercise price and stock price (put). Delivery

settled options are those where the buyer takes delivery of undertaking (calls) or offers delivery of the undertaking (puts).

The following example would clarify the basics on Call Options.

Illustration 1

An investor buys one European Call option on one share of Reliance Petroleum at a premium of Rs. 2 per share on 31 July. The strike price is Rs.60 and the contract matures on 30 September. The payoffs for the investor on the basis of fluctuating spot prices at any time are shown by the payoff table (Table 1). It may be clear from the graph that even in the worst case scenario, the investor would only lose a maximum of Rs.2 per share which he/she had paid for the premium. The upside to it has an unlimited profits opportunity.

On the other hand the seller of the call option has a payoff chart completely reverse of the call options buyer. The maximum loss that he can have is unlimited though the buyer would make a profit of Rs.2 per share on the premium payment.

Payoff From Call Buying/ Long (Rs.)

S	Xt	c	Payoff	Net Profit
57	60	2	0	-2
58	60	2	0	-2
59	60	2	0	-2
60	60	2	0	-2
61	60	2	1	-1
62	60	2	2	0
63	60	2	3	1
64	60	2	4	2
65	60	2	5	3
66	60	2	6	4

A European call option gives the following payoff to the investor: $\max(S - X_t, 0)$.

The seller gets a payoff of: $\max(S - X_t, 0)$ or $\min(X_t - S, 0)$.

Notes

S - Stock Price

Xt - Exercise Price at time 't'

C - European Call Option Premium

Payoff - $\max(S - X_t, 0)$

Implications for the Buyer and the Seller for Exercising the Call Option

The Call option gives the buyer a right to buy the requisite shares on a specific date at a specific price. This puts the seller under the obligation to sell the shares on that specific date and specific price. The Call Buyer exercises his option only when he/she feels it is profitable. This Process is called "Exercising the Option". This leads us to the fact that if the spot price is lower than the strike price then it might be profitable for the investor to buy the share in the open market and forgo the premium paid.

The implications for a buyer are that it is his/her decision whether to exercise the option or not. In case the investor expects prices to rise far above the strike price in the future then he/she would surely be interested in buying call options. On the other hand, if the seller feels that his shares are not giving the desired returns and they are not going to perform any better in the future, a premium can be charged and returns from selling the call option can be used to make up for the desired returns. At the end of the options contract there is an exchange of the underlying asset. In the real world, most of the deals are closed with another counter or reverse deal. There is no requirement to exchange the underlying assets then as the investor gets out of the contract just before its expiry.

Put Option: The European Put Option is the reverse of the call option deal. Here, there is a contract to sell a particular number of underlying assets on a particular date at a specific price. An example would help understand the situation a little better:

Illustration 2

An investor buys one European Put Option on one share of Reliance Petroleum at a premium of Rs. 2 per share on 31 July. The strike price is Rs.60 and the contract matures on 30 September. The payoff table shows the fluctuations of net profit with a change in the spot price.

Payoff From Put Buying/Long (Rs.)

S	X _t	p	Payoff	Net Profit
55	60	2	5	3
56	60	2	4	2
57	60	2	3	1
58	60	2	2	0
59	60	2	1	-1
60	60	2	0	-2
61	60	2	0	-2
62	60	2	0	-2
63	60	2	0	-2
64	60	2	0	-2

The payoff for the put buyer is: $\max(X_t - S, 0)$. The payoff for a put writer is: $\max(X_t - S, 0)$ or $\min(S - X_t, 0)$. These are the two basic options that form the whole gamut of transactions in the options trading. These in combination with other derivatives create a whole world of instruments to choose form depending on the kind of requirement and the kind of market expectation.

Exotic Options are often mistaken to be another kind of option. They are nothing but non-standard derivatives and are not a third type of option.

10.3 Options Styles- American, European and Asian Options:

Options are also classified into American, European and Asian style options. A fourth style—capped options—is discussed under 'Exotic Option'. This classification (known as Option style) has nothing to do with the location of the options trade—American options are traded in Europe and *vice versa*. They are only varieties of contracts. In an American style option, the option can be exercised any time up to the maturity date. In a European option, the right can be exercised only on the maturity date. Asian Options (also known as 'average rate options') do not have a fixed strike price. Instead, they have a formula for determining the strike price, which would be the average of the spot price over a given period of time. (Asian options are relatively rare.) The following examples illustrate the features of American, European and Asian option styles.

Example: 1

On March 1, the price of Wheat \$ 1800 per tonne. A apprehends a rise in price and buys an American option on June Wheat (maturity date June 15) at a strike price of \$1800. The prices subsequently are as follows:

May 15: \$ 2100

June 15: \$ 1700

As the option is an American option, A exercise it on May 15, and sells the Wheat at a profit of \$300 per tonne.

Example: 2

All the other facts are as above, but the option is a European option. In this case A cannot exercise the option on May 15 because he only has the right to do so on the maturity date. He therefore, does not have the profit opportunity that he had in the previous example.

It will be clear that an American option has a greater profit potential than a European option for the buyer. Thus leads to premia being higher for American options.

Example: 3

A limited is an Oil importer, requiring a regular supply of oil. In August, it anticipates a drop in the price of oil, but wants to be hedged against a possible rise. It buys an Asian option on Brent crude by which it has the right to buy form B, 10,000 barrels at the average spot price from August 15 to December 15. If the spot price on December 15 is lower than the 3- month average, it is not worth exercising the option and *vice versa*.

10.4 Relationship Between Strike Price and Market Price:

It would have been clear from examples 1 to 3 that the decision of an option buyer on exercising his depends on whether the strike price is above or below the market price. In market terminology, the expression 'eat the money' is used if the current market price is exactly equal to the option strike price. An option is said to be 'in the money' when the strike price relates to the market price in such a way that there is an advantage in exercising the option. A call option will be 'in the money' if the strike price is below the current price. A put option will be 'in the money', if the strike price is above the current market price. An option is said to be 'out of the money' if strike price related to the market price in such a way that the buyer has no advantage in exercising the option. A call option is 'out-of-the-money' when the strike price is above the current market price, while a put option is 'out-of-the-money' when the strike price is below the current market price. An option is said to have intrinsic value when it is in the money.

As a simplification the amount of intrinsic value is simply the difference between the strike price and the current market price of an in-the-money option. However, for a more precise formulation, it is necessary to take into account the fact that a European option can only be exercised on the maturity date and not before; this requires an adjustment for the discounted present value of the exercise price. By doing this and also taking into account various arbitrage possibilities, it can be shown that.

The intrinsic value of a call option (whether American or European) is the difference between the market price and the discounted present value of the exercise price.

The intrinsic value of an American put option is the difference between the exercise price and the market price.

The intrinsic value of a European put option is the difference between the discounted present value of the exercise price and the market price.

10.5 Technical Terms Used in Option Trading:

Exercise Date: The date at which the option is exercised.

Expiration Period: At the time of introducing an option contract, the exchange specified the period (not more than nine months from the date of introduction of the contract in the exchange) during which the option can be exercised or traded. This period is referred to as the expiration period.

Option Premium or Option Price: This is the amount, which the buyer of the option has to pay to the option writer to induce him to accept the risk associated with the contract. It can also be viewed as the price paid to buy the option.

Expiration Cycle: The options listed in the stock exchanges and introduced in certain months expire only in specific months of the year. This is due to the fact that option contracts have to expire within nine months from the date of their introduction. The exchanges will assign one of the three cycles. The first cycle will be January, February, April and July, the second cycle will be February, March, April and July and the final cycle will be March, April, July and October.

Intrinsic Value: Intrinsic value of an option is the value of the profit that is likely to accrue from the option. It consists of the profit that will accrue, if the option is exercised today.

Strike Price: The price specified in the options contract is known as the strike price or the exercise price.

American Options: American options are options that can be exercised at any time up to the expiration date. Most exchange-traded options are American.

European Options: European options are options that can be exercised only on the expiration date itself. European options are easier to analyze than American options, and properties of an American options are frequently deducted from those of its European counterpart.

Volatility: The volatility of a stock price represents the uncertainty attached to its future movement. As volatility increases, the chance that the stock will perform very well or very poor increases. For the owner of a stock, these two possibilities neutralize each other. However, this is not true for a call or put option holder. The call option holder gains from price increase but has fixed downside risk in case of price decline. Again a put option owner benefits from the price decline but has limited risk in case of the upward movement in the stock price. Hence, the value of both calls and put increase as volatility increases.

Market Players in the Trading of Options

Hedgers: The objective of these kinds of traders is to reduce the risk. They are not in the derivatives market to make profits. They are in it to safeguard their existing positions. Apart from equity markets, hedging is common in the foreign exchange markets where fluctuations in the exchange rate have to be taken care of in the foreign currency transactions or could be in the commodities market where spiraling oil prices have to be tamed using the security in derivative instruments.

Speculators: They are traders with a view and objective of making profits. They are willing to take risks and they bet upon whether the markets would go up or come down.

Arbitrageurs: Risk less Profit Making is the prime goal of Arbitrageurs. Buying in one market and selling in another, buying two products in the same market are common. They could be making money even without putting their own money in and such opportunities often come up in the market, but last for very short timeframes. This is because as soon as the situation arises arbitrageurs take advantage and demand-supply forces drive the markets back to normal.

Options Undertakings

- Stocks
- Foreign Currencies
- Stock Indices
- Commodities
- Others - Futures Options, are options on the futures contracts or underlying assets are futures contracts.

The futures contract generally matures shortly after the options expiration

Options Classifications

Options are often classified as

In-the-money: A call option is in-the-money when the strike price is below the current spot price of the underlying asset; a put option is in-the money when the strike price is above the current spot price of the underlying asset. These result in a positive cash flow towards the investor

Out-of-the-money: A call option is said to be out-of-money when the strike price is above the spot price of the underlying asset and a put option is said to be out-of-money when the strike price is below the current spot price of the underlying asset. The buyer makes a loss if he exercises the option out-of-the-money. These result in a negative cash flow for the investor

At-the-money: An option whose exercise price is equal to the current spot price is said to be at-the-money. These result in a zero-cash flow to the investor.

Naked Options: These are options, which are not combined with an offsetting contract to cover the existing positions. It is further classified into two types. They are:

Naked Call Writing: If a trader writes a call option without owning the underlying asset, it is called as Naked Call Writing.

Naked Call Writing: In this situation, the brokerage firm does not have either the cash or the stock of companies deposited as security by the writer of the put option.

Covered Options: These are option contracts in which the shares are already owned by an investor (in case of covered call options) and in case the option is exercised then the offsetting of the deal can be done by selling these shares held.

Time Value of an Option: The time value of an option is the difference between its premium and its intrinsic value. Both calls and puts have time value. An option that is OTM or ATM has only time value. Usually, the maximum time value exists when the option is ATM. The longer the time to expiration, the greater is an option's time value, all else equal. At expiration, an option should have no time value.

10.6 Historical Uses of Options:

Contracts similar to options are believed to have been used since ancient times. In the real estate market, call options have long been used to assemble large parcels of land from separate owners, e.g., a developer pays for the right to buy several adjacent plots, but is not obligated to buy these plots and might not unless he can buy all the plots in the entire parcel. Film or theatrical producers often buy the right- but not the obligation- to dramatize a specific book or script. Lines of credit give the potential borrower the right—but not the obligation to borrow within a specified time period.

Many choices, or embedded options, have traditionally been included in bond contracts. For example many bonds are convertible into common stock at the buyer's option, or may be called bought back at specified prices at the issuer's option. Mortgage borrowers have long had the option to repay the loan early.

10.7 Summary:

Privileges were options sold over the counter in nineteenth century in America, with both puts and calls on shares offered by specialized dealers. Their exercise price was fixed at a rounded-off market price on the day or week that the option was both, and the expiry date was generally three month after purchase. They were not traded in secondary market.

10.8 Self Assessment Questions:

1. Define Options and what are the different types of Options?
2. Differentiate between the market price strike prices?
3. What are the historical uses of options?
4. What are the different classifications of options?
5. Explain about the Call and Put Options with illustrative examples.

Option Pricing

11.0 Objectives

The objectives of this unit are to enable you:

- To know the procedure of option pricing.
- To know the option pricing under Black-Scholes Pricing Model.

Structure:

11.1 Introduction

11.2 Black-Scholes Pricing Model

11.3 Self Assessment Questions

11.1 Introduction:

An option buyer has the right but not the obligation to exercise on the seller. The worst that can happen to a buyer is the loss of the premium paid by him. His downside is limited to this premium, but his upside is potentially unlimited. This is optionally precious and has a value, which is expressed in terms of the option price. Just like in other free market, it is the supply and demand in the secondary market that gives the price of an option.

11.2 Black-Scholes Pricing Model:

There are various models, which help us get close to the true price of an option. Most of these are variants of the celebrated Black-scholes model for pricing European options. Today most calculators and spreadsheets come with a built-in Black scholes options pricing formula. So to price options, we don't really need to memorize the formula. All we need to know is the variables.

The Black-scholes formulas for the prices of European calls and puts on a non-dividend paying stock are:

$$C = SN(d_1) - Xe^{-rT} N(d_2)$$

$$P = Xe^{-rT} N(-d_2) - SN(-d_1)$$

$$\text{Where } d_1 = \ln s/n + (r + \sigma^2/2)T$$

Prices of options are commonly depending upon six factors. Unlike futures which derives the prices primarily from prices of the undertaking, option's prices are far more complex. The table below helps understand the affect of each of these factors and gives a broad picture of option pricing keeping all other factors constant. The table presents the case of European as well as American Options.

Effect of Increase in the Relevant Parameter on Option Prices

PARAMETERS	European Options Buying		American Options Buying	
	CALL	PUT	CALL	PUT
Spot Price (S)	↑	■	↑	■
Strike Price (Xt)	↓	↑	■	↑
Time to Expiration (T)	?	?	↑	↑
Volatility (V)	↑	↑	↑	↑
Risk Free Interest Rates (r)	↑	■	↑	■
Dividends (D)	■	↑	■	↑

↑ Favourable
■ Unfavourable

Spot Prices: In case of a call option, the payoff for the buyer is $\max(S - X_t, 0)$. Therefore, more the Spot Price, more is the payoff and it is favourable for the buyer. It is the other way round for the seller; more the Spot Price, higher is the chances of his going into a loss.

In case of a put Option, the payoff for the buyer is $\max(X_t - S, 0)$. Therefore, more the Spot Price, more are the chances of going into a loss. It is the reverse for Put Writing.

Strike Price: In case of a call option the payoff for the buyer is shown above. As per this relationship, a higher strike price would reduce the profits for the holder of the call option.

Time to Expiration: More the time to Expiration more favourable is the option. This can only exist in case of American option as in case of European Options the Options Contract matures only on the Date of Maturity.

Volatility: More the volatility, higher is the probability of the option generating higher returns to the buyer. The downside in both the cases of call and put is fixed, but the gains can be unlimited. If the price falls heavily in case of a call buyer then the maximum that he loses is the premium paid and nothing more than that. More so he/she can buy the same shares from the spot market at a lower price. Similar is the case of the put option buyer. The table shows all effects on the buyer side of the contract.

Risk Free Rate of Interest: In reality the rate and the stock market is inversely related. But theoretically speaking, when all other variables are fixed and interest rate increases this leads to a double effect: increase in expected growth rate of stock prices. Discounting factor increases making the price fall.

In case of the put option both these factors increase and lead to a decline in the put value. A higher expected-growth leads to a higher price taking the buyer to the position of loss in the payoff chart. The discounting factor increases and the future value becomes lesser.

In case of a call option these effects work in the opposite direction. The first effect is positive as at a higher value in the future the call option would be exercised and would give a profit. The second effect is negative as is that of discounting. The first effect is far more dominant than the second one, and the overall effect is favourable on the call option.

Dividends: When dividends are announced then the stock prices on ex-dividend are reduced. This is favourable for the put option and unfavourable for the call option.

11.3 Self Assessment Questions:

1. What are the factors responsible for the volatility of the shares?
2. Explain the concept of pricing of options with Black-Scholes formula?

Lesson - 12

Trading Strategies

12.0 Objectives

The objectives of this unit are to enable you:

- To know the concept of strategy adopted for pricing of options and futures.
- To know the various strategies adopted for trading the options and futures.

Structure:

12.1 Introduction

12.2 Strategy Adopted for Trading the Options

12.3 Self Assessment Questions

12.1 Introduction:

The futures & options trading system of NSE, called NEAT-F&O trading system, provides a fully automated screen-based trading for Nifty futures and options and stock futures and options on a national wide basis as well as an online monitoring and surveillance mechanism. It supports an order driven market and provides complete transparency of trading operations. It is similar to that of trading of equities in the cash market segment.

12.2 Strategy Adopted for Trading the Options:

The following are the **Strategies Applied for Trading** the options and futures, which discussed below:

Covered call writing

Protective Put

Straddles and Strangles

Strips and Straps

Spreads

1. Strategy

A Covered Call: This strategy involves buying the underlying asset and writing a call on that asset. A long position in stock and short position in a call option.

Illustration: An investor enters into writing a call option on one share of Reliance Petrol At a strike price of Rs.60 and a premium of Rs.6 per share. The maturity date is two months from now and along with this option, he/she buys a share of Reliance Petrol in the spot market at Rs. 58 per share.

By this the investor covers the position that he got in on the call option contract and if the investor has to fulfill his/her obligation on the call option, then can fulfill it using the Reliance Petrol Share on which he/she entered into a long contract.

Writing a Covered Call Option

S	Xt	C	Profit from Writing Call	Net Profit from writing call	Share Bought Call Writing	Profit from Stock	Total Profit
50	60	6	0	6	58	-8	-2
52	60	6	0	6	58	-6	0
54	60	6	0	6	58	-4	2
56	60	6	0	6	58	-2	4
58	60	6	0	6	58	0	6
60	60	6	0	6	58	2	8

62	60	6	-2	4	58	4	8
64	60	6	-4	2	58	6	8
66	60	6	-6	0	58	8	8
68	60	6	-8	-2	58	10	8
70	60	6	-10	-4	58	12	8

Table below shows the Net Profit the investor would make on such a deal.

S = Price of the underlying asset at time t .

X = The exercise or the strike price of the option of the underlying asset.

T = The expiration date of the option.

C = The price of a European call at time ' t '.

C = The price of an American call at time ' t '.

2. Strategy

Reverse of Covered Call: This strategy is the reverse of writing a covered call. Taking a long position or buying a call option and selling the stocks apply it.

Illustration: An investor enters into buying a call option on one share of Reliance Petrol. At a strike price of Rs.60 and a premium of Rs.6 per share. The maturity date is two months from now and along with this option he/she sells a share of Reliance Petrol in the spot market at Rs. 58 per share.

The payoff chart describes the payoff of buying the call option at the various spot rates and the profit from selling the share at Rs.58 per share at various spot prices. The thick line shows the net profit.

Buying a Covered Call Option

S	X_t	c	Profit from writing call option	Net Profit from call buying	Spot Price of selling the stock	Profit from stock	Total Profit
50	60	-6	0	-6	58	8	2
52	60	-6	0	-6	58	6	0
54	60	-6	0	-6	58	4	-2
56	60	-6	0	-6	58	2	-4
58	60	-6	0	-6	58	0	-6
60	60	-6	0	-6	58	-2	-8
62	60	-6	2	-4	58	-4	-8

64	60	-6	4	-2	58	-6	-8
66	60	-6	6	0	58	-8	-8
68	60	-6	8	2	58	-10	-8
70	60	-6	10	4	58	-12	-8

3. Strategy

Protective Put Strategy: This strategy involves a long position in a stock and long position in a put. It is a protective strategy reducing the downside heavily and much lower than the premium paid to buy the put option. The upside is unlimited and arises after the price rises high above the strike price.

Illustration: An investor enters into buying a put option on one share of Reliance Petrol. At a strike price of Rs.60 and a premium of Rs.6 per share. The maturity date is two months from now and along with this option he/she buys a share of Reliance Petrol in the spot market at Rs. 58 per share.

Protective Put Strategy

S	Xt	p	Profit from buying put option	Net Profit from buying put option	Spot Price of stock buying the stock	Profit from stock	Total Profit
50	60	-6	10	4	58	-8	-4
52	60	-6	8	2	58	-6	-4
54	60	-6	6	0	58	-4	-4
56	60	-6	4	-2	58	-2	-4
58	60	-6	2	-4	58	0	-4
60	60	-6	0	-6	58	2	-4
62	60	-6	0	-6	58	4	-2
64	60	-6	0	-6	58	6	0
66	60	-6	0	-6	58	8	2
68	60	-6	0	-6	58	10	4
70	60	-6	0	-6	58	12	6

4. Strategy

Reverse of Protective Put: This strategy is just the reverse of the above and looks at the case of taking short positions on the tock as well as on the put option.

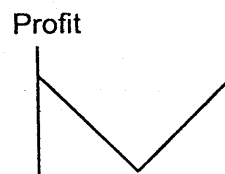
Illustration: An investor enters into selling a put option on one share of Reliance Petrol at a strike price of Rs.60 and a premium of Rs.6 per share. The maturity date is two months from now and along with this option he/she sells a share of Reliance Petrol in the spot market at Rs. 58 per share.

Reverse of Protective Put Strategy

S	Xt	p	Profit from writing a put option	Net Profit from Put Writing	Spot Price of Selling the stock	Profit from stock	Total Profit
50	60	6	-10	-4	58	8	4
52	60	6	-8	-2	58	6	4
54	60	6	-6	0	58	4	4
56	60	6	-4	2	58	2	4
58	60	6	-2	4	58	0	4
60	60	6	0	6	58	-2	4
62	60	6	0	6	58	-4	2
64	60	6	0	6	58	-6	0
66	60	6	0	6	58	-8	-2
68	60	6	0	6	58	-10	-4
70	60	6	0	6	58	-12	-6

Straddle: A straddle involves a call and a put option with the same exercise price and the same expiration date. A straddle buyer buys a call and put option and the seller sells a call and a put option at the same exercise price and the same expiration date. The maximum loss associated with a long straddle position is the cost of the two options. Profit volume is unlimited when the prices of the underlying asset rise and it's limited when it falls.

This strategy can be explained with the following Profit/loss diagram:



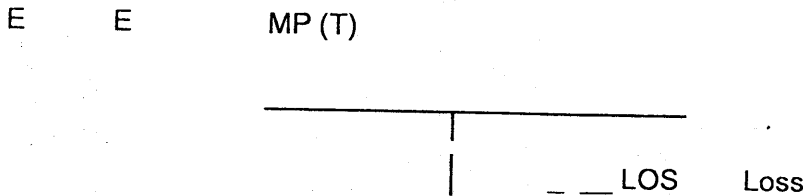


Fig: Profit/Loss diagram

The profit diagram reveals that the investor purchasing a straddle makes profits at price, which are higher and lower than the prevailing market price. This strategy will appeal to an investor who wants to take a position in an underlying asset that is volatile but does not have a reason whether it will rise or fall in the short run. The investor however, only anticipates a sharp movement in the price of the asset.

Strangle: It is a combination of a call and a put with the same expiration date and different strike prices. If the strike prices of the call and the put options are X_1 and X_2 then a strangle is chosen in such a way that $X_1 > X_2$

For example, that you buy a call and a put option on a particular stock with strike prices Rs.40 and Rs.35 respectively. Let the cost of the call and the put be Rs.4 and Rs.5 respectively. Then your initial outflow is Rs.9. If you have to benefit from your strategy, the total payoff should exceed Rs.9. You will exercise your call option only when the price of the stock at expiration goes above Rs.44. Similarly, you will exercise your put option only when the price of the stock at expiration goes below Rs.30. To break even, the stock's price at expiration should be below Rs.26 or above Rs.49. If the price at expiration falls somewhere between Rs.26 and Rs.49 then you do not benefit from your strategy. In fact, within this range you are exposed to loss. Outside this scope you have a profit potential.

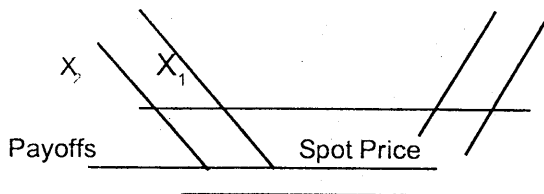
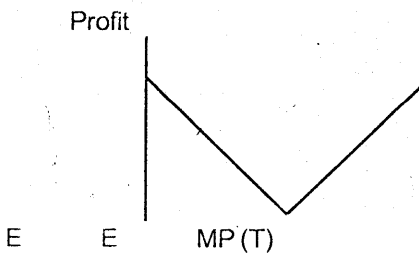


Fig: Pay off of Strangle

Strips and Straps: A strip consists of a long position in one call and two puts with the same exercise price and expiration date. The buyer of a strip believes that there will be a big stock price move but the stock price is more likely to fall than it is to rise.



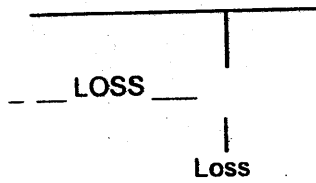
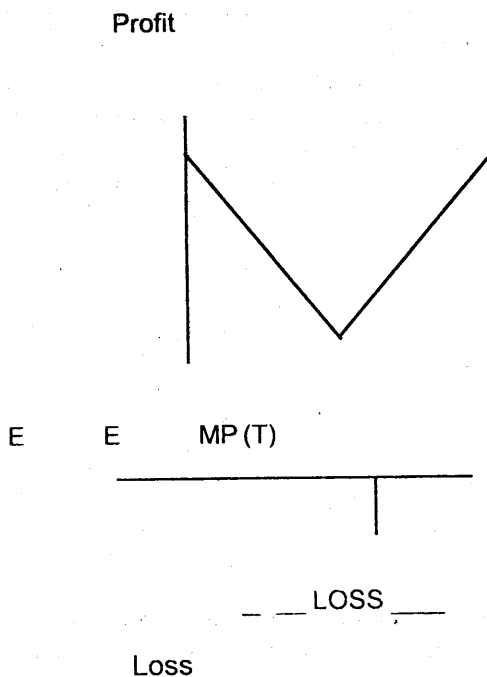


Fig: Strip profit diagram

The profit diagram above show that the strip buyer can make profit in both rise and fall in the stock prices. But the amount of profit will be greater when the underlying stock declines sharply. This strategy will appeal to investors who want to take a position in an underlying asset that is volatile but is likely to decline steeply.

Straps: A strap consists of a long position in two calls and one put with the same strike price and expiration date. A strap is like a strip that is skewed in the opposite direction. The buyer of a strap expects bullish and bearish possibilities for the optioned security with a price rise being more likely.



The profit diagram explains that the investors purchasing a strap make profit at prices, which are significantly lower or higher than the prevailing market price. However, profit will be higher in the bullish market condition. This strategy will attract an investor who expects market to be volatile but thinks that it will rise in future. As evident from the above diagram, the profit will be higher whenever the rise in the price of stock is huge.

SPREADS: The above-involved positions in a single option and squaring them off in the spot market. The spreads are a little different. They involve using two or more options of the same type in the transaction.

Strategy 1**Bull Spread:**

The investor expects prices to increase in the future. This makes him purchase a call option at X_1 and sell a call option on the same stock at X_2 , where $X_1 < X_2$.

Using an illustration it would be clear how this is put to use.

Illustration

An investor purchases a call option on the BSE Sensex at premium of Rs.450 for a strike price at 4300. The investor squares this off with a sell call option at Rs. 400 for a strike price at 4500. The contracts mature on the same date. The payoff chart below describes the net profit that one earns on the buy call option; sell call option and both contracts together.

Payoff From a Bull Spread

S	X1	X2	c1	c2	Profit from X1	Net profit from X1	Profit from X2	Net Profit from X	Total Profit
4200	4300	4500	-450	400	0	-450	0	400	-50
4250	4300	4500	-450	400	0	-450	0	400	-50
4300	4300	4500	-450	400	0	-450	0	400	-50
4350	4300	4500	-450	400	50	-400	0	400	0
4400	4300	4500	-450	400	100	-350	0	400	50
4450	4300	4500	-450	400	150	-300	0	400	100
4500	4300	4500	-450	400	200	-250	0	400	150
4550	4300	4500	-450	400	250	-200	-50	350	150
4600	4300	4500	-450	400	300	-150	-100	300	150
4650	4300	4500	-450	400	350	-100	-150	250	150
4700	4300	4500	-450	400	400	-50	-200	200	150
4750	4300	4500	-450	400	450	0	-250	150	150

The premium on call with X_1 would be more than the premium on call with X_2 . This is because as the strike price rises the call option becomes unfavourable for the buyer. The payoffs could be generalized as follows.

Spot Rate	Profit on long call	Profit on short call	Total Payoff	Net Profit Exercised	Which option(s)
$S \geq X2$	$S - X1$	$X2 - S$	$X2 - X1$	$X2 - X1 - c1 + c2$	Both
$X1 < S \leq X2$	$S - X1$	$S - X1$	0	$S - X1 - c1 + c2$	Option 1
$S \geq X1$	0	0	0	$c2 - c1$	None

The features of the Bull Spread:

This requires an initial investment.

This reduces both the upside as well as the downside potential.

The spread could be in the money, on the money and out of money.

Another side of the Bull Spread is that on the Put Side. Buy at a low strike price and sell the same stock put at a higher strike price.

This contract would involve initial cash inflows unlike the Bull Spread based on the Call Options. The premium on the low strike put option would be lower than the premium on the higher strike put option, as more the strike price more is favourability to buy the put option on the part of the buyer.

Illustration

An investor purchases a put option on the BSE Sensex at premium of Rs.50 for a strike price at 4300. The investor squares this off with a sell put option at Rs. 100 for a strike price at 4500. The contracts mature on the same date. The payoff chart below describes the net profit that one earns on the buy put option, sell put option and both contracts together.

Payoff From a Bull Spread (Put Options)

S	X1	X2	p1	p2	Profit from X1 from X1	Net Profit	Profit from X2	Net Profit from X2	Total Profit
4200	4300	4500	-50	100	100	50	-300	-200	-150
4250	4300	4500	-50	100	50	0	-250	-150	-150
4300	4300	4500	-50	100	0	-50	-200	-100	-150
4350	4300	4500	-50	100	0	-50	-150	-50	-100
4400	4300	4500	-50	100	0	-50	-100	0	-50
4450	4300	4500	-50	100	0	-50	-50	50	0
4500	4300	4500	-50	100	0	-50	0	100	50
4550	4300	4500	-50	100	0	-50	0	100	50
4600	4300	4500	-50	100	0	-50	0	100	50
4650	4300	4500	-50	100	0	-50	0	100	50
4700	4300	4500	-50	100	0	-50	0	100	50
4750	4300	4500	-50	100	0	-50	0	100	50

Spot Rate	Profit on long put	Profit on short put	Total Payoff	Net Profit	Which Option(s) Exercised
$\geq X_2$	0	0	0	$p_2 - p_1$	None
$X_1 < S \leq X_2$	0	$S - X_2$	$S - X_2$	$S - X_2 - p_1 + p_2$	Option 2
$S \leq X_1$	$X_1 - S$	$S - X_2$	$X_1 - X_2$	$X_2 - X_1 - p_1 + p_2$	Both

Trading strategies of options are combinations of basic option positions. Investors adopt those strategies to get most out of the market based on their risk tolerance level and market outlook.

12.3 Self Assessment Questions:

1. Explain about the different strategies adopted by the investors for trading the options and futures.
2. Describe about any one of the strategies and explain it with an illustrative example.

Valuation Models

13.0 Objectives

The objectives of this unit are to enable you:

- To know the valuation technique adopted for the valuation of options and future.
- To know the various technique used for valuation of options and futures.

Structure:

13.1 Introduction

13.2 Valuation Techniques Used in Practice to Evaluate Option Contracts

13.3 Self Assessment Question

13.1 Introduction:

The value of an option can be estimated using a variety of quantitative techniques, although most commonly through the use of option pricing models such as Black-Scholes and the binomial options pricing model. In general, standard option valuation models depend on the following factors:

The current market price of the underlying security, the strike price of the option, particularly in relation to the current market price of the underlies, the cost of holding a position in the underlying security, including interest and dividends, the time to expiration together with any restrictions on when exercise may occur, and an estimate of the future volatility of the underlying security's price over the life of the option.

More advanced models can require additional factors, such as an estimate of how volatility changes over time and for various underlying price levels, or the dynamics of stochastic interest rates.

13.2 Valuation Techniques Used in Practice to Evaluate Option Contracts:

The following are some of the principal valuation techniques used in practice to evaluate option contracts.

Black-Scholes

The Black-Scholes model was the first quantitative technique to comprehensively and accurately estimate the price for a variety of simple option contracts. By employing the technique of constructing a risk neutral portfolio that replicates the returns of holding an option, Fischer Black and Myron Scholes produced a closed-form solution for a European option's theoretical price. At the same time, the model generates hedge parameters necessary for effective risk management of option holdings. While the ideas behind Black-Scholes were ground-breaking and eventually led to a Nobel Prize in Economics for Myron Scholes and Robert Merton, application of the model in actual options trading is clumsy because of the assumptions of continuous (or no) dividend payment, constant volatility, and a constant interest rate. Nevertheless, the Black-Scholes model is still widely used in academic work, and for many financial applications where the model's error is within margin of tolerance.

Binomial Options Pricing Model

Closely following the derivation of Black and Scholes, John Cox, Stephen Ross and Mark Rubinstein developed the original version of the binomial options pricing model. It models the dynamics of the option's theoretical value for discrete time intervals over the option's duration. The model starts with a binomial tree of discrete future possible underlying stock prices. By constructing a risk-less portfolio of an option and stock (as in the Black-Scholes model) a simple formula can be used to find the option price at each node in the tree. This value can approximate the theoretical value produced by Black-Scholes, to the desired degree of precision. However, the binomial model is considered more accurate than Black-Scholes because it is more flexible, e.g., discrete future dividend payments can be modeled correctly at the proper forward time steps, and American options can be modeled as well as European ones. Binomial models are widely used by professional option traders.

Heston Model

Since the market crash of 1987, it has been observed that market implied volatility for options of lower strike prices are typically higher than for higher strike prices, suggesting that volatility is stochastic, varying both for time and for the price level of the underlying security. Stochastic volatility models have been developed including one developed by SL Heston. One principal advantage of the Heston model is that it can be solved in closed-form, while other stochastic volatility models require complex numerical models.

Monte Carlo Model

For many classes of options, traditional valuation techniques are intractable due to the complexity of the instrument. In these cases, a Monte Carlo approach may often be useful. Rather than attempt to solve the differential equations of motion that describe the option's value in relation to the underlying security's price, a Monte Carlo model determines the value of the option for a set of randomly generated economic scenarios. The resulting sample set yields an expectation value for the option.

Risks

As with all securities, trading options entails the risk of the option's value changing over time. However, unlike traditional securities, the return from holding an option varies non-linearly with the value of the underlier and other factors. Therefore, the risks associated with holding options are more complicated to understand and predict.

In general, the change in the value of an option can be derived from Ito's lemma as:

where the greeks Δ , $\bar{\Delta}$, $\hat{\sigma}$ and $\hat{\rho}$ are the standard hedge parameters calculated from an option valuation model, such as Black-Scholes, and dS , $d\sigma$ and dt are unit changes in the underlier price, the underlier volatility and time, respectively.

Thus, at any point in time, one can estimate the risk inherent in holding an option by calculating its hedge parameters and then estimating the expected change in the model inputs, dS , $d\sigma$ and dt , provided the changes in these values are small. This technique can be used effectively to understand and manage the risks associated with standard options. For instance, by offsetting a holding in an option with the amount Δ of shares in the underlier, a trader can form a delta neutral portfolio that is hedged from loss for small changes in the underlier price. The corresponding price sensitivity formula for this portfolio is:

Example

A call option expiring in 99 days on 100 shares of XYZ stock is struck at \$50, with XYZ currently trading at \$48. With future realized volatility over the life of the option estimated at 25%, the theoretical value of the option is \$1.89. The hedge parameters Δ , $\bar{\Delta}$, $\hat{\sigma}$, $\hat{\rho}$ are (0.439, 0.0631, 9.6, and -0.022), respectively. Assume that on the following day, XYZ stock rises to \$48.5 and volatility falls to 23.5%. We can calculate the estimated value of the call option by applying the hedge parameters to the new model inputs as:

Under this scenario, the value of the option increases by \$0.132 to \$2.022, realizing a profit of \$13.20. Note that for a delta neutral portfolio, where by the trader had also sold 44 shares of XYZ stock as a hedge, the net loss under the same scenario would be (\$8.75).

Pin Risk

A special situation called pin risk can arise when the underlier closes at or very close to the option's strike value on the last day the option is traded prior to expiration. The option writer (seller) may not know with certainty whether or not the option will actually be exercised or be allowed to expire worthless. Therefore, the option writer may end up with a large, unwanted residual position in the underlier when the markets open on the next trading day after expiration, regardless of their best efforts to avoid such a residual.

13.3 Self Assessment Question:

1. What are the Valuation techniques used in practice to evaluate option contracts?

Lesson - 14

Market Index

14.0 Objectives

The objectives of this unit are to enable you:

- To know the relevance of market Index.
- To know the concept of Index number.
- To know the various types of Indexes.
- To know the various purposes of Indexes.

Structure:

14.1 Introduction

14.2 Understanding the Index Number

14.3 Index Construction

14.4 Types of Indexes

14.5 Application of Index

14.6 Summary

14.7 Self Assessment Questions

14.1 Introduction:

Traditionally, indexes have been used as information source. By looking at an index, we know how the market is faring. In recent years, indexes have come to the forefront owing to direct application in finance in the form of index funds and index derivatives. Index derivatives allow people to cheaply alter their risk exposure to an index (hedging) and to implement forecast about index movements (speculation). Hedging using index derivatives has become central part of risk management in the modern economy.

14.2 Understanding the Index Number:

An index is a number, which measures the change in a set of values over a period of time. A stock index represents the change in value of a set of stocks, which constitute the index. More specifically, a stock index number is the current relative value of a weighted average of the prices of a pre-defined group of equities. It is a relative value because it is expressed relative to the weighted average prices at some arbitrarily chosen starting date or base period. The starting value or base of the index is usually set to number such as 100 or 1000. For example, the base value of the Nifty was set to 1000 on the start date of November 3rd, 1995.

A Good stock market index is one, which captures the behaviour of the overall equity market. It should represent the market; it should be well diversified and yet highly liquid. Movements of the index should represent the returns obtained by "typical" portfolios in the country.

A Market index is very important for its use:

As a barometer for market behaviour,

As a benchmark portfolio performance,

As a underlying in derivative instruments like index futures, and in passive fund management by index funds.

14.3 Index Construction:

A Good index is a trade-off between diversification and liquidity. A well-diversified index is more representative of the market/economy. However there are diminishing returns to diversification. Going from 10 stocks to 20 stocks gives a sharp reduction in risk. Going from 50 stocks to 100 stocks gives a sharp reduction in risk. Going beyond 100 stocks gives almost zero reduction in risk. Hence, there is little to gain by diversifying beyond a point. The more serious problem lies in the stocks that we take into an index when it is broadened. If the stock is illiquid, the observed prices yield contaminated information and actually worsen an index.

14.4 Types of Indexes:

Most of the commonly followed stock market indexes are of the following two types: Market capitalization weighted index or price-weighted index. In a market capitalization weighted index, each stock in the index affects the index value in proportion to the market value of all shares outstanding. A price-weighted index is one that gives a weight to each stock that is proportional to it

stock price. Indexes can also be equally weighted. Recently, major indices in the world like the S&P 500 and the FTSE-100 have shifted to a new method of index calculation called the "Free float" method. Let us consider the few method of index calculations.

Price Weighted index: In a price-weighted index each stock is given a weighted proportional to its stock price. In the example below, we can see that Grasim Inds and Telco have a similar weightage irrespective of the number of outstanding shares. In a price weighted index, a small capitalization firm could have a much higher weightage than a much larger firm, if the small capitalization firm had a high stock price but relatively few outstanding shares.

In the present example the base index=1000 and the index value works out to be 1049.56.

Company	Share price at time 0	Share price at time 1
Grasim Inds	351.55	340.50
Telco	329.10	350.30
SBI	274.60	280.40
Wipro	1333.25	1428.75
Bajaj	539.25	570.25
Total	2829.75	2970.20

$$\text{Index} = \frac{2970.20}{2829.75} \times 1000 = 1049.56$$

Equally Weighted Index: As the name suggests, in an equally weighted index all the components have similar weightage irrespective of their price or their market capitalization. The following table gives an example of how an equally weighted index is calculated.

In the example below, we can see that Grasim Inds and Wipro have a similar weightage irrespective of their share price and number of outstanding shares. In the present example, the base index = 1000 and the index value works out to be 1036.21.

Company	Share price at time 0	Share price at time 1
Grasim Inds	351.55	340.50
Telco	329.10	350.30
SBI	274.60	280.40
Wipro	1333.25	1428.75
Bajaj	539.25	570.25
Total	2829.75	2970.20

$$\text{Index} = \frac{340.50}{351.75} + \frac{350.30}{329.10} + \frac{280.40}{274.60} + \frac{1428.75}{1335.25} + \frac{570.25}{539.25} \times 100 = 1036.21$$

Market capitalization weighted Index: In this type of index, the equity prices are weighted by the market capitalization of the company (share price * number of outstanding shares). Hence each constituent stock in the index affects the index value in proportion to the market value of all the outstanding shares.

Formula:

$$\text{Index} = \frac{\text{Current market capitalization}}{\text{Base market capitalization}} * \text{Base Value}$$

Where:

Current market capitalization = Sum of (current market price * outstanding shares) of all securities in the index.

Base market capitalization = Sum of (market price * issue size) of all securities as on base date.

Company	Current Market Capitalization (Rs.Lakhs)	Base Market Capitalization (Rs.Lakhs)
Grasim Inds	1668791.10	1654247.50
Telco	872686.30	860018.25
SBI	1452587.65	1465218.80
Wipro	2675613.30	2669339.55
Bajaj	660887.85	662559.30
Total	7330566.20	7311383.40

$$\text{Index} = \frac{7330566.20}{7311383.40} \times 1000 = 100262$$

14.5 Application of Index:

Besides serving as a barometer of the economy/market, the index also has other applications in finance.

1. Index Derivatives: These are the derivative contracts, which have the index as the underlying. The most popular index derivatives contracts the world over is index futures and index options. NSE's market index, the S&P CNX Nifty was scientifically designed to enable the launch of index based products like index derivatives and index funds. The first derivative contract to be traded on NSE's market was the index futures contract with the Nifty as the underlying. This was followed by index options.

2. Index Funds: An index fund is a fund that tries to replicate the index returns. It does so by investing in index stocks in the proportions in which these stocks exist in the index. The goal of the index fund is to achieve the same performance as the index it tracks.

For instance, a Nifty index fund would seek to get the same return as the Nifty index. Since the Nifty has 50 stocks, the fund would buy all 50 stocks in the proportion in which they exist in the Nifty. Once invested, the fund will track the index, i.e., if the Nifty goes up, the value of the fund will go up to the same extent as the Nifty. If the Nifty falls, the value of the index fund will fall to the same extent as the Nifty. The most useful kind of market index is one where the weight attached to a stock is proportional to its market capitalization, as in the case of Nifty. Index funds are easy to construct for this kind of index since the index fund does not need to trade in response to price fluctuations. Trading is only required in response to issuance of shares, mergers, etc.

A few index funds were launched in recent past to provide a return at par with the index. For example, UTI launched in February 2000 an open ended Nifty Index Fund, which invests in the Nifty stocks in the same weightage as they have in the Nifty with an objective to track the index with minimum error. Other Nifty based funds include Franklin India Index Fund, Franklin India Tax Fund, IDBI Principal Fund's SBI Magnum Index Fund. The passive investment approach seems to be catching the fancy of investors.

3. Exchange Traded Funds: It is innovative products, which first came into existence in the USA in 1993. They have gained prominence over the last few years with over \$100 billion invested as of end 2001 in about 200 ETFs globally. About 60% of trading volumes on the American stock exchanges are from ETF's. Among the popular ones are SPDR's (Spiders) based on the S&P 500 Index, QQQs.

(Cubes) based on the Nasdaq-100 index, SHARES based on MSCI Indices and TRAHK (Tracks) based on the Hang Seng Index.

ETFs provide exposure to an index or a basket of securities that trade on the exchange like a single stock. They have a number of advantages over traditional open-ended funds as they can be bought and sold on the exchange at prices that are usually close to the actual intra-day NAV of the scheme. They are an innovation to traditional mutual funds as they provide investors a fund that closely tracks the performance of an index with the ability to buy/sell on an intra-day basis. Unlike listed closed-ended funds, which trade at substantial premia or more frequently at discounts to NAV, ETFs are structured in a manner which allows to create new units and redeem outstanding units directly with the fund, thereby ensuring that ETFs trade close to their actual NAVs.

14.6 Summary:

The first ETF in India "Nifty BeEs" (Nifty Benchmark Exchange Traded Scheme) based on SSBenchmark Mutual Fund launched P CNX Nifty, in December 2001. It is bought and sold like any other stock on NSE and has all characteristics of an index fund. It would provide returns that closely correspond to the total return of stocks included in Nifty.

14.7 Self Assessment Questions:

1. What are the different types of Index measurements?
2. What is the various applications of Index Numbers?
3. What is the relevance of Index Numbers?

Lesson - 15

Black-Scholes Option Model

15.0 Objectives

The objectives of this unit are to enable you:

- To explain the Black-Scholes model briefly.
- To Know the various formulas adopted in the above model.

Structure:

15.1 Introduction

15.2 The Key Assumptions of the Black-Scholes Model

15.3 Summary

15.4 Self Assessment Questions

15.1 Introduction:

The term **Black–Scholes** refers to three closely related concepts:

The **Black–Scholes model** is a mathematical model of the market for an equity, in which the equity's price is a stochastic process.

The **Black–Scholes PDE** is an equation which (in the model) the price of a derivative on the equity must satisfy.

The **Black–Scholes formula** is the result obtained by applying the Black-Scholes PDE to European put and call options.

Robert C. Merton was the first to publish a paper expanding our mathematical understanding of the options pricing model and coined the term "Black-Scholes" options pricing model, by enhancing work that was published by Fischer Black and Myron Scholes. The paper was first published in 1973. The foundation for their research relied on work developed by scholars such as Louis Bachelier, Edward O. Thorp, and Paul Samuelson. The fundamental insight of Black-Scholes is that the option is implicitly priced if the stock is traded.

Merton and Scholes received the 1997 Nobel Prize in Economics for this and related work; though ineligible because of his death in 1995, the Swedish academy broke with tradition and mentioned Black as a contributor.

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15.2 The Key Assumptions of the Black–Scholes Model are:

The price of the underlying instrument S_t follows a geometric Brownian motion with constant drift μ and volatility σ :

$$dS_t = \mu S_t dt + \sigma S_t dW_t$$

It is possible to short sell the underlying stock.

There are no arbitrage opportunities.

Trading in the stock is continuous.

There are no transaction costs or taxes.

All securities are perfectly divisible (e.g., it is possible to buy 1/100th of a share).

It is possible to borrow and lend cash at a constant risk-free interest rate.

The above lead to the following formula for the price of a call option with exercise price K on a stock currently trading at price S , i.e., the right to buy a share of the stock at price K after T years. The constant interest rate is r , and the constant stock volatility is σ .

$$C(S, t) = S\Phi(d_1) - Ke^{-rt}\Phi(d_2)$$

where

$$d_1 = \frac{\ln(S/K) + (r + \sigma^2/2)T}{\sigma\sqrt{T}}$$

$$d_2 = \frac{\ln(S/K) + (r - \sigma^2/2)T}{\sigma\sqrt{T}} = d_1 - \sigma\sqrt{T}$$

Here Φ is the standard normal cumulative distribution function.

The price of a put option may be computed from this by put-call parity and simplifies to

$$P(S, T) = Ke^{rT}\Phi(-d_2) - S\Phi(-d_1)$$

The Greeks under the Black-Scholes model are calculated below:

	Calls	Puts
Delta	$\Phi(d_1)$	$\Phi(d_1) - 1$
Gamma	$\frac{\phi(d_1)}{S\sigma\sqrt{T}}$	
Vega	$S\phi(d_1)\sqrt{T}$	
Theta	$-\frac{S\phi(d_1)\sigma}{2\sqrt{T}} - rKe^{rT}\phi(d_2)$	$-\frac{S\phi(d_1)\sigma}{2\sqrt{T}} + rKe^{-rT}\phi(-d_2)$
Rho	$KTe^{-rT}\phi(d_2)$	$-KTe^{-rT}\phi(-d_2)$

Here, ϕ is the standard normal probability density function. Note that the gamma and vega formulas are the same for calls and puts. This can be seen directly from put-call parity.

In practice, some Greeks are usually quoted in scaled-down terms, to match the scale of likely changes in the parameters. For example, rho by 10,000 (1bp rate change), vega by 100 (1 vol point change), and theta by 365 or 252 (1 day decay based on either calendar days or trading days per year).

Extensions of the Model

The above model can easily be extended to have non-constant (but deterministic) rates and volatilities. The model may also be used to value European options on instruments paying dividends. In this case, closed-form solutions are available if the dividend is a known proportion of the stock price. American options and options on stocks paying a known cash dividend (in the short term, more realistic than a proportional dividend) are more difficult to value, and a choice of solution techniques is available (for example lattices and grids).

Instruments Paying Continuous Yield Dividends

For options on indexes (such as the FTSE where each of 100 constituent companies may pay a dividend twice a year and so there is a payment nearly every business day), it is reasonable to make the simplifying assumption that dividends are paid continuously, and that the dividend amount is proportional to the level of the index.

The dividend payment paid over the time period $[t, t + dt]$ is then modelled as,

$$qS_t dt$$

for some constant q (the dividend yield).

Under this formulation the arbitrage-free price implied by the Black-Scholes model can be shown to be

$$C(S_0, T) = e^{-rT} (F\Phi(d_1) - K\Phi(d_2))$$

where now

$$F = S_0 e^{(r-q)T}$$

is the modified forward price that occurs in the terms d_1 and d_2 :

$$d_1 = \frac{\ln(F/K) + (\sigma^2/2)T}{\sigma\sqrt{T}}$$

$$d_2 = d_1 - \sigma\sqrt{T}.$$

Exactly the same formula is used to price options on foreign exchange rates, except that now q plays the role of the foreign risk-free interest rate and S is the spot exchange rate. This is the **Garman-Kohlhagen Model** (1983).

Instruments Paying Discrete Proportional Dividends

It is also possible to extend the Black-Scholes framework to options on instruments paying discrete proportional dividends. This is useful when the option is struck on a single stock.

A typical model is to assume that a proportion δ of the stock price is paid out at pre-determined times t_1, t_2, \dots . The price of the stock is then modelled as

$$S_t = S_0 (1 - \delta)^{n(t)} e^{ut + \sigma W_t}$$

where $n(t)$ is the number of dividends that have been paid by time t .

The price of a call option on such a stock is again

$$C(S_0, T) = e^{-rT} (F\Phi(d_1) - K\Phi(d_2))$$

where now

$$F = S_0(1 - \delta)^{n(T)} e^{rT}$$

is the forward price for the dividend paying stock.

Black-Scholes in practice

The Volatility Smile

All the parameters in the model other than the volatility—that is the time to maturity, the strike, the risk-free rate, and the current underlying price—are unequivocally observable. This means there is a one-to-one relationship between the option price and the volatility. By computing the implied volatility for traded options with different strikes and maturities, we can test the Black-Scholes model. If the Black-Scholes model held, then the implied volatility for a particular stock would be the same for all strikes and maturities. In practice, the three-dimensional graph of implied volatility against strike and maturity is not flat. The typical shape of the implied volatility curve for a given maturity depends on the underlying instrument. Equities tend to have skewed curves: implied volatility is higher for low strikes, and slightly lower for high strikes. Currencies tend to have more symmetrical curves, with implied volatility lowest at-the-money, and higher volatilities in both wings. Commodities often have the reverse behaviour to equities, with higher implied volatility for higher strikes.

Despite the existence of the volatility smile (and the violation of all the other assumptions of the Black-Scholes model), the Black-Scholes PDE and Black-Scholes formula are still used extensively in practice. A typical approach is to regard the volatility surface as a fact about the market, and use an implied volatility from it in a Black-Scholes valuation model. This has been described as using “the wrong number in the wrong formula to get the right price” [Rebonato 1999]. This approach also gives usable values for the hedge ratios (the Greeks).

Even when more advanced models are used, traders prefer to think in terms of volatility as it allows them to evaluate and compare options of different maturities, strikes, and so on.

Valuing Bond Options

Black-Scholes cannot be applied directly to bond securities because of the pull-to-par problem. As the bond reaches its maturity date, all of the prices involved with the bond become known, thereby decreasing its volatility, and the simple Black-Scholes model does not reflect this process. A large number of extensions to Black-Scholes, beginning with the Black model have been used to deal with this phenomenon.

Interest Rate Curve and Short Stock Rate

One difficulty that often arises in practice is how to derive the proper interest rate to use as an input. The deposit rate for a risk-free bond maturing on the option's expiration date is, in general, not

observable in the market. Instead, an interest rate curve is used. Composed of market-quoted interest rates of various maturities, the curve provides an estimate of the risk-free rate of appropriate maturity for the option being priced.

Another issue arises when short stock is to be used as part of the hedging portfolio. This is because your broker typically pays you some rate that is less than the risk-free rate on the proceeds of the short stock sale. In addition, when a stock is hard to borrow, the rate you receive on the short sale proceeds can go down and even be negative. That is, you might have to pay your broker interest on the proceeds from your short sale as an inducement to lend you the shares you have sold short. In these cases, the correct interest rate to use in the model should be adjusted to account for this effect.

For example, your broker pays you the Fed funds overnight rate less 0.85% (85 basis points) on your short stock proceeds. You have no existing position in IBM, but you are considering purchasing IBM Jan, 08 100 Calls. Because you would ordinarily sell IBM short to hedge this purchase, you will need to borrow IBM shares from your broker. From your interest rate curve, you determine the proper risk-free rate for a theoretical bond expiring on January 19th, 2008 is 5.05%. Therefore, the correct interest rate to use in the Black-Scholes model is 4.2%. Now, assume that you are considering the same trade, but in the symbol HLYS, which is hard to borrow. Your broker will only pay you 2% less than the overnight rate on proceeds from a short sale in HLYS stock. Now, the correct rate to use in the Black-Scholes model is 3.05%.

Formula Derivation

Elementary Derivation

Let S_0 be the current price of the underlying stock and S the price when the option matures at time T . Then S_0 is known, but S is a random variable. Assume that

$$X = \ln(S/S_0)$$

is a normal random variable with mean uT and variance $\sigma^2 T$. It follows that the mean of S is

$$E[S] = S_0 e^{qT}$$

for some constant q (independent of T). Now a simple no-arbitrage argument shows that the theoretical future value of a derivative paying one share of the stock at time T , and so with payoff S , is

$$S_0 e^{rT}$$

where r is the risk-free interest rate. This suggests making the identification $q = r$ for the purpose of pricing derivatives. Define the theoretical value of a derivative as the present value of the expected payoff in this sense. For a call option with exercise price K this discounted expectation (using risk-neutral probabilities) is

$$C(S_0, T) = e^{-rT} E[\max(S - K, 0)]$$

The derivation of the formula for C is facilitated by the following lemma: Let Z be a standard normal random variable and let b be an extended real number. Define

$$Z^+(b) = \begin{cases} Z & \text{if } Z > b \\ -\infty & \text{Otherwise} \end{cases}$$

If a is a positive real number, then

$$E[e^{aZ^+(b)}] = e^{a^2/2} \Phi(-b+a)$$

where Φ is the standard normal cumulative distribution function. In the special case $b = 0$, we have

$$E[e^{aZ}] = e^{a^2/2}$$

Now let

$$Z = \frac{X - \mu T}{\sigma \sqrt{T}}$$

and use the corollary to the lemma to verify the statement above about the mean of S . Define

$$S^+ = \begin{cases} S & \text{if } S > K \\ 0 & \text{Otherwise} \end{cases}$$

$$X^+ = \ln(S^+ / S_0)$$

and observe that

$$\frac{X^+ - \mu T}{\sigma \sqrt{T}} = Z^+(b)$$

for some b . Define

$$K^+ = \begin{cases} K & \text{if } S > K \\ 0 & \text{otherwise} \end{cases}$$

and observe that

$$\max(S - K, 0) = S^+ - K^+$$

The rest of the calculation is straightforward.

Although the elementary derivation leads to the correct result, it is incomplete as it cannot explain, why the formula refers to the risk-free interest rate while a higher rate of return is expected from risky investments. This limitation can be overcome using the risk-neutral probability measure, but the concept of risk-neutrality and the related theory is far from elementary.

PDE Based Derivation

In this section we derive the partial differential equation (PDE) at the heart of the Black-Scholes model via a no-arbitrage or delta-hedging argument; for more on the underlying logic, see the discussion at rational pricing.

The presentation given here is informal and we do not worry about the validity of moving between dt meaning a small increment in time and dt as a derivative.

The Black-Scholes PDE

As per the model assumptions above, we assume that the underlying (typically the stock) follows a geometric Brownian motion. That is,

$$dS_t = \mu S_t dt + \sigma S_t dW_t$$

where W_t is Brownian.

Now let V be some sort of option on S —mathematically V is a function of S and t . $V(S, t)$ is the value of the option at time t if the price of the underlying stock at time t is S . The value of the option at the time that the option matures is known. To determine its value at an earlier time we need to know how the value evolves as we go backward in time. By Itô's lemma for two variables we have

$$dV = \left(\mu S \frac{\partial V}{\partial S} + \frac{\partial V}{\partial t} + \frac{1}{2} \sigma^2 S^2 \frac{\partial^2 V}{\partial S^2} \right) dt + \sigma S \frac{\partial V}{\partial S} dW.$$

Now consider a trading strategy under which one holds one option and continuously trades in the stock in order to hold $\Delta \cdot V'' S$ shares. At time t , the value of these holdings will be

$$\Delta = V - S \frac{\partial V}{\partial S}.$$

The composition of this portfolio, called the delta-hedge portfolio, will vary from time-step to time-step. Let R denote the accumulated profit or loss from following this strategy. Then over the time period $[t, t + dt]$, the instantaneous profit or loss is

$$dR = dV - \frac{\partial V}{\partial S} dS$$

By substituting in the equations above we get

$$dR = \left(\frac{\partial V}{\partial t} + \frac{1}{2} \sigma^2 S^2 \frac{\partial^2 V}{\partial S^2} \right) dt$$

This equation contains no dW term. That is, it is entirely riskless (delta-neutral). Thus, given that there is no arbitrage, the rate of return on this portfolio must be equal to the rate of return on any other riskless instrument. Now assuming the risk-free rate of return is r we must have over the time period $[t, t + dt]$.

$$rV dt = dR = \left(\frac{\partial V}{\partial t} + \frac{1}{2} \sigma^2 S^2 \frac{\partial^2 V}{\partial S^2} \right) dt.$$

If we now substitute in for dR and divide through by dt we obtain the **Black-Scholes PDE**:

$$\frac{\partial V}{\partial t} + \frac{1}{2} \sigma^2 S^2 \frac{\partial^2 V}{\partial S^2} + rS \frac{\partial V}{\partial S} - rV = 0.$$

This is the law of evolution of the value of the option. With the assumptions of the Black-Scholes model, this equation holds whenever V has two derivatives with respect to S and one with respect to t .

Other Derivations of the PDE

Above we used the method of arbitrage-free pricing ("delta-hedging") to derive a PDE governing option prices given the Black-Scholes model. It is also possible to use a risk-neutrality argument. This latter method gives the price as the expectation of the option payoff under a particular probability measure, called the risk-neutral measure, which differs from the real world measure.

Solution of the Black-Scholes PDE

We now show how to get from the general Black-Scholes PDE to a specific valuation for an option. Consider as an example the Black-Scholes price of a call option on a stock currently trading at price S . The option has an exercise price, or strike price, of K , i.e. the right to buy a share at price K , at T years in the future. The constant interest rate is r and the constant stock volatility is σ . Now, for a call option the PDE above has boundary conditions

$$V(0, t) = 0 \text{ for all } t$$

$$V(S, t) \sim S \text{ as } S \rightarrow \infty$$

$$V(S, T) = \max(S - K, 0).$$

The last condition gives the value of the option at the time that the option matures. The solution of the PDE gives the value of the option at any earlier time. In order to solve the PDE we transform the equation into a diffusion equation which may be solved using standard methods. To this end, we introduce the change-of-variable transformation.

$$\chi = \ln(S/K) + (r - \frac{1}{2}\sigma^2)t$$

$$T = T - t$$

$$\mu = e^{r(T-t)}$$

Then the Black-Scholes PDE becomes a diffusion equation

$$\frac{\partial \mu}{\partial T} = \frac{\sigma^2}{2} \frac{\partial^2 \mu}{\partial \chi^2}$$

The terminal condition $V(S, T) = \max(S - K, 0)$ now becomes an initial condition

$$\mu(\chi, 0) = \mu_0(\chi) = K \max(e^\chi - 1, 0)$$

Using the standard method for solving a diffusion equation, we have

$$\mu(\chi, T) = \frac{1}{\sigma\sqrt{2\pi T}} \int_{-\infty}^{\infty} \mu_0(\gamma) e^{-(\chi-\gamma)^2/(2\sigma^2 T)} d\gamma.$$

After some algebra, we obtain

$$\mu(\chi, T) = Ke^{x + \sigma^2 T/2} \Phi(d_2)$$

where

$$d_1 = \frac{\chi + \sigma^2 T}{\sigma\sqrt{T}}$$

$$d_2 = \frac{\chi}{\sigma\sqrt{T}}$$

and Φ is the standard normal cumulative distribution function.

Substituting for u , x , and δ , we obtain the value of a call option in terms of the Black-Scholes parameters:

$$V(S, T) = S\Phi(d_1) - Ke^{-r(T-t)}\Phi(d_2)$$

where

$$d_1 = \frac{\ln(S/K) + (r + \sigma^2/2)(T-t)}{\sigma\sqrt{T-t}}$$

$$d_2 = d_1 - \sigma\sqrt{T-t}$$

The formula for the price of a put option follows from this via put-call parity.

Remarks on Notation

The reader is warned of the inconsistent notation that appears in this article. Thus the letter S is used as:

1. a constant denoting the current price of the stock
2. a real variable denoting the price at an arbitrary time
3. a random variable denoting the price at maturity
4. a stochastic process denoting the price at an arbitrary time

It is also used in the meaning of (4) with a subscript denoting time, but here the subscript is merely a mnemonic.

In the partial derivatives, the letters in the numerators and denominators are, of course, real variables, and the partial derivatives themselves are, initially, real functions of real variables. But after the substitution of a stochastic process for one of the arguments, they become stochastic processes.

15.3 Summary:

The Black–Scholes PDE is, initially, a statement about the stochastic process S , but when S is reinterpreted as a real variable, it becomes an ordinary PDE. It is only then that we can ask about its solution.

The parameter u that appears in the discrete-dividend model and the elementary derivation is not the same as the parameter i that appears elsewhere in the article. For the relationship between them, see Geometric Brownian motion.

15.4 Self Assessment Questions:

1. Briefly explain the process involved in the Black-scholes model.
2. What are the various formulas used in the Black-scholes model?

Derivatives Market in India

Apart from traditional markets, two more markets are emerging, namely the derivatives markets has come into being recently and the bank assurance market, which is likely to emerge in an important way once banks start undertaking insurance business derivatives in the Indian financial markets are of recent origin barring trade related forward contracts in the forex market. Futures markets in the commodity segment however, have existed for a long time. Recently over the counter (OTC) as well as exchange traded derivatives have been introduced marking an important development in the structure of financial market in India. Forward contracts in the forex market have also been liberalised. Exchange traded derivatives tend to be more standardized and offer greater liquidity than OTC contracts, which are negotiated between counterparties and tailored to meet the needs of the parties to the contract. Exchange traded derivatives also offer centralised limits upon individual positions and formal rules for risk and burden sharing.

In India, OTC derivatives, viz., interest Rate Swaps (IRS) and Forward Rate Agreements (FRAs) were introduced in July 1999, while one exchange traded derivatives, viz., stock index futures was introduced by the two largest stock exchanges in June 2000. The FRA is an off-balance sheet contract between two parties under which one party agrees on the start date (or trade date) that on a specified future date (the settlement date) that party, viz., the party that agrees, would lodge a notional deposit with the other for a specified sum of money for a specified period of time (the FRA period) at a specified rate of interest (the contract rate). The party that has agreed to make the notional deposit has, thus, sold the FRA to the other party who has bought it. The IRS is a contract between two counterparties for exchanging interest payment for a specified period based on a notional principal amount. The notional principal is used to calculate interest payment but is not exchanged. Only interest payment are exchanged. The IRS and FRA were introduced with a view to deepening the money market as also to enable banks, primarily dealers and financial institutions. In the Indian market, accounting for nearly all of the 928 outstanding deals, amounting to Rs. 12620 crore of notional principal as on November 17, 2000. The overnight call money rates and the forex forward rates have emerged as the most popular benchmark rates.

A resident of India who has borrowed foreign exchange in accordance with the FEMA, may enter into an interest rate swap or currency swap or coupon swap or foreign currency option or interest rate cap/ collar or forward rate agreement (FRA) contracts in an authorized dealer (AD) in India or with a branch outside India or with a branch outside Indian of an authorized dealer for hedging his loan exposure and unwinding from such hedges provided that (i) the contract does not involve rupee, (ii) foreign currency borrowing has been duly approved, (iii) the notional principal amount of the hedge does not exceed the unexpired maturity of the underlying loan, and (iv) the maturity of the hedge does not exceed the unexpired maturity of the underlying loan, AD in India non resident Indians and overseas corporate bodies could take forward cover with an AD to hedge (i) dividend due on shares held in India, (ii) balance in FCNR (B) and NR (E) A, and (iii) the amount of investment made under portfolio scheme. The reserve bank may also consider allowing residents

to hedge their commodity price risk (including gold but excluding oil and petroleum products) subjects to certain conditions.

Forward contracts market has emerged as an important segment of the forex market in India in the recent years, Authorized dealers (Ads) and the reserve bank. Of late FIIs have emerged as major participants in this segment. The market operated from major centers with Mumbai accounting for bulk of the transactions. Till February 1992 forward contracts were permitted only against trade related exposures and these contracts could not be cancelled except where the underlying transactions failed to materialize. In March 1992, in order to provide operational freedom to corporate entities, unrestricted booking and cancellation of forward contracts for all genuine exposures, whether trade related or not were permitted. At present, the forwards contracts markets in active up to six months where two-way quotes are available. The maturity profile has recently elongated with, quotes available up to 10 one year. With the gradual opening up of the capital account, forward premium is now increasingly getting aligned with the interest rate differential. Importers and exporters also influence the forward market in many ways. Besides, banks are allowed to grant foreign currency loans out of FCNR(B) liabilities and this too facilitated integration of the forex and the money markets affecting the forward premium.

The most development concerning the secondary segment of the Indian capital market is the introduction of derivatives trading in June 2000. SEBI approved derivatives trading based on future contracts at both BSE and NSE in accordance with the rule/bye laws and regulations of the stock exchanges. A beginning with equity derivatives has been with the introduction of stock index futures by BSE and NSE stock index futures contracts allows for the buying and selling of the particular stock index for a specified price at a specified future date. Stock index futures, *inter alia*, help in overcoming the problem of asymmetries in information information asymmetry is mainly a problem in individual stock as it is unlikely that a trader has market wide private information, as such the asymmetric information component is not likely to be present in a basket of stock. This provided another rationale for trading in stock index with trading in underlying individual stocks comprising 30 scrips the NSE introduced Stock Index Futures for S&P CNX Nifty comprising 50 scrips. Stock index futures in India are available with one month, two month and three month maturities. While derivatives trading based on the sensitive index, (Sensex) commences at the NSE on June 12, 2000. SIF is the first attempt in the development of derivatives trading. All the open positions in the index contracts are settled daily. Both buyer and seller are required to deposit initial margin with the stock exchange. The value of the contracts is marketed to market on a daily basis and settlement is made in cash. In order to facilitate effective risk management in the derivative segment, measures like minimum net worth requirement of brokers, margining system based on value at risk model, position limit for various participants and mechanism for collection/enforcement of margins have been put in place. It is also proposed to introduce stock index options in the near future. Till November 8, 2000, both the stock exchange had recorded a cumulative combined turnover of Rs. 1,210 crore. To effectively manage risk in the derivative segment, adequate risk containing measure have been put in place. They include specifying minimum networth requirement of brokers and its composition, margining system based on 99 per cent Value at Risk (VaR) model, position limit for various participants and guidelines for collection and enforcement of margins. Another equity derivative product in the equity market, viz., stock index options is likely to be introduced shortly. Contrary to international experience, the volumes have been low in the Indian derivatives market. SEBI's Technical group on new derivative product has recently examined this issue and made the following recommendations:

- In order to generate volumes, the system of sub-brokers be used for trading in derivatives market.
- In order to facilitate free arbitrage between cash and derivative market, financial institutions and mutual funds may be permitted to short sell in the cash market such short sale may however. Be restricted to the extent of corresponding exposure in the derivative market. Moreover such transactions can also be permitted through a separate dedicated fund.
- Arbitrage between cash and future, market will also help in better price discovery in both the market.

RBI has allowed FIIs to trade in derivatives market, subject to the condition that the overall open position of the FII shall not exceed 100 per cent of market value of the concerned FIIs total investment. Managed future funds should be permitted to take position in the derivatives market without having any exposure in the cash market. In addition, FII intending to invest funds in the cash market should also be permitted to take long position in the futures market to hedge their transactions,

SEBI and RBI should jointly examine the issues concerning trading in derivatives by FIs and FIIs.

In developing countries one important character of insurance business and of long-term life insurance in particular is that insurance policies are generally in condition of risk coverage and savings. The savings components in the insurance policies is seen as a possible source of competition of the banking industry, as the insurance industry develops on a competition for the banking industry as the insurance industry develops on a competitive basis. There are however other considerations that point to the possible complementarities and synergies between the insurance and banking business.

The most important source of complementary arises due to the critical role that banks could play in distributing and marketing insurance products. So far, direct branch network LIC, GIC and its subsidiaries together with their agents have been instrumental in marketing of insurance products in India with further simplification of insurance products. However, the vast branch network and the depositor base of commercial bank are expected to play an important role in marketing insurance products over the counter. The eagerness on the part of several banks and NBFCs to enter into insurance business following the opening up of the industry to private participation reflects this emerging process.

The present interest of banks to enter into insurance business also mirrors the global trend. In Europe, the synergy between banking and insurance has given rise to the concept of 'bascassurance'- a package of financial services that can fulfill both banking and insurance needs. In France, for example, over half of the insurance products are sold through banks. In the US, banks lease space to insurers and retail products of multiple insurers, in the way the shops sell products. The institutional framework within which this functional overleaps taking place has been varied-floatation of separate insurance companies by banks buying stakes in existing insurance companies and swaps of shares and mergers. Insurance companies have also sought to acquire stakes in some banks.

In India the reserve bank in recognition of the symbiotic relationship between banking and the insurance industries has identified three routes of banks participation in the insurance business, viz., (i) providing fee-based insurance services without risk participation, (ii) investing in an insurance

company for providing infrastructure and services support, and (iii) setting up of separate joint venture insurance company with risk participation. The third route due to its risk aspects, involves compliance to stringent entry norms. Further, the bank has to maintain an arms length relationship between with risk participation the prescribed entity also enables to avoid possible regulatory overlaps between the reserve bank and the government/IRDA. The joint regulatory overlaps between the reserve bank and the government/IRDA. The joint venture insurance company would be subjected entirely to the IRDA/Government regulations.

Besides commercial banks rural co-operative credit institutions are also envisaged as an important vehicle for distributing insurance products in under served rural areas. The task force to study the co-operative credit system and suggest measures for its strengthening noted that this could have the attendant benefit of portfolio diversification for these institutions.

Self-Assessment Question:

1. Discuss the growth of financial derivatives in the global financial markets?.