

MASTER OF BUSINESS ADMINISTRATION

FM - 304

**SECURITY ANALYSIS &
INVESTMENT MANAGEMENT**



Directorate of Distance Education
Guru Jambheshwar University of
Science and Technology
HISAR - 125001

CONTENTS

Lesson No.	Title	Author	Vetter	Page No.
1.	Introduction to Security Analysis	Dr. B.S. Bodla	Dr. Karam Pal	3
2.	Risk and Return Concepts	Dr. B.S. Bodla	Prof. M.S. Turan	33
3.	New Issue Market (NIM)	Ashish Garg	Dr. Pardeep Gupta	55
4.	Stock Exchanges in India - Operations	Dr. B.S. Bodla	Dr. Karam Pal	88
5.	Listing of Securities	Dr. B.S. Bodla	Prof. M.S. Turan	134
6.	Stock Brokers and Other Intermediaries	Ashish Garg	Dr. Pardeep Gupta	155
7.	Stock Market Indices	Ashish Garg	Dr. B.S. Bodla	189
8.	Investment Alternatives	Dr. B.S. Bodla	Prof. M.S. Turan	212
9.	Government Securities	Dr. B.S. Bodla	Dr. Karam Pal	243
10.	Valuation of Fixed Income Securities or valuation of Bonds	Ashish Garg	Dr. B.S. Bodla	292
11.	Valuation of Variable Income Securities or Equity Share Valuation	Ashish Garg	Dr. B.S. Bodla	327
12.	Fundamental Analysis - I	Ms. Richa Verma	Dr. Karam Pal	355
13.	Fundamental Analysis - II	Ms. Richa Verma	Dr. Karam Pal	380
14.	Technical Analysis	Ms. Kiran Jindal	Dr. B.S. Bodla	400
15.	Efficient Market Hypothesis	Dr. B.S. Bodla	Dr. Karam Pal	422
16.	Portfolio Construction	Ashish Garg	Dr. B.S. Bodla	451
17.	Securities and Exchange Board of India (SEBI)	Ashish Garg	Dr. B.S. Bodla	482

Note : The study material has been converted into SIM format by Dr. Sanjay Tiwari, Asstt. Prof. and Course coordinator, Management Programmes, DDE, G.J.U.S.T., HISAR

Subject Code : FM 304

Author : Prof. B.S. Bodla

Lesson No. : 1

Vettor : Dr. Karam Pal

INTRODUCTION TO SECURITY ANALYSIS

Structure

- 1.0. Objectives
- 1.1. Introduction
- 1.2. Investments: Meaning, types and characteristics
- 1.3. Objectives of investments
- 1.4. Types of investors
- 1.5. Investment vs speculation
- 1.6. Investment vs gambling
- 1.7. Meaning of security analysis
- 1.8. Meaning of portfolio management
- 1.9. Financial assets
- 1.10. Financial markets
- 1.11. Summary
- 1.12. Key Words
- 1.13. Self Assessment Questions
- 1.14. Suggested readings/References

1.0 Objectives

After going through this lesson the learner will be able to:

- Define investments and their types
- Describe meaning and objectives of portfolio management and financial assets and markets.

1.1. Introduction

Security analysis is a pre-requisite for making investments. In the present day financial markets, investment has become complicated. One makes investments for a return higher than what he can get by keeping the money in a commercial or cooperative bank or even in an investment bank. In the finance field, it is a common knowledge that money or finance is scarce and that investors try to maximise their return. But the finance theory states that the return is higher, if the risk is also higher. Return and risk go together and they have a trade off. Most of the investments are risky to some degree. The art of investment is to see that the return is maximised with the minimum of risk, which is inherent in investments. If the investor keeps his money in a bank in savings account, he takes the least risk, as the money is safe and he will get back when he wants it. But he runs the risk that the return in real terms, adjusted for inflation is negative or small and even if positive, it may not come up to his expectations or needs.

In the above discussion, we concentrated on the word 'Investment'. But for making investment, we need to make security analysis. It then becomes necessary to define properly investment and security analysis at the outset.

1.2. Investments: meaning, types and characteristics

Financial markets have the basic function of mobilising the investments needed by corporate entities. They also act as market-places for investors who are attracted by the returns offered by the investment opportunities in the market. In this context there is a need to understand the meaning of investment and the motives of investment.

Investment may be defined as an activity that commits funds in any financial/physical form in the present with an expectation of receiving additional return in the future. The expectation brings with it a probability that the quantum of return may vary from a minimum to a maximum. This possibility of variation in the actual return is known as investment risk. Thus every investment involves a return and risk.

Investment is an activity that is undertaken by those who have savings. Savings can be defined as the excess of income over expenditure. However, all savers need not be investors. For example, an individual who sets aside some money in a box for a birthday present is a saver, but cannot be considered an investor. On the other hand, an individual who opens a savings bank account and deposits some money regularly for a birthday present would be called an investor. The motive of savings does not make a saver an investor. However, expectations distinguish the investor from a saver. The saver who puts aside money in a box does not expect excess returns from the savings. However, the saver who opens a savings bank account expects a return from the bank and hence is differentiated as an investor. The expectation of return is hence an essential characteristic of investment.

An investor earns/expects to earn additional monetary value from the mode of investment that could be in the form of physical/financial assets. A bank deposit is a financial asset. The purchase of gold would be a physical asset. Investment activity is recognised when an asset is purchased with an intention to earn an expected fund flow or an appreciation in value.

An individual may have purchased a house with an expectation of price appreciation and may consider it as an investment. However, investment need not necessarily represent purchase of a physical asset. If a bank has advanced some money to a customer, the loan

can be considered as an investment for the bank. The loan instrument is expected to give back the money along with interest at a future date. The purchase of an insurance plan for its benefits such as protection against risk, tax benefits, and so on, indicates an expectation in the future and hence may be considered as an investment.

From the above examples it can be seen that investment involves employment of funds with the aim of achieving additional income or growth in value. The essential quality of an investment is that it involves the expectation of a reward. Investment, hence, involves the commitment of resources at present that have been saved in the hope that some benefits will accrue from them in the future.

1.2.1. Types of investments

Investments may be classified as financial investments or economic investments. In the financial sense, investment is the commitment of funds to derive future income in the form of interest, dividend, premium, pension benefits, or appreciation in the value of the initial investment. Hence, the purchase of shares, debentures, post office savings certificates, and insurance policies are all financial investments. Such investments generate financial assets. These activities are undertaken by anyone who desires a return and is willing to accept the risk from the financial instrument.

Economic investments are undertaken with an expectation of increasing the current economy's capital stock that consists of goods and services. Capital stock is used in the production of other goods and services desired by the society. Investment in this sense implies the expectation of formation of new and productive capital in the form of new constructions, plant and machinery, inventories, and so on. Such investments generate physical assets and also industrial

activity. These activities are undertaken by corporate entities that participate in the capital market.

Financial investments and economic investments are, however, related and dependent. The money invested in financial investments is ultimately converted into physical assets. Thus, all investments result in the acquisition of some asset, either financial or physical. In this sense, markets are also closely related to each other. Hence, the perfect financial market should reflect the progress pattern of the real market since, in reality, financial markets exist only as a support to the real market.

1.2.2. Characteristics of investment

The features of economic and financial investments can be summarised as return, risk, safety, and liquidity.

Return: All investments are characterised by the expectation of a return. In fact, investments are made with the primary objective of deriving a return. The expectation of a return may be from income (yield) as well as through capital appreciation. Capital appreciation is the difference between the sale price and the purchase price of the investment. The dividend or interest from the investment is the yield. Different types of investments promise different rates of return. The expectation of return from an investment depends upon the nature of investment, maturity period, market demand, and so on.

The purpose for which the investment is put to use influences, to a large extent, the expectation of return of the investors. Investment in high growth potential sectors would certainly increase such expectations.

The longer the maturity period, the longer is the duration for which the investor parts with the value of the investment. Hence, the investor would expect a higher return from such investments.

Risk: Risk is inherent in any investment. Risk may relate to loss of capital, delay in repayment of capital, non-payment of interest, or variability of returns. While some investments such as government securities and bank deposits are almost without risk, others are more risky. The risk of an investment is determined by the investment's maturity period repayment capacity, nature of return commitment, and so on.

The longer the maturity period, greater is the risk. When the expected time in which the investment has to be returned is a long duration, say 10 years, instead of five years, the uncertainty surrounding the return flow from the investment increases. This uncertainty leads to a higher risk level for the investment with longer maturity rather than on an investment with shorter maturity.

Safety: The safety of investment is identified with the certainty of return of capital without loss of money or time. Safety is another feature that an investor desires from investments. Every investor expects to get back the initial capital on maturity without loss and without delay. Investment safety is gauged through the reputation established by the borrower of funds. A highly reputed and successful corporate entity assures the investors of their initial capital. For example, investment is considered safe especially when it is made in securities issued by the government of a developed nation.

Liquidity: An investment that is easily saleable or marketable without loss of money and without loss of time is said to possess the characteristic of liquidity. Some investments such as deposits in unknown corporate entities, bank deposits, post office deposits, national savings certificate, and so on are not marketable. There is no well-established trading mechanism that helps the investors of these instruments to subsequently buy/sell them frequently from a market. Investment instruments such as preference shares and

debentures (listed on a stock exchange) are marketable. The extent of trading, however, depends on the demand and supply of such instruments in the market for the investors. Equity shares of companies listed on recognised stock exchanges are easily marketable. A well-developed secondary market for securities increases the liquidity of the instruments traded therein.

An investor tends to prefer maximisation of expected return, minimisation of risk, safety of funds, and liquidity of investments.

1.3. Objectives of investment

A prudent and consistent saving habit lets income earners to set aside a certain amount of current income for future consumption. Savings kept as cash do not result in an incremental return. Hence, savings are invested in assets with the desired risk-return characteristics. The main objective of an investment process is to minimise risk while simultaneously maximising the expected returns from the investment and assuring safety and liquidity of the invested assets.

Investors look for growth/increase in current wealth through investment opportunities. Given an investment environment, an investor's preference will be for investment opportunities that give the highest return. Investors desire to earn as large returns as possible but with the minimum of risk. Risk can also be stated as the probability that the actual return realised from an investment may be different from the expected return. Financial assets can be grouped into different classes of risk based on the return. Government securities constitute the low risk category as there is very little deviation from expectations and hence are riskless. Shares of corporate entities would form the high-risk category of financial assets as their returns depend on many uncontrollable factors. An investor

would be prepared to assume a higher risk only if the expected return is proportionately higher. Hence, there is a trade-off between risk and return.

The objective of safety and liquidity helps an investor to design a retirement plan. This is done to substantiate an investor's earnings beyond the employment tenure. With this in mind, the investor sets aside a part of the current income in growth/income-yielding assets that would give an assured return after a period of time.

Savings kept as idle cash do not become investments since it loses its value over time due to rise in prices. This rise in prices, or inflation, invariably erodes the value of money. Investments are, hence, made with the objective to provide a hedge or protection against inflation over the investment duration. This time value concept necessitates investors to choose asset types that will enable them to retain at least the cash value held at present over a future period. In effect, the real rate of return would be negative if the investment cannot earn a higher return than the inflation rate. For example, if inflation is at an average annual rate of 4 per cent, then the expected return from an investment should be above 4 per cent to help savings funds to flow into investment avenues. The objective of investment hence can be stated as giving an expected return from the asset that is higher than the prevalent inflation rate in the economy.

The third objective of investment is the utilisation of tax incentive schemes offered by the government. In order to foster investment habits, many economies offer incentives in the form of tax-saving schemes. Tax rates are applicable for a fiscal year; therefore, to cut down on immediate tax expenditures as investor would invest in tax-saving investment schemes offered by the government. This objective of the investor to reduce present tax payments and hence invest in tax-saving schemes can be considered as a short-term investment

objective. Tax-saving schemes also offer a marginal return to the investors. Based on the tax policies of the country, investment criteria could solely depend on this factor also.

1.4. Types of investors

Investors can be classified on the basis of their risk bearing capacity. Investors in the financial market have different attitudes towards risk and hence varying levels of risk-bearing capacity. Some investors are risk averse, while some may have an affinity for risk. The risk bearing capacity of an investor is a function of personal, economic, environmental, and situational factors such as income, family size, expenditure pattern, and age. A person with a higher income is assumed to have a higher risk-bearing capacity. Thus investor can be classified as risk seekers, risk avoiders, or risk bearers. A risk seeker is capable of assuming a higher risk while a risk avoider choose instruments that do not show much variation in returns. Risk bearers fall in between these two categories. They assume moderate levels of risk.

Investors can also be classified on the basis of groups as individuals or institutions. Individual investors operate alongside institutional investors in the investment market. However, their characteristics are different. Individual investors in any financial market are large in number, but in terms of value of investment they are comparatively smaller. Institutional investors, on the other hand, are organisations with surplus funds beyond immediate business needs or organisation whose business objective is investment. Mutual funds, investment companies, banking and non-banking companies, insurance corporations, and so on are organisations with large surplus funds to be invested in various profitable avenues. While these institutional investors are fewer in number compared to individual investors, their resources are much larger. Institutional investors engage professional

fund managers to carry out extensive analysis. Institutional investors and individual investors combine to make the investment market dynamic.

1.5. Investment vs. Speculation

Investment and speculation both involve the purchase of assets such as shares and securities, with an expectation of return. However, investment can be distinguished from speculation by risk bearing capacity, return expectations, and duration of trade.

The capacity to bear risk distinguishes an investor from a speculator. An investor prefers low risk investments, whereas a speculator is prepared to take higher risks for higher returns. Speculation focuses more on returns than safety, thereby encouraging frequent trading without any intention of owning the investment.

The speculator's motive is to achieve profits through price change, that is, capital gains are more important than the direct income from an investment. Thus, speculation is associated with buying low and selling high with the hope of making large capital gains. Investors are careful while selecting securities for trading. Investments, in most instances, expect an income in addition to the capital gains that may accrue when the securities are traded in the market.

Investment is long term in nature. An investor commits funds for a longer period in the expectation of holding period gains. However, a speculator trades frequently; hence, the holding period of securities is very short.

The identification of these distinctions helps to define the role of the investor and the speculator in the market. The investor can be said to be interested in a good rate of return on a consistent basis over a relatively longer duration. For this purpose the investor computes

the real worth of the security before investing in it. The speculator seeks very large returns from the market quickly. For a speculator, market expectations and price movements are the main factors influencing a buy or sell decision. Speculation, thus, is more risky than investment.

In any stock exchange, there are two main categories of speculators called the bulls and bears. A bull buys shares in the expectation of selling them at a higher price. When there is a bullish tendency in the market, share prices tend to go up since the demand for the shares is high. A bear sells shares in the expectation of a fall in price with the intention of buying the shares at a lower price at a future date. These bearish tendencies result in a fall in the price of shares.

A share market needs both investment and speculative activities. Speculative activity adds to the market liquidity. A wider distribution of shareholders makes it necessary for a market to exist.

1.6. Investment Vs Gambling

Investment can also to be distinguished from gambling. Examples of gambling are horse race, card games, lotteries, and so on. Gambling involves high risk not only for high returns but also for the associated excitement. Gambling is unplanned and unscientific, without the knowledge of the nature of the risk involved. It is surrounded by uncertainty and a gambling decision is taken on unfounded market tips and rumours. In gambling, artificial and unnecessary risks are created for increasing the returns.

Investment is an attempt to carefully plan, evaluate, and allocate funds to various investment outlets that offer safety of principal and expected returns over a long period of time. Hence, gambling is quite the opposite of investment even though the stock market has been euphemistically referred to as a “gambling den”.

1.7. Meaning of security analysis

Investment is commitment of funds in the expectation of some positive rate of return. These funds are to be used by another party, user of fund, for productive activity. It can be giving an advance or loan or contributing to the equity (ownership capital) or debt capital of a corporate or non-corporate business unit. In other words, investment means conversion of cash or money into a monetary asset or a claim on future money for a return. This return is for saving, parting with saving or liquidity and lastly for taking a risk involving the uncertainty about the actual return, time of waiting and cost of getting back funds, safety of funds, and risk of the variability of the return.

Investment in capital market is made in various financial instruments, which are all claims on money. These instruments may be of various categories with different characteristics. These are all called securities in the market parlance. In a legal sense also, the Securities Contracts Regulation Act, (1956) has defined the security as inclusive of shares, scrips, stocks, bonds, debentures or any other marketable securities of a like nature or of any debentures of a company or body corporate, the Government and semi-Government body etc. It includes all rights and interests in them including warrants, and loyalty coupons etc., issued by any of the bodies, organisations or the Government. The derivatives of securities and Security Index are also included as securities in the above definition in 1998.

In the strict sense of the word, a security is an instrument of promissory note or a method of borrowing or lending or a source of contributing to the funds needed by a corporate body or non-corporate body. Private security for example is also a security as it is a promissory note of an individual or firm and gives rise to a claim on money. But such private securities or even securities of private companies or promissory notes of individuals, partnerships or firms

to the extent that their marketability is poor or nil, are not part of the capital market and do not constitute part of the security analysis. In nutshell, securities are financial instruments that have been created to represent a legal obligation to pay a sum in future in return for the current receipt of value. Securities thus represent the cash equivalent received from another person.

Definition of security analysis: For making proper investment involving both risk and return, the investor has to make a study of the alternative avenues of investment– their risk and return characteristics and make proper projection or expectation of the risk and return of the alternative investments under consideration. He has to tune the expectations to his preferences of the risk and return for making a proper investment choice. *The process of analysing the individual securities and the market as a whole and estimating the risk and return expected from each of the investments with a view to identifying undervalued securities for buying and overvalued securities for selling is both an art and a science and this is what is called security analysis.*

Security Analysis in both traditional sense and modern sense involves the projection of future dividend, or earnings flows, forecast of the share price in the future and estimating the intrinsic value of a security based on the forecast of earnings or dividends. Thus, security analysis in traditional sense is essentially an analysis of the fundamental value of a share and its forecast for the future through the calculation of its intrinsic worth of the share.

Modern security analysis relies on the fundamental analysis of the security, leading to its intrinsic worth and also risk-return analysis depending on the variability of the returns, covariance, safety of funds and the projections of the future returns. If the security analysis is based on fundamental factors of the company, then the forecast of

the share price has to take into account inevitably the trends and the scenario in the economy, in the industry to which the company belongs and finally the strengths and weaknesses of the company itself- its management, promoters' track record, financial results, projections of expansion, diversification, tax planning etc. all these studies are only a part of the total security analysis that the investor should aim at.

1.8. Meaning of portfolio management

A combination of such securities with different risk-return characteristics will constitute the portfolio of the investor. Thus, a portfolio is a combination of various assets and/or instruments of investments. The combination may have different features of risk and return, separate from those of the components. The portfolio is also built up out of the wealth or income of the investor over a period of time, with a view to suit his risk or return preferences to that of the portfolio that he holds. The portfolio analysis is thus an analysis of the risk-return characteristics of individual securities in the portfolio and changes that may take place in combination with other securities due to interaction among themselves and impact of each one of them on others.

As referred earlier, portfolios are combinations of assets held by the investors. These combinations may be of various asset classes like equity and debt and of different issuers like Government bonds and corporate debt or of various instruments like discount bonds, warrants, debentures and Blue chip equity or scrip of emerging blue chip companies.

The traditional Portfolio Theory aims at the selection of such securities that would fit in well with the asset preferences, needs and choices of the investor. Thus, a retired executive invests in fixed income

securities for a regular and fixed return. A business executive or a young aggressive investor on the other hand invests in new and growing companies and in risky ventures. Modern Portfolio Theory postulates that maximisation of return and or minimisation of risk will yield optimal returns and the choice and attitudes of investors are only a starting point for investment decision and that rigorous risk return analysis is necessary for optimisation of returns.

In risk return analysis, the attitudes and preferences of investors are taken into account as also their risk-return trade off stemming from the analysis of individual securities. The return on portfolio is a weighted average of returns of the individual stocks; and the weights are proportional to each stock's percentage in the total portfolio. Besides the stocks when put together in a basket may not give a total risk which is the mathematical equivalent of total of risks of all the individual stocks, due to the simple reason that the risks of some stocks may be compensated by the risks of other stocks or vice versa. The risks of some stocks can also be accentuated by those of others in the portfolio. The modern portfolio theory states that the combined risk of a portfolio may be greater or lesser than the sum of the risks of the components of individual securities.

Portfolio analysis includes selection of securities, portfolio construction, revision of portfolio, evaluation and monitoring of the performance of the portfolio.

1.9. Financial assets

Conducive economic environment attracts investment, which in turn influences the development of the economy. One of the essential criteria for the assessment of economic development is the quality

and quantity of assets in a nation at a specific time. There are two broad types of assets: (1) real assets, (2) financial assets. Real assets comprise the physical and intangible items available to a society. Physical assets are used to generate activity and result in positive or negative contribution to the owner of the asset. Intangible assets also result in a positive or negative contribution to the owner, but are different in that they do not have a physical shape or form. Besides real assets, the economy is supported by another group of assets called financial assets. The major component of the financial assets is cash, also called money. Financial assets help the physical assets to generate activity. Some examples of financial assets besides cash are deposits, debt instruments, shares, and foreign currency reserves.

Assets in any economy can thus be broadly grouped into physical, financial, and tangible assets, based on their distinct characteristics. Physical assets can be classified into fixed assets and working capital assets, based on the length of their life. Fixed assets, such as land, building, machinery and other infrastructure facilities, are utilised by the society over a long period of time when compared with working capital assets. Movable/circulating capital assets are produced and consumed by the society within a financial year. Examples of movable/circulating capital assets include materials, merchandise, durable goods, jewellery (gold), and similar items. Intangible assets are goodwill, patents, copyrights, and royalties.

In a macro sense, financial assets are regulated by the government of a country. Financial assets smoothen the trade and transaction of an economy and give the society a standard measure of valuation. Money or cash is the basic financial asset created by the government

of an economy. The extent of flow of this financial asset has to be regulated in a country for the demand for and supply of funds to match the macro level, financial assets also represent the current/future value of physical and intangible assets. The current/future value of financial assets depends on the current/future return expectations from these financial instruments. All the financial assets in an economy represent a real asset either in the present context or in the context of the future. Their dependence on real assets requires the financial assets to be valued differently. The distinctive value determination of financial instruments also requires a specific market to patronise them.

Financial assets have specific properties that distinguish them from physical and intangible assets. These properties are monetary value, divisibility, convertibility, reversibility, liquidity, and cash flow.

1.10. Financial markets

A financial market is a place/system where financial instruments are exchanged. Such markets enhance the unique characteristics of the financial instruments. Financial markets can be classified on the basis of the nature of instruments exchanged in the economy. The instruments can be broadly divided into claim instruments and currency instruments. Claim instruments are subdivided into those that are fixed claims and those instruments that get a residual or equity claim. Fixed claim markets that have very short durations, that is, less than a year are traded in the money market while the fixed claims that have a maturity of more than a year and equity claim instruments are traded in the capital markets. Money markets are also referred to as a wholesale financial market while capital markets are referred to as retail markets since the size of the

transactions in the money market is quite large when compared to that in the capital markets. The trading of currency instruments among different countries is conducted through the foreign exchange market. The subdivisions of the major markets are shown in Figure 1.1.

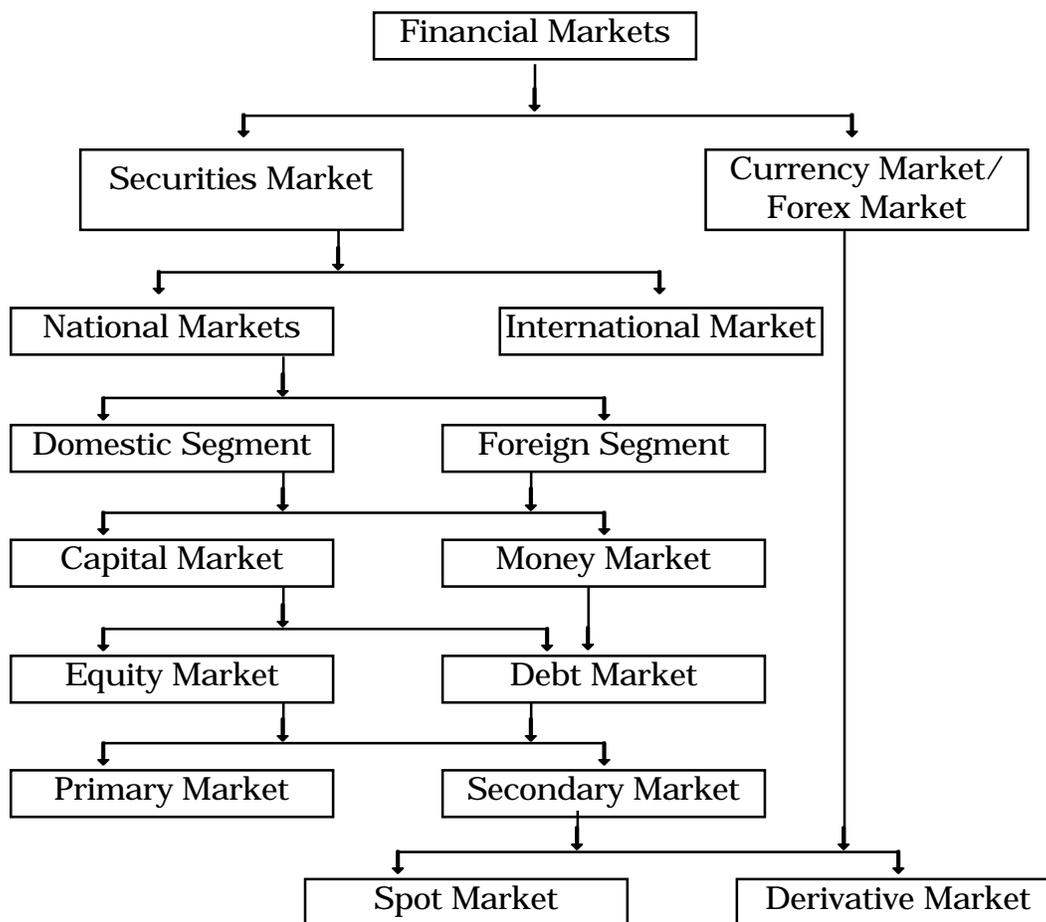


Figure 1.1. Financial markets

Securities market

Securities are financial instruments that have been created to represent a legal obligation to pay a sum in future in return for the current receipt of value. Securities thus represent the cash or cash equivalent received from another person. The creation of a security

is situation and need specific, and many innovative instruments have been floated in the market. The existence of such financial instruments is, however, within the legal regulations governing the market in which they are floated. The securities market, hence, is place-sensitive. The immediate classification of the securities market can be in terms of national boundaries due to the legal environment. The securities market can be subdivided into national and international markets. However, with technological innovations, international agreements and standards, the line distinguishing a national from an international market is fast disappearing.

National market

National markets are markets within the boundary of a nation. National markets cater to the financial requirements of the local players. Players from foreign countries are permitted to bring their financial instruments into the national market, subject to their following the rules and regulations imposed by the nation. There are vast differences in the rules and regulations of the securities market among nations. Each nation has a regulatory authority under whose scrutiny financial instruments are exchanged in that country. The regulatory authority imposes the overall procedure and guidelines to be followed by the players in the national market. National markets sometimes make a difference between pure domestic players and the participation of international players. Hence, there can be a further subdivision of the national market into a domestic segment and a foreign segment.

International market

International markets are usually referred to as offshore markets. Certain national markets, due to their policy regulations, do not discriminate between the securities issued in its country vis-à-vis

other countries. A precise example of an international market is the Euromarket, where the representation of several countries is viewed together. A firm in any one member nation in the European subcontinent could list its securities simultaneously in other countries of the European Union. For example, firm with its headquarters in France, could simultaneously trade its securities in France, Spain, and Germany. This concept of opening the national market to other group countries came to be known as international market.

Domestic segment

The domestic market caters exclusively to firms registered in a country. The country's regulatory authority controls the domestic market. In India, the Reserve Bank of India along with the Securities Exchange Board of India (SEBI) regulates the functioning of the money market and the capital market, the two types of markets within the umbrella of the domestic market. Based on the economic performance of the country, the domestic markets are also called advanced markets and emerging markets. Advanced markets are usually markets in nations that are economically sound and have also progressed technologically. The US and UK markets are termed as advanced markets. Emerging markets are those in developing nations whose economic progress is forward looking. The Indian market is termed as an emerging market. The domestic markets can be further subdivided into money market and capital market.

Money market

Short-term debt markets are known as money markets. Debt is a fixed income security and represents the borrowing of a market player. Money markets are mostly wholesale markets for financial instruments. Small values are not exchanged in the money market. The minimum value that is exchanged in the Indian money market,

for instance, is Rs. 1 million. The large quantum of trade essentially limits the players in the money market to institutional investors such as banks, other financial institutions, government, and large business firms. Here, the players exchange surplus funds at the prevailing interest rates (call rates) for a short duration. The duration could be a day, a week, a month, six months, or a year. This duration indicates the maturity of the instrument. At the time of the issue of the money market instrument as well as at the time of maturity of the instrument, the account transfer of the initial amount along with the interest charges takes place between the players in the money market.

Money market has accommodated within its fold several types of trades. Accordingly, the money market can be differentiated into the call market, treasury bill market, inter-bank market, certificate of deposit market, repo market, commercial paper market, inter-corporate deposit market, and commercial bills market (Please refer lesson 8, section 8.4 for description).

Capital market

Capital markets exchange both long-term fixed claim securities and residual/equity claim securities. The main economic role of a capital market is to match players who have excess funds to players who are in need of funds. Capital markets also provide liquidity to financial instruments. In this exchange process, there is a valuation of the instruments done by the market for the specific risk assumed by the investors.

Risk is prevalent in the capital market since the market valuation process is subject to change. For example, deviation in return is one type of risk prevalent in the instruments traded in the capital market. Besides, the instruments could also have economic risk, liquidity risk, default risk, trading risk, and so on. There are two forms of

returns from instruments. One is the claim on the instrument; the other form of return is due to trade. The claim on the instrument could be fixed or residual. The return through claim is either nil or positive. While fixed claim instruments hardly show any variation in returns, residual claim instruments display fluctuating returns thus exposing the holders to greater risk.

The capital gain/loss in buying/selling the security is the trade return from the security. Given the risk-return characteristic of the capital market, the expectations of the market participants play a major role in the market price determination of the securities traded. This risk-return characteristic of the instruments necessitates a subdivision of the capital market into debt market and equity market.

Debt market

Financial instruments that have a fixed income claim and have a maturity of more than one year are traded in the debt market. Debentures or bonds are examples of debt instruments in the capital market.

Debt instruments may have several distinguishing features. They can be secured or unsecured debt. A secured debt has assets to fall back on while an unsecured debt is subject to more risk. Since an unsecured debt does not have an asset backing, the repayment risk is more. Mortgaged debt refers to a mortgage lien on a group of assets or on a specific asset category. Such a debt is also a secured debt.

Debt can also be categorised as redeemable debt or irredeemable debt. Based on the redemption (repayment) characteristic, it will be stated at the time of issue itself whether the debt will be repaid at maturity. Unless otherwise stated, all debt is usually redeemable debt. Irredeemable debt is a rollover debt, is renewed after maturity. Debt can also be classified as convertible debt or non-convertible

debt. Convertible debt implies that the original debt instrument would be converted into another financial instrument at the time of maturity. A non-convertible debt is repaid at the end of the maturity period.

Based on the type of claim on the instrument, debt can be classified as regular interest debt, flexi debt, and zero coupon debt. A debt will bear a fixed claim, which is usually the interest payment made by the issuer to the debt holder. The nominal fixed percentage of interest is specified at the time of issue and the instruments. A flexi debt has the characteristic of changing its interest rate with the prevailing economic environment. The flexible debt is usually associated with inter-bank offer rates. For example, LIBOR (London Inter-bank Offer Rate) is a popular base rate for flexi debt instruments. A zero coupon debt, on the other hand, does not pay regular interest, but issues a document at an offer price and repays the document with value additions that compensates for the regular income through the duration of debt. The debt market distinguishes fresh issues from the subsequent trading of the securities and hence can be further subdivided into primary and secondary markets.

Equity market

Equity instruments bestow ownership on the holder of the security. Equity hence implies ownership rights in the corporate entity that has issued the instruments to the public. The claim of the owners of these instruments is residual in nature, that is the owners will have a claim in the distribution of profits and not a fixed interest as in the case of debt instruments. The distribution of dividend out of the profits after payment to debt holders will be decided in the general body meeting of the corporate entity. Accordingly, the corporate will announce the dividend rates. Dividends can be annual or quarterly or extraordinary. Sometimes equity owners also claim additional returns from the firm in the form of bonus shares. Dividend can be

distributed either in the form of cash or as new shares.

Equity instruments can also be of several types. The most distinguishable types of equity are preference equity and common/ or ordinary equity. Preference equity has a preferential claim over dividend payment and/or payment of face value at the time of liquidation (closure) of a corporate. Sometimes a preferential equity may also have a claim for a minimum percentage of dividends when the corporate declares dividend. Common equity instruments do not have such preferential rights. The equity market is also subdivided into the primary market and secondary market.

Primary market

The primary market is the doorway for corporate enterprises to enter the capital market. The issues of new securities are offered to the public through the primary market. The issue is thus an open public offer to sell the securities. The sale is made at a value predetermined by the firm issuing the security. Sometimes a road show is conducted to feel the pulse of the public in fixing the value for a security. The securities have a face value, which is the denomination in which it is divided. For instance, an instrument could have a face value of Re 1, Rs. 5, Rs. 10, or Rs. 100 in India. This denomination determines the number of units of the security that are offered to the public. The price at which the security is offered to the public is the offer price of the instrument. This price could be equal to or greater or lesser than the face value. When the offer price is greater than the face value, the offer is said to be at a premium. When the offer price is less than the face value, the offer is at a discount. When the two prices are equal, the offer is at par.

Several intermediaries have sprung up to help corporate entities to offer their debt and equity instruments to the public. Merchant

bankers and underwriters are the major intermediaries who help to match the fund requirement of corporate entities with the surplus fund position of public. The public is represented by both individual investors and institutional investors. Sometimes, when the market is dominated by institutions, the market is said to be institutionalised. Once the offer process of the securities to the public is complete, the securities are listed in the markets. The corporate then has to comply with the specific regulations of each local market in which its securities are listed.

Secondary market

The secondary market refers to the exchange of securities that have been listed through the primary market. The price at which it is traded in the capital market is the market price of the instrument. It is the secondary market that offers tradability to the financial instruments. The number of financial instruments participating in the secondary market hence, cannot exceed the number of financial instruments recorded through the primary market. The secondary market also comes under the regulatory authorities of the market and the main role of the regulator in the secondary market is to safeguard the interest of players in the market. Both individuals and institutions can take part in the secondary market. Brokers and depositories are the main intermediaries in this market, who transact business on behalf of the investors. The brokers can appoint a network of sub-brokers to mobilise investors participation in the market. Depositories help in scripless trading by holding investor accounts in electronic media.

Over a period of time, the secondary market has grown in size and in terms of efficiency. The secondary market may be further sub-divided into the spot market and derivative market.

Spot market

Spot market denotes the current trading price of financial instruments. In the context of time, the spot market may range between one day, two days, or a week. The transactions in the spot market are settled immediately, that is, on the immediate settlement date. Each market specifies the type of settlement to be made— a rolling settlement or a fixed day settlement. The rolling settlement, according to the specific exchange, will be T+1, T+3, or T+5. A T+1 rolling settlement indicates that trading entered on day T will be settled for cash on day T + 1. On the other hand, the fixed day settlement will be on a specific day of a week, say the working Thursday or Friday of a week.

Derivative market

Unlike the spot market, the derivative market is a futures market. Trade takes place here with the intention to settle it at a later date. The derivative market has forward, futures, options, or other derivative instruments trading. Forward trade helps in the exchange of instruments in the future at prices or rates determined in the present. Forward contracts involve an obligation and are legally binding on the parties who have entered into a forward agreement. However, forward contracts have the disadvantage of inflexibility of timing. They are conducted on a one-to-one basis between parties who initially entered into the agreement. A forward contract cannot be surrendered or liquidated as easily as the other derivative instruments.

A future contract is an agreement by one participant to either buy or sell a financial instrument at a predetermined date in the future at a predetermined price. The basic function of the futures trade is to enable the market participants to hedge against the risk of adverse price movement/volatility in the market. A contract to buy, say, 100

shares of Ranbaxy Laboratories three months later, at Rs. 859.97 per share is a futures contract. The price at which the financial instrument is transferred at a later date (in this case, Rs. 859.97) is called the futures price. The time stated in the contract in which the contract will be enforced (three months hence) is called the delivery date/expiry date. Futures contracts are derivatives since they are based on financial instruments that are traded in the capital market.

Options are the other forms of derivatives that give the holder of the contract the choice to buy or sell a financial asset. Options can take the form of equity options or index options. Equity options such as Infosys call options may have a strike price of Rs. 3,900 at a premium of Rs. 190 with the expiry date of one month. The premium is the amount that is given to the writer of the contract for giving the buyer the right to sell the Infosys share at the future date for the agreed price.

Derivative instruments are called so because these financial instruments derive their value from the price of the underlying asset. These instruments are traded in a physical stock exchange through brokers. Derivative instruments are used to a large extent to reduce the risk in the underlying asset price.

1.11. Summary

Investment is commitment of funds in the expectation of some positive rate of return. Investment in capital market is made in various financial instruments, which are all claims on money. These instruments may be of various categories with different characteristics. These are all called securities in the market parlance. Modern security analysis relies on the fundamental analysis of the security, leading to its intrinsic worth and also risk-return analysis depending on the variability of the returns, covariance, safety of funds and the projections of the future returns.

A financial market is a place/system where the exchange of financial instruments takes place. Financial markets are broadly classified into money market and capital market. Capital market deals with both debt and equity instruments through the primary and secondary market segments. Money market, on the other hand, deals mostly in debt instruments of shorter duration. Another market existing in the financial structure of an economy is the forex market. This market enables the exchange of foreign currency.

1.12. Key Words:

Investment is defined as an activity that commits funds in any financial/physical form with an expectation of receiving some return in the future.

Risk is the probability of getting return. It is measured in terms of deviation between actual return and expected return.

Return is the outcome of an investment.

Portfolio is group of assets/securities where investment is made.

Derivative is the security which derives its value from the underlying asset.

Primary market is the market where the issues of new securities are offered to the public.

Bear is the person who sells shares in the expectation of a fall in price with the intention of buying the shares at a lower price at a future date.

Secondary market refers to the exchange of securities that have been listed through the primary market.

Bull is the person who buys shares in the expectation of selling them at a higher price.

Portfolio analysis includes selection of securities, portfolio construction, revision of portfolio, evaluation and monitoring of the performance of the portfolio

Convertible debt implies that the original debt instrument would be converted into another financial instrument at the time of maturity.

Money market deals mostly in financial instruments of shorter duration.

Spot market denotes the current trading price of financial instruments.

Future contract is an agreement by one participant to either buy or sell a financial instrument at a predetermined date in the future at a predetermined price.

LIBOR (London Inter-bank Offer Rate) is a popular base rate for flexi debt instruments.

Zero coupon debt does not pay regular interest, but issues a document at an offer price and repays the document with value additions that compensates for the regular income through the duration of debt.

1.13 Self-Assessment Questions

1. What do you understand by the term 'security analysis'? What is its objective?
2. Discuss the structure and function of financial markets.

3. Describe the characteristics of the security market.
4. Define investment. What are the characteristics of investment?
5. What are the motives for investment?
6. Distinguish between investment and speculation.

1.14.References/Suggested readings

1. M. Ranganathan and R. Madhumathi: Investment Analysis and Portfolio Management, Pearson Education, New Delhi.
2. Punithavathy Pandian: Security Analysis and Portfolio Management, Vikas Publishing House Pvt. Ltd., New Delhi.
3. Bharti V. Phathak: Indian Financial System, Pearson Education, Delhi.
4. Donald E. Fischer and Ronald J. Jordon: Security Analysis and Portfolio Management, PHI.
5. Prasanna Chandra: Investment Analysis and Portfolio Management, TMH, Delhi.

Subject Code : FM 304

Author : Prof. B.S. Bodla

Lesson No. : 2

Vettor : Prof. M.S. Turan

RISK AND RETURN CONCEPTS

Structure

- 2.0 Objectives
- 2.1. Introduction
- 2.2. Returns on financial assets
- 2.3. Risk in holding securities
- 2.4. Risk measurement
- 2.5. Capital asset pricing model
- 2.6. Security market line
- 2.7. Summary
- 2.8. Key words
- 2.9. Self Assessment Questions
- 2.10. Suggested readings/References

2.0 Objectives

After going through this lesson the learners will be able to:

- Describe meaning, components and computation of return and risk.
- Explain Capital Asset Pricing Model (CAPM).

2.1. Introduction

Investors have many motives for investing. Some investors invest in order to gain a sense of power or prestige. The control of corporate empires, thus, is an important motive. For most investors, however, the prime interest in investments is largely to earn a return on their money. However, selecting stocks exclusively on the basis of maximization of return is not enough. The most investors do not

place available funds into the one, two, or even three stocks promising the greatest returns suggests that other factors must be considered besides return in the selection process. Investors not only like return, they dislike risk.

To facilitate our job of analysing securities and portfolios within a return-risk context, we must begin with a clear understanding of what risk and return are, what creates them, and how these should be measured. In fact, we find the answer to the following two questions while taking investment decisions: (1) what securities should be held, and (2) how many rupees should be allocated to each. These decisions are normally made in two steps. First, estimates are made of the return and risk associated with available securities over a forward holding period. This step is known as security analysis. Second, return-risk estimates must be compared in order to decide how to allocate available funds among these securities on a continuing basis. This step comprises portfolio analysis, selection, and management. In fact, security analysis provides the necessary inputs for analysing and selecting portfolios. While sections 2.2 through 2.4 of this lesson cover return and risk analysis, sections 2.5 and 2.6 discuss CAPM.

2.2. Returns on financial assets

People want to maximize expected returns subject to their tolerance for risk. Return is the principal reward in the investment process, and it provides the basis to investors in comparing alternative investments. Measuring historical returns allows investors to assess how well they have done, and it plays a part in the estimation of future, unknown returns.

We often use two terms regarding return from investments, realized return and expected return. *Realized return* is after the fact return—return that was earned (or could have been earned). Realized return

is history. For example, a deposit of Rs. 5,00,000 in the Punjab National Bank on January 1 in a certificate of deposit at a stated annual interest rate of 5 percent will be worth Rs. 525000 one year later. The realized return for the year is Rs. 25000 or 5 percent.

Expected return is the return from an asset that investors anticipate they will earn over some future period. It is a predicted return, and it may or may not occur.

2.2.1. Components of return

Return on a financial asset, generally, consists of two components. The principal component of return is the periodic income on the investment, either in the form of interest or dividends. The second component is the change in the price of the asset— commonly called the capital gain or loss. This element of return is the difference between the purchase price and the price at which the asset can be or is sold. The price change may bring a gain or a loss as it may be in any side.

The income from an investment consists of one or more cash payments made at specified intervals of time. Interest payments on most bonds are paid either semi-annually or yearly, whereas dividends on common stocks are usually paid on yearly basis. The distinguishing feature of these payments is that they are paid in cash by the issuer to the holder of the asset.

We often use the term yield to express return. Yield refers to the income component in relation to some price for a security. For our purposes, the price that is relevant is the purchase price of the security. The yield on a Rs. 1,000 par value, 6 per cent coupon bond purchased for Rs. 950 is 6.31 per cent ($\text{Rs. } 1,000 \text{ par value, } 6 \text{ percent coupon bond purchased for Rs. } 950 \text{ is } 6.31 \text{ percent } (\text{Rs. } 60/\text{Rs. } 950)$). However, we need to remember that yield is not, for most purposes, the proper measure of return from a security. The capital gain or loss must also be considered.

Equation 2.1 is a conceptual statement for total return.

$$\text{Total return} = \text{Income} + \text{Price change (+/-)} \quad \dots(2.1)$$

Note that either component of return can be zero for a given security over any given time period. A bond purchased for Rs. 800 and held to maturity provides both type of income: interest payments and a price change. The purchase of a non-dividend-paying stock that is sold four months later produces either a capital gain or a capital loss, but no income.

Thus, a measure of return must consider both dividend/interest income and price change. Returns over time or from different securities can be measured and compared using the total return concept. The total return for a given holding period relates all the cash flows received by an investor during any designated time period to the amount of money invested in the asset. Total return is defined as

$$\text{Total return} = \frac{\text{Cash payments received} + \text{Price change over the period}}{\text{Purchase price of the asset}} \times 100$$
$$r = \frac{(P_t - P_{t-1}) + D}{P_{t-1}}$$

where, r = total return, P_t = price of an asset at time (t), P_{t-1} = price of an asset at time ($t-1$), D = dividend or interest income in simple terms.

Example: Jindal Steels share's price on June 10, 2004 is Rs. 900 (P_{t-1}) and the price on June 9, 2005 (P_t), is Rs. 950. Dividend received is Rs. 76 (D). Determine the rate of return.

Solution.

$$r = \frac{(P_t - P_{t-1}) + D}{P_{t-1}} \times 100$$
$$= \frac{(950 - 900) + 76}{900} \times 100$$
$$= \frac{50 + 76}{900} \times 100$$

$$\begin{aligned}
&= \frac{126}{900} \times 100 \\
&= 14\%
\end{aligned}$$

2.2.2. Calculation of average returns

The total return is an acceptable measure of return for a specified period of time. But we also need statistics to describe a series of returns. For example, investing in a particular stock for ten years or a different stock in each of ten years could result in 10 total returns, which must be described mathematically.

There are two generally used methods of calculating the average return, namely, the arithmetic average and geometric average. The statistics familiar to most people is the arithmetic average. The arithmetic average, customarily designated by the symbol $\bar{X} = \frac{\sum X}{n}$, or the sum of each of the values being considered divided by the total number of values.

Example: The return of stock A for four quarters is as follows:

Quarter-I = 10%; Quarter-II= 8%; Quarter-III= -4%; and Quarter IV= 20%. The average return is

$$\bar{X} = \frac{10 + 8 + (-4) + 20}{4} = 8.5\%$$

The arithmetic average return is appropriate as a measure of the central tendency of a number of returns calculated for a particular time, such as a year. However, when percentage changes in value over time are involved, the arithmetic mean of these changes can be misleading. For example, suppose an investor purchased a stock in Year 1 for Rs. 50 and it rose to Rs. 100 by year-end. This is a 100 percent return $[(100-50)/50]$. Then the stock went from Rs. 100 at the start of Year 2 to Rs. 50 at the end of that year. The return for

year 2 is -50 percent $[(50-100)/100]$. The arithmetic average return is 25 percent $[(+100-50)/2]$. But, realistically, if an investor bought a stock for Rs. 50 and held it two years and it was still at Rs. 50, clearly there is no return at all.

From the above it is obvious that an analyst should use a different average to describe accurately the true rate of return over multiple periods. The geometric average return measures compound, cumulative returns over time. It is used in investments to reflect the realized change in wealth over multiple periods.

The geometric average is defined as the n^{th} root of the product resulting from multiplying a series of returns together, as in Equation 2.2.

$$G = [(1 + r_1) (1 + r_2) \dots (1 + r_n)]^{1/n} - 1 \quad \dots (2.2)$$

where, r = total return, n = number of periods.

Return relative: On adding 1.0 to each return (r), we shall get a return relative. If the return for a period is 10 percent (.10), then the return relative is 1.10. The investor has received Rs. 1.10 relative to each Rs. 1 invested. If the return for a period is -15 percent (-.15) then the return relative is .85 (1-.15). Return relatives are used in calculating geometric average returns because negative total returns cannot be used in the math.

For our stock that started at Rs. 50, rose to Rs. 100, and then dropped to Rs. 50 over a two-year period, the geometric return would be calculated as follows:

$$\text{Return relative, Year 1} = 1.00 + 1.00 = 2.00$$

$$\text{Year 2} = -.50 + 1.00 = .50$$

$$\text{Geometric average (G)} = [(2.0) * (.5)]^{1/2} - 1$$

$$= [1.0]^{1/2} - 1$$

$$= 0.00$$

Here, we also need to note that the geometric average rate of return would be lower than the arithmetic average rate of return because it reflects compounding rather than simple averaging.

2.3. Risk in holding securities

Risk is generally associated with the possibility that realized returns of securities will be less than the returns that were expected. The source of such risk is the failure of dividends (interest) and/or the security's price to materialize as expected.

There are numerous forces that contribute to variations in return—price or dividend (interest). These forces are termed as elements of risk. Some factors are external to the firm and cannot be controlled. These factors affect large numbers of securities. *In investments, those forces that are uncontrollable, external, and broad in their effect are called sources of systematic risk.* Other forces are internal to the firm and are controllable to a large degree. The controllable, internal factors somewhat peculiar to industries and/or firms are referred to as sources of *unsystematic risk*.

That portion of total variability in return caused by factors affecting the prices of all securities is known as systematic risk. Economic, political, and sociological changes are sources of systematic risk. Their effect is to cause prices of nearly all individual common stocks and/or all individual bonds to move together in the same manner. For example, if the economy is moving toward inflation and corporate profits shift upward, stock prices may rise across a broad front. Nearly all stocks listed on the National Stock Exchange (NSE) move in the same direction as the S & P Nifty index of NSE. Studies have shown

that on the average, 50 percent of the variation in a stock's price can be explained by variation in the market index.

Conversely, the portion of total risk that is unique to a firm or industry is called unsystematic risk. Factors such as management capability, consumer preferences, and labour strikes cause unsystematic variability of returns in a firm. Unsystematic factors are largely independent of factors affecting securities markets in general. Because these factors affect one firm, they must be examined for each firm.

2.3.1. Sources of systematic risk

As discussed, the main constituents of systematic risk include- market risk, interest rate risk and purchasing power risk.

Market risk: The price of a stock may fluctuate widely within a short span of time even though earnings remain unchanged. The causes of this phenomenon are varied, but it is mainly due to a change in investors' attitudes towards equities in general, or toward certain types or groups of securities in particular. Variability in return on most common stocks that is due to basic sweeping changes in investor expectations is referred to as market risk.

The reaction of investors to tangible as well as intangible events causes market risk. Expectations of lower corporate profits in general may cause the larger body of common stocks to fall in price. Investors are expressing their judgement that too much is being paid for earnings in the light of anticipated events. The basis for the reaction is a set of real, tangible events- political, social, or economic.

Intangible events are related to market psychology. Market risk is usually touched off by a reaction to real events, but the emotional instability of investors acting collectively leads to a snowballing overreaction. The initial decline in the market can cause the fear of

loss to grip investors, and a kind of herd instinct builds as all investors make for the exit. These reactions to reactions frequently culminate in excessive selling, pushing prices down far out of line with fundamental value. With a trigger mechanism such as the threat of war, or an oil shortage, virtually all stocks are adversely affected.

Interest-rate risk: The risk of variations in future market values and the size of income, caused by fluctuations in the general level of interest rates is referred to as interest-rate risk. The basic cause of interest-rate risk lies in the fact that, as the rate of interest paid on Indian government securities rises or falls, the rates of return demanded on alternative investment vehicles, such as stocks and bonds issued in the private sector, rise or fall. In other words, as the cost of money changes for risk-free securities, the cost of money to risk-prone issuers will also change.

People normally regard government securities like treasury bills risk-free. The interest rates demanded on these securities are thought to approximate the “pure” rate of interest, or the cost of hiring money at no risk. Interest rates on gilts shift with changes in the supply and demand for government securities. For example, a large operating deficit experienced by the Indian government will require financing. Issuance of added amounts of Indian government securities will increase the available supply. Potential buyers of this new supply may be induced to buy only if interest rates are somewhat higher than those currently prevailing on outstanding issues. If rates on gilts advance from, say, 8 percent to 8¼ percent, investors holding outstanding issues that yield 8 percent will notice a decline in the price of their securities. Because the 8 percent rate is fixed by contract on these “old” gilts, a potential buyer would be able to realize the competitive 8¼ percent rate only if the current holder “marked down” the price. As the rate on gilts advances, they become relatively more attractive and other securities become less attractive. Consequently,

bond purchasers will buy governments instead of corporates. This will cause the price of corporates to fall and the rate on corporates to rise. Rising corporate bond rates will eventually cause preferred and inturn common stock prices to adjust downward as the chain reaction is felt throughout the system of security yields. Thus the direct effect of increases in the level of interest rates is to cause security prices to fall across a wide span of investment vehicles.

Also there are indirect effects on common stocks. First, lower or higher interest rates make the purchase of stocks on margin (using borrowed funds) more or less attractive. Higher interest rates, for example, may lead to lower stock prices because of a diminished demand for equities by speculators who use margin. Second, many firms, such as public utilities finance their operations quite heavily with borrowed funds. Others, such as financial institutions, are principally in the business of lending money. Advancing interest rates can bring higher earnings to lending institutions whose principal revenue source is interest received on loans. For these firms, higher earnings could lead to increased dividends and stock prices.

Purchasing-power risk: Purchasing-power risk refers to the uncertainty of the purchasing power of the money to be received. In simple terms, purchasing-power risk is the impact of inflation or deflation on an investment. When we think of investment as the postponement of consumption, we can see that when a person purchases a stock, he has foregone the opportunity to buy some goods or service for as long as he owns the stock. If, during the holding period, prices on desired goods and services rise, the investor actually loses purchasing power. Rising prices on goods and services are normally associated with what is referred to as inflation. Falling prices on goods and services are termed deflation. Both inflation and deflation are covered in the all-encompassing term purchasing-power risk. Generally, purchasing-power risk has come to be identified with

inflation (rising prices); the incidence of declining prices in most countries has been slight. The anticipated purchasing power changes manifest themselves on both bond and stocks.

2.3.2. Unsystematic risk

Market, purchasing-power, and interest-rate risks are the principal sources of systematic risk in securities; but we should also consider another important category of security risks— unsystematic risks. The portion of total risk that is unique or peculiar to a firm or an industry, above and beyond that affecting securities markets in general is called unsystematic risk. Factors such as management capability, consumer preferences, and labour strikes can cause unsystematic variability of returns for a company's stock.

Examples of unsystematic risks

(i) Business risk: Business risk relates to the variability of the sales, income, profits etc., which in turn depend on the market conditions for the product mix, input supplies, strength of competitors, etc. The business risk is sometimes external to the company due to changes in government policy or strategies of competitors or unforeseen market conditions. They may be internal due to fall in production, labour problems, raw material problems or inadequate supply of electricity etc. The internal business risk leads to fall in revenues and in profit of the company, but can be corrected by certain changes in the company's policies.

(ii) Financial Risk: This relates to the method of financing, adopted by the company; high leverage leading to larger debt servicing problems or short-term liquidity problems due to bad debts, delayed receivables and fall in current assets or rise in current liabilities. These problems could no doubt be solved, but they may lead to fluctuations in earnings, profits and dividends to share holders. Sometimes, if the

company runs into losses or reduced profits, these may lead to fall in returns to investors or negative returns. Proper financial planning and other financial adjustments can be used to correct this risk and as such it is controllable.

(iii) Default or insolvency risk: The borrower or issuer of securities may become insolvent or may default, or delay the payments due, such as interest instalments or principal repayments. The borrower's credit rating might have fallen suddenly and he became default prone and in its extreme form it may lead to insolvency or bankruptcies. In such cases, the investor may get no return or negative returns. An investment in a healthy company's share might turn out to be a waste paper, if within a short span, by the deliberate mistakes of Management or acts of God, the company became sick and its share price tumbled below its face value.

Other Risks

Besides the above described risks, there are many more risks, which can be listed, but in actual practice, they may vary in form, size and effect.

Some of such identifiable risks are the Political Risks, Management Risks and Liquidity Risks etc. Political risk may occur due to the changes in the government, or its policy shown in fiscal or budgetary aspects, changes in tax rates, imposition of controls or administrative regulations etc. Management risks arise due to errors or inefficiencies of management, causing losses to the company. Marketability liquidity risks involve loss of liquidity or loss of value in conversions from one asset to another say, from stocks to bonds, or vice versa. Such risks may arise due to some features of securities, such as callability; or lack of sinking fund or Debenture Redemption Reserve fund, for repayment of principal or due to conversion terms, attached to the security, which may go adverse to the investor.

All the above types of risks are of varying degrees, resulting in uncertainty or variability of return, loss of income, and capital losses, or erosion of real value of income and wealth of the investor. Normally the higher the risk taken, the higher is the return.

2.4. Risk measurement

Understanding the nature and types of risk is not adequate unless the investor or analyst is capable of measuring it in some quantitative terms. The quantitative expression of the risk of a stock would make it comparable with other stocks. However, the risk measurements cannot be considered fully accurate as it is caused by multiplicity of factors such as social, political, economic and managerial aspects.

Risk is measured by the variability of returns. The statistical tool often used to measure risk is the standard deviation. We know, standard deviation is a measure of the values of the variables around its mean or it is the square root of the sum of the squared deviations from the mean divided by the number of observations. This can be illustrated with an example.

Example: The following information is given about two companies Rani Limited and Raja Limited. Compute standard deviation of the returns of their shares

Rani Limited			Raja Limited		
Returns (r_i)	Probabilities (P_i)	$P_i r_i$	Returns (r_i)	Probabilities (P_i)	$P_i r_i$
5	0.10	0.50	5	0.05	0.25
7	0.20	1.40	7	0.15	1.05
9	0.30	2.70	9	0.20	1.80
11	0.25	2.75	10	0.40	4.00
13	0.15	1.95	11	0.20	2.20
		$\Sigma(r) =$ 9.30			$\Sigma(r) =$ 9.30

We may note from the above information the expected returns (means) are same in case of both the companies. The return of the Rani Ltd. ranges between 5 percent and 13 percent while that of Raja Ltd. ranges between 5 percent and 11 percent. The standard deviation and variance may be calculated as follows:

$$\text{S.D. } (\sigma) = \sqrt{\frac{N}{\sum_{i=1}^N P[r_i - E(r)]^2}}$$

$$\text{Variance } (\sigma^2) =$$

Rani Limited			Raja Limited		
$r_i - E(r)$	$[r_i - E(r)]^2$	$P[r_i - E(r)]^2$	$r_i - E(r)$	$[r_i - E(r)]^2$	$P[r_i - E(r)]^2$
-4.3	18.49	1.849	-4.3	18.49	0.925
-2.3	5.29	1.058	-2.3	5.29	0.794
-0.3	0.09	0.027	-0.3	0.09	0.018
1.7	2.89	0.723	0.7	0.49	0.196
3.7	13.69	2.054	1.7	2.89	0.578
		5.7105			2.51

For Rani Ltd.

$$\begin{aligned} \sigma &= \\ \sigma &= \\ &= 2.39 \end{aligned}$$

For Raja Ltd.

$$\begin{aligned} \sigma &= \\ \sigma &= \\ &= 1.58 \end{aligned}$$

The expected returns for both the companies under consideration

are same (i.e. 9.3%). But the variations in expected returns are different. The returns of Raja Ltd. are more stable than that of Rani Ltd. Hence, the share of the former is safer than the latter company.

The standard deviation is an absolute measure, which can be applied when the mean is the same. But the *coefficient of variation* is the relative measure of the degree of uncertainty.

Example: Torrent and company estimates the probability and the expected returns as returns for the five observations as follows:

Probability	0.1	0.2	0.4	0.2	0.1
Possible return	10%	5%	20%	35%	50%

(a) What are the expected values of return and standard deviation?

Ans. Expected return equation is

$$\begin{aligned}
 &= \sum_{i=1}^n R_i P_i \\
 &= .10 \times 0.1 + 0.05 \times 0.2 + 0.2 \times 0.4 + 0.35 \times 0.2 + 0.5 \times 0.1 \\
 &= 0.01 + 0.01 + 0.08 + 0.07 + 0.05 \\
 &= 22\%
 \end{aligned}$$

$$\sigma = \sqrt{\sum_{i=1}^N P(R_i - \bar{R})^2 P_i}$$

where $\bar{R} = 22$ from the above

$$\begin{aligned}
 &= [(.10 - .22)^2 \times 0.1 + (0.05 - .22)^2 \times 0.2 + (.20 - .22)^2 \times 0.4 \\
 &\quad + (.35 - .22)^2 \times 0.2 + (.50 - .22)^2 \times 0.1 \\
 &= .00144 + .00578 + .00016 + .00338 + .00784 = .01860
 \end{aligned}$$

$$\sigma = \sqrt{0.0186} = 0.1364 = 13.64\%$$

The concepts of variance, standard deviation, covariance and beta coefficients etc., are also used to explain the measure of risk. In the context of portfolio of assets, or investment in any assets risk is inherent in all such dealings. This risk primarily arises first out of

parting of your funds or loss of liquidity. Money lent or parted is always having an element of risk. This element is the same as the concept of total risk.

2.5. Capital Asset Pricing Model (CAPM)

CAPM uses the concept of Beta to link risk with return. Using CAPM, investors can assess the risk return trade off involved in any investment decision.

Beta is a measure of non-diversifiable risk (Systematic Risk). It shows how the price of a security responds to changes in market prices. The equation for calculation of Beta is

$$R_i = \alpha_i + \beta_i R_m + e_i$$

R_i = Estimated return on ith stock

α = Expected return when market return is zero (intercept)

β_i = Beta, a measure of stock's sensitivity to the market index

R_m = Return on market index

e_i = the error term

Using the Beta concept the Capital Asset Pricing Model will help to define the required return on a security. Normally the higher is the risk we take, the higher should be the return as otherwise we avoid risk. So, the higher the β , the higher should be the return. The equation for CAPM is

$$R_i = R_f + \beta_i (R_m - R_f)$$

R_i is the required return

R_f is the risk free return

R_m is the average market return

B_i is the measure of systematic risk which is non-diversifiable.

Presently, the risk free return is 6% as the Treasury Bill rate and market return is expected to vary with the β chosen. Let us take β as 1.2 and expected market return is 18%, then the return on the stock i is as follows:

$$\begin{aligned}R_i &= 6\% + 1.2 (18 - 6) \\ &= 0.06 + 1.2 (0.12) \\ &= 0.06 + .144 \\ &= 20.4\%\end{aligned}$$

If the investor is risk taker and chooses a Beta of 1.8, then the expected return will be higher as shown below.

$$\begin{aligned}R_i &= 6 + 1.8 (18-12) \\ &= .06 + 1.8 (.12) \\ &= .06 + .216 = .276 = 27.6\%\end{aligned}$$

2.6. Security Market Line (SML)

When the Capital Asset Pricing Model is drawn graphically, we get the S.M.L., which is shown in the chart below. If the investor wants to decide on an investment with an expected return he would know the level of risk he has to take or alternatively given the level of risk, he has preferred to take, he would know the expected return from this chart. The investor has to assess whether it is worth taking a level of risk, if he has a target return which involves that risk, as he is assumed to be generally risk averse. Thus, CAPM and SML help the investor in evaluating risk for a return, in making any investment

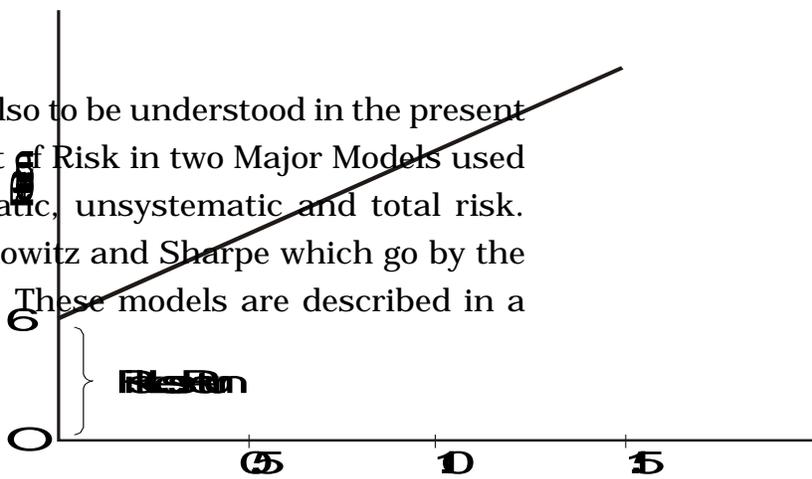
decision. The principle of the higher the risk, the higher is the return is embodied in this Model.

Concept of portfolio Models

Risks in relation to portfolios are also to be understood in the present discussion. Therefore, the concept of Risk in two Major Models used in valuation is related to systematic, unsystematic and total risk. The two models are those of Markowitz and Sharpe which go by the name of Modern Portfolio Theory. These models are described in a separate chapter.

2.7. Summary

The return on investments in financial assets takes the form of dividend and/or interest income and appreciation in the price of the asset held. The risk associated with holding common stocks is really the likelihood that expected returns will not materialize. If dividends or price appreciation fall short of expectations, the investor is



disappointed. The principal sources behind dividend and price-appreciation uncertainties are factors that are either controllable or not subject to control by the firm.

The sources of systematic risk, include market, interest-rate, and purchasing-power risks. Market risk reflects changes in investor attitudes toward equities in general that stem from tangible and intangible events. Interest-rate risk and purchasing-power risk are associated with changes in the price of money and other goods and services. Increases in interest rates cause the prices of all types of securities to be marked down. Rising prices of goods and services (inflation or purchasing-power changes) have an adverse effect on security prices because the postponement of consumption through any form of investment means less 'real' buying power in the future.

The major sources of unsystematic risk affecting the holding of common stocks are business risk and financial risk. Business risk refers to changes in the operating environment of the firm and how the firm adapts to them. Financial risk is related to the debt-and-equity mix of financing in the firm. Operating profits can be magnified up or down, depending upon the extent to which debt financing is employed and under what terms.

The various sources of risk in holding common stocks must be quantified so that the analyst can examine risk in relationship to measures of return. A reasonable surrogate of risk is the variability of return. This proxy measure in statistics is commonly the variance or standard deviation of the returns on a stock around the expected return.

Total risk of an investment consists of two components: diversifiable and non-diversifiable risk. The former risk can be almost entirely by holding a large enough mix of carefully selected securities. The only

risk an investor is compensated for taking is thus non-diversifiable risk. Beta measures this risk and can be used to determine the appropriate required return on a security. Conversely, the market risk is considered as non-diversifiable risk.

2.8 Key Words

Business risk relates to the variability of the business performance.

Systematic risk is the risk which is non-diversifiable.

Unsystematic risk is the risk which cannot be diversified.

Management risk arises due to inefficiency of management.

2.9. Self Assessment Questions

- Q1. How would you assess the return of financial assets? Explain with illustrations.
- Q2. Which average-Arithmetic mean or Geometric mean should be used for calculating average return on securities?
- Q3. Define risk and distinguish between systematic and unsystematic risk.
- Q4. Of those risks normally associated with the holding of securities,
 - (a) What three risks are commonly classified as systematic in nature?
 - (b) What risks are most prevalent in holding common stocks?
5. What are the statistical tools used to measure the risk of the securities return? Explain.
6. Discuss the principal sources of systematic and unsystematic risk.
7. Give an example using probabilities where two securities have equal expected returns but unequal variances or risk in returns.

8. Cite recent examples of political, social, or economic events (market risk) that have excited
 - (a) The stock market, and
 - (b) Stocks in a specific industry, to surge ahead or plummet sharply.
9. What is the significance of a characteristic line that has a negative slope ?
10. The shares of Sumit Ltd. were purchased for Rs. 50 on January 1. The stock paid dividends totalling Rs. 2 during ensuing year. At year-end, the stock was sold for Rs. 45. What was the total return on Sumit stock for the year?
11. Consult Value Line, Moody's, Standard and Poor's or other investment services to determine price and dividend data for Pepsi Co and Tootsie Roll Industries. If you had purchased each stock at the average of its high and low prices in 1990 and sold each stock at the average of its high and low prices in 1994, what rate of return would you have earned on each stock (before transactions costs and taxes)? Assume that dividends paid each year are collected in one payment at the end of the year.
12. A stock costing Rs. 100 pays no dividends. The possible prices that the stock might sell for at year-end and the probability of each are:

Year-end Price (Rs.)	Probability
90	.1
95	.2
100	.4
110	.2
115	.1

- a. What is the expected return on the stock?
- b. What is the standard deviation of the expected return?

13. Ms. Kiran has analysed a stock for a one-year holding period. The stock is currently selling for Rs. 10 but pays no dividends, and there is a fifty-fifty chance that the stock will sell for either Rs. 10 or Rs. 12 by year-end. What is the expected return and risk if 250 shares are acquired with 80 per cent margin? Assume the cost of borrowed funds is 10 per cent. (Ignore commissions and taxes).
14. Stocks A and B do not pay dividends. Stock A currently sells for Rs. 50 and B for Rs. 100. At the end of the year ahead there is a fifty-fifty chance that A will sell for either Rs. 61 or Rs. 57 and B for either Rs. 117 or Rs. 113. Which stock, A or B, would you prefer to purchase now? Why?

2.9. Suggested readings

1. B.F. King, "Market and Industry Factors in Stock Price Behaviour", *Journal of Business* (January 1996), pp. 139-90.
2. M. Ranganathan and R. Madhumathi: *Investment Analysis and Portfolio Management*, Pearson Education, New Delhi.
3. Punithavathy Pandian: *Security Analysis and Portfolio Management*, Vikas Publishing House Pvt. Ltd., New Delhi.
4. Bharti V. Phathak: *Indian Financial System*, Pearson Education, Delhi.
5. Donald E. Fischer and Ronald J. Jordon: *Security Analysis and Portfolio Management*, PHI.
6. Prasanna Chandra: *Investment Analysis and Portfolio Management*, TMH, Delhi.

Subject Code : FM 304

Author : Ashish Garg

Lesson No. : 3

Vettor : P.G. Gupta

NEW ISSUE MARKET (NIM)

Structure

- 3.0 Objectives
- 3.1. Introduction
- 3.2. Relationship between the primary and secondary market.
- 3.3. Difference between new issue market and secondary market
- 3.4. Functions of NIM
- 3.5. Participants in the NIM
- 3.6. Issue Mechanism
- 3.7. Pricing of new issues
- 3.8. Allotment of shares
- 3.9. Factors considered in selecting public issue
- 3.10. Investors Protection in the new issue market
- 3.11. Summary
- 3.12. Self Assessment Questions
- 3.13. Key Words
- 3.14. Suggested readings/References

3.0 Objectives

After going through this lesson the learners should be able to:

- Differentiate between New Issue Market and Secondary market
- Learn about participants in New Issue Market
- Describe methods to issue shares in new issue market;
- Explain principal ingredients of investors' protection.

3.1. Introduction

New Issue Market (NIM) comprises all people, institutions, methods/ mechanism, services and practices involved in raising fresh capital for both new and existing companies. This market is also called Primary Market. NIM helps raising resources from the investors by issuing them only new or fresh securities. Thus, NIM facilitates direct conversion of savings into corporate investment or diversion of resources from the rest of the system to the corporate sector. Primary market deals in only new securities i.e., which were not available previously. They are offered to the investors for the first time. The issuing houses, investment bankers, and brokers act as the channel of distribution for the new issues. On the other hand, secondary market or stock market or stock exchanges deal in existing securities, i.e., securities which have already been issued by companies and are listed with the stock exchanges.

3.2. Relationship between the primary and secondary market

1. The primary/new issue market cannot function without the secondary market. The secondary market or the stock market provides liquidity for the issued securities. The issued securities are traded in the secondary market offering liquidity to the stocks at a fair price.
2. The new issue market provides a direct link between the prospective investors and the company. By providing liquidity and safety, the stock markets encourage the public to subscribe to the new issues. The marketability and the capital appreciation provided in the stock market are the major factors that attract the investing public towards the stock market. Thus, it provides an indirect link between the savers and the company.

3. The stock exchanges through their listing requirements, exercise control over the primary market. The company seeking for listing on the respective stock exchange has to comply with all the rules and regulations given by the stock exchange.
4. Though the primary and secondary markets are complementary to each other, their functions and the organisational set up are different from each other. The health of the primary market depends on the secondary market and vice versa.

3.3. Differences between primary and secondary market

Following are the major points of difference between Primary and Secondary Markets:

Primary Market	Secondary Market
1. Market for new securities.	1. Market for existing securities.
2. No fixed geographical location.	2. Located at a fixed place.
3. Results in raising fresh resources for the corporate sector.	3. Facilitates transfer of securities from one corporate investor to another.
4. All companies participate into primary market.	4. Securities of only listed companies can be traded at Stock exchanges.
5. No tangible form or administrative set-up. Recognised only by the services it renders.	5. Has a definite administrative set-up and a tangible form.
6. Controlled by SEBI, Stock Exchanges and the Companies Act.	6. Subjected to control both from within and outside.

3.4. Functions of NIM

The main functions of the primary market are origination, underwriting and distribution. Origination deals with the origin of

the new issue. The proposal is analysed in terms of the nature of the security, the size of the issue, timing of the issue and floatation method of the issue. Underwriting contract makes the share predictable and removes the element of uncertainty in the subscription. Distribution refers to the sale of securities to the investors. This is carried out with the help of the lead managers and brokers to the issue.

Main functions of NIM are:

1. Facilitates transfer of resources from savers to entrepreneurs establishing new companies;
2. Helps raising resources for expansion and/or diversification of activities of existing companies;
3. Helps selling existing enterprises to the public as going concerns through conversion of existing proprietorship/partnership/private limited concerns into public limited companies.

In operational terms NIM performs above functions by providing three services: (1) origination, (2) underwriting, and (3) distribution. These triple-service functions are explained below:

1. Origination

Origination refers to the work of investigation, analysis and review, rendering relevant consultative services, authenticating and processing of new issue proposals by issue houses/merchant bankers/originators, who act as sponsors of issues. The origination services provided by these specialist agencies can be categorised into two:

- (a) The specialist agencies operating in the primary market investigate into technical, economic, financial, legal and environmental aspects of the present and/or proposed activities of the issuing company with a view to deciding whether (i) the

- issue house/merchant bank should back the issue and give the issue the stamp of respectability by associating with it; (ii) the company is well-founded and well-managed, (iii) has good market prospects, and (iv) will be listed on stock exchanges.
- (b) The sponsoring institutions render a number of advisory services with a view to improve the quality of capital issues. These services include:
- (i) deciding the type of securities and the security-mix to be issued, (ii) fixing the price/premium at which securities are to be issued; (iii) the size of the issue; (iv) the timing; (v) terms and conditions of the issue regarding conversion, redemption, etc.; (vi) methods of floatation; (vii) selling strategies, etc.

2. Underwriting

Origination do not guarantee that the issue will be successful, i.e., will get fully subscribed. In case the issue is not well received in the market, the plans of the company/promoters receive a setback and all expenses incurred in origination get wasted. To ensure success of an issue the company/promoters get the issue underwritten. Underwriter guarantees that he would buy the portion of issue not subscribed by the public. Such service is called underwriting and is always rendered for a commission. Under-writing guarantees success of the issue and benefits the issuing company, the investing public and capital market in general.

3. Distribution

The success of an issue mainly depends on its subscription by the investing public. Sale of securities to ultimate investors is called distribution. It is a specialised actively rendered by brokers, sub-brokers and dealers in securities. They maintain regular and direct

contact with the present and prospective ultimate investors. The ability of NIM to keep pace with the growing financial needs of the expanding corporate sector depends on the performance of triple-service function of origination, underwriting and distribution by various concerned institutions with efficiency, integrity and economy.

3.5. Parties involved in the new issue

As a student of investment management, one should know the number of agencies involved and their respective role in the public issue. The promoters also should have a clear idea about the agencies to coordinate their activities effectively in the public issue. The main agencies involved in the public issue are managers to the issue, registrars to the issue, underwriters, bankers, advertising agencies, financial institutions and government/statutory agencies.

Managers to the issue: Lead managers are appointed by the company to manage the public issue programmes. Their main duties are (a) drafting of prospectus (b) preparing the budget of expenses related to the issue (c) suggesting the appropriate timings of the public issue (d) assisting in marketing the public issue successfully (e) advising the company in the appointment of registrars to the issue, underwriters, brokers, bankers to the issue, advertising agents etc. and (f) directing the various agencies involved in the public issue.

There are many agencies which are performing the role of lead managers to the issue. The merchant banking division of the financial institutions, subsidiary of commercial banks, foreign banks, private sector banks and private agencies are available to act as lead managers. Some of them are SBI Capital Markets Ltd., Bank of Baroda, Canara Bank, DSP Financial Consultants Ltd., ICICI Securities and Finance Company Ltd., etc. The company negotiates with the prospective managers to its issue and settles its selection

and terms of appointment. Usually companies appoint lead managers with a successful background. There may be more than one manager to the issue. Some times the banks or financial institutions impose a condition while sanctioning term loan or underwriting assistance to be appointed as one of the lead managers to the issue. The fee payable to the lead managers is negotiable between the company and the lead manager. The fee agreed upon is revealed in the Memorandum of the Understanding filed along with the offer document.

Registrar to the issue: In consultation with the lead manager, the Registrar to the issue is appointed. Quotations containing the details of the various functions they would be performing and charges for them are called for selection. Among them the most suitable one is selected. It is always ensured that the registrar to the issue has the necessary infrastructure like computer, internet and telephone.

The Registrars to the issue normally receive the share application from various collection centres. They recommend the basis of allotment in consultation with the Regional Stock Exchange for approval. They arrange for the despatching of the share certificates. They handover the details of the share allocation and other related registers to the company. Usually registrars to the issue retain the issuer records atleast for a period of six months from the last date of despatch of letters of allotment to enable the investors to approach the registrars for redressal of their complaints.

Underwriters: Underwriter is a person/organisation who gives an assurance to the issuer to the effect that the former would subscribe to the securities offered in the event of non-subscription by the person to whom they were offered. They stand as back-up supporters and underwriting is done for a commission. Underwriting provides an insurance against the possibility of inadequate subscription. Some

of the underwriters are financial institutions, commercial banks, merchant bankers, members of the stock exchange, Export and Import Bank of India etc. The underwriters are exposed to the risk of non-subscription and for such risk exposure they are paid an underwriting commission.

When appointing an underwriter, the financial strength of the prospective underwriter is considered because he has to undertake the agreed non-subscribed portion of the public issue. The other aspects considered are (a) experience in the primary market (b) past underwriting performance and default (c) outstanding underwriting commitment (d) the network of investor clientele of the underwriter and (e) his overall reputation.

After the closure of subscription list, the company communicates in writing to the underwriter the total number of shares/debentures remaining unsubscribed, the number of shares/debentures required to be taken up by the underwriter. The underwriter would take the agreed portion. If the underwriter fails to pay, the company is free to allot the shares to others or take up proceeding against the underwriter to claim damages for any loss suffered by the company for his denial.

Bankers to the issue: The responsibility of collecting the application money along with the application form is on bankers to the issue. The bankers charge commission besides the brokerage, if any. Depending upon the size of the public issue more than one banker to the issue is appointed. When the size of the issue is large, three or four banks are appointed as bankers to the issue. The number of collection centres is specified by the central government. The bankers to the issue should have branches in the specified collection centres. In big or metropolitan cities more than one branch of the various bankers to the issue are designated as collecting branch for acceptance

of money. To create investment awareness in the minds of the people collecting branches are designated in the different towns of the state where the project is being set up. If the collection centres for application money are located nearby people are likely to invest the money in the company shares.

Advertising agents: Advertising a public issue is very essential for its promotion. Hence, the past track record of the advertising agency is studied carefully. Tentative programmes of each advertising agency along with the estimated cost are called for. After comparing the effectiveness and cost of each programme with the other, a suitable advertising agency is selected in consultation with the lead managers to the issue. The advertising agencies take the responsibility of giving publicity to the issue on the suitable media. The media may be newspapers/magazines/ hoardings/press release or a combination of all.

The financial institutions: The function of underwriting is generally performed by financial institutions. Therefore, normally they go through the draft of prospectus, study the proposed programme for public issue and approve them. IDBI, IFCI, ICICI, LIC, GIC and UTI are the some of the financial institutions that underwrite and give financial assistance. The lead manager sends copy of the draft prospectus to the financial institutions and include their comments, if any in the revised draft.

Regulatory bodies: The various regulatory bodies related with the public issue are:

1. Securities Exchange Board of India
2. Registrar of companies
3. Reserve Bank of India (if the project involves foreign investment)
4. Stock Exchanges where the issue is going to be listed
5. Industrial licensing authorities

6. Pollution control authorities (clearance for the project has to be stated in the prospectus)

Collection centres: There should be at least 20 mandatory collection centres inclusive of the places where stock exchanges are located. If the issue is not exceeding Rs. 10 cr (excluding premium if any) the mandatory collection centres are the four metropolitan centres viz. Mumbai, Delhi, Calcutta and Chennai and at all such centres where stock exchanges are located in the region in which the registered office of the company is situated.

In addition to the collection branch, authorised collection agents may also be appointed. The names and addresses of such agent should be given in the offer documents. The collection agents are permitted to collect such application money in the form of cheques, draft, stock invests and not in the form of cash. The application money so collected should be deposited in the special share application account with the designated scheduled bank either on the same day or latest by the next working day.

The bankers to the issue at different centres would forward the applications collected to the Registrar after realisation of the cheques, within a period of two weeks from the date of closure of the public issue. The applications accompanied by stock invests are sent directly to the Registrars to the issue along with the schedules within one week from the date of closure of the issue. The investors who reside in places other than mandatory and authorised centres, can send their application with stock invests to the Registrar to the issue directly by registered post with acknowledgement card.

3.6. Issue mechanism

New issues can be made in any of the following ways:

1. Public issue through prospectus,
2. Through offer for sale,
3. Through placement of securities— private placement and stock exchange placing,
4. Issue of bonus shares,
5. Book-building, and
6. Stock option.

Issue through prospectus

Application forms for shares of a company should be accompanied by a Memorandum (abridged prospectus). In simple terms a prospectus document gives details regarding the company and invites offers for subscription or purchase of any shares or debentures from the public. The draft prospectus has to be sent to the Regional Stock Exchange where the shares of the company are to be listed and also to all other stock exchanges where the shares are proposed to be listed. The stock exchange scrutinises the draft prospectus. After scrutiny if there is any clarification needed, the stock exchange writes to the company and also suggests modification if any. The prospectus should contain details regarding the statutory provisions for the issue, programme of public issue-opening, closing and earliest closing date of the issue, issue to be listed at, highlights and risk factors, capital structure, board of directors, registered office of the company, brokers to the issue, brief description of the issue, cost of the project, projected earnings and other such details. The board, lending financial institutions and the stock exchanges in which they are to be listed should approve the prospectus. Prospectus is distributed among the stock exchanges, brokers, underwriters, collecting branches of the bankers and to the lead managers. The salient features of the prospectus are as follows:

1. General Information
 - a. Name and address of the registered office of the company.
 - b. The name(s) of the stock exchange(s) where applications have been made for permission to deal in and for official quotations of shares/debentures.
 - c. Opening, closing and earliest closing dates of the issue.
 - d. Name and address of lead managers.
 - e. Name and address of Trustees under Debenture Trust Deed (in case of debenture issue).
 - f. Rating for debenture/preference shares, if any, obtained from CRISIL or any other recognised rating agency.
2. Capital structure of the company
 - a. Issued, subscribed and paid up capital.
 - b. Size of the present issue giving separately reservation for preferential allotment to promoters and others.
 - c. Paid up capital- (i) after the present issue, and (ii) after conversion of debentures (if applicable)
 - d. Details regarding the promoters' contribution.
3. Terms of the present issue
 - a. Authority for the issue, terms of payment, procedure and time schedule for allotment, issue of certificate and rights of the instrument holders.
 - b. How to apply- availability of forms, prospectus and mode of payment.
 - c. Special tax benefits to the company and shareholders under the Income Tax Act if any.
4. Particulars of the issue
 - a. Object of the issue
 - b. Project cost
 - c. Means of financing (including promoter's contribution)

5. Company, Management and Project
 - a. History, main objects and present business of the company.
 - b. Subsidiary(ies) of the company, if any.
 - c. Promoters and their background.
 - d. Names, address and occupation of managing directors and other directors including nominee directors and whole-time directors.
 - e. Location of the project.
 - f. Plant and machinery, technological process etc.
 - g. Collaboration, any performance guarantee or assistance in marketing by the collaborators.
 - h. Infrastructure facilities for raw materials and utilities like water, electricity etc.
 - i. Schedule of implementation of the project and progress so far, giving details of land acquisition, civil works, installation of plant and machinery, trial production, consumer production etc.
 - j. The product: (i) Nature of the products-consumer/ industrial and end users. (ii) Approach to marketing and proposed marketing set up. (iii) Export possibilities and export obligations, if any.
 - k. Future prospects- expected capacity utilisation during the first three years from the date of commencement of production and the expected year when the company would be able to earn cash profit and net profit.
 - l. Stock market data for shares, debentures of the company (high, low price in each of the last three years and monthly high, low during the last six months (where applicable).
6. Particulars regarding the other listed companies under the same management, which have made any capital issues during the last three years.

7. Details of the outstanding litigations pertaining to matters likely to affect the operations and finances of the company including disputed tax liabilities of any nature, any other default and criminal prosecution launched against the company etc.
8. Management perception of risk factors like sensitivity to foreign exchange rate fluctuations, difficulty in the availability of raw materials or in marketing of products, cost, time over-run etc.
9. Justification of the issue premium. The justification for price is given, taking into account the following parameters.
 - a. Performance of the company as reflected by earnings per share and book value of shares for the past five years.
 - b. Future projections in terms of EPS and book value of shares in the next three years.
 - c. Stock market data.
 - d. Net asset value as per the latest audited balance sheet.

If the projections are not based on the past data, appraisal made by a banker or financial institution should be specifically stated.

10. Financial information
 - a. Financial performance of the company for last five years should be given from the audited annual accounts in tabular form.
 - b. Balance sheet data: equity capital, reserves (revaluation reserve, the year of revaluation and its monetary effect on assets) and borrowings.
 - c. Profit and loss data: sales, gross profit, net profit, dividend paid if any.
 - d. Any change in the accounting policy during the last three years and its effect on the profit and reserves of the company.
11. Statutory and other information
 - a. Minimum subscription

- b. Details of the fee payable to Advisers, Registrar, Managers, Trustees of the debenture holders and underwriters.
- c. Details regarding the previous issues if any.

Advantage of public issue through prospectus

- (i) Entire issue process in terms of the amount of issue, the type and mix of issue, terms of issue, etc. appears transparent to the public and the concerned authorities.
- (ii) The company and its issue get full publicity.
- (iii) A major portion of the issue is allotted among the applicants on non-discriminatory basis.
- (iv) Issue gets widely distributed. Wide diffusion of ownership of securities helps reducing concentration of wealth and economic power.

Drawbacks of Public Issue through Prospectus

This mode of issue of securities is quite expensive as it involves the following types of costs:

- (a) Floatation costs, e.g., underwriting expenses, brokerage, etc.;
- (b) Administrative costs, e.g., cost of printing prospectus and other documents, related administration costs, postage and bank charges, etc.;
- (c) Publicity costs; and
- (d) Legal costs, e.g., stamp duty, registration fee, listing fee, mortgage deed registration fee, expenses relating to filling of documents, etc.

Due to these high costs the mode of public issue of securities through prospectus is adopted only for large issues.

Bought out deals (Offer for sale)

Under this method, the company does not directly offer its shares to the public, but through intermediaries, such as, issuing houses or a firm or firms of stock-brokers. A prospectus with prescribed minimum contents is distributed to applicants on a non-discriminatory basis. The issue is also underwritten to avoid the possibility of the issue largely remaining with the issue houses.

This method sells securities in two stages. In the first stage, the issuing company makes an en bloc sale of securities to the issue houses or stock brokers at an agreed fixed price. The second stage involves re-sale of these securities by issue houses or stock brokers to ultimate investors at a higher price. The difference between the sale and the purchase price of issue houses is called 'turn'. The issuing houses have to meet various expenses, such as, underwriting commission, prospectus cost, advertisement expenses, etc., out of this 'turn'; any leftover being their profit.

In this method, the issuing company is saved of the hassles involved in selling the shares to the public directly through prospectus. However, the method is expensive. Moreover, securities are sold to the investing public by issue houses at a higher price. The price difference is pocketed by these intermediaries and does not add to the resources of the issuing company.

Private placement of securities

Under this method the securities are acquired by the issuing houses directly from the issuing company at an agreed price, and then these are placed only with their investor-clients, both individual and institutional investors, at a higher price. The difference, i.e., turn, represents their remuneration out of which they bear various expenses relating to placement. In this case no underwriting is

required as issue houses guarantee cent per cent placement. However, sometimes, though rarely, issue houses may agree to arrange placement of shares for a fee. In this case they act only as an agent of the issuing company. Placing of unquoted securities is called private placing, and that of newly quoted securities is called stock exchange placing.

Advantages of private placement

Private placement of securities has a number of advantages:

- (i) Economy in issue expenses because the company has not to incur costs relating to underwriting commission, application and allotment of shares, publicity, etc.
- (ii) Stock exchange requirement concerning contents of prospectus and its publicity are less onerous in case of placing.
- (iii) Those shares which do not arouse public interest can be sold through placement.

Drawbacks of private placement

Private placement method suffers from certain weaknesses, which are:

- (i) Fear of issue getting concentrated in a few hands.
- (ii) Artificial scarcity of these securities may be created for increasing their prices temporarily, thus, misleading general public.
- (iii) Shares do not generate confidence in the minds of investing public.

Placement of securities suits the requirement of small companies. The method is also resorted to when stock market is dull and public response to the issue is doubtful.

Issue of bonus shares

Issue of bonus shares is merely a conversion of existing reserves and surpluses into share capital. It does not result in raising fresh capital. It represents just a book entry subject to certain rules and regulations. Total resources base of the company does not change due to issue of bonus shares. Moreover, such issue does not result in the entry of new investors.

The issue mechanism is considered keeping in view the resources at the command of the issuer, the size of the issue, the type of securities issued, market standing of the group and/or the company making the issue and the market sentiments at the time of issue.

Book-building

Book building is also a method of issue of shares based on floor price which is indicated before the opening of the bidding process. The issue price is fixed after the bid closing date. Under book-building scheme the issuer company does not directly issue shares to the public but invites bids from the merchant bankers to take up full responsibility for the issue. One of the lead merchant bankers to the issue is nominated by the issuer company as a Book Runner at an agreed price.

Book-building process is a relatively new option for issue of securities. The first guidelines for book-building were issued on October 12, 1995. Subsequently these guidelines were revised from time to time.

There is difference between offer of shares through book-building and through normal public issue. The price at which securities will be allotted is not known in case of offer of shares through book building, whereas in the case of offer of shares through normal public issue, the price is known in advance to investors. In case of book

building, the demand can be known everyday as the book is built. However, in case of a normal public issue, the demand is known only at the close of the issue.

Book-building process offers the following advantages:

- (i) It reduces the duration between allotment and listing.
- (ii) It also curtail the lengthy allotment procedure.
- (iii) Usually in a book-building process after the bids are received, it takes about five days to get the placement portion of the issue listed. This is far too less than the normal 70 days stipulated to get the issue listed on an exchange.
- (iv) There is a very little scope for manipulating the price before listing since the price is determined on the basis of the bids received.

Under the book-building method, share prices are determined on the basis of real demand for the shares at various price levels in the market. For discovering the price at which issue should be made, bids are invited from prospective investors from which their levels of demand at various price levels are noted. These bids could be quoted at a difference of rupee one. Book building process helps to discover the demand and the price of the shares. Moreover the costs of public issue are much reduced and also the time taken for completion of the entire process is much less.

The book-building process commences with the management of the company appointing book-runners who, in turn, select some syndicate members. A syndicate member should be member of National Stock Exchange (NSE) or Over the Counter Exchange of India (OTCEI). Investors approach syndicate members to get their demand registered indicating the number of shares demanded and the prices offered. The syndicate members register this information on line on computers. The information so registered gets stored in the main

frame of the computer which is accessible to the management of the company or the book-runner.

The book-runner in consultation with the company, announces the bid closing date after having the book satisfactorily built-up. This date should be conveyed to the syndicate at least 24 hours in advance. After the closing date, the bid is analysed in the pricing meet. After careful evaluation of demands at various prices and the quality of demand, the price is decided. Generally the final price is fixed shed below the offer price at which the whole issue is expected to be just sold. This ensures successful issue. After fixing the final price, pay in date is fixed and shares are allotted.

Employees stock option

Employees Stock Option Plan (ESOP) is a voluntary scheme on the part of the company to encourage employees' participation in the company. The scheme also offers an incentive to the employees to stay in the company. The scheme is particularly useful in case of companies whose business activity is dominantly based on the talent of the employees, as in case of software industry.

Stock option has been on offer for some time in India, mostly by Infotech companies which use it as an inducement to retain their most productive employees in an industry which is known for its constant churning of personnel. Infosys Technologies, a firm in Software industry which is highly knowledge-intensive, was one of the first to cobble a stock option plan in the country. Other companies that offer stock options to their employees include HCL-HP, Texas Instruments, Arcus Technologies and Cadence Design Systems.

Infotech firms offer stock options as a bait to retain their most talented employees through fairly convoluted routes. Infosys has a well-structured stock option scheme. It created an employee welfare trust

to implement the scheme. The company has allotted 7,50,000 warrants— each priced at Re 1 which can be exchanged at any time during the exercise period for one share (face value of Rs. 10) at a price of Rs. 100- to the Infosys Technologies Limited Employees Welfare Trust. The warrants are held in trust and transferred to employees from time to time. The exercise period is 12 months after the date of the transfer of the warrants to the employee from the trust, but within 60 months from the date of issue of warrants by the company. The warrants expire on September 30, 1999. Till June-end 1997, 3,79,400 warrants had been issued to the employees. Since the scrip of the company was then quoting at around Rs. 1,900 on the stock exchanges, the scheme results in a big gain to the employees at the expiry of the lock-in period. The lock-in clause specifies that the shares after conversion cannot be transferred/charged/hypothecated/ assigned/or in any manner alienated or otherwise disposed of for period of five years from the date of the issue of the warrants to the employees.

HCL has been offering its employees stock options since 1987 when fifteen key employees were given a small part of the promoter's equity. In 1987, HCL bought 26 per cent stake held by the UP State Electronics Corporation and about 10 per cent was offered to the employees. Another option was offered in 1993 to 40 other employees. This too was done through a dilution of the promoters' equity. In 1994, the company gave HCL-HP employees stocks from HCL-Frontiline, a subsidiary of the group. This stock option was given to about 400 employees. Later, HCL consulting employees were given stock options by their own company.

Cadence Design Systems India Pvt. Ltd., the software company, offers stock options in the form of phantom shares. An employee is offered a fixed number of 'notional' shares at the prevailing market value. At the expiry of a fixed period of three to five years, the company

pays to the employee the then prevailing market rate for the shares.

In the USA companies going public are allowed to offer shares to their employees at 85 per cent of the lowest price during the six months preceding the public issue. In the UK stock options were given through a cocktail of pricing preferences. For instance, public utilities like British Gas and others have offered a mix of stock at lower than market price, at market price and even for free.

Guidelines regarding stock options in India: Any company whose securities are listed on any stock exchange in India may offer securities to its employees through the Employees Stock Option Scheme subject to the conditions specified below:

- (i) Promoters and the part-time directors are not entitled to receive securities under the Employees Stock Option Scheme even if the promoter(s) are employees of the company. However, a director who is not a promoter but is an employee may be entitled to receive securities under the scheme.
- (ii) The issue of shares/convertible instruments under an Employee Stock Option Scheme has not to exceed 5 per cent of the paid-up capital of the company in any one year.
- (iii) Issue of shares under Employees Stock Option Scheme on a preferential basis can be made at a price not less than the higher of the following: (a) The average of the weekly high and low of the closing prices of the related shares quoted on the stock exchange during the six months preceding the relevant date; or (b) The average of the weekly high and low of the closing prices of the related shares quoted on a stock exchange during the two weeks preceding the relevant date.

'Relevant date' for this purpose means the date thirty days

prior to the date on which the meeting of General Body of shareholders is convened to consider the proposed issue.

- (iv) A company introducing an Employees Stock Option Scheme has to submit a certificate to the concerned stock exchange at the time of the listing of the securities issued through the Stock Option Scheme certifying that the securities have been issued as per the scheme to permanent regular employees.
- (v) The companies are free to devise the Employees Stock Option Scheme for issue of shares/warrants or debt instruments/bonds with warrants including the terms of payment.

3.7. Pricing of new issues

Issue of capital prior to May 27, 1992 was governed by the Controller of Capital Issues Act, 1947. Under the Act, the premium was fixed as per the valuation guidelines issued. The guidelines provided for fixation of a fair price on the basis of the net asset value per share on the expanded equity base taking into account, the fresh capital and the profit earning capacity. The repealing of the Capital Issue Control Act resulted in an era of free pricing of securities. Issuers and merchant bankers fixed the offer prices. Pricing of the public issue has to be carried out according to the guidelines issued by SEBI.

At premium: Companies are permitted to price their issues at premium in the case of the following-

- a) First issue of new companies set up by existing companies with the track record.
- b) First issue of existing private/closely held or other existing unlisted companies with three-year track record of consistent profitability.

- c) First public issue by existing private/closely held or other existing unlisted companies without three year track record but promoted by existing companies with a five-year track record of consistent profitability.
- d) Existing private/closely held or other existing unlisted company with three-year track record of consistent profitability, seeking disinvestments by offers to public without issuing fresh capital (disinvestments).
- e) Public issue by existing listed companies with the last three years of dividend paying track record.

At par value: The price of the share should be at par in case of:

- a) First public issue by existing private, closely held or other existing unlisted companies without three year track record of consistent profitability and
- b) Existing private/closely held and other unlisted companies without three-year track record of consistent profitability seeking disinvestments offer to public without issuing fresh capital (disinvestments).

3.8. Allotment of shares

As per SEBI regulation, the allocation of shares is done under proportionate allotment method. The allotment for each category is inversely proportional to the over subscription ratio. The applications will be categorised according to the number of shares applied for. Then allocation is done by proportionate basis. If the allocation to a applicant works out to be more than hundred but is not a multiple of hundred, the number excess of hundred and fifty would be rounded off to the higher multiple of 100 i.e. 200. If the number is lower than 50 it would be rounded off to the lower multiple of

hundred. For example, if the allocation is 155 under the proportionate allotment method then, it would be rounded off to 200. If it is 148, then it would be rounded off to 100. If the shares allocated on a proportionate basis to any category are more than the shares allotted to applicants in that category, the balance shares allotment shall be first adjusted against any other category where the allotment of shares are not sufficient for proportionate allotment in that category. The balance shares, if any remaining after such adjustment will be added to the category comprising of applicants applying for minimum number of shares.

3.9. Factors to be considered by the investors in selecting a public issue

The number of stocks which has remained inactive, increased steadily over the past few years, irrespective of the overall market levels. Price rigging, indifferent usage of funds, vanishing companies, lack of transparency, the notion that equity is a cheap source of fund and the permitted free pricing of the issuers are leading to the prevailing primary market conditions. In this context, the investor has to be alert and careful in his investment. He has to analyse several factors. They are given below :

- 1) Promoters' past performance with reference to the companies promoted by them earlier.
- 2) The integrity of the promoters should be found out with enquiries and from financial magazines and newspapers.
- 3) The managing directors' background and experience in the field.
- 4) The composition of the Board of Directors is to be studied to find out whether it is broad based and professionals are included.
- 5) The credibility of the project appraising institution or agency.

- 6) The stake of the appraising agency in the forthcoming issue.
- 7) Availability of raw materials, government norms regarding it and the tax concessions, if any.
- 8) Reliability of the demand and supply projections of the product.
- 9) Competition faced in the market and the marketing strategy.
- 10) If the product is export oriented, the tie-up with the foreign collaborator or agency for the purchase of products.
- 11) Accounting policy and Revaluation of the assets, if any.
- 12) Analysis of the data related to capital, reserves, turnover, profit, dividend record and profitability ratio.
- 13) Possibilities for achieving the financial projections as indicated by the appraising institution.
- 14) Pending litigations and their effect on the profitability of the company. Default in the payment of dues to the banks and financial institutions.
- 15) A careful study of the general and specific risk factors should be carried out.
- 16) A thorough reading of the auditors' report is needed especially with reference to significant notes to accounts, qualifying remarks and changes in the accounting policy. In the case of letter of offer the investors have to look for the recent un-audited working results at the end of letter of offer.
- 17) Investor should find out whether all the required statutory clearance has been obtained if not what is the current status. The clearances used to have a bearing on the completion of the project.
- 18) Promptness in replying to the enquiries of allocation of shares, refund of money, annual reports, dividends and share transfer should be assessed with the help of past record.

3.10. Investors protection in the primary market

The investing public should be protected to ensure healthy growth of primary market. The term investors protection has a wider meaning in the primary market. The principal ingredients of investor protection are- (a) Provision of all the relevant information; (b) Provision of accurate information; and (c) Transparent allotment procedures without any bias.

To provide the above mentioned factors several steps have been taken. They are project appraisal, under-writing, clearance of the issue document by the stock exchange and SEBI's scrutiny of the issue document.

1. *Project appraisal* is the first step in the entire process of the project. Technical and economic feasibility of the project is evaluated. If the project itself is not technically feasible and economically viable, whatever may be the other steps taken to protect the investors are defeated. Appraisal shows whether the project is meaningful and can be financed. The investors' protection starts right from the protection of the principal amount of investment. Based on the appraisal, the project cost is finalised. The cost should be neither understated nor overstated. The profitability of the project should be estimated and given. To ensure fair project appraisal, SEBI has made it mandatory for the project appraisal body to participate a certain amount in the forthcoming issue.
2. Once the issue is finalised the underwriting procedure starts. Reputed institutions and agencies, providing credibility to the issue normally underwrite the issue. If the lead managers participate more than five per cent of the minimum stipulated amount offered to the public, it would increase the confidence

of the public regarding the pricing and saleability of the issue.

3. SEBI has issued stringent norms for the disclosure of information in the prospectus. It is the duty of the lead manager to verify the accuracy of the data provided in the prospectus. The pending litigation should be given clearly. The promoters' credibility in fulfilling the promises of the previous issues (if any) should be stated. A clear version of the risk factors should be given. Any adverse development that affects the normal functioning and the profit of the company should be highlighted in the risk factor.
4. The issue document has to be cleared by the stock exchange on which the proposed listing is offered. The stock exchanges verify the factors related with the smooth trading of the shares. Any bottleneck in this area will be eliminated since the transferability is the basic right of the shareholders. Trading of the shares helps the investor to liquidate his share at any time. If the issues are not traded in the secondary market at a good price, they would dampen the spirit of the investor.
5. The Board of Directors should sign the prospectus. A copy is also filed with the office to the Registrar of the Companies. This along with the other material documents referred to in the prospectus are available for inspection by the members of the public. The minimum amount to be subscribed by the promoters and maintained for a minimum number of years also safeguard the interest of the investors.
6. SEBI scrutinises the various offer documents from the view point of investors' protection and full disclosure. It has the power to delete the unsubstantiated claims and ask for additional information wherever needed. This makes the lead

managers to prepare the offer document with due care and diligence. When the disclosure of the information is complete, wide publicity has to be given in the newspapers. In the allotment procedure to make sure of transparency, SEBI's nominee is appointed apart from the stock exchange nominee in the allotment committee. Inclusion of valid applications and rejection of invalid applications are checked. The representative of the SEBI's see to it that undue preference is not given to certain group of investors.

7. For *redressal of investors grievances*, the Department of Company Affairs has introduced computerised system of processing the complaints to handle it effectively. The companies are requested to give feed back regarding the action taken on each complaint within a stipulated time period. If the companies do not respond and are slow in the process of settlement of complaints, penal action can be taken against the companies under the provisions of the Companies Act. If the performance of the Registrar to the issue is not satisfactory in settling the complaints, SEBI can take appropriate action against such Registrar. Several Investors Associations are also functioning to help the investors complaints redressed promptly.

3.11. Summary

In the new issue market stocks are offered for the first time. The functions and organisation of the new issue market is different from the secondary market. In the new issue the lead managers manage the issue, the underwriters assure to take up the unsubscribed portion according to his commitment for a commission and the bankers take up the responsibility of collecting the application form and money. Advertising agencies promote the new issue through advertising.

Financial institutions and underwriter lend term loans to the company. Government agencies regulate the issue.

The new issues are offered through prospectus. The prospectus is drafted according to SEBI guidelines disclosing the needed information to the investing public. In the bought out deal banks or a company buys the promoters shares and they offer them to the public at a later date. This reduces the cost of raising the fund. Private placement means placing of the issue with financial institutions. They sell shares to the investors at a suitable price. Right issue means the allotment of shares to the previous shareholders at a pro-ratio basis.

Book building involves firm allotment of the instrument to a syndicate created by the lead managers. The book runner manages the issue. Norms are given by SEBI to price the issue. Proportionate allotment method is adopted in the allocation of shares. Project appraisal, disclosure in the prospectus and clearance of the prospectus by the stock exchanges protect the investors in the primary market along with the active role played by the SEBI.

3.12 Key Words

Primary market deals in only new securities i.e., which were not available previously.

Secondary market or stock market deals in existing securities, i.e., securities which have already been issued by companies and are listed with the stock exchanges.

Underwriter guarantees that he would buy the portion of issue in case of under subscription. This service is known as underwriting for which a commission is charged called underwriting commission.

Origination refers to the work of investigation, analysis and review, rendering relevant consultative services, authenticating and processing of new issue proposals by issue houses/merchant bankers/originators, who act as sponsors of issues.

Distribution is the sale of securities to ultimate investors is. It is a specialised actively rendered by brokers, sub-brokers and dealers in securities.

Registrars to the issue normally receive the share application from various collection centres and recommend the basis of allotment in consultation with the Regional Stock Exchange for approval.

Bankers to the issue take responsibility of collecting the application money along with the share application form.

Bought out deal is the method when company does not directly offers its shares to the public, but through intermediaries, such as, issuing houses or a firm or firms of stock-brokers.

Turn is the difference between the sale and the purchase price of issue houses during the process of bought out deal.

Private placement is method of acquiring securities by the issuing houses directly from the issuing company at an agreed price, and then these are placed only with their investor-clients, both individual and institutional investors, at a higher price.

Book building is a process of issuing shares based on floor price which is indicated before the opening of the bidding process.

Employees Stock Option Plan (ESOP) is a voluntary scheme on the part of the company to encourage employees' participation in the company by way of allotting shares to them.

3.13. Self Assessment Questions

- Q1. Explain the nature of New Issues Market (NIM). How does NIM differ from secondary market?
- Q2. “Despite organisational and functional differences, primary and secondary markets are closely interconnected.” Do you agree?
- Q3. “New Issues Market (NIM) and stock exchange do not compete against each other but complement each other.” Comment.
- Q4. What are the parties involved in the issue of shares in the stock market?
- Q5. Give an account of the agencies that help in the public issue of a company.
- Q6. What are the different functions of the lead managers, registrars and underwriters?
- Q7. Explain the functions of the primary market.
- Q8. Discuss the various methods of floating the new issue.
- Q9. What are the factors to be disclosed in the prospectus?
- Q10. How does bought out deal differ from the offer through prospectus?
- Q11. “Public issue of securities through prospectus is not only most popular but also the best method of raising fresh capital.” Critically evaluate.
- Q12. Write note on: (i) Offer for sale, (ii) Placement of Securities, and (iii) Rights Issue.
- Q13. Explain the nature of book-building process. What are the objectives of Book-building? Has the process really taken-off in India?
- Q14. What is the rationale behind Employees Stock Option Scheme (ESOP)? What are the guidelines regarding ‘stock options’ in India?

- Q15. What are the guidelines issued by the SEBI in pricing and allotment of the new issue?
- Q16. What are the factors to be considered by the investors in selecting a public issue?
- Q17. What are the steps taken by SEBI in the primary market to protect the investors?
- Q18. How can the investors protection be made effective?

3.14. Suggested readings/References

1. M. Ranganathan and R. Madhumathi: Investment Analysis and Portfolio Management, Pearson Education, New Delhi.
2. Punithavathy Pandian: Security Analysis and Portfolio Management, Vikas Publishing House Pvt. Ltd., New Delhi.
3. Bharti V. Phathak: Indian Financial System, Pearson Education, Delhi.
4. Donald E. Fischer and Ronald J. Jordon: Security Analysis and Portfolio Management, PHI.
5. Prasanna Chandra: Investment Analysis and Portfolio Management, TMH, Delhi.

Subject Code : FM 304

Author : Prof. B.S. Bodla

Lesson No. : 4

Vettor : Dr. Karam Pal

STOCK EXCHANGES IN INDIA - OPERATIONS

Structure

- 4.0 Objective
- 4.1. Introduction
- 4.2. Regulation and management of stock exchanges
- 4.3. An introduction to select exchanges
- 4.4. Recognition of stock exchanges
- 4.5. Stock exchange members
- 4.6. Advantages of stock exchanges
- 4.7. Scrips traded on stock exchanges
- 4.8. Steps in stock exchange transactions
- 4.9. Rolling settlement
- 4.10. Derivative trading
- 4.11. Summary
- 4.12. Key words
- 4.13. Self Assessment Questions
- 4.14. Suggested readings/References

4.0 Objective

After going through this lesson the learner will be able to:

- have a knowledge of the national stock exchanges and the regional exchanges in India.
- describe the structure, functioning and the pattern of management of the popular stock exchanges in India.

4.1. Introduction

Stock exchanges provide an organised market for transactions in shares and other securities. The emergence of capital market can be traced back to the second half of the eighteenth century when the transactions were limited to loan stock transactions of the East India Company. By 1830 some corporate stocks had emerged due to economic boom and establishment of textile mills. Stock exchanges at Bombay, Ahmedabad and Calcutta started functioning, though without formal organisation. Bombay Stock Exchange was formalised in 1875 with the establishment of 'Native Share and Share Brokers Association'. Stock exchange trading got a big boost during the First World War and the Second World War with the incorporation of large number of joint stock companies and coming up of new stock exchanges at Madras, Delhi, Nagpur, Kanpur, Hyderabad, and Bangalore. As of 2005, there are 23 recognised stock exchanges in India with about 6000 stock brokers. The secondary market for securities has undergone tremendous transformation and growth in terms of number of listed companies, net worth of listed companies, number of shareholders, number of intermediaries, and annual market capitalisation.

The regional divisions of the various stock exchanges and the places of their locations are given in Table 4.1.

Table 4.1. Division and Location of Stock Exchanges in India

Region	Exchange	City
Northern Region	Ludhaina Stock Exchange	Ludihana
	Delhi Stock Exchange	Delhi
	Jaipur Stock Exchange	Jaipur
	U.P. Stock Exchange	Kanpur
Southern Region	Hyderabad Stock Exchange	Hyderabad
	Bangalore Stock Exchange	Bangalore

	Mangalore Stock Exchange Madras Stock Exchange Commbatore Stock Exchange Cochin Stock Exchange	Mangalore Chennai Coimbatore Cochin
Easter Region	Calcutta Stock Exchange Gauhati Stock Exchange Magadh Stock Exchange Bhubaneswar Stock Exchange	Calcutta Gauthai Patna Bhubaneswar
Wester Region	Bombay Stock Exchange National Stock Exchange OTCEI Stock Exchange M.P. Stock Exchange Pune Stock Exchange Vadodara Stock Exchange Ahmedabad Stock Exchange Saurashtra Kutch Stock Exchange	Mumbai Mumbai Mumbai Indore Pune Vadodara Ahmedabad Rajkiot

The form of Organisation structure of stock exchanges varies. Fourteen stock exchanges are organised as public limited companies, six as companies limited by guarantee and three are voluntary non-profit organisations. Of the total of 23 only 9 stock exchanges have been granted permanent recognition. Others have to seek recognition on annual basis. Presently more than 7000 companies have got their shares listed in stock exchanges. Among these companies, 500 account for around 90 per cent of trading volume.

4.2. Regulation and Management of Stock Exchanges

All stock exchanges were subject to self-regulation and the activities in stock exchanges were of speculative character till 1956. The securities contracts (Regulation) Act (SCRA) was promulgated in 1956. The Ministry of Finance was vested through Stock Exchange division, powers to administer SCRA including recognition of stock exchanges and their operations.

The Securities and Exchange Board of India (SEBI) which is presently working as a regulator of stock market also tries to ensure a qualitative improvement in the stock market by rendering it fair, transparent and efficient. Various functions of SEBI would be discussed in one of the forthcoming chapters.

In addition, all stock exchanges have their own separate 'Governing Boards'. These governing boards consist of elected member-directors (i.e. stock broker directors), public representatives, and government/SEBI nominees. Each stock exchange has its rules, bye-laws and regulations which vest in the government/SEBI powers to nominate Presidents and Vice-Presidents of stock exchanges and to approve appointment of Chief-executive and public representatives to the governing board. The chief executive exercises control on members including their admission, expulsion, adjudication of disputes, imposition of penalties, regulation of market and investor protection.

The pie chart in Figure 4.1 shows the distribution of trading activity in terms of volume in the exchanges. The Bombay Stock Exchange (BSE) and National Stock Exchange (NSE) together account for more than 70% of all capital market activity in India. The other major exchanges are the Calcutta, Delhi and Ahmedabad stock exchanges. The remaining exchanges account for only 4 per cent of the Indian capital market activity.

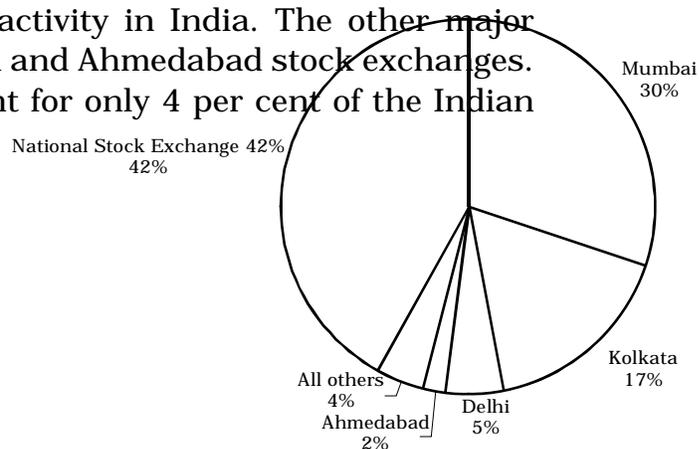


Figure 4.1. Distribution of trading activity among stock exchanges in India

Source: NSE website: www.nse-india.com

4.3. An Introduction to select stock exchanges

Besides the regional stock exchanges three national stock exchanges have been set up in India. They are the National Stock Exchange, Over the Counter Exchange of India Limited (OTCEI), Interconnected Stock Exchange of India Limited (ISE). All these exchanges have their head office at Mumbai.

The Bombay Stock Exchange

The Indian stock market is one of the oldest market in Asian markets. Its history dates back to nearly two centuries when the records of security dealings in India were meagre and obscure. The East India Company was the dominant institution in those days and business in its loan securities was transacted towards the close of the eighteenth century.

By the 1830s, business in corporate stocks and shares in bank and cotton presses took place in Bombay. Though the trading list was broader in 1839, there were only half a dozen brokers recognised by banks and merchants.

In 1860-61, the American Civil War broke out and cotton supply from the United States of America and Europe was stopped. This resulted in the “Share Mania” for cotton trading in India. The number of brokers increased to between 200 and 250. However, at the end of the American Civil War, in 1865, a disastrous slump began— for example, a Bank of Bombay’s share that had touched Rs. 2,850 could only be sold at Rs. 87.

At the same time, brokers found a place in Dalal Street, Bombay, where they could conveniently assemble and transact business. In 1875, they formally established the “Native Share and Stock Brokers’ Association”. In 1895, the association acquired premises in the same street; it was inaugurated in 1899 as the Bombay Stock Exchange.

The Bombay Stock Exchange has been converted into company for very recently. Now it is known as Mumbai Stock Exchange Ltd. The executive director is in charge of the administration of the exchange and is supported by elected directors, Securities Exchange Board of India (SEBI) nominees, and public representatives.

The National Stock Exchange

The National Stock Exchange of India Limited was set up to provide access to investors from across the country on an equal footing. NSE was promoted by leading financial institutions at the behest of the Government of India and was incorporated in November 1992 as a tax-paying company, unlike other stock exchanges in the country.

On its recognition as a stock exchange under the Securities Contracts (Regulation) Act, 1956 in April 1993, NSE commenced operations in the wholesale debt market (WDM) segment in June 1994. The capital market (equities) segment commenced operations in November 1994, and operations in the derivatives segment commenced in June 2000. The organisational structure of NSE (Figure 4.2.) is through the link between National Securities Clearing Corporation Ltd. (NSCCL), India Index Services and Products Ltd. (IISL), National Securities Depository Ltd. (NSDL), DotEx International Limited (DotEx) and NSE.IT Ltd.

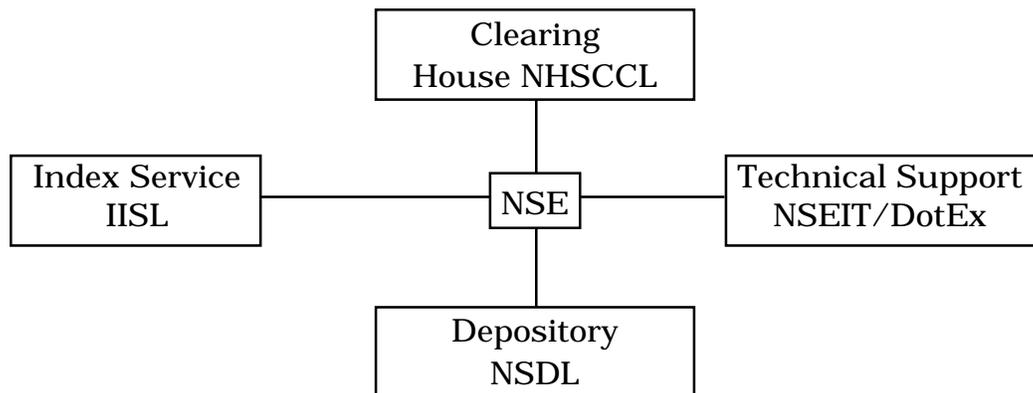


Figure 4.2. Organisational structure of National Stock Exchange

Source: NSE website: www.nse-india.com

The National Securities Clearing Corporation Ltd., a wholly owned subsidiary of NSE, was incorporated in August 1995. It was set up to bring and sustain confidence in the clearing and settlement of securities, to promote and maintain short and consistent settlement cycles, and to provide counterparty risk guarantee.

India Index Services and Products Limited, a joint venture between NSE and the Credit Rating Information Services of India Limited (CRISIL), was set up in May 1998 to provide a variety of indices and index-related services and products for the Indian capital market. It has a consulting and licensing agreement with Standard and Poor's (S & P) for co-branding equity indices.

In order to counteract the problems associated with trading in physical securities, NSE joined hands with the Industrial Development Bank of India (IDBI) and Unit Trust of India (UTI) to promote dematerialisation of securities. Together they set up the National Securities Depository Limited the first depository in India.

NSDL commenced operations in November 1996. It has since established a national infrastructure of international standard to handle trading and settlement in dematerialised form and thus has completely eliminated the risks associated with fake/bad/stolen paper documents.

NSE.IT, a 100 per cent subsidiary of NSE, provides technical services and solutions in the area of trading, broker front-end and back-office, clearing and settlement, web-based trading, risk management, treasury management, asset liability management, banking, insurance, and so on. The company also plans to provide consultancy and implementation services in the areas of data warehousing, business continuity plans, mainframe facility management, site maintenance and backups, real time market analysis and financial

news, and so on. NSE.IT is an export-oriented unit with Straight Through Processing (STP).

NSE.IT and i-flex Solutions Limited, a leader in e-enabling the global financial services industry, promoted DotEx International Limited. DotEx provides customer fulfilment infrastructure for the securities industry. The initial offering of DotEx is the DotEx Plaza where multiple market participants such as brokers, depository participants, and banks can offer web-based services to their customers. As a neutral aggregator and infrastructure provider, DotEx offers choice and convenience to investors.

Over the Counter Exchange of India

The Over the Counter Exchange of India was incorporated in 1990 and was recognised as a Stock Exchange under the Securities Contracts (Regulation) Act, 1956. The exchange was set up to aid enterprising promoters in raising finance for new projects in a cost-effective manner and to provide investors with a transparent and efficient mode of trading. OTCEI has been co-promoted by the leading financial institutions of the country, namely, Unit Trust of India, ICICI, Industrial Development Bank of India, SBI Capital Markets Limited, Industrial Finance Corporation of India, Life Insurance Corporation of India, Canbank Financial Services Limited, and General Insurance Corporation of India and its subsidiaries. NSCCL and NSDL provide clearing house facility to OTCEI.

Modelled along the lines of the NASDAQ market of USA, OTCEI introduced many novel concepts to the Indian capital markets such as screen-based nationwide trading, sponsorship of companies, market making, and scripless trading. The exchange had 115 listing in 2002. Securities are traded on OTCEI through the “OTCEI Automated Securities Integrated System” (OASIS), a state-of-the-art

screen-based trading system (SBTS). OASIS combines the principles of order-driven and quote driven markets and enables trading members to access a transparent and efficient market directly through a nationwide telecommunication network.

Inter-connected Stock Exchange Ltd. (ICSE)

With coming into existence of a large number of regional stock exchanges in the recent years, a need to integrate their functioning had also been felt for growth of capital market as also for providing opportunity to the investors to transact business at nationwide platform. Such integration also avoids erratic price movements in individual exchanges unaligned to the overall trends.

In October 1997, SEBI granted an in-principle approval to the proposal of the inter-connected Stock Exchange Ltd. (ICSE) to set up a national level stock exchange under Section 4 of the Securities Contract Regulation Act (SCRA). ICSE has been promoted by 14 regional stock exchanges and may be incorporated as a company under the provisions of the Companies Act, 1956.

ICSE provides trading, clearing, settlement, risk management, and surveillance support to the inter-connected market system. The stock exchange has set up ISE securities and Services Limited (ISS) to take membership of NSC and BSE, so that traders and dealers through ISS can access other markets in addition to the local market. It is a landmark development in integrating securities market.

The cost of acquiring membership rights on ICSE, is Rs. 5000 for traders and Rs. 5 lakh for dealers. These are nominal as compared the other exchanges. The trading members of ICSE will have to satisfy the capital adequacy requirements separately in addition to the capital adequacy requirement of the regional stock exchanges.

The ICSE segment uses the Online Regional Bourse Interconnected Trading (ORBIT) software for trading. The NSE segment of ICSE uses the Open Dealer Integrated Network (ODIN) software for trading and Member Accounting and Trade Confirmation House (MATCH) software for clearing and settlement. ICSE has to set up a clearing corporation and clearing house for settlement of trades at the national market system. ICSE has already set up a settlement guarantee fund. It also proposes to set up a specialised team at each regional clearing house.

4.4. Recognition of Stock Exchanges

'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 or dealing in securities. Such body to be recognised under SCRA and SEBI has to meet certain requirements regarding procedure for application, having a governing board, constitution, bye-laws, rules and regulations, filing of periodical returns, etc. These have been mentioned below:

Application for recognition of stock exchanges: Any stock exchange, which is desirous of being recognised under SEBI Act, has to make an application in the prescribed manner to the Central Government. Such application is to be accompanied by a copy of the bye-laws of the stock exchange for the regulation and control of contracts and also a copy of the rules relating to the constitution of the stock exchange and in particular to-

- (a) the governing body of such stock exchange, its constitution and powers of management and the manner in which its business is to be transacted;
- b) the powers and duties of the office bearers of stock exchange;
- (c) the admission into the stock exchange of various classes of members, the qualifications for membership, and the exclusion, suspension, expulsion and re-admission of members;

- (d) the procedure for the registration of partnership as members of the stock exchange in cases where the rules provide for such membership; and the nomination and appointment of authorised representatives and clerks; and
- (e) such other particulars as specifically prescribed.

Grant of recognition to stock exchange: The Central Government may grant recognition if it is satisfied:

- (a) that the rules and bye-laws of the stock exchange applying for registration ensure fair dealing and protect investors;
- (b) that the stock exchange is willing to comply with any other conditions it may impose for the purpose of carrying out the object of this Act; and
- (c) that it would be in the interest of the trade and also in the public interest to grant recognition to the stock exchange.

For the grant of recognition to stock exchanges the Central Government may prescribe conditions relating to-

- (i) the qualifications for membership of stock exchanges;
- (ii) the manner in which contracts shall be entered into and enforced as between members;
- (iii) the representation of the Central Government on each of the stock exchanges by such number of persons not exceeding three as the Central Government may nominate in this behalf; and
- (iv) the maintenance of accounts of members and their audit by chartered accountants whenever such audit is required by the Central Government.

Renewal of Recognition

Three months before the expiry of the period of recognition, a recognised stock exchange desirous of renewal of such recognition

may make an application to the Central Government following the aforesaid provisions.

Withdrawal of Recognition

If the Central Government is of the opinion that the recognition granted to a stock exchange is against the interest of the trade or in the public interest, it may withdraw the recognition granted to the stock exchange after giving due opportunity to the governing body of the stock exchange to explain its position.

Such withdrawal has no effect on the validity of any contract entered into or made before the date of withdrawal.

Power of Central Government and SEBI to Call for Periodical Returns or Direct Inquiries to be Made

1. Every recognised stock exchange has to furnish to SEBI annual report and other periodical returns relating to its affairs as required.
2. Every recognised stock exchange and every member thereof has to maintain and preserve for upto five years, such books of account, and other documents as the Central Government, after consultation with the stock exchange concerned, may prescribe in the interest of the trade or in the public interest. SEBI can inspect these books.

Power of SEBI to Direct an Enquiry

- (i) SEBI can direct a recognised stock exchange or any member thereof to furnish in writing such information or explanation relating to the affairs of the stock exchange or of the member in relation to the stock exchange as it may require, or

- (ii) Appoint one or more persons to make an inquiry in the prescribed manner in relation to the affairs of the governing body of a stock exchange or the affairs of any of the members of the stock exchange in relation to the stock exchange and submit a report.

Power of recognised stock exchange to make rules restricting voting rights, etc.

A recognised stock exchange may make rules or amend any rules or amend any rules made by it to provide for all or any of the following matters:

- (a) the restriction of voting rights to members only in respect of any matter placed before the stock exchange at any meeting;
- (b) the regulation of voting rights in respect of any matter placed before the stock exchange at any meeting so that each member may be entitled to have one vote only, irrespective of his share of the paid-up equity capital of the stock exchange;
- (c) the restriction on the right of a member to appoint another person as his proxy to attend and vote at a meeting of the stock exchange;
- (d) such incidental, consequential and supplementary matters as may be necessary to give effect to any of the matters specified in clauses (a), (b) and (c).

Power of recognised stock exchanges to make bye-laws

Subject to the prior approval of the SEBI, any recognised stock exchange can make bye-laws for the regulation and control of contracts. These bye-laws may provide for-

- (a) the opening and closing of markets and the regulation of the hours of trade;
- (b) a clearing house for periodical settlement of contracts and differences thereunder, the delivery of and payment for securities, the passing on of delivery order and the regulation and maintenance of such clearing house;
- (c) the submission to the Securities and Exchange Board of India by the clearing house as soon as may be after each periodical settlement of all or any of the following particulars as the Securities and Exchange Board of India may, from time to time, require namely:-
 - (i) the total number of each category of security carried over from one settlement period to another,
 - (ii) the total number of each category of security, contracts in respect of which have been squared up during the course of each settlement period;
 - (iii) the total number of each category of security actually delivered at each clearing;
- (d) the publication by the clearing house of all or any of the particulars submitted to the Securities and Exchange Board of India under clause (c) subject to the directions, if any, issued by the Securities and Exchange Board of India in this behalf;
- (e) the regulation or prohibition of blank transfers;
- (f) the number and classes of contracts in respect of which settlements shall be made or differences paid through the clearing house;
- (g) the regulation or prohibition of badlas or carry-over facilities;
- (h) the fixing, altering or postponing of days for settlements;

- (i) the determination and declaration of market rates, including the opening, closing, highest and lowest rates for securities;
- (j) the terms, conditions and incidents of contracts, including the prescription of margin requirements, if any, and conditions relating thereto, and the forms of contracts in writing;
- (k) the regulation of the entering into, making, performance, rescission and termination, of contracts, including contracts between members or between a member and his constituent or between a member and a person who is not a member, and the consequences of default or insolvency on the part of a seller or buyer or intermediary, the consequences of a breach or omission by a seller or buyer, and the responsibility of members who are not parties to such contracts;
- (l) the regulation of taravani business including the placing of limitations thereon;
- (m) the listing of securities on the stock exchange, the inclusion of any security for the purpose of dealings and the suspension or withdrawal of any such securities, and the suspension or prohibition of trading in any specified securities;
- (n) the method and procedure for the settlement of claims or disputes, including settlement by arbitration;
- (o) the levy and recovery of fees, fines and penalties;
- (p) the regulation of the course of business between parties to contract in any capacity;
- (q) the fixing of a scale of brokerage and other charges;
- (r) the making, comparing, settling and closing of bargains;

- (s) the emergencies in trade which may arise, whether as a result of pool or syndicated operations or cornering or otherwise, and the exercise of powers in such emergencies, including the power to fix maximum and minimum prices for securities;
- (t) the regulation of dealing by members for their own account; and
- (u) the separation of the functions of jobbers and brokers;

Submission of annual report

Every recognised stock exchange has to before the 31st day of January in each year or within such extended time as allowed, furnish the Central Government annually with a report about its activities during the preceding calendar year. The report must contain detailed information about the following:

- (i) Changes in rules and bye-laws, if any;
- (ii) Changes in the composition of the governing body;
- (iii) Any new sub-committees set up and changes in the composition of existing ones;
- (iv) Admissions, re-admissions, deaths or resignations of members;
- (v) Disciplinary action against members;
- (vi) Arbitration of disputes (nature and number) between members and non-members;
- (vii) Defaults;
- (viii) Action taken to combat any emergency in trade;]
- (ix) Securities listed and delisted; and
- (x) Securities brought on or removed from the forward list.

Every recognised stock exchange has also to furnish the Central Government a copy of its audited balance sheet and profit and loss account for its preceding financial year within one month of the date of holding of its annual general meeting.

Submission of periodical returns

Every recognised stock exchange has to furnish the Central Government periodical returns relating to-

- (i) The official rates for the securities enlisted thereon;
- (ii) The number of shares delivered through the clearing house;
- (iii) The making-up prices;
- (iv) The clearing house programmes;
- (v) The number of securities listed and delisted during the previous three months;
- (vi) The number of securities brought on or removed from the forward list during the previous three months; and
- (vii) Any other matter as may be specified by the Central Government.

4.5. Stock Exchange Members

Transactions in any stock exchange are executed by member brokers who deal with investors. A member of a stock exchange is an individual or a corporate body who holds the right to trade in the stocks listed on the exchange. A corporate body could have a partnership, corporate, or a composite corporate membership. All members are permitted to trade in the trading ring. They can trade in the ring on their own behalf or on behalf of non-members. An investor can buy or sell securities only through one of the members who is also registration banking of the exchange. The Bombay Stock Exchange has, at present (2004), 678 members, of whom 192 are individual members and 486 are corporate members.

The brokers in a stock exchange act as a link between those who want to buy shares and those who want to sell the shares. A broker for this intermediary function is paid a commission called the brokerage. Brokers can appoint sub-brokers, who are not members

of the exchange, to act on their behalf in various localities. Besides brokers, there are also jobbers in the secondary market. They are also called market makers in the exchange. They place both buy and sell orders for selected shares. Thus they give two quotations, the purchase price and the sale price, for the same share. Brokers are paid commission for this intermediary function. Bookers are paid commission for this intermediary function.

Stock exchange brokers are categorised into foreign broker, industrial group, local bodies, subsidiary of financial institutions and banks, and subsidiary of stock exchange. A sample list of member categories from the Bombay Stock exchange is given below.

Foreign brokers: ABN Amro Asia Equities (India) Ltd., Birla Sun Life Securities Ltd., Credit Suisse First Boston (India) Securities Pvt. Ltd.

Industrial groups: Apollo Sindhoori Capital Investments Ltd., Cholamandalam Securities Ltd., Reliance Share and Stock Brokers Ltd.

Local bodies: A A Doshi Share and Stock Brokers Ltd., Abhipra Capital Ltd., Acme Shares and Stock Pvt. Ltd.

Subsidiaries of Indian Financial Institutions and Banks: ICICI Brokerage Services Ltd., IDBI Capital Markets Services Ltd., SBI Capital Markets Ltd., UTI Securities Exchange Ltd.

Subsidiaries of stock exchanges: Cochin Stockbrokers Ltd., LSE Securities Ltd., MSE Financial Services Ltd.

Note: More details about brokers in a stock exchange are available in Chapter-VI of this book.

4.6. Advantages of Stock Exchanges

The existence of secondary markets for shares is of advantage to both the company and the investors. As for the companies, a good performance of the company's shares in the capital market creates a good image or goodwill for the company so that it can use this market information successfully for its future finance requirements. A successful company in this sense will get an over-subscription of applications in subsequent new issues and it will also be able to price its subsequent issues at a desired premium.

Investors also benefit from secondary markets. If not for the secondary markets, investors may not sell or buy shares from other market players. They would never be able to get capital appreciation benefits when they require funds for their immediate needs. Those who trade in the secondary market are given the option to sell or buy a share on any trading day, provided there is the requisite demand/supply. This assures investors that they can take back the investment when needed. Thus, the secondary market performs the economic function of transfer of funds between the public at large and the industry. A secondary market could provide quality service if it could assure its investors of fast, fair, orderly, and open system of purchase and sale of shares at known prices. Due to improved trading mechanisms and transparency in stock exchange operations, and monitoring by the regulatory body, the stock exchanges can perform their role efficiently to both the investors and the corporate entities.

Trading in stock exchanges has been made transparent and smooth through computerised screen-based trading. This has enabled online trading of shares in the secondary market. The online system is order-quote-driven and facilitates efficient processing, automatic order matching, and faster execution of orders in a transparent manner. This facility enables members to enter orders on the trader

workstations (TWSs) from their offices instead of assembling in the trading ring. This facility has enabled many regional stock exchanges to widen their market nationally and internationally.

4.7. Scrips traded on stock exchanges

At the Bombay Stock Exchange, trading takes place in groups. The scrips traded on the exchange have been classified into A, B1, B2, F, G, T, and Z groups. The number of scrips listed on the exchange under A, B1, B2, and Z groups, which represent the equity segments, as at the end of June 30, 2004, was 198, 790, 1830 and 2776 respectively. The number of securities listed in the G and F segment was 85 and 730 on the same date. The categories of securities traded under these groups are given below:

- (i) Group A- Specified shares
- (ii) Group B- Non-specified shares (further classified into B1 and B2 groups)
- (iii) Group C- Odd lots and permitted shares
- (iv) Group F- Debt market (Fixed income securities)
- (v) Group G- Government Securities
- (vi) Group Z- List of companies which have failed to comply with listing requirements and/or failed to resolve investor complaints.

Besides the exchanges also has another segment called the 'trade-to-trade' category that has been shifted to 'T' group. Trade-to-trade category was created as a preventive surveillance measure to ensure market safety and integrity.

Group A, includes only actively traded shares. The governing body of BSE includes only those shares in this group that satisfy certain conditions stated by the exchange. Given the stringent conditions laid down for being listed in this group, the shares of only a few

companies get listed in this group. The rest of the shares are listed under Group B.

Group C has odd lots and permitted shares. Odd lots trading is allowed to enable trading in small quantities (less than market lots) to provide liquidity to such trading. Permitted shares are those that are not listed on the exchange, but are permitted to be traded since they are listed on other stock exchanges in India.

National Stock Exchanges does not differentiate between Group A and B shares.

4.7.1. Trading at Stock Exchanges

Trading in any of various categories of the shares is done during trading hours fixed by the specific stock exchange. If trading is done before or after these fixed hours, it is called as kerb trading. During trading hours, members approach other brokers or jobbers who have an offer or sale quotations. Once the offer for sale and purchase is matched, a transaction takes place and is recorded by the concerned parties. At the end of each trading day, the brokers make a note of the transactions that actually took place, on whose behalf and for what value. Though trading in shares takes place on all stock exchange working days, the settlements need not take place automatically.

The Settlement Committee of the exchanges fix the schedules of trading and settlement. In these schedules, the settlement for purchase or sale transactions may also take place once in a fortnight, that is, 10 or 15 trading days (excluding Saturdays, Sundays, and public holidays). After the fortnight, three days are offered as grace days. There might also be one or two additional days for correcting errors and omissions, and then securing a final settlement for each member's position in respect of the shares dealt in. After consolidating both the purchase and sale transactions, the members arrive at the net settlement to be made for each company's share.

On the specified settlement day, say alternate Fridays, two types of settlements may take place. One is on a cash basis and the other is a forward contract. Cash settlements imply that the sale and purchase of shares noted down by the brokers will be finalised through the act of receiving cash by the seller and the receipt of share documents by the buyer. Thus, the delivery of assets takes place on the settlement day.

In forward contracts of settlement, the transactions recorded are renewed by a carry forward contract. Here, the payment for sale and delivery of share certificate do not take place. However, on the cash settlement date, the speculatory might ask for a postponement of the deal, that is, either to buy or sell a share on the next settlement date by fixing a charge as a penalty for not executing the deal. The original contract (buy/sell) price will be updated with this charge.

All deliveries for shares and payments due from forward contract adjustments have to be settled with respective deliveries and payments before the next settlement date. These forward contracts are entered in the settlement register and on the next settlement date, the transactions are executed and balance amounts transferred to the accounts of the respective investors.

With technology playing a major role in settlements, several stock exchanges have shifted to the Compulsory Rolling Settlement (CRS) system. Under this system, there is no physical delivery of securities. The CRS could be a T+5, T+3, T+2, T+1, or T+0 settlement. T+3 implies that the securities come for settlement three days after the trade has taken place, irrespective of the day of the week. A stock exchange that offers CRS, trades securities in a dematerialised form.

The delivery of share market dealings can be effected in any of the following ways: hand delivery, spot delivery, special delivery, or

delivery for clearing. In case of hand delivery, the certificate to be delivered and the payment of cash should be completed on the date specified by the parties when drawing up the agreement. In spot deliveries, settlement takes place on the very next day or on the day of the contract. In case the parties are in different localities, the actual period of dispatch of securities or remittance of cash through post is excluded in the computation.

Special delivery takes place when the settlement is made any time after the specified settlement date but before two months after the expiry of the contract date or as stipulated by the governing board of the stock exchange. In delivery for clearing, the settlement takes place through a clearing house. For this purpose stock exchanges have an in-house clearing house or an external clearing agency working for the exchange, which acts as a dispatcher. The shares for delivery are handed over to the buyer in the stipulated time and the seller receives the dues the same time from the clearing house on the respective pay-in and pay out days.

The function of the clearing houses is restricted to the delivery of assets. It does not act as a collecting agent. Therefore, if a party defaults, then the other party must fulfil the obligations to the clearing house. Dealers in shares have to be sure of the integrity of the member with whom transactions are entered into. Otherwise, the loss would fall on the dealer.

4.7.2. Trading Limits

Stock exchanges specify trading limits to scrutinise and monitor the trading activities of the market. In India, SEBI has prescribed the intra-day Trading Limits (IDTL), gross exposure requirements, and margin requirements in the secondary market. The intra-day trading limit (gross purchases + gross sales) prescribed is 33.33 times of the

base minimum capital and additional capital deposited by the members with the exchange. Institutional business, that is, transactions done on behalf of the scheduled commercial banks, Indian financial institutions, foreign institutional investors, and mutual funds registered with SEBI are not included while watching the compliance of the members with the intra-day trading limit.

The exchange provides online warning to the members when they reach 70 per cent, 80 per cent, and 90 per cent of their respective intra-day trading limit. However, when a member crosses 100 per cent of the intra-day trading limit, a message is flashed on the trading workstation that says "CAPITAL ADEQUACY LIMIT VIOLATED". Immediately, all TWSs of the member get deactivated. The TWSs of the members, in such cases, are reactivated only after they deposit additional capital to cover their turnover in excess of the intra-day trading limit. A fine (Rs. 5,000 in BSE) is levied if a member does not deposit the additional capital to cover the required turnover in excess of the intra-day trading limit on the day of the violation.

Gross exposure requirement- SEBI has prescribed a ceiling on the gross exposure (scripwise cumulative net outstanding purchases + cumulative net outstanding sales) of members which is 15 times of the base minimum capital + the additional capital deposited by them with the exchange. Thus, the gross exposure is computed as the receivable obligations or purchase position of the previous settlement for which members have yet to make a pay-in the weekly settlement category and outstanding unsettled (purchase + sale) positions in rolling settlements.

Institutional business, however, are excluded from the computation of gross exposure of the members. Sale transactions marked for physical delivery at the time of trade and subsequently delivered in demat (dematerialised) mode to the clearing house are not included in the gross exposure limits of the members.

Warnings are flashed on the TWSs of the members as soon as they reach 50 per cent, 70 per cent, and 90 per cent of their gross exposure limits. When a member crosses 100 per cent of the gross exposure limit, a message is flashed on the TWSs stating “GROSS EXPOSURE LIMIT EXCEEDED”. Subsequently, the TWSs are automatically deactivated. The TWSs of the members, in such cases, are reactivated only after they deposit additional capital to cover their exposure in excess of the gross exposure limit.

Margin requirements- Margins are required to cover trade exposures. Margins play an important role, controlling for liquidity and safety of trades in a stock market. The higher the margin requirement of an exchange, the better the safety of the transacted deal. However, this cautions investors to limit speculative transactions and also reduces liquidity in the market. The lower the margin requirements imposed by the exchange, the higher will be the liquidity, since this will encourage speculative trading in the market; and conversely lower will be the safety of the trades. These two relationships are given in Figure 4.1.

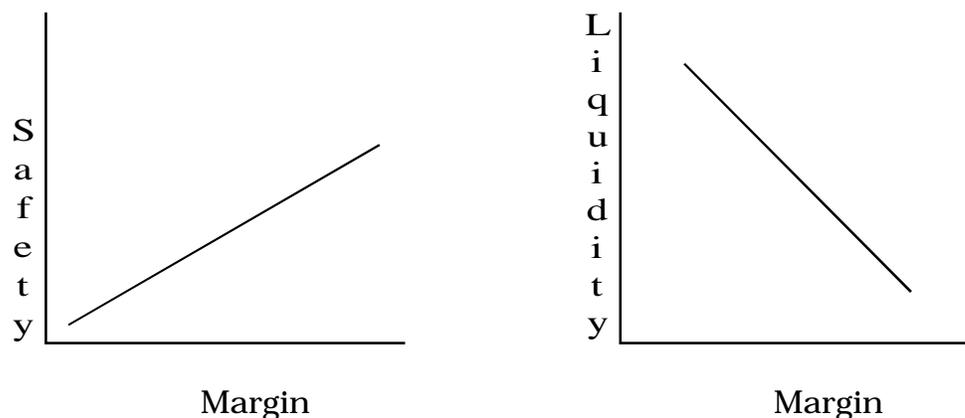


Fig. 4.1. Marginers safety and liquidity

In India, compulsory collection of margins from clients including institutions is prevalent. Collection of margins on a portfolio basis is not allowed.

Securities that are bought from the stock market can be paid for by the investor with his own funds or a mix of personal and borrowed funds. Buying with borrowed funds permits the investor to enlarge the scope of his investment activities since it enables him to buy a security whenever it touches a good price. This is called as trading on borrowed funds or “margin trading”. Margin trading lets the investor borrow money from a bank or a broker to buy shares. In India only brokers are allowed to provide the margins. Brokers borrow funds from a banker with the shares as collateral for the loan. The safety of this mechanism relies on the risk management capabilities of both the stockbroker and the banker.

The following margin system is followed in rolling and weekly settlements by BSE.

4.7.3. Compulsory Rolling Settlements

Compulsory rolling settlements may require a Value at Risk (VaR) margin, additional volatility margin, mark to mark margin, special ad hoc margin, and special margin. These are discussed below.

Value at risk margin

The VaR margin calculation is based on the volatility of either the BSE Sensex or S&P CNX Nifty. The margin is calculated as the higher of scrip VaR and index VaR multiplied with a suitable multiplier.

Scrip-wise VaR: The scrip-wise daily volatility is calculated using the exponential moving weighted average method for the preceding six months. This method is also applied by other stock exchanges such as NSE.

The volatility at the end of day t (s_t) is estimated using the previous volatility estimate (s_{t-1}), as at the end of day $t-1$ and the return (r_t) observed in the market during day t as per the following formula:

$$\sigma s_t^2 = p \times S_{t-1}^2 + (1-p) \times r_t^2$$

where, ' p ' is a parameter which determines how rapidly volatility estimates change. A value of 0.94, specified in the JR Varma Report on risk management, is used as the value of ' p ' by the BSE.

Index VaR: The volatility for calculation of index VaR is estimated in the same manner as indicated above.

Further, as per a SEBI decision, the highest volatility as computed above is multiplied by a factor of 3.5 to satisfy the condition of 99 per cent confidence.

The margin percentage is calculated as $100 * [\exp. (3.5 * \text{volatility}) - 1]$

The VaR margin rates computed at the end of a day are applied to the positions at the end of the following trading day. This ensures that the markets have prior information of the rates to be applied for the trading positions built by them on the following trading day.

The scrip-wise VaR margins are charged on the basis of the net position of a client across all the settlements for which the pay-in has not been effected. Taking an example of two clients, A and B of the same member and their positions in a specific scrip, the net margin quantity can be worked out as follows, given the net trade for both clients.

Settlement	Client A	Client B
T-3	500	-400
T-2	-200	+ 600
T-1	600	-200
T	-300	-300
Net Margin Quantity	600	-300

The member has to pay the VaR margin on the value of these 900 shares, that is, the total of each client's net position across all unsettled settlements, including T day. While adding the positions across clients, the total quantity is considered ignoring the purchase or sale of the scrip.

Additional Volatility Margin

The members/custodians are required by SEBI to pay the additional volatility margin (AVM) on the net outstanding sale position of their institutional clients. In view of the introduction of the VaR margin system in CRS, SEBI has directed that the members/custodians would be required to pay AVM which is equal to the positive differential between the scrip VaR calculated and the minimum VaR (1.75 times of index VaR).

The AVM payable can be adjusted against unutilised additional capital deposited with the exchange. The AVM paid by the members in cash on the sale position of institutions is refunded to them in the pay-in of the concerned settlement.

Mark to market margin

For the mark to market (MTM) margin in the rolling settlement, the notional plus actual losses and profits in each scrip are calculated for the trade day. Then the profits and losses are needed to arrive at the scrip level profit or loss. Then the profits made in certain scrips are netted with losses in other scrips. If there is a net loss, the same is collected as the MTM margin over and above the daily VaR margin. However, if there is a net profit at the aggregate level, the same is ignored for the purpose of computing the MTM margin.

Example. From the trades on a single day for a client, compute the mark to market margin. The daily VaR margin requirement is Rs. 65,000.

Security	Traded Price	Previous Price	Current	Settlement
A1	10,000	120	110	
A2	10,000	150	155	Sold
A3	10,000	140	120	Sold
A4	10,000	100	105	

The notional/actual profit or loss in each security is computed as follows:

Security	Price change	No. of shares	Actual profit/loss	Notional profit/loss
A1	-10	10,000		-100,000
A2	+5	10,000	+50,000	
A3	-20	10,000	-200,000	
A4	+5	10,000		+50,000
Net position			-150,000	-50,000

Mark to market margin requirement = $(-150,000 - 50,000) + 65,000 =$
 (-Rs. 135,000)

Special Adhoc Margin

As a risk management measure, the exchange may prescribe exposure limits in the scrips traded in CRS. At BSE, a 25 per cent special ad hoc margin (SAM) is collected if the exposure on a single scrip is equal or above Rs. 100 lakhs and up to Rs. 200 lakhs.

Special margin

From time to time, the special margin is imposed as a surveillance measure on various scrips in CRS. The special margin is charged on the net purchase and/or sale position of members to the extent of the traded position per settlement. Further, a special margin is required to be paid in cash only on T + 1 day and the margin, once collected, is released only on the pay-in day of the respective settlement. Further, it is not adjusted against the unutilised additional capital of the members as in the case of other margins. The rates of special margins on individual scrips (either on the sale and/or purchase) are notified by the exchange from time to time.

Weekly settlements

The trading in scrips that come under weekly settlement will be regulated with the following margin requirements.

Gross exposure margin

The gross exposure margin is charged on the basis of the gross exposure of the members, that is, the purchase position of one client in a scrip is not netted against the sale position of another client in the same scrip. However, if the same client had purchased and sold the same scrip, then the margin is computed on the net position of the client, the gross exposure and the applicable margins are as under:

Margin payable (Rs. Crores)	Gross exposure
Upto 5	7.5%
Above 5 and up to 10	0.375 plus 10% in excess of 5 crores
Above 10 and up to 15	0.875 plus 12.5% in excess of 10 crores
Above 15 and up to 20	1.5 plus 15% in excess of 15 crores
Above 20 and up to 100	2.25 plus 20% in excess of 20 crores
Above 100	18.25 plus 25% in excess of 100 crores

Source: BSE website: www.bseindia.com

Members are required to pay the daily margin based on the gross exposure on T+1 day which is computed on the basis of their scripwise cumulative outstanding net purchases plus net sales as at the end of T day.

Mark to market margin

The mark to market margin computation is similar to that in the CRS category.

Additional volatility margin

The additional volatility margin is a scrip-specific margin. It is payable if the price of a scrip goes up or down beyond a certain limit over a rolling period of six weeks. The computation of volatility and the percentage of AVM applicable are as under:

$$\text{Volatility percentage} = \{(6 \text{ week high} - 6 \text{ week low}) / 6 \text{ week low}\} * 100$$

Volatility (%)	Volatility margin applicable (%)
More than 60 and upto 100	10
More than 100 and upto 150	15
More than 150	25

Source: BSE website: www.bseindia.com

The AVM is computed on the net outstanding position of the members in the weekly settlements. Where MTM margin and AVM are payable on the net outstanding position in a scrip, only the higher of the two margins is collected. However, at the aggregate level, all margins, that is, MTM and AVM are recovered from the members.

This margin is not charged for scrips quoting below Rs. 40. as per a SEBI directive, it is charged only on the outstanding institutional sales positions in scrips in the weekly settlement. Further, the sales marked for delivery subject to actual demat deliveries effected in the clearing house are exempt from the payment of AVM.

Special ad hoc margin (SAM)

As a risk management measure, BSE has prescribed exposure limits in the B1 and B2 group scrips. A SAM of 25 per cent is required if the exposure in a single scrip in the 1 group is between Rs. 2 crores and upto Rs. 5 crores. The same margin percentage is applicable for

exposure limits of Rs. 50 lakhs and up to Rs. 100 lakhs in the B2 group.

Special margin

The special margin is a scrip-specific margin, generally imposed on fresh purchases made in scrips where price manipulation is suspected. This margin is also some times imposed on the sale positions of members. This margin is recovered in cash only, that is, it is not adjusted against the unutilised additional capital of the members as in the case of other margins. This margin is retained till the pay-in day, even if the position has been subsequently squared up. The margin imposed is generally at 25 per cent of the value of the scrip and is progressively increased if an unusual price rise and volumes do not come down.

Ad hoc margin

As a risk management measure, this member-specific margin is imposed in cases where it is felt that the margin cover vis-à-vis the exposure of a member is inadequate or a member has a concentrated position in some scrip(s) or has common client(s) along with other members. This margin is over and above the normal margins paid by members and is payable in cash only. Once called, a member is given about two days to make the payment; in case the outstanding exposure is squared off or reduced, the margin may be reduced/waived after due authorisation.

4.7.4. Auction system

An auction system is based on current high bid and low offer. Buyers and sellers find a mutually agreeable price through auctions, with no intervention of broker-dealer. Buy and sell orders get automatically matched because the market-maker fills in the gap if an imbalance

occurs in bid and offer prices. On the other hand, the broker-dealer market is a negotiation market between dealers who regularly buy and sell a particular security. These dealers make a market in a particular security. Quotations are electronically transmitted for most of the active shares.

Bombay Stock Exchange (BSE) has an auction type trading as well as quote driven system. BSE also has an informal system of jobbers who continuously announce two-way quotes for regularly traded scrips at specific locations called trading posts. Stock markets in the rest of the country are mainly order-driven, which ensures better price to investors but hampers growth of the stock market.

4.8. Steps in Stock Exchange Transactions

There are various steps in completing and executing transactions at a stock exchange.

Placing an order

The buyer or seller of securities can place order by telegram, telephone, letter, fax etc. or in person. The orders can be of following types:

1. Limit Order, i.e., order to buy/sell at a fixed price specified by the client. This price may be inclusive or exclusive of brokerage.
2. Best rate order, i.e., order to buy/sell at the best possible price. The client may also fix a time frame within which the order is to be executed.
3. Immediate or cancel order, i.e., order to execute purchase/sale immediately at the quoted price. If not executed immediately, the order gets cancelled.
4. Limited discretionary order, i.e., order to buy/sell within the specified price range and/or within the given time period as per the best judgement of the broker.
5. Stop loss order, i.e., order to sell as soon as price falls upto a

particular level, so that the client does not suffer a loss more than the pre-specified amount.

6. Open order, i.e., an order where the client does not fix any price limit or time limit on the execution of the order and relies on the judgement of the broker.

Execution of orders

Normally orders are executed in trading ring of stock exchanges which work from 12.00 noon to 2.00 p.m. on Monday through Friday and a special one hour session on Saturday. Transactions before and after the trading time are termed 'kerb dealings'. Entry in the ring is restricted to only badgeholders or identity card holders. On the floor separate locations are reserved for trading in specified and unspecified shares.

Generally there is a single jobber/travaniwala for a particular scrip. But in case of actively traded scrips involving large volume of business, there could be more than one jobber for a scrip. Jobbers offer two-way quotes for the scrip they deal in. Thus, they act as market maker and provide liquidity to the market. The order is executed either by auction or negotiation. In case of negotiated settlement, the broker or his assistant approaches the concerned jobber, ascertains the latest quotation and makes a bid/offer. If it is not acceptable, then broker may make counter bid/offer. The final price at which the deal takes place is settled on mutual acceptance between the two brokers- one buying the security and the other selling it at negotiated price. Once the transaction is finally settled, the details are recorded in a *chaupri* which is compared at the end of each working day to ensure that all transactions are matched. The prices at which different scrips are traded on a particular day, are published in the newspapers the very next day. These prices are available from the jobbers.

Preparation of contract notes: A transaction gets materialised with the issue of contract note. A contract note is a written agreement between the broker and the client for the executed transaction. Contract note is prepared on the basis of transactions recorded in the Pucca Souda Book after the execution of the order. Contract note also contains particulars of the brokerage chargeable by the broker. A copy of contract note is also sent to the client.

Delivery of share certificate and transfer deed: The delivery of share is in the form of share certificate and transfer deed. Transfer deed is signed by the transferer, i.e., seller and is authenticated by a witness. Particulars in the transfer deed are filled in by the transferee, i.e., buyer. It also bears stamp of the selling broker.

Delivery/bargains are of four types:

1. Spot delivery, i.e., the transaction is settled by delivery and payment on the date of the contract or the next day.
2. Hand delivery, i.e., delivery and payment is completed within 14 days from the date of the contract.
3. Specified or special delivery, i.e., delivery and payment may be completed after 14 days as specified at the time of the bargain.
4. Clearing, i.e., delivery and clearing of security take place through a clearance house.

Most of the transactions are conducted on the basis of hand delivery.

Sending shares to the company for transfers: For getting the shares transferred in the buyer's name the following should be sent to the company:

1. The share certificate, and
2. The duly filled transfer deed with share transfer stamps of the specified value affixed on it.

After verifying the validity of the transfer, the company has to return the share certificate to the buyer within two months. The share certificate bears a new ledger folio number, transfer number, date and buyer's name at the reverse of the certificate. These particulars are endorsed by the appropriate authority of the company.

Settlement procedure for traded securities

Settlement procedure varies for securities of different groups, i.e., specified, non-specified and odd-lot securities.

(a) Specified securities: These consist of equity shares of established companies. Following is the criteria for including shares in the specified list:

- (i) the shares should have been listed on a recognised stock exchange for a minimum period of three years.
- (ii) the issued capital of the company should be at least Rs. 75 crore and the market capitalisation of the company should be two-three times;
- (iii) the number of shares held by the public should be of a minimum face value of Rs. 4.50 crore;
- (iv) the company should have at least 20,000 shareholders on dividend paying list;
- (v) the company should preferably be growth oriented; and
- (vi) the shares of the company must have been actively traded during the previous months.

In brief it can be said that specified list includes actively traded shares of large growth oriented companies. Only small number of shares are in specified group but they account for major portion of capitalisation in Indian stock market.

(b) Non-specified securities: These are the shares and debentures of all companies other than those in the specified list.

- (c) Odd-lot securities: These include preference shares and odd-lots of shares and debentures, i.e., where a single share certificate is of smaller denomination than the minimum denomination required for regular trading.

Settlement procedure for specified group

The settlement is done at the end of each settlement period. An accounting year of a stock exchange is divided into settlement periods. Each settlement period is generally two weeks long starting from a Friday and ending on Thursday of the second following week. Steps in settlement are as follows:

First of all, at the end of each working day the details of all purchases and sales as recorded in sauda sheets are submitted to the computer centre. The details are verified in the computer centre where the matched transactions are logged. Unmatched transactions are reverted back to the members for verification. In the badla session on Friday, i.e., the next day after the settlement period is over, the members decide whether the transaction is settled or a particular transaction is to be further carried forward. The carry forward of transactions is called badla and has been banned. The computer centre is informed about all the settlements.

After verifying all the details provided by the members, the computer centre issues to each member (a) money settlement slips showing the difference between payables and receivables, and the payslips and receive slips, (b) delivery order and receive orders of shares, and (c) carry over margin statement in case of badla transactions, now banned.

Based on the above advice of the computer centre, the members file with the clearing house the balance sheet giving full details of pay and receive slips. These details are accompanied with the cheques/

drafts and securities certificates as per the delivery order. This process is completed on the *pay-in day* specified by the stock exchange. After having examined and processed the drafts, cheques and securities certificates, the clearing house makes the payment (which is through settlement of difference on purchases and sales by members) and delivers the securities certificates to the members on the *pay-out day*, which is the next Wednesday.

Settlement procedure for Non-specified group

Settlement procedure for non-specified group differs from specified group in two ways:

1. Badla transactions were not permitted in non-specified group. Of course now badla has been banned for both these groups of securities and therefore there is no difference in this respect. Only modified forward trading is permitted now.
2. Whereas in case of specified group, the clearing house handles both the money part and the physical delivery of securities, in case of non-specified group of securities, the clearing house handles only the money part. On the pay-in day members submit only the balance sheet and the cheques/drafts and on the pay-out day they receive only monetary payments from the clearing house. The actual physical delivery of securities is handled by members themselves.

Settlement of Odd-Lot Transactions

The role of stock exchange is limited in case of odd-lot securities. The stock exchange neither physically receives/gives securities nor the money involved. The members themselves handle both these aspects. The stock exchange does the job of verification and matching of transactions. It also issues to the members a statement of all unmatched transactions entered into the previous settlement period. The actual settlement of transactions is done by members between themselves.

4.9. Rolling Settlement

On December 17, 1997, the SEBI announced that transactions on dematerialised shares should be settled on rolling basis on the fifth day after the respective transaction. Accordingly, trading in demat shares commenced on the basis of T+5 rollign settlement cycle w.e.f. January 15, 1998 on optional basis.

Rolling settlement on T + 5 basis was kicked off initially with 10 scrips on January 10, 2000. the system allows settlement of each day's trade at the end of five days. The system was introduced in those exchanges which were connected to a depository. Rolling system was first introduction at Bombay Stock Exchange while the National Stock Exchange was next to follow. Initial ten selected scrips for rolling settlement were: BFL Software, Citicorp Securities, Cybertech Systems and Software, Hitech Drilling Services, Lupin Laboratories, Maars Software International, Morepen Lab, Sri Adhikari Brothers, Tata Infotech, and Visual Soft (India).

This select list was chosen on the basis of the criteria that they appeared on the demat list and that each selected share had a daily turnover of Rs. One crore and above. The risk containment measures like margin requirements, exposure limits, etc., for rolling settlement would be the same as those for other settlements. After gaining experience, the list for rolling settlement was expanded. The list of ten select scrips did not include badla or carry forward scrips.

The feedback from market participants as well as the results of the study undertaken by SEBI indicate the need for facilities like Continuous Net Settlement (CNS), Carry Forward in Rolling Settlement (CFRS), and the Automated Lending and Borrowing Mechanism (ALBM) in rolling settlement for increasing the popularity of rolling settlement. As an experiment, fifteen scrips in the present compulsory

rolling settlement were allowed with the facilities of CNS, CFRS and ALBRS. Some stock exchanges commenced these facilities.

More than top 200 scrips were brought under compulsory rolling settlement from July 1, 2001 from the Carry Forward, Automated Lending and Borrowing System (ALBM) and the Borrowing and Lending of Securities System (BLESS). All scrips which did not form part of the above were brought within the ambit of rolling settlement from January 2, 2002. In the interim period these stocks were treated on the uniform settlement cycle, Monday to Friday.

On 20th December 2001, 414 scrips were under compulsory rolling settlement on a T + 5 basis, but from 31st December 2001 all the remaining scrips traded on the stock exchanges were brought under the rolling settlement. W.e.f. from April 1, 2002, the SEBI reduced the period for compulsory rolling settlements of all listed scrips by two days, i.e., instead of the prevailing six-day period (Trading day + 5 working days) to T + 3.

SEBI further reduced the rolling settlement cycle to T + 2 on stock exchanges w.e.f. April 1, 2003, to reduce risks in capital market and protect investors' interest. The regulator issued separate instructions to intermediaries and exchanges and took steps to ensure smooth transition from T + 3 cycle to T + 2 settlement mechanism by widening use of electronic fund transfer and straight through processing under the T + 2 cycle, the confirmation for institutional trades by custordians is to be done by 11.00 a.m. on T + 1 basis.

In rolling settlement, a fresh short trade has to be squared up on the same day as the settlement period becomes of one day only. However, with the stock-lending allowed, the client can indulge in short selling by giving delivery after borrowing from agencies like Stock Holding Corporation of India Ltd.

It was also decided to do away with price bands on stocks which are in rolling mode. There would be a daily settlement cycle across all exchanges which would automatically bring in uniformity and eliminate arbitrage operations.

In rolling settlement the sellers and buyers get the monies and securities for their sale and purchase transactions relatively quickly. Thus, investors benefit from increased liquidity and safety.

4.10. Derivatives Trading

Derivatives

These are financial instruments that are valued according to the expected price movements of an underlying asset, which may be a commodity, currency or a security. Derivatives can be used either to hedge a position or to establish an open position. Examples of derivatives are futures, options, swaps, etc.

Futures

These are agreements to buy or sell a fixed quantity of a particular commodity, currency, or security for delivery at a fixed date in the future at a fixed price. Unlike an option, a futures contract involves a definite purchase or sale and not an option to buy or sell. However, futures provide an opportunity for those who must purchase goods regularly to hedge against changes in price.

In futures contract, the price at which the asset will change hands in the future is agreed upon at the time of entering the futures contract. It involves an obligation on both the parties to fulfil the terms of the contract. At present both NSE and BSE allow one-month, two-month and three-month future contract. Each expires on the last Friday of the respective month. It is expected that more flexibilities will be added in futures trade.

Use of index futures numbers reported in the media can be used to gauge the general mood of the market and the direction it is heading in. Futures on individual stock can help figuring out the direction of the price movement of a particular stock.

Investors can use futures and options to speculate without a commensurate heavy cash outflow needed to take delivery of stocks. Institutional investors can use futures trading for curtailing value erosion of their portfolio.

Options

These are instruments granting the right to buy or sell a fixed quantity of a commodity, currency, security, etc., at a particular date at a particular price (also called exercise prices). Unlike futures, the purchaser of an option is not obliged to buy or sell at the existing price and will only do so if it is profitable; the purchaser, may allow the option to lapse, in which case only the initial purchase price of the option is lost. An option to buy is known as a call option and is usually purchased in the expectation of a rising price; an option to sell is called a put option and is bought in the expectation of a falling price.

For buying an option one has to pay a premium. It has a market value like any other commodity. For example, a buys a call option (i.e., option to buy) of Rs. 6,400 with a maturity of one month. In this case the current market price of the share is Rs. 6,000. if after one month the price is Rs. 6,650, then the buyer will earn a profit of Rs. 250 after deducting the premium of Rs. 400, if he chooses to exercise the option. The seller will lose Rs. 250. The risk of buyer of call option is restricted to Rs. 400, i.e., the premium amount, while the seller's risk is unlimited depending on the price rise. The system works exactly the opposite for a seller or for a put option. The risk for an option

writer is unlimited whereas his gains are limited to the premium earned. The extent of premium varies depending upon the market expectations at a point of time.

Options and futures are used to hedge risk of price fluctuations. If one feels that the market is going to fall and money's portfolio runs the risk of heavy value erosion, then one takes a position in the index futures market. By doing this even if market falls, the position taken in index futures would help minimise the losses.

Index options enable investors to gain exposure to an index— Sensex or Nifty— and at lower premiums than for futures on individual stocks.

Advantages of Futures and Options: The advantages of futures and options can be briefly described as:

1. Reduced transaction costs;
2. Enhanced price discovery mechanism;
3. Facilitate creation of several new instruments;
4. Increase efficiency in the financial market;
5. Credit related difficulties are minimised;
6. Volatility in the market gets reduced.

Swaps

These are means by which intending parties can exchange their cash flows, usually through the intermediary of a bank. A currency swap will enable parties to exchange the currency they possess for the currency they need. An interest rate swap (IRS) is an agreement between two parties to exchange interest obligations (or receipts) for a given notional principal for a defined period.

The L.C. Gupta Committee on Derivatives set up by SEBI recommended phased introduction of derivative products, with stock

index futures as the starting point for derivatives trading in India. The SEBI Board considered the report of the Committee on Regulatory Framework for Derivatives Trading in India. Based on the examination by the Board, including the feedback from the Secondary Market Advisory Committee and responses from the Stock Exchanges, the major recommendations on Derivatives Trading were accepted. These included the following:

1. Phased introduction of derivative products, with the stock index futures as starting point for equity derivative in India.
2. Expanded definition of securities under the Securities Contracts (Regulation) Act (SCRA) by declaring derivative contracts based on index of prices of securities and other derivatives contracts as securities.
3. Permission to existing Stock Exchanges to trade derivatives provided they meet the eligibility conditions including adequate infrastructural facilities, on-line trading and surveillance system and minimum of 50 members opting for derivative trading.
4. Initial margin requirements related to the risk of loss on the position and capital adequacy norms to be prescribed.

4.11. Summary

There are 23 stock exchanges catering to the capital market requirements in India. However, most of the traded volumes are centered in Bombay Stock Exchange and National Stock Exchange. A Board of Members governs the stock exchanges and each stock exchange has members/brokers who are the intermediaries between the exchange and the investors.

An exchange can have individual and institutional members. The brokers in an exchange act as dealers, market makers, or as agency brokers.

Each stock exchange has developed its own market index to represent the movement of scrips in the market. The trading in the market is regulated by SEBI.

4.12 Key Words

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 or dealing in securities.

Market capitalisation is the multiplication of market shares and price of the shares of a company.

Group A scrips include only actively traded shares which satisfy certain conditions stated by the exchange.

Group B. The rest of the shares not in group A are listed under Group B.

Group C scrips have odd lots and permitted shares.

Odd lots trading is allowed to enable trading in small quantities (less than market lots) to provide liquidity to such trading.

Permitted shares are those that are not listed on the exchange, but are permitted to be traded since they are listed on other stock exchanges in India.

Cash settlements imply that the sale and purchase of shares will be finalised and the delivery of assets takes place on the settlement day.

Forward contracts of settlement are the settlement where the transactions recorded are renewed by a carry forward contract and the payment for sale and delivery of share certificate do not take place.

Rolling settlement is a fresh short trade which has to be squared up on the same day as the settlement period becomes of one day only.

Swaps are means by which intending parties can exchange their cash flows, usually through the intermediary of a bank.

Futures are agreements to buy or sell a fixed quantity of a particular commodity, currency, or security for delivery at a fixed date in the future at a fixed price.

4.13. Self Assessment Questions

1. Explain the structure and characteristics of stock exchanges in India.
2. Explain the working of NSE and BSE.
3. Explain the features of OTCEI.
4. What are the functions of ISE?
5. Explain the trading system/mechanism in stock exchanges.
6. Write a note on derivatives trading.
7. Discuss the procedure for recognition of stock exchanges in India.

4.14. Suggested readings/References

1. M. Ranganathan and R. Madhumathi: Investment Analysis and Portfolio Management, Pearson Education, New Delhi.
2. Punithavathy Pandian: Security Analysis and Portfolio Management, Vikas Publishing House Pvt. Ltd., New Delhi.
3. Bharti V. Phathak: Indian Financial System, Pearson Education, Delhi.
4. Donald E. Fischer and Ronald J. Jordon: Security Analysis and Portfolio Management, PHI.
5. Prasanna Chandra: Investment Analysis and Portfolio Management, TMH, Delhi.

Subject Code : FM 304

Author : Prof. B.S. Bodla

Lesson No. : 5

Vettor : Prof. M.S. Turan

LISTING OF SECURITIES

Structure

- 5.0 Objective
- 5.1. Introduction
- 5.2. Merits of listing
- 5.3. Consequences of non-listing
- 5.4. Qualification for listing
- 5.5. Listing application
- 5.6. Listing agreement, cash-flow statement and fees
- 5.7. Listing of right shares
- 5.8. High powered committee recommendation
- 5.9. Delisting of securities
- 5.10. Chandratre Committee Report (1997)
- 5.11. Summary
- 5.12 Key Words
- 5.13. Self Assessment Questions
- 5.14. Suggested readings/Reference

5.0 Objective

This lesson would familiarise the students with merits and demerits of listing, qualifications for listing and the procedure for listing of securities.

5.1. Introduction

A recognised stock exchange provides a forum for purchase and sale of securities. Listing of securities is undertaken with the primary objective of providing marketability, liquidity and transferability to

securities. Admitting a security for its purchase and sale on a recognised stock exchange is called listing of a security.

Central Listing Authority (CLA) is being set up with representatives of regional exchanges. The CLA has two primary roles- laying down standard listing processes and carrying out the due-diligence of a company to be listed. The CLA has also the responsibility to update the listing norms depending upon the internal and external environmental developments.

In order to restore confidence of the investors in the stock markets, the SEBI has also been working out new listing modalities, making the listing of unscrupulous companies difficult. Uniform criteria for listing for companies in any of the stock exchanges, would prevent unscrupulous promoters from entering the capital market through smaller exchanges.

According to Section 73 of the Companies Act, 1956, every company intending to offer shares or debentures to the public for subscription by issue of a prospectus has to first make an application to one or more recognised stock exchanges for their listing.

However, listing is not obligatory for companies not making public issue of shares and debentures. However, unlisted companies are subjected to promoters' quota with a lock-in stipulation. As per the Disclosure and Investor Protection (DIP) guidelines published in July 1997, the SEBI has reduced the promoters' contribution subject to lock-in in case of offers for sale of securities of unlisted companies to 20 per cent from the prevailing 25 per cent.

In March 2001, the SEBI allowed all companies to issue debt securities to the public without listing equity. However, this has been allowed only for investment grade securities. Before this provision this facility was available only to infrastructure companies and municipal corporations.

5.2. Merits of listing

Regular information: The transactions of the listed shares regularly appear in the news paper, providing adequate information regarding the current worth of the securities. Buying and selling activities can be decided on the basis of the price quotations.

Insure best prices: The price quotations and the volume traded regarding the listed shares appear in the news papers. According to the demand and supply of the shares, prices are determined. This results in best price.

More liquidity: Listed shares can be sold at any recognised stock exchange and converted into cash quickly. Finding out buyers would be easy in the security market through brokers and screen based trading.

Periodic reports: Listed companies have to provide periodic report to the public. Half yearly financial reports should be published in the financial news papers or in any other news papers. In 1985, it has been made obligatory for all listed companies to submit unaudited financial results on a half yearly basis within 2 months of the expiry of that half year. At present quarterly reports have to be published.

Transferability: Listing provides free transferability of securities. After the incorporation of Section 22-A in the securities Contract (Regulation) Act, free transfer of shares has been ensured.

Income tax benefit: Income-tax Act treats the listed companies as widely held companies. The advantages available to a widely held company are applicable to the listed company.

Wide publicity: Since the prices are quoted in the newspaper, the listed companies get wide publicity. This not only does good to the

investor but also to the corporate to attract the public for further issues.

5.3. Consequences of non-listing

In case the company has not applied for listing or the one or more recognised stock exchanges have not granted permission before the expiry of ten weeks from the date of closure of subscription list, then the following consequences follow:

- (i) subject themselves to various regulatory measures of SEBI and stock exchanges;
- (ii) submit required books, documents and papers and disclose any other information which the stock exchange ask for;
- (iii) send to all shareholders the notices of Annual General Meetings, Annual Reports, etc.; and
- (iv) place its securities with the public.

5.4. Qualification for listing

Following are the minimum essential requirements, which a company has to comply with before its securities can qualify for listing on a recognised stock exchange:

- (a) *Minimum Issued Capital and Minimum Public Offer:* The minimum issued capital of the company must be Rs. 3 crore of which at least Rs. 1.80 crore in face value must be offered to the general public.
- (b) *Minimum number of shareholders:* There must be at least five public shareholders for every Rs. 1 lakh of fresh public issue of capital and ten public shareholders for every Rs. 1 lakh of offer for sale of the existing capital. The rules are different in case of investment companies.

- (c) *Payment of interest on excess application money:* The companies are obliged to pay interest on excess application money at the rates ranging from 4 per cent to 15 per cent depending on the delay beyond 10 weeks from the date of closure of the subscription list.
- (d) *Listing on more than one exchange and on regional exchanges:* Every company with paid-up capital of more than Rs. 5 crore has to get itself listed on more than one stock exchange, including compulsory listing on regional stock exchange.
- (e) *Compulsory provisions in the articles of association:* A company applying for listing on a recognised stock exchange must satisfy the stock exchange that in addition to other matters, its articles of association provide for the following:
- (i) that the company shall use a common form of transfer,
 - (ii) that the fully paid shares will be free from all lien,
 - (iii) in the case of partly paid shares, the company's lien, if any, will be restricted to money called or payable at a fixed time in respect of such shares,
 - (iv) that any amount paid-up in advance of calls on any share may carry interest but shall not entitle the holder of the share to participate in respect thereof, in a dividend subsequently declared,
 - (v) that there will be no forfeiture of unclaimed dividends before the claim becomes barred by law, and
 - (vi) that option or right to call of shares shall not be given to any person except with the sanction of the company in general meeting.
- (f) *Minimum public offer for subscription:* At least twenty-five per cent of each class or kind of securities issued by the company is to be offered to the public for subscription through

advertisement in newspapers for a period of not less than two days and that applications received in pursuance of such offer are to be allotted fairly and unconditionally.

- (g) *Cost of public issue of capital:* The new companies will be considered for listing and the listing of old companies will continue only if they adhere to the ceiling in expenditure of public issues.
- (h) *Undertaking regarding restriction on transfer of shares from promoters quota:* The auditors/practising company secretary of the company applying for listing (other than specified institutions) have to certify that the share certificates have been stamped so that shares from promoter's quota cannot be sold/hypothecated/transferred for a period of three years.
- (i) *Corporate governance must for listing:* New companies applying for listing have to enter into an agreement with the stock exchange undertaking to comply with corporate governance rules. All companies already listed on the stock exchanges will have to adhere to the new code if they want to remain listed on exchanges.

Other conditions and undertakings for listing

A company applying for listing has to satisfy following more conditions prior to listing—

- (a) (i) that letters of allotment and letters of regret will be issued simultaneously at the same time,
- (ii) that letters of rights will be issued simultaneously.
- (iii) that letters of allotment, acceptance or rights will be serially numbered, printed on good quality paper and

examined and signed by a responsible officer of the company and that whenever possible, they will contain the distinctive numbers of the securities to which they relate,

- (iv) that letters of allotment will contain a provision; and
 - (v) that letters of allotment and letters of rights will state how the next payment of interest or dividend on the securities will be calculated;
- (b) to issue, when so required, receipts for all securities deposited with it whether for registration, sub-division, exchange or for other purposes; and not to charge any fee for these services;
- (c) to issue, when so required, consolidation and renewal certificates in denominations of the market unit of trading to split certificates, letters of allotment, letters of rights and transfer, renewal, consolidation and split receipts into smaller units, to split call notices, issue duplicates thereof and not require any discharge on call receipts and to accept the discharge of members of stock exchange on split, consolidation and renewal receipts as good and sufficient without insisting on the discharge of the registered holders;
- (d) when documents are lodged for sub-division or consolidation for renewal through the clearing house of the exchange—
- (i) to accept the discharge of an official of the stock exchange clearing house on the company's split receipts and consolidation receipts and renewal receipts, as good and sufficient discharge without insisting on the discharge of the registered holders, and
 - (ii) to verify when the company is unable to issue certificates or split receipt or consolidation receipts or renewal

receipts immediately on lodgement whether the discharge of the registered holders, on the documents lodged for sub-division or consolidation or renewal and their signatures on the relative transfers are in order;

- (e) on production of the necessary documents by shareholders or by members of the exchange, to make on transfers an endorsement to the effect that the power of attorney or letters of administration or death certificate or certificate of the controller of Estate Duty or similar other documents has been duly exhibited to and registered by the company;
- (f) to issue certificates in respect of shares or debentures lodged for transfer within a period of one month of the date of lodgement of transfer and to issue balance certificates within the same period where the transfer is accompanied by a larger certificate;
- (g) to advise the stock exchange of the date of the board meeting at which the declaration or recommendation of a dividend or the issue of right or bonus share will be considered;
- (h) to recommend or declare all dividends and/or cash bonuses, at least five days before the commencement of the closure of its transfer books or the record date fixed for the purpose and to advise the stock exchange in writing of all dividends and/or cash bonuses recommended or declared immediately after a meeting of the board of the company has been held to finalise the same;
- (i) to notify the stock exchange of any material change in the general character of nature of the company's business;
- (j) to notify the stock exchange of any change-

- (i) in the company's directorate by death, resignation, removal or otherwise; (ii) of managing director, managing agent or secretaries and treasurers; and (iii) of auditors appointed to audit the books and accounts of the company;
- (k) to forward to the stock exchange copies of statutory and annual reports and audited accounts as soon as issued, including director's report,
- (l) to forward to the stock exchange, as soon as they are issued, copies of all other notices and circulars sent to the shareholders including proceedings of ordinary and extraordinary general meetings of the company and to file with the stock exchange certified copies of resolutions of the company as soon as such resolutions become effective;
- (m) to notify the stock exchange prior to intimating the shareholders of any new issue of securities whether by way of right, privilege, bonus or otherwise and the manner in which it is proposed to offer or allot the same;
- (n) to notify the stock exchange in the event of re-issue of any forfeited securities or the issue of securities held in reserve for future issue;
- (o) to notify the stock exchange of any other alteration of capital including calls;
- (p) to close the transfer books only for the purpose of declaration of dividend or issue or right or bonus shares or for such other purposes as the stock exchange may agree and after due notice and sanction;
- (q) to intimate the stock exchange any other information necessary

to enable the shareholders to appraise the position of the company and to avoid the establishment of a false market in the shares of the company;

- (r) that in the event of the application for listing being granted, such listing shall be subject to the rules and bye-laws of the exchange in force from time to time and that the company will comply within a reasonable time, with such further listing requirements as may be promulgated by the exchange as a general condition for new listings.

A fresh application for listing is necessary in respect of all new issues desired to be dealt in, provided that where such new securities are identical in all respects with those already listed, admission to dealings is granted on the company intimating to the stock exchange particulars of such new issues.

5.5. Listing application

A public company desirous of listing its securities on a recognised stock exchange has to apply for the purpose to the stock exchange and forward along with its application the following documents and particulars:

- (a) Three certified copies of memorandum and articles of association and, in the case of a debenture issue, a copy of the trust deed.
- (b) Copies of all prospectuses or statements in lieu of prospectuses issued by the company at any time.
- (c) Copies of offers for sale and circulars or advertisements offering any securities for subscription or sale during the last five years.
- (d) Copies of balance sheets and audited accounts for the last five

years, or in the case of new companies, for such shorter period for which accounts have been made up.

- (e) A statement showing-
 - (i) dividends and cash bonuses, if any, paid during the last ten years (or such shorter period as the company has been in existence, whether as a private or public company), and
 - (ii) dividends or interest in arrears, if any.
- (f) Certified copies of agreements or other documents relating to arrangements with or between-
 - (i) vendors and/or promoters; (ii) underwriters and sub-underwriters; and (iii) brokers and sub-brokers.
- (g) Certified copies of agreements with-
 - (i) managing agents and secretaries and treasurers; (ii) selling agents; (iii) managing directors and technical directors; and (iv) general manager, sales manager, manager or secretary.
- (h) Certified copy of every letter, report, balance sheet, valuation contract, court order or other document, part of which is reproduced or referred to in any prospectus, offer for sale, circular or advertisement offering securities for subscription or sale, during the last five years.
- (i) A statement containing particulars of the dates of, and parties to all material contracts, agreements (including agreements for technical advice and collaboration), concessions and similar other documents (except those entered into in the ordinary course of business carried on or intended to be carried on by the company) together with a brief description of the terms,

subject-matter and general nature of the documents.

- (j) A brief history of the company since its incorporation, giving details of its activities including any reorganisation, reconstruction or amalgamation, changes in its capital structure (authorised, issued and subscribed), and debenture borrowings, if any.
- (k) Particulars of shares and debentures issued- (i) for consideration other than cash, whether in whole or part, (ii) at a premium or discount, or (iii) in pursuance of an option.
- (l) A statement containing particulars of any commission, brokerage, discount or other special terms including an option for the issue of any kind of the securities granted to any person.
- (m) A list of highest ten holders of each class or kind of securities of the company as on the date of application along with particulars as to the number of shares or debentures held by and the address of each such holder.
- (n) Particulars of shares or debentures for which permission to deal is applied for:

Provided that a recognised stock exchange may, either generally by its bye-laws or in any particular case, call for such further particulars or documents as it deems proper.

Compulsory share capital audit for listed companies

On January 1, 2003 the SEBI ordered that all listed companies have to subject themselves to a secretarial audit within two months, to be undertaken by a qualified chartered accountant or company secretary. The purpose of the audit is reconciliation of the total admitted capital

of issuer companies with both the depositories and to ascertain the total issued and listed capital as on December 31, 2002. Thereafter, every quarter starting March 31, all companies have to submit an audit report to the stock exchanges as well as to the company's board of directors. Any difference in the admitted, issued and listed capital is to be immediately reported to the SEBI, the two depositories and the relevant stock exchanges.

The audit should certify that the total number of shares held in NSDL, CDSL and physical form tallies with the issued/paid up capital, dematerialisation requests are being confirmed within 21 days, changes in share capital (due to rights, bonus, preferential issue, IPO, etc.) during the quarter and that in principle approval for listing has been obtained from the relevant stock exchanges for pending issues.

5.6. Listing agreement, cash flow statement and fees

The representatives of SEBI, the stock exchanges of Mumbai, Calcutta, Delhi, Ahmedabad, National stock exchange and the institute of Chartered Accountant of India framed the norms for the inclusion of cash flow statement in the annual reports. The cash flow statement discloses the actual cash flow operations in the company. This would provide better quality information to the shareholders. To comply with the international standards this has been imposed as a part of listing agreement. The company has to provide the cash flow statement along with the balance sheet and profit and loss account. The cash flow statement has to be prepared according to the instructions given by the SEBI.

The cash flow statement helps the shareholders to analyse the pattern of resources deployed and evaluate the changes in net assets of a company. It helps to assess the ability of the company to generate

cash and cash equivalents. Briefly, it is useful to the shareholders to assess the liquidity, viability and financial adaptability of the company.

The stock exchange charges a fee from the company for permitting the company's scrip to be traded. The listing fee varies from major stock exchanges to regional stock exchanges. The fees charged by the regional stock exchanges are comparatively less than the major stock exchanges. The fee also differs according to the equity base of the company. The following table gives the listing fee charged by the NSE.

Table 5.1. Listing Fees of NSE (1999)

Particulars	Amount (Rs.)
1. Initial Listing Fees	7500
2. Annual Listing Fees	
a) Companies with paid up share and/or debenture capital of Rs. 1 Cr.	4200
b) Above Rs. 1 Cr and up to Rs. 5 Cr	8400
c) Above Rs. 5 Cr and up to Rs. 10 Cr	14000
d) Above Rs. 10 Cr and up to Rs. 20 Cr	28000
e) Above Rs. 20 Cr and upto Rs. 50 Cr	42000
f) Above Rs. 50 Cr	70000

Companies that have paid up capital of more than Rs. 50 Cr. Will pay additional listing fees of Rs. 1400 for every increase of Rs. 5 Cr or part thereof in the paid up share or debenture capital.

5.7. Listing of right shares

The formalities that have to be fulfilled in the case of listing of right shares are given below:

1. The company should notify the stock exchange, the date of meeting of Board of Directors at which the proposal of the right shares or debenture is to be considered.

2. The company should inform the decision taken regarding the right issue to the stock exchange immediately.
3. As per section 81 of the Companies Act, 1956 the company should obtain the consent of the shareholders by way of a special resolution in general body meeting.
4. The record date for closure of register of members should be intimated to the stock exchanges.
5. The letter of offer should give financial information before one month of the date of letter of offer and from the date of company's last balance sheet. The working results regarding the sales/turnover and other income, estimated gross profit/loss should be provided. The provisions made for depreciation and taxes should be presented. Estimated amount of profit and loss also should be given.

The current price of the share, highest and lowest price of the equity during the related period and the week and prices for the last four weeks should be provided. The shareholders can renounce the rights in favour of their nominees. The company has power to reject any nominee of whom it does not approve. If the nominee is rejected, the shareholders have the right to take up shares applied by the rejected nominee.

The shareholders are entitled to apply for additional shares. If the shareholders have renounced their shares in whole or in parts in favour of any other person, they cannot apply for additional shares. If the shares are not quoted at premium this condition would be relaxed by the stock exchanges.

6. The applications are accepted at all centres where recognised stock exchanges are situated. If the company is not able to make such arrangements at all centres, it can have the centres of its own choice subject to the condition that bank commission and collection charges for out station cheques would be borne by the company.

7. The letter of offer should be made within six weeks after the closure of the transfer books.
8. The shareholders should be given reasonable time to record their interest or exercise their rights. It should not be not less than four weeks.
9. The renunciation forms should be made available to the shareholders freely on request.
10. The company should inform the stock exchange the last date fixed for submission of rights application, split/renunciation application and consolidated coupons.
11. The company should forward a specimen copy of the letter of offer and application form for the rights issue to the stock exchange.
12. After despatching the allotment letters or share certificates the company should apply for listing in the prescribed form. The company has to submit the distribution, an analysis form and new issue statement forms.
13. After receiving the application form along with the required documents, the stock exchange would permit the shares to be listed for official dealing by its members.

The Securities and Exchange Board of India is taking steps to facilitate the speedy disposal of right issues. It has directed all stock exchanges to amend their listing rules. The appraisal of the rights issue is left with the merchant bankers. The provisions relating to the fixing of record dates for the purpose of right issue has been ignored. The companies can apply for record date simultaneously with the filing of the letter of offer with SEBI.

5.8. High Powered Committee Recommendation

The High Powered Committee's recommendations on Stock Exchanges on listing of industries securities are given below:

1. Once the completed listing application is submitted to the stock exchanges, it should not take more than three working days for the admission of securities for dealings.
2. Stock exchanges should set up guidance cells to provide required help to the companies seeking enlistment. A uniform check list exhibiting the standard set of norms required by the stock exchanges for the admission of the securities for trading should be prepared.
3. An updated brochure on matters related to listing should be prepared by the stock exchanges. An annual review should be made regarding the compliances of the provisions of listing agreement by the companies. It should also publicise the names of the companies that have not complied with the listing requirement and the Government also has to be informed.

These recommendations have been accepted by the Government.

5.9. Delisting of securities

In December 1998, the Bombay Stock Exchange (BSE) has threatened to delist shares of over 700 companies for non-payment of listing fee for 1997-98 by December 1998. Over the past years, several companies incurred loss and many of them were unable to pay the listing fee. But many companies purposefully avoided paying the listing fee. Delisting the company's share prevents the public scrutiny of performance. Many companies made public issue itself a business. Thus delisting may be compulsory or voluntary. Some of the common causes for delisting are given below.

Causes for compulsory delisting

- a) Non-payment of listing fee or violation of listing agreement.
- b) Thin/negligible trading or thin shareholding base.
- c) Non redressal of grievances.

- d) Unfair trade practices at the behest of promoters or managers, and malpractice such as issuing of duplicate fake shares by management.

Causes for voluntary delisting

- a) Unable to pay the listing fee. Listing fee is prohibitive.
- b) Business sick/suspended/closed.
- c) Capital base is small.
- d) Mergers, demergers, amalgamations and takeovers.

Voluntary delisting is at present provided to the companies if three conditions are satisfied: (i) Company must have incurred losses in the preceding three years, with net worth less than the paid-up capital; (ii) Securities have been infrequently traded; (iii) Securities remain listed at least on the regional stock exchange.

If these conditions are not fulfilled, Central Government approval would be needed. The other ground under which voluntary delisting can be allowed by a stock exchange is for thin public share holding.

5.10. Chandratre Committee Report (1997)

The committee studied the problem of delisting and felt that the listing process at present does not have any degree of transparency. The committee felt that disclosures should be made at every stage of the process. Advance public notice should be given by the stock exchange on the proposed delisting.

Suggested framework: The contents of the Listing Agreement (LA) are to be made part of the conditions for listing and continued listing under the rules of SCRA. The LA is to have two parts: Part A to stipulate the minimum conditions for listing to all stock exchanges (SE) and Part B to prescribe additional conditions by any SE.

- i) Basic minimum listing norms for listing on any recognised SE must be uniform; additional norms may be specified by Ses.
- ii) The LA may contain terms and conditions that serve investor interests though the law may allow greater leeway to a company on a particular issue.
- iii) Violation of the LA should be a punishable offense, with penalties of Rs. 10,000 and Rs. 1,000 per day of continuing default.
- iv) SEs have to be empowered to prosecute a company and its directors/officers for violation of LA.
- v) SEs have to strengthen their machinery for strict enforcement of LA and institution of prosecution.
- vi) SEBI to be nodal authority for any amendments to the LA with due consultation of SEs to ensure uniformity and avoid confusion.
- vii) Pre-listing scrutiny of draft offer documents to be made mandatory for all stock exchanges before any SEs are cited in the final offer document as SEs on which the securities would be listed.
- viii) Listing norms should be disclosed and well publicised to ensure desired transparency in the pre-listing scrutiny of offer documents.
- ix) Compulsory listing on Regional Stock Exchanges has to be dispensed with. SEs have to operate competitively and companies should have freedom of choice in seeking listing on any SE.

- x) Recovery of listing fee from shareholders in case of default by the company is not a feasible proposition though they may be the beneficiaries of the SE's services.
- xi) There is no need to bring uniformity in listing fee structure across SEs.
- xii) SEs should be free to decide the quantum of 'listing fee', manner of payment and periodicity of payment.
- xiii) The listing fee should not be prohibitive and disproportionate to the services offered by the SE.
- xiv) SEs must improve services to investors-especially redressal of investor grievances and investor education.

5.11. Summary

Listing means admission of a public limited company stocks to be traded on the stock exchange. For listing on the stock exchange there should be minimum issued capital and number of shareholders. To get listed the company has to apply to the stock exchange. Its articles of association should be approved. The draft prospectus should be approved by the SEBI and concerned stock exchange. Separate norms have been prescribed for the listing of right shares. Delisting may be done compulsorily by the stock exchanges for the reasons like non-payment of listing fee and other. Voluntary delisting by the companies is permitted in cases like sickness or closure or thin trading.

5.12 Key Words

Listing is a process of admitting a security for its purchase and sale on a recognised stock exchange

Listing Agreement (LA) are conditions and norms for listing and continued listing under the rules of SCRA.

5.13 Self Assessment Questions

1. What is listing? Why do companies get their shares listed on the stock exchange?
2. What are the advantages of the listing?
3. What are the pre-requisites for the listing?
4. Explain the procedures adopted for listing?
5. Why do companies become delisted? Discuss the suggestions given by the Chandratre committee report.
6. How are right shares listed on stock exchanges?

5.14 Suggested readings/References

1. M. Ranganathan and R. Madhumathi: Investment Analysis and Portfolio Management, Pearson Education, New Delhi.
2. Punithavathy Pandian: Security Analysis and Portfolio Management, Vikas Publishing House Pvt. Ltd., New Delhi.
3. Bharti V. Phathak: Indian Financial System, Pearson Education, Delhi.
4. Donald E. Fischer and Ronald J. Jordon: Security Analysis and Portfolio Management, PHI.
5. Prasanna Chandra: Investment Analysis and Portfolio Management, TMH, Delhi.

Subject Code : FM 304

Author : Ashish Garg

Lesson No. : 6

Vettor : P. Gupta

STOCK BROKERS AND OTHER INTERMEDIARIES

Structure

- 6.0 Objective
- 6.1. Introduction
- 6.2. Stock brokers
- 6.3. Sub-broker
- 6.4. Fund managers
- 6.5. Merchant bankers
- 6.6. Credit rating agencies
- 6.7. Stock depositories
- 6.8. Summary
- 6.9 Key Words
- 6.10 Self Assessment Questions
- 6.11. Suggested Readings/References

6.0 Objective

The understanding of the stock market from the dynamic setting of all the intermediaries is the aim of this lesson. The lesson briefly outlines the role of stock market intermediaries namely, stockbrokers and sub-brokers, fund managers, merchant bankers, credit rating agencies and stock depositories.

6.1. Introduction

Stock-market intermediaries link the various players in the field. Market intermediation helps in enabling a smooth functioning of the stock market. In a characteristic stock market, all the investors may

not be present at any point of time. Also, all the investors need not necessarily be uniformly skilled at analysing investment information. Especially when the market place is quite large and involves several players in terms of groups as well as numbers, intermediation becomes a requisite function. Stock market intermediaries, at present, perform the requisite services of order matching, investment advice, providing market liquidity, stock lending, retail broking, online trading, equity research, besides depository and other related services.

The major market intermediaries, according to the functions that they perform in the market that are discussed in this lesson, are as follows:

- Brokers
- Fund managers
- Merchant bankers
- Credit rating agencies
- Regulatory bodies
- Stock depositories
- Technology providers

6.2. Stock brokers

Stock brokers are members of recognised stock exchanges who buy, sell or otherwise deal in securities. For a broker to deal in securities on a recognised stock exchange, it is obligatory that he should be registered as stock broker with SEBI. For registration one has to satisfy certain qualifications and meet conditions laid down by SEBI.

Qualifications for registration as stock broker

A person with all the following qualifications can be considered for registration:

- (i) He is an Indian citizen with age of at least 21 years;
- (ii) He is not a bankrupt;

- (iii) He has not compounded with creditors;
- (iv) He has not been convicted for any fraud or dishonesty;
- (v) He is not engaged in any other business except that of an agent or broker in securities;
- (vi) He is not connected with a company or corporation;
- (vii) He is not a defaulter of any stock exchange; and
- (viii) He should have passed at least 12th standard examination.

While selecting a member of a stock exchange, the selection committee has also to consider professional and other educational qualifications, experience relevant to securities market, financial status and the performance of the applicant in the written test and interview. Mumbai, Kolkatta and Chennei stock exchanges have also admitted a few corporate and institutional members.

Conditions for grant of certificate to a stock broker

SEBI may grant a certificate to a stock broker subject to the following conditions:

- (a) he/she holds the membership of any stock exchange;
- (b) he/she shall abide by the rules, regulations and bye-laws of the stock exchange or stock exchanges of which he is a member;
- (c) in case of any change in the status and constitution, the stock broker shall obtain prior permission of the Board to continue to buy, sell or deal in securities in any stock exchange;
- (d) he/she shall pay the amount of fees for registration in the manner provided in the regulations; and
- (e) he shall take adequate steps for redressal of grievances of the investors within one month of the date of the receipt of the complaint and keep the board informed about the number,

nature and other particulars of the complaints received from such investors.

- (f) He is not engaged as principal or employee in any business other than that of securities except as a broker or agent not involving any personal financial liability;
- (g) He has never been expelled or declared a defaulter by any other stock exchange;
- (h) He has not been previously refused admission to membership unless a period of one year has elapsed since the date of such rejection.

A person eligible for admission as a member shall be admitted as a member only if he satisfies the following additional conditions—

- (i) He has worked for not less than two years as a partner with or an authorised assistant or authorised clerk or apprentice to a member; or
- (ii) He agrees to work for a minimum period of two years as a partner or representative member with another member and to enter into bargains on the floor of the stock exchange and not in his own name but in the name of such other member, or
- (iii) He succeeds to the established business of a deceased or retiring member who is his father, uncle, brother or any other person who is, in the opinion of the governing body, a close relative.

The stock exchange may authorise the governing body to waive above conditions in appropriate cases.

Membership of companies and corporations

A company as defined in the Companies Act, 1956 is eligible to be

elected as a member of a stock exchange if—

- (i) such company is formed in compliance with the provisions of Section 322 of the Companies Act;
- (ii) a majority of the directors of such company are shareholders of such company and also members of that stock exchange; and
- (iii) the directors of such company, who are members of that stock exchange, have ultimate liability in such company.

A company is also eligible to be elected as a member of a stock exchange if—

- (i) such company is formed in compliance with the provisions of Section 12 of the SEBI Act;
- (ii) such company undertakes to comply with such financial requirements and norms as may be specified by SEBI;
- (iii) the directors of the company are not disqualified for being members of a stock exchange;
- (iv) the directors of the company had not held the offices of the director in any company which had been a member of the stock exchange and had been declared defaulter or expelled by the stock exchange; and
- (v) not less than two directors of the company are persons who possess a minimum two years' experience—
 - (a) in dealing in securities; or
 - (b) as portfolio managers; or
 - (c) as investment consultants.

Functions of stock exchange members

(a) Broker/Dealer

All stock exchange members are brokers/dealers though not all firms in practice act in this dual capacity. Opening a securities account with a broker involves establishing the client's identity and depositing the requisite amount to cover the initial security purchase. The broker's role includes seeking to execute the client's orders at the best possible prices. In several accounts, the brokers also maintain securities on behalf of their clients and send them the dividend and interest cheques when these are received.

The brokerage is negotiable between the broker and the client. The maximum brokerage in the Bombay Stock Exchange, for instance, is subject to a ceiling of 2.5 per cent of the contract value. However, the average brokerage charged by the members from the clients is much lower. Typically there are different scales of brokerages for delivery transaction, trading transaction, and so on.

(b) Market Makers

Market makers fulfil the traditional role of the wholesaler. A jobber is a wholesaler and also acts as a market maker offering dual quotes for scrips. They may also specialise in select scrips. Market makers will fill securities orders from their 'book', which is a common term used to describe stocks or shares owned by the market makers themselves. They will take positions in stocks by increasing their 'book' in shares that are expected to rise in price, and reducing their 'book' in shares that are expected to fall. The profitability, or otherwise, of a market maker will depend on correct anticipation of market movements.

A market maker is committed to quoting a buying or selling price on

demand on Securities Exchange Automated Quotation (SEAQ) only in equities. Some firms will choose to be market makers in select shares.

Procedure for registration of stock brokers

Following procedure is to be adopted for registration of stock brokers:

1. Application for registration

A broker seeking registration with SEBI has to apply through the stock exchange of which he is a member. The stock exchange has to forward the application within 30 days from its receipt.

2. Furnishing of information, clarification, etc.

SEBI may require the applicant to furnish further information or clarification, regarding the dealings in securities and matters connected thereto to consider the application for grant of a certificate. SEBI may also require the applicant or its principal officer to appear before it for personal representation.

3. Consideration of application

SEBI takes into account, for considering the grant of a certificate all matters relating to buying, selling, or dealing in securities and in particular the following, whether the stock broker-

- (a) is eligible to be admitted as a member of a stock exchange;
- (b) has the necessary infrastructure like adequate office space, equipments and manpower to effectively discharge his activities;
- (c) has any past experience in the business of buying, selling or dealing in securities;
- (d) is subjected to disciplinary proceedings under the rules, regulations and bye-laws of a stock exchange with respect to

his business as a stock broker involving either himself or any of his partners, directors or employees

4. Granting registration

SEBI, on being satisfied that the stock broker is eligible, shall grant a certificate to the stock broker and send an intimation to that effect to the stock exchange or stock exchanges, as the case may be.

5. Stock brokers to abide by code of conduct

The stock broker holding a certificate shall, at all times, abide by the prescribed code of conduct.

Corporatisation of brokers

On August 12, 1997, the Securities and Exchange Board of India (SEBI) declared that it wanted to encourage brokers to go in for corporatisation so that brokers avail of the one-time exemption from capital gains tax provided in 1997-98 Union Budget. The budget exemption was valid till December 31, 1997. The move was prompted because of the belief that corporate brokerages are considered necessary for safety of the market.

With a view to encourage corporatisation the SEBI decided not to levy turnover-based registration fees on brokerages that convert themselves into corporate entities. The exemption applied for the period for which the brokers involved had already paid fees in their erstwhile capacity.

However, SEBI's bid to encourage this through waiver of turnover-based fees is subject to some conditions such as:

- (i) The individuals who become directors of the corporate brokerages should not have been disqualified from being stock exchange members.

- (ii) Such individuals should not have been directors of other corporate brokerages that have been expelled or defaulted on any stock exchange.
- (iii) The individuals who were originally proprietors or partners in the brokerage should be directors of the corporate and should hold at least 40 per cent stake in the company. They could also hold this stake through other corporates which nominate them as directors on the board for three years.
- (iv) Individual/partnership cardholders should have already paid the fees to SEBI as recommended by an expert committee.

Moreover, in accordance with the Chandrasekharan Committee's recommendation, SEBI also decided that only registered sub-brokers are to be allowed to trade legally.

To encourage corporatisation of brokers, the Bombay Stock Exchange (BSE) also decided that a company eligible to be a member of the exchange, nominated by an existing individual member of BSE and admitted as a corporate member, would not be required to pay any admission fee to the exchange provided the outgoing individual member himself holds, together with his family members and current partner, over 51 per cent of the share capital.

These efforts by the BSE had already started showing results. By November 11, 1997, of the 600-odd brokers registered with the BSE, 154 members had already corporatised their individual broking cards while another 20 applications were pending for final clearance.

Under the BSE rules, every applicant is to nominate at least two whole-time directors for the purpose of representing the company. The directors should have a minimum of two years experience in dealing with securities or as portfolio manager or investment consultants.

Fees to be paid by stock brokers

Every stock broker has to pay registration fees in the manner set out below:

- (a) Where the annual turnover of the stock broker does not exceed rupees one crore during any financial year, a sum of rupees five thousand for each financial year, or
- (b) Where the annual turnover of the stock brokers exceeds rupees one crore during any financial year, a sum of rupees five thousand plus one hundredth of one per cent of the turnover in excess of rupees one crore for each financial year, or
- (c) After the expiry of five financial years from the date of initial registration as a stock broker, he has to pay a sum of rupees five thousand for a block of five financial years commencing from the sixth financial year after the date of grant of initial registration to keep his registration in force.

Such fees are computed with reference to the annual turnover relating to the preceding financial year and is to be paid within six months. "Annual turnover" means the aggregate of the sale and purchase prices of securities received and receivable by the stockbroker on his own account as well as on account of his clients in respect of sale and purchase or dealing in securities during any financial year.

Every remittance of fees is to be accompanied by a certificate as to the authenticity of turnover on the basis of which fees have been computed, duly signed by the stock exchange of which the stock broker is a member or by a qualified auditor as defined in Section 226 of the Companies Act, 1956.

Code of conduct for stock brokers

A stock broker has to follow prescribed code of conduct regarding honest, skilful dealing in tune with statutory requirements, and discharge of duty to the investors and other stock brokers.

A. General conduct

- (1) Integrity- A stock broker must maintain high standards of integrity, promptitude and fairness in the conduct of all his business.
- (2) Exercise of due skill and care- A stock broker must act with due skill, care and diligence in the conduct of all his business.
- (3) Manipulation- A stock broker shall not indulge in manipulative, fraudulent or deceptive transactions or schemes or spread rumours with a view to distorting market equilibrium or making personal gains.
- (4) Malpractices- A stock broker must not create false market either singly or in concert with others or indulge in any act detrimental to the investors' interest or which leads to interference with the fair and smooth functioning of the market. A stock broker should not involve himself in excessive speculative business in the market beyond reasonable levels not commensurate with his financial soundness.
- (5) Compliance with statutory requirements- A stock broker must abide by all the provisions of the Act and the rules, regulations issued by the Government, the SEBI and the stock exchange from time to time as may be applicable to him.

B. Duty to the investor

- (1) Execution of orders- A stock broker, in his dealings with the clients and the general investing public, must faithfully execute the orders for buying and selling of securities at the best available market price and not refuse to deal with a small investor merely on the ground of the volume of business involved. A stock broker must promptly inform his client about the execution or non-execution of an order, and make prompt payment in respect of securities sold and arrange for prompt delivery of securities purchased by clients.
- (2) Issue of contract note- A stock broker has to issue, without delay to his client, a contract note for all transactions in the form specified by the stock exchange.
- (3) Breach of Trust- A stock broker must not disclose or discuss with any other person or make improper use of the details of personal investments and other information of a confidential nature of the client which he comes to know in his business relationship.
- (4) Business and commission (a) A stock broker must not encourage sales or purchases of securities with the sole object of generating brokerage or commission. (b) A stock broker must not furnish false or misleading quotations or give any other false or misleading advice or information to the clients with a view to inducing him to do business in particular securities and enabling himself to earn brokerage or commission thereby.
- (5) Business of defaulting clients- A stock broker should not deal or transact business knowingly, directly or indirectly or execute an order for a client who has failed to carry out his commitments in relation to securities with another stock broker.

- (6) Fairness to clients- A stock broker, when dealing with a client, must disclose whether he is acting as a principal or as an agent. He must ensure at the same time, that no conflict of interest arises between him and the client. In the event of a conflict of interest, he must inform the client accordingly. He must not seek to gain a direct or indirect personal advantage from the situation and must not consider client's interest inferior to his own.
- (7) Investment advice- Stock broker must not make a recommendation to any client who might be expected to rely thereon to acquire, dispose of, retain any securities unless he has reasonable grounds for believing that the recommendation is suitable for such a client upon the basis of the facts, if disclosed by such a client as to his own security holdings, financial situation and objectives of such investment. The stock broker should seek such information from clients, whenever he feels it is appropriate to do so.
- (8) Competence of stock broker- A stock broker should have adequately trained staff and arrangements to render fair, prompt and competent services to the clients.

C. Duty to other stock brokers

- (1) Conduct of dealings- A stock broker has to co-operate with the other contracting party in comparing unmatched transactions. A stock broker must not knowingly and wilfully deliver documents which constitute bad delivery and should co-operate with other contracting party for prompt replacement of documents which are declared as bad delivery.
- (2) Protection of client's interests- A stock broker should extend fullest co-operation to other stock brokers in protecting the

interests of his clients regarding their rights to dividends, bonus shares, right shares and any other right related to such securities.

- (3) Transactions with stock brokers- A stock-broker should carry out his transactions with other stock brokers and must comply with his obligations in completing the settlement of transactions with them.
- (4) Advertisement and publicity- A stock broker must not advertise his business publicly unless permitted by the stock exchange.
- (5) Inducement of clients- A stock broker must not resort to unfair means of inducing clients from other stock brokers.
- (6) False or misleading returns- A stock broker must not neglect or fail or refuse to submit the required returns and not make any false or misleading statement on any returns required to be submitted to the SEBI and the stock exchange.

Maintenance of books and records

Every stock-broker has to keep and maintain the following books of account, records and documents:

- (a) Register of transactions (sauda book),
- (b) Clients ledger,
- (c) General ledger,
- (d) Journals,
- (e) Cash book,
- (f) Bank pass book,
- (g) Documents register which should include particulars of shares and securities received and delivered,

- (h) Members' contract books showing details of all contracts entered into by him with other members of the same exchange or counterfoils or duplicates of memos of confirmation issued to such other members,
- (i) Counterfoils or duplicates of contract notes issued to clients,
- (j) Written consent of clients in respect of contracts entered into as principals,
- (k) Margin deposit book,
- (l) Registers of accounts of sub-brokers,
- (m) An agreement with a sub-broker specifying the scope of authority and responsibilities of the stock broker and such sub-broker.

Every stock broker has to preserve above books of accounts and records for a minimum period of five years. Moreover, if required, he has to submit a copy of the audited balance sheet and profit and loss account of an accounting period to SEBI within six months of the close of the period.

Action for default

A penalty of suspension of registration or cancellation of registration can be imposed on a stock broker for the following defaults:

- (a) fails to comply with any condition subject to which registration has been granted;
- (b) contravenes any of the provisions of the SEBI Act, rules or regulations;
- (c) contravenes the provisions of the Securities Contract (Regulation) Act, or the rules made thereunder;
- (d) contravenes the rules, regulations or bye-laws of the stock exchange.

Cancellation of registration

A penalty of cancellation of registration of a stock broker may be imposed, if-

- (i) commits repeated defaults leading to suspensions;
- (ii) violates any provisions of insider trading regulations or take-over regulations;
- (iii) guilty of fraud, or is convicted of a criminal offence; and
- (iv) cancellation of membership of the stock broker by the stock exchange.

On the basis of recommendations presented in August, 1999 by the Committee on Model Rules and Bye-laws for Stock Exchanges appointed by SEBI, it was contemplated that a broker who is declared a defaulter on the exchange, should not be allowed readmission for a period of five years. This is a shift from the current practice when a defaulter is allowed re-admission after he pays the outstanding dues, including those to his client. The defaulting broker should also be prohibited from being a member of any other exchange for a period of five years, the committee added. It was also recommended that a member of an exchange with multiple membership in other exchanges should also be declared defaulter.

Financial penalty for default in case of stock brokers

If any person, who is registered as a stock broker under this Act-

- (a) fails to issue contract notes in the form and in the manner specified by the stock exchange of which such broker is a member, he shall be liable to a penalty not exceeding five times the amount for which the contract note was required to be issued by that broker;

- (b) fails to deliver any security or fails to make payment of the amount due to the investor in the manner or within the period specified in the regulations, he shall be liable to a penalty not exceeding five thousand rupees for each day during which such failure continues;
- (c) charges an amount of brokerage which is in excess of the brokerage as may be specified in the regulations, he shall be liable to a penalty not exceeding five thousand rupees or five times the amount of brokerage charged in excess of the specified brokerage, whichever is higher.

Capital adequacy norms for stock brokers

The objective behind capital adequacy norms for stock brokers is to enable smooth financial operations in stock exchanges and to minimise changes of financial defaults by stock brokers. The capital adequacy requirement consists of two components: (a) base minimum capital, and (b) additional capital related to the value of broker's business.

Base minimum capital

This is the absolute minimum amount which each stock broker has to maintain with the stock exchange. This aims at ensuring the brokers' liquidity in times of crisis. Base minimum capital is not transferable from one stock exchange to another.

Members of Bombay and Calcutta stock exchanges have to deposit a minimum of Rs. 5 lakh with the stock exchange irrespective of the volume of business. This amount is Rs. 3.5 lakh for stock brokers at Delhi and Ahmedabad and Rs. 2 lakh for the members of other stock exchanges. Members maintain base minimum capital in the following ways:

- (i) Security deposit with stock exchanges being part of base minimum capital;
- (ii) A total of 25 per cent of the base minimum capital is to be maintained in cash with the exchange;
- (iii) Another 25 per cent of the base minimum capital has to remain in the form of long-term fixed deposit (i.e. deposit for 3 years or more) with a bank with a completely unencumbered and unconditional lien of the stock exchange; and
- (iv) The remaining requirement is to be maintained in the form of securities with a 30 per cent margin. The securities should be in the name of members but are pledged in favour of the stock exchange. These securities are evaluated every two months.

Minimum paid-up capital for corporate members

A company seeking admission as a corporate member of any stock exchange must have minimum paid-up capital as follows:

- (i) For Bombay and Calcutta Stock exchanges Rs. 30 lakh.
- (ii) For Delhi, Ahmedabad and Madras stock exchanges Rs. 20 lakh.
- (iii) For other stock exchanges Rs. 10 lakh.

Margin requirements

Stock exchanges specify the daily, carry forward and renewal margins for ensuring that members always have adequate working capital. Margin requirement varies from time to time and also in different stock exchanges depending on market situation and other factors.

Brokers' Rights vis-à-vis clients

Brokers enjoy the following rights in relation to their dealings for and on behalf of their clients:

- (i) Brokers have the right by way of lien, set-off, counter claim, charge or otherwise against money standing to the credit of client's account for all legitimate dues recoverable from them.
- (ii) Brokers can buy securities on behalf of the clients only on receipt of 20 per cent margin on the price of the security to be purchased, unless the clients already have equivalent credit with them. This marginal requirement may not apply to Mutual Funds and financial institutions.
- (iii) In the same way brokers should sell securities on behalf of clients only on receipt of a minimum of 20 per cent of the price of securities to be sold unless valid transfer documents have been received prior to the sale.
- (iv) Broker's right to close contracts- (a) In case of purchase of securities on behalf of the clients, the brokers have a right to close the transaction by selling the securities if the client fails to make the full payment for the execution of the contract within two days of delivering the contract in case of cash shares, within seven days for specified shares or before pay-in day fixed by the stock exchanges for the concerned settlement, whichever is earlier, unless the client already has an equivalent credit with the broker. The broker can meet any loss incurred on account of the transaction out of the margin money of the client.
- (v) In case of a transaction relating to sale of securities of client, the brokers have right to close the contract by making a purchase on behalf of the client, if clients fail to deliver the securities with valid transfer documents within 48 hours of the delivery of the contract note or before delivery day as fixed by the stock exchange for the concerned settlement, whichever is earlier. In case a broker suffers any loss on account of such

transaction, he has right to recover it from the margin money of the client.

Dealing member of a derivative segment

An applicant who desires to act as a trading member has to have a networth as may be specified by the stock exchange and the approved user and sales personnel of the trading member should have passed a certification programme approved by SEBI.

6.3. Sub-broker

The eligibility criteria for registration as a sub-broker in case of an individual is that the applicant should not be less than 21 years of age, has not been convicted of any offence involving fraud or dishonesty, passed the class 12th or equivalent examination from an institution recognised by the government.

A sub-broker has to cooperate with his broker in comparing unmatched transactions. A sub-broker cannot knowingly and wilfully deliver documents that constitute bad delivery. A sub-broker has to co-operate with the other contracting party for prompt replacement of documents that are declared as bad delivery. A sub-broker has to extend the fullest cooperation to the stockbroker in protecting the interests of their clients with respect to their rights to dividends, right or bonus shares, or any other rights attached to such securities. A sub-broker cannot fail to carry out stockbroking transactions with the broker or fail to meet business liabilities or show negligence in completing the settlement of transactions with them. A sub-broker has to execute an agreement or contract with affiliating brokers, which would clearly specify the rights and obligations of the sub-broker and the principal broker. A sub-broker cannot advertise business publicly unless permitted by the stock exchange. A sub-broker cannot resort to unfair means of inducing clients from other brokers.

A sub-broker cannot indulge in reprehensible conduct on the stock exchange nor wilfully obstruct the business of the stock exchange. Towards this purpose, compliance with the rules, by-laws, and regulations of the stock exchange has to be ensured. A sub-broker has to submit such books, special returns, correspondence, documents, and papers or any part thereof as may be required by SEBI or the concerned stock exchange. A sub-broker cannot neglect or fail or refuse to submit the required returns and not make any false or misleading statement on any returns submitted to SEBI or the stock exchanges. A sub-broker cannot indulge in manipulative, fraudulent, or deceptive transactions or schemes, or spread rumours with a view to distorting market equilibrium or making personal gains. A sub-broker cannot create a false market either singly or in concert with others or indulge in any act detrimental to public interest or which leads to interference with the fair and smooth functioning of the market mechanism of the stock exchanges.

A sub-broker has to pay a fee of Rs. 1,000 for each financial year for an initial period of five years. After the expiry of the five years, the sub-broker has to pay a fee of Rs. 500 for each financial year to ensure that the certificate remains in force.

6.4. Fund managers

Open-ended investment companies which are commonly referred to as mutual fund management companies, usually have a continuous selling and redemption of their units. Fund managers sell the units of funds to investors at the Net Asset Value (NAV) and are also ready to purchase units from the investors at the net asset value. In case of a 'no-load' fund, the fund manager sells the units by mail to the investors. Since there are no other intermediaries, this type of fund does not have a sales commission. In terms of a loaded fund, the units are sold through a salesperson.

When investors purchase units, a part of the investor's equity is removed as the load at the beginning of the contract. This is called the front-end loading. By adding the commission at the time of sale of units by the investors, exit fees or back-end loading can also be charged. The commission to be paid to the salesperson is added to the net asset value. Apart from this, the fund managers also charge a management fee for the cost of operating the portfolios. These costs include expenses that will be borne by the fund manager such as brokerage fees, transfer costs, bookkeeping expenses, and fund managers' salaries.

Funds can be categorised in terms of their main objectives. Thus, the fund could be a growth fund, income fund, balanced fund, industry-specific (tech fund, pharma fund, and so on) fund, or security-specific (index fund, money-market fund, bond fund, and so on) fund.

To be established as a fund manager, the sponsor should have a sound track record and general reputation of fairness and integrity in all business transactions. In the case of an existing mutual fund, such a fund should be in the form of a trust approved by SEBI.

An asset management company, or any of its officers or employees, is not eligible to act as a trustee of any mutual fund. A trustee of a mutual fund cannot be appointed as a trustee of any other mutual fund unless such a person is an independent trustee and prior approval of the mutual fund has been obtained for such an appointment.

Before the launch of any scheme the trustee has to ensure that the asset management company has the necessary infrastructure such as back office, dealing room, and accounting systems. The trustee has to ensure that an asset management company has been diligent in enlisting the services of brokers, in monitoring securities

transactions with brokers, and avoiding undue concentration of business with any broker. The trustee has to ensure that the asset management company has not given any undue or unfair advantage to any associates or dealt with any of the associates of the asset management company in any manner detrimental to the interest of the unitholders. The trustee has to ensure that the transactions entered into by the asset management company are in accordance with SEBI regulations. The trustee has to ensure that the asset management company has been managing the mutual fund schemes independently of other activities and have taken adequate steps to ensure the interest of investors.

The trustees are accountable for, and are custodians of, the funds and property of the respective schemes and have to hold the same in trust for the benefit of the unit holders in accordance with the regulations and the provisions of the trust deeds. The trustees have to take steps to ensure that the transactions of the mutual funds are in accordance with the provisions of the trust deeds. The trustees have to be responsible for the calculation of any income due to be paid to a mutual fund and also of any income received in the mutual fund for the holders of the units of any scheme in accordance with SEBI regulations and the trust deed. The trustees have to obtain the consent of the unit holders whenever required to do so by SEBI or on the requisition made by three-fourths of the unit holders of any scheme; or when the majority of the trustees decide to wind up or prematurely redeem the units.

A written communication has to be sent to the unit holders if the trustees need to change the fundamental attributes of any scheme or the trust or fees and expenses payable or any other change which would modify the scheme and affect the interest of the unit holders. The unit holders have to be given an option to exit at the prevailing

net asset value without any exit load if they do not agree to the change.

The asset management company has to exercise due diligence and care in all its investment decisions as would be exercised by other persons engaged in the same business. The asset management company is responsible for the acts of commissions or omissions by its employees or the persons whose services have been procured by the asset management company. The asset management company has to submit to the trustees quarterly reports of each year on its activities and the compliance with SEBI regulations. An asset management company cannot purchase or sell securities, which is on an average of 5 per cent or more of the aggregate purchases and sale of securities made by the mutual fund in all its schemes unless it has recorded in writing the justification for exceeding the limit. This limit of 5 per cent applies for a block of three months.

The mutual fund has to appoint a custodian to carry out the custodial services for the schemes of the fund and send intimation of the same to SEBI within 15 days of the appointment of the custodian.

The asset management company may, at its option, repurchase or reissue the repurchased units of a close-ended scheme. The units of a close-ended scheme may be converted into an open-ended scheme if the offer document of such scheme discloses the option and the period of such conversion; or the unit holders are provided with an option to redeem their units in full.

The asset management company has to specify in the offer document, the minimum subscription amount it seeks to raise under the scheme; and in case of oversubscription, the extent of subscription it may retain. The mutual fund and the asset management company are liable to refund the application money to the applicants if the mutual fund fails to receive the minimum subscription amount or if the receipt

from the applicants for units are in excess of the subscription.

Every mutual fund has to compute the net asset value of each scheme by dividing the net assets of the scheme by the number of units outstanding on the valuation date. The NAV of the scheme has to be calculated and published at least in two daily newspapers at intervals not exceeding one week. The NAV of any scheme for special target segment or any monthly income scheme which are not required to be listed on any stock exchange, may publish the NAV at monthly or quarterly intervals as may be permitted by SEBI.

All expenses and incomes accrued upto the valuation date are to be considered for the computation of the net asset value. For this purpose, while major expenses such as management fees and other periodic expenses are accrued on a day-to-day basis, other minor expenses and income need not be so accrued, provided the non-accrual does not affect the NAV calculations by more than 1 per cent. Any changes in securities and in the number of units are to be recorded in the books not later than the first valuation date following the date of transaction. If this is not possible given the frequency of the NAV disclosure, the recording may be delayed upto a period of seven days following the date of the transaction. As a result of this non-recording, it must be ensured that the NAV calculations should not be affected by more than 1 per cent.

6.5. Merchant bankers

Merchant banking pertains to an individual or a banking house whose primary function is to facilitate the business process between a product and the financial requirements for its development. The merchant banker acts as a capital source whose primary activity is directed towards a business enterprise needing capital. The role of the merchant banker, who has the expertise to understand a particular transaction, has to arrange the necessary capital and

ensure that the transaction would ultimately produce profits. Often, the merchant banker also becomes involved in the actual negotiations between a buyer and seller of capital in a transaction between corporate enterprises.

Merchant bankers act as intermediaries when companies raise capital by issuing securities in the market. Merchant banking is the financial intermediation that matches the entities that need capital and those that have capital. It is a function that facilitates the transfer of capital in the market.

Merchant banking helps in channelising the financial surplus of the general public into productive investment avenues. It helps to coordinate the activities of various intermediaries to the share issue such as the registrar, bankers, advertising agency, printers, underwriters, brokers, and so on. It also helps to ensure the compliance with rules and regulations governing the securities market.

To carry out the business of merchant banking in India. Registration with SEBI is mandatory. The applicant should be a body corporate. The applicant should have a minimum net worth of Rs. 5 crores. The applicant should not carry on any business other than those connected with the securities market. The applicant should have the necessary infrastructure such as office space, equipment, manpower, and so on. The applicant must have at least two employees with prior experience in merchant banking. Any associate company, group company, subsidiary, or interconnected company of the applicant should not have been a registered merchant banker. The applicant should not have been involved in any securities scam or proved guilty for any offence.

Main functions of a merchant banker

Issue Management: The management of debt and equity offerings forms the main function of the merchant banker. A merchant banker assists companies in raising funds from the market. The main areas of work in this regard include instrument designing, issue pricing, registration of the offer document, underwriting support, marketing of the issue, allotment and refund, and listing on stock exchanges.

The merchant banker helps in distributing various securities such as equity shares, debt instruments, mutual fund products, fixed deposits, insurance products, commercial paper, and so on. The distribution network of the merchant banker can be classified as institutional and retail in nature. The institutional network consists of mutual funds, foreign institutional investors, private equity funds, pension funds, financial institutions, and so on. The size of such a network represents the wholesale reach of the merchant banker. The retail network depends on networking with individual investors.

Corporate advisory services- Merchant bankers offer customised solutions to their client's financial problems. Financial structuring for a client involves determining the right debt-equity ratio. Merchant bankers also explore the refinancing alternatives of the client, and evaluate cheaper sources of funds.

Another area of advice is rehabilitation and turnaround management. In case of sick units, merchant bankers may design a revival package in coordination with banks and financial institutions. Risk management is another area where advice from a merchant banker is sought. Advising the client on different hedging strategies and suggesting appropriate strategy also is a sought after service.

Project advisory services: Merchant bankers help their clients in various stages of any project undertaken by the clients. They assist clients in conceptualising the project idea in the initial stage. Once

the idea is formed, they conduct feasibility studies to examine the viability of the proposed project. They also assist the client in preparing necessary documents such as a detailed project report.

Loan syndication: Merchant bankers arrange to tie up loans for their clients. This takes place in a series of steps. First, they analyse the pattern of the client's cash flows, based on which the terms of the borrowing are defined. Then the merchant banker prepares a detailed report, which is circulated to various banks and financial institutions and they are invited to participate in the syndicate. The banks then negotiate the terms of lending on the basis of which the final allocation is done.

Market operations: Merchant bankers perform market operations for their clients in the form of dealing in the buyback arrangements of the company from the stock market, offloading venture capital holdings in the market, and so on.

6.6. Credit rating agencies

Credit rating is a fee-based financial advisory service for the evaluation of a specific instrument (especially debt, share, and so on), and is intended to grade different instruments in terms of the credit risk associated with the particular instrument. Rating is only an opinion expressed by an independent professional organisation following a detailed study of all the relevant factors. It does not amount to a recommendation to buy, hold, or sell an instrument as it does not take into consideration factors such as market prices, personal risk preferences of an investor, and other factors that influence an investment decision. Credit rating is beneficial to investors, companies, banks, and financial institutions.

SEBI will grant registration to a credit rating agency if a public financial institution, a bank, or a foreign credit rating agency having

at least five years experience in rating securities promotes the applicant. A company or a body corporate having continuous networth of minimum Rs. 100 crores as per its audited annual accounts for the preceding five years may also promote the credit rating agency.

Every credit rating agency must enter into a written agreement with each client whose securities it proposes to rate. The agreement deals with the rights and liabilities of each party in respect of the rating of securities, the fee to be charged by the credit rating agency, and a periodic review of the rating. The client has to agree to cooperate with the credit rating agency, and a periodic review of the rating. The client has to agree to cooperate with the credit rating agency in order to enable the latter to arrive at, and maintain, a true and accurate rating of the client's securities and in particular provide true, adequate, and timely information for the purpose.

The credit rating agency must disclose to the client the rating assigned to its securities through regular methods of dissemination, irrespective of whether the rating is or is not accepted by the client. A credit rating agency cannot withdraw a rating so long as the obligations under the security rated by it are outstanding, except where the company whose security is rated is wound up or merged or amalgamated with another company.

Every credit rating agency has to make public the definitions of the concerned rating, along with the symbol, and also state that the ratings do not constitute a recommendation to buy, hold, or sell any security. The credit rating agency has to give the public information relating to the rationale of the ratings, which covers an analysis of the various factors justifying a favourable assessment, as well as factors constituting a risk.

The rating agency also has to comply with the requirement of

maintaining books of accounts and other relevant information as per SEBI regulations. The credit rating agency has to treat as confidential, information supplied to it by the client and it cannot disclose the same to any other person, except where such disclosure is required or permitted by law.

No credit rating agency can rate a security issued by its promoter. In case the promoter is a lending institution, its chairman, director, or employees cannot be a chairman, director, or employees of the credit rating agency or its rating committee. No credit rating agency can rate a security issued by a borrower or a subsidiary or an associate of its promoter, if the chairman, directors, or employees are common. The credit rating agency cannot rate a security issued by its associate or subsidiary, if the credit rating agency or its rating committee has a chairman, director or employee who is also a chairman, director or employee of any such entity.

6.7. Stock depositories

A major development in the Indian capital market has been the setting up of depositories. The objective of a depository is to provide for the maintenance/transfer of ownership records of securities in an electronic book entry form and enable scripless trading in stock exchange, thereby reducing settlement risk. SEBI has granted registration to two depositories, namely, the National Securities Depository Limited (NSDL) and the Central Depository Services (India) Limited under the depository Act, 1996.

The following securities are eligible for being held in dematerialised form in a depository:

- (a) Shares, bonds, debentures, or other marketable securities of a like nature of any incorporated company or other body corporate; and

- (b) Units of mutual funds, rights under collective investment schemes and venture capital funds, commercial paper, certificates of deposit, securitised debt, money market instruments, government securities and other unlisted securities.

The depository must maintain a continuous electronic means of communication with all its participants, issuers, or issuers' agents, clearing houses, and clearing corporations of the stock exchanges and with other depositories.

The depository has to satisfy SEBI that it has a mechanism in place to ensure that the interest of the persons buying and selling securities held in the depository are adequately protected. The depository must register the transfer of a security in the name of the transferee only after the depository is satisfied that payment for such a transfer has been made. The fee for registration as a depository is given below.

Payer	Mode of payment	Amount of fees
Sponsor or depository	A demand draft or bankers' cheque payable to SEBI at Mumbai.	Application fees (sponsor) Rs. 50,000 Registration fees (depository) Rs. 25,00,000 Annual fees (depository) Rs. 10,00,000.

Every depository has to maintain records of securities dematerialised and rematerialised, the names of the transferor, transferee, and the dates of transfer of securities. A register and an index of beneficial owners, details of the holdings of the securities of the beneficial owners as at the end of each day, records of instructions received from and sent to participants, issuers, issuers' agents, and beneficial owners is to be kept. Other records of approval, notice, entry, and cancellation of pledge or hypothecation, details of participants, details of securities declared to be eligible for dematerialisation in the depository, and

other documents necessary for carrying on the activities as a depository has to be kept.

Every depository has to intimate SEBI of the location where the records and documents are maintained. The depository has to preserve records and documents for a minimum period of five years.

Every depository has to extend all such cooperation to the beneficial owners, issuers, issuers' agents, custodians of securities, other depositories and clearing organisation as is necessary for the effective, prompt, and accurate clearance and settlement of securities' transactions and conduct of business.

A depository or a participant or any of their employees cannot render, directly, any investment advice about any security in the publicly accessible media. In case an employee of the depository or the participant is rendering such advice, disclosure as to the interest of the dependent family members and the employer indicating their long or short position in that security has to be made.

6.8. Summary

Market intermediaries bridge the investment gap for the capital market participants, especially investors. Intermediary services that have become essential are the technology support services, stock depositories, auditing bodies, and credit rating agencies.

Brokers, sub-brokers, investment advisors, merchant bankers, and investment banks are the other stock market intermediaries who have rendered valuable assistance to the capital market.

However, with advances in technology, the role of the players such as sub-brokers have become redundant. The online access to market movements have made the marketplace more sophisticated and investors have to be knowledgeable to gain from the market.

6.9 Key Words

Stock brokers are members of recognised stock exchanges who deal in securities.

Market makers is like a wholesaler.

Jobber is a wholesaler and also acts as a market maker offering dual quotes for scrips.

Book is a common term used to describe stocks or shares owned by the market makers.

Annual turnover means the aggregate of the sale and purchase prices of securities received and receivable by the stockbroker on his own account as well as on account of his clients in respect of sale and purchase or dealing in securities during any financial year.

Depository provides for the maintenance/transfer of ownership records of securities in an electronic book entry form to enable paperless trading in stock exchange.

Credit rating agency is a fee-based financial advisory organisation/service provider for the evaluation of a specific financial instruments in terms of the credit risk associated with it.

Merchant bankers act as fee based intermediaries/service providers when companies raise capital by issuing securities in the market.

Base minimum capital is the absolute minimum amount which each stock broker has to maintain with the stock exchange in order to ensure liquidity.

6.10. Self Assessment Questions

1. Who are stock brokers? What are their functions?
2. Discuss role of stock market intermediaries.
3. Explain the services provided by depositories.
4. Explain the services provided by credit rating agencies.

6.11. Suggested readings/References

1. M. Ranganathan and R. Madhumathi: Investment Analysis and Portfolio Management, Pearson Education, New Delhi.
2. Punithavathy Pandian: Security Analysis and Portfolio Management, Vikas Publishing House Pvt. Ltd., New Delhi.
3. Bharti V. Phathak: Indian Financial System, Pearson Education, Delhi.
4. Donald E. Fischer and Ronald J. Jordon: Security Analysis and Portfolio Management, PHI.
5. Prasanna Chandra: Investment Analysis and Portfolio Management, TMH, Delhi.

Subject Code : FM 304

Author : Ashish Garg

Lesson No. : 7

Vettor : Prof. B.S. Bodla

STOCK MARKET INDICES

Structure

- 7.0 Objective
- 7.1. Introduction
- 7.2. Computation of stock index
- 7.3. Differences between the indices
- 7.4. The BSE sensitive index
- 7.5. NSE-50 Index (Nifty)
- 7.8. Selection criteria
- 7.9. CNX Nifty junior
- 7.10. S & P CNX 500
- 7.11. Summary
- 7.12. Key Words
- 7.13. Self Assessment Questions
- 7.14. Suggested Readings/References

7.0 Objective

This lesson would familiarize the learners about the methods of calculation of stock price indices.

7.1. Introduction

Index numbers are termed as barometers of economy as they mirror the relative changes taking place in various economic indicators like GDP, exports, prices, etc. similarly stock market indices are the barometers of the stock market. They reflect the stock market

behaviour. With some 7,000 companies listed on the Bombay stock exchange, it is not possible to look at the prices of every stock to find out whether the market movement is upward or downward. The indices give a broad outline of the market movement and represent the market. Some of the stock market indices are BSE Sensex, BSE-200, Dollex, NSE-50, CRIOSIL-500, Business Line 250 and RBI indices of Ordinary Shares. Usefulness of indices would be clear from the following points:

1. Stock market indices help to recognise the broad trends in the market.
2. Stock price index can be used as a benchmark for evaluating the investors portfolio.
3. The investor can use the indices to allocate funds rationally among stocks. To earn returns on par with the market returns, he can choose the stocks that reflect the market movement.
4. Index funds and futures are formulated with the help of the indices. Usually fund managers construct portfolios to emulate any one of the major stock market index. ICICI has floated ICICI index bonds. The return of the bond is linked with the index movement.
5. Technical analysts studying the historical performance of the indices predict the future movement of the stock market. The relationship between the individual stock and index predicts the individual share price movement.
6. Stock market function as a status report on the general economy. Impacts of the various economic policies are reflected on the stock market.

7.2. Computation of stock index

Different methods have been suggested for the computation of stock indices. They are the market value weighted method, price weighted method, and equal weight method.

The market value weighted method computes a stock index in which each stock affects the index in proportion to its market value. This is also called the capitalisation-weighted index. The price weighted method gives weights to each security forming the index according to the price per share prevailing in the market. Weights can also be given equally to all the shares. This method of computing the index is known as equal weight method.

Example- Assume that stocks A1, A2 and A3 constitute the sample companies for the computation of an index. The base index is 100 and the base date price and current market prices are given below.

Compute the current stock index when no change in share representation takes place, dividends or stock splits have not occurred, and no additional shares have been issued. Use the market value weighted method; price weighted method, and equal weight method.

Share	Outstanding shares	Base price	Current price
A1	500,000	120	200
A2	800,000	150	900
A3	600,000	110	150

(i) Market value weighted method

Share	Outstanding shares	Base price	Base value	Current price	Current value
A1	500,000	120	60,000,000	200	100,000,000
A2	800,000	150	120,000,000	900	720,000,000
A3	600,000	110	66,000,000	150	90,000,000
Total value			246,000,000		910,000,000

$$\text{Market price weighted index} = \frac{910000000}{246000000} \times 100 = 370$$

(ii) Price weighted method

Share	Base price	Current price
A1	120	200
A2	150	900
A3	110	150
Total	380	1,250

$$\text{Market price weighted index} = \frac{1250}{380} \times 100 = 329$$

(iii) Equal weight method

Share	Percentage change in share	Weight	Weighted average
A1	66.67	1/3	22.22
A2	500	1/3	166.67
A3	36.36	1/3	12.12

$$\text{Equal weighted index} = 100 + 201.01 = 301.01$$

The stock exchanges in India compute and publish indices representing different sets of portfolios using the market capitalisation weighted average method. In this method, the number of equity shares outstanding is multiplied by the price to arrive at market capitalisation. This will ensure that each security will influence the index in proportion to its respective market importance. The current market capitalisation is compared with the base market capitalisation (base value) in order to get the index value at any point of time.

$$\text{Index} = (\text{Total market capitalisation of constituent scrips} / \text{base value} \times \text{base index})$$

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

The advantage of this method of compilation is that it has the flexibility

to adjust for price changes caused by various corporate actions. The methodology of calculation is the same as the one employed in many of the popular indices such as the S & P 500, NASDAQ, Hang Seng Index, and FTSE 100 Index.

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

An index that calculates the performance of a group of stocks assuming that all dividends and distributions are reinvested is called the total return index. Examples of indices based on this computation method include the S & P 500 and Russell 2000 (American capital market). This method is usually considered to be a more accurate measure of actual performance than if the dividends and distributions were ignored.

All stock exchanges constitute an index committee to identify the representative shares for the index. The Index Committee meets frequently to review the indices. In case of a revision in the constituent scrips of the index, the announcement of the incoming and outgoing scrips will be made ahead of the actual revision of the index.

The selection of securities for the BSE index will be made on the basis of certain quantitative and qualitative criteria such as market capitalisation, liquidity, depth, trading frequency, and industry representation.

Quantitative criteria

1. *Market capitalisation:* The scrip should be among the top listed companies by market capitalisation. Also, a stock exchange

can insist that the market capitalisation of the participating scrips be more than a certain percentage of the total market capitalisation of the index. The BSE imposes a minimum weight of 0.5 per cent for a company's scrip to be selected into the BSE Sensex. The average market capitalisation for the preceding six months gives the minimum weight requirement.

2. *Liquidity*- Liquidity is estimated with the help of the following measures:

(i) *Number of trades*: The scrip should be among the top listed companies when ranked by the average number of trades per day over a specified time period (say, six months, one year).

(ii) *Value of shares traded*: The scrip should be among the top listed companies when ranked by the average value of shares traded per day over a specified time period.

(iii) *Trading frequency*: The scrip should have been traded on each and every trading day over a specified time duration.

(iv) *Trading activity*: The average number of shares traded per day as a percentage of the total number of outstanding shares of the company should be greater than a certain percentage for the specified time duration.

3. *Continuity*: Whenever the composition of the index is changed, the continuity of the historical series of index values is re-established by correlating the value of the revised index to the old index (index before revision). The back calculation over the preceding one-year period is carried out and the correlation of the revised index to the old index should not be less than a

certain point, say 0.98. this ensures that the historical continuity of the index is maintained.

4. *Industry representation:* Scrip selection would take into account a balanced representation of the listed companies from all the industries participating in the stock market. Further, the index companies should preferably be leaders in their industry group.
5. *Listed history:* The scrip to be included in an index should have a previous trading history in the respective stock exchange. For example, for inclusion of a scrip in the BSE Sensex, the security should have a listing history of at least six months on BSE.

Qualitative criteria

Besides the quantitative criteria, a stock exchange can also list out certain qualitative factors for the inclusion of a company's security in its index computation. The qualitative criteria for inclusion of a scrip in the BSE Sensex is that the company should preferably have a continuous dividend paying record or/and should be promoted by a management with a proven record. Also the scrip should preferably be from the 'A' group.

With the introduction of the online trading mechanism in many markets, index computation is also automatically generated by the system. During market hours, the prices of the index scrips at which trades are executed are automatically used by the trading computer to calculate the index in a specified frequency by the system (15 seconds) and continuously updated on all the trading workstations connected to the trading computer in real time.

Adjustment for bonus, rights, and newly issued capital: The computation of an index has to consider certain adjustments when

the composition of the sample changes, when one of the component stocks pays bonus or issues right shares. If no adjustments are made, there would be discontinuity between the current value of the index and its previous value.

In case of a bonus issue, there is no change in the base value; only the number of shares in the formula is updated. When a company, included in the computation of the index, issues bonus shares, the new weighting factor will be the number of equity shares outstanding after the bonus issue. This new weighting factor will be used while computing the index from the day the change becomes effective.

The market value weighted method incorporates the adjustment effectively into the index while the other index computation methods do not show the effect of a bonus issue.

Example. Compute the index using the market value weighted method and price weighted method for the following market information. The base index is 100.

Share	Outstanding shares (Base period)	Current price	Base price
A1	800,000	80	50
A2	500,000	60	40
A3	300,000	100	60

Company A2 issued bonus shares in the ratio of 1 : 2. the current price reflects the share price after the bonus share has become effective in the market. There is no other change in other companies.

(i) Market value weighted method

Share	Outstanding shares	Base price	Base value	Current price	Current value
A1	800,000	50	40,000,000	80	64,000,000

A2	500,000	40	20,000,000	60	90,000,000*
A3	300,000	60	18,000,000	100	30,000,000
Total value			78,000,000		184,000,000

*Outstanding shares for A2 after the issue of bonus will be 1,500,000

$$\text{Market value weighted index} = \frac{184000000}{78000000} \times 100 = 236$$

(ii) Market price weighted method

Share	Base price	Current price
A1	50	80
A2	40	60
A3	60	100
Total	150	240

$$\text{Market price weighted index} = \frac{240}{150} \times 100 = 160$$

When a company, included in the computation of the index, issues rights shares, the number of additional shares issued increases the weighting factor for that share. An offsetting or proportionate adjustment is then made to the base year average.

Weight factors get revised when new shares are issued by way of conversion of debentures, of loans into equity by financial institutions, mergers, and so on. The base year average is also suitably adjusted to offset the change in the market value thus added. Similarly, when convertible/non-convertible bonds/debentures, preference shares, and so on are issued as rights to equity shareholders, the base year average is adjusted on the basis of the ex-right price of the equity shares.

For the computation of the index, the base value is adjusted and used as a denominator for arriving at the index value.

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

The changes are, in effect, proportional adjustments in the base year to offset the price changes in the market values upon which the index is based. The formula for changing the base year average is as follows:
New Base Year Average = Old Base Year Average ×

Example. A company included in the computation of the index issues rights shares which increases the market value of its shares by Rs. 500 crores. If the existing base year average value is Rs. 7,590 crores and the aggregate market value of all the shares included in the index before the right issue is Rs. 9,586 crores, the revised base year average will then be computed as follows:

= Rs. 7,985.89 crores

This calculated amount (Rs. 7,985.89) will be used as the base year average for calculating the index number from then onwards till the next base change becomes necessary.

Dividend payment by the constituting company also needs to be adjusted against the ex-dividend price. The dividend declared per share is deducted from the cum-dividend price per share. The ex-dividend price quoted in the market is taken as the price of the constituent security, which will be less than the price of the security earlier.

Example. The following securities constitute the computation of an index. Security A2 declared a dividend of Rs. 2 per share. The base price and the ex-dividend current price quoted in the market are given below. Compute the value-weighted index and price weighted

index. Base index-100.

Security	Outstanding shares	Base price	Current price
A1	500,000	85	92
A2	600,000	65	69*(previous day price-Rs. 72)
A3	700,000	50	58

*Ex-dividend price

(i) Market value weighted method

Share	Outstanding shares	Base price	Base value	Current price	Current value
A1	500,000	85	42,500,000	92	46,000,000
A2	600,000	65	39,000,000	69	41,400,000
A3	700,000	50	35,000,000	58	40,600,000
Total value			116,500,000		128,000,000

$$\text{Market value weighted index} = \frac{128000000}{116500000} \times 100 = 109.87$$

(ii) Market price weighted method

Share	Base price	Current price
A1	85	92
A2	65	69
A3	50	58
Total	200	219

$$\text{Market price weighted index} = \frac{219}{200} \times 100 = 109.5$$

7.3. Differences between the indices

The indices are different from each other to a certain extent. Some times the Sensex may move up by 100 points but NSE Nifty may move up only 40 points. The main factors that differentiate one index

from the other are given below:

1. The number of the component stocks
2. The composition of the stocks
3. The weights
4. Base year

- 1. The number of the component stocks:** The number of stocks in an index influences the behaviour of the index. If the number of component stocks is larger, it would be a representative sample capable of reflecting the market movement.

The sensex has 30 scrips like the Dow Jones Industrial Average in the U.S. At the same time BSE-100 (National), BSE-200, the Dollex, (dollar equivalent of BSE-200), the RBI index (338 stocks) and Nifty (50 stocks) are also widely used. Private organisations like CRISIL has constructed its own index and named it as and hence their movements also vary. BSE National Index is considered to be more representative than Sensex because it has 100 stocks. Out of 100, 22 are quoted on the BSE and the rest are listed on the BSE and other exchanges.

- 2. The composition of the stocks:** The composition of the stocks in the index should reflect the market movement as well as the macro economic changes. The Centre for Monitoring Indian Economy maintains an index. It often changes the composition of the index so as to reflect the market movements in a better manner. Some of the scrip's traded volume may fall down and at the same time some other stock may attract the market interest. In such a case the scrip that has lost the market interest should be dropped and others must be added. Only then, the index would become more representative. In 1993, sensex dropped one company and added another. In August

1996 sensx was thoroughly revamped. Half of the scrips was changed. The composition of the Nifty was changed in April 1996 and 1998. Crisils' 500 was changed in November 1996. In October 1998 the Nifty Junior Index composition has been changed. Recognising the importance of the information technology scrips, they are included in the index.

- 3. The weights:** The weight assigned to each company's scrip also influences the movement of the index. The indices may be weighted with the price or value. The Dow Jones Industrial Average and Nikkei Stock Average of 225 scrips of Tokyo stock exchange are weighted with the price. A price weighted index is computed by adding the current prices of the stocks in the stock exchange and dividing the sum by the total number of stocks. The stocks with high price influence the index more than the low priced stock in the sample. The number of stocks is usually adjusted for any stock splits, bonus and right issues.

In the value weighted index the total market value of the share (the number of outstanding shares multiplied by the current market price) is the weight. Most of the indices all over the world and in India except Economic Times Ordinary Share Index are weighted with the value. The scrip influences the index in proportion to its importance in the market. The price changes that occur in scrip with heavy market capitalisation dominates the changes that occur in the index. The price changes caused by bonus issue or right of a particular scrip are reflected in the index. With the bonus issue or right issue the number of outstanding shares and their values used to change.

In an unweighted index, all stocks carry equal weights. The price or market volume of the scrip does not affect the index. The movement of the price is based on the percentage change

in the average price of the stocks in the particular index. Here it assumes that equal amount of money is invested in each of the stocks in the index. Value Line Average in the US is calculated without weights but geometric mean is used in the computation instead of arithmetic mean.

- 4. Base year:** The choice of base year also leads to variations among the index. The base year differs from each other in the various indices. The base year should be free from any unnatural fluctuations in the market. If the base year is close to the current year, the index would be more effective in reflecting the changes in the market movement. At the same time if it is too close, the investor cannot make historical comparison.

The sensdex has the base year as 1978-79 and the next oldest one is the RBI index of ordinary shares with 1980-81 as base year. The following Table 7.1 gives the summary of major stock market indices.

Table 7.1. Major stock market indices

Indian stock market indices	Weighting base	Number of stock	Base year
Economic Times Index of Ordinary Share Prices	Unweighted	72	1984-85
BSE Sensex	Market value	30	1978-79
BSE National Index	Market value	100	1983-84
BSE-200	Market value	200	1989-90
Dollex	Market value	200	1989-90
S & P Nifty (NSE-50)	Market value	50	Nov. 1995
S & P CNX Nifty Junior (NSE madcap)	Market value	50	-
S & P CNX-500	Market value	500	1994

CNX Midcap-200	Market value	200	1994
CMIE	Market value	72	June 1994
International Stock Indices			
Dow Jones Industrial Average	Price weighted	30	1928
Nikkei Dow Jones Average	Price weighted	225	1949
S & P Composite	Market value	500	1941-42

7.4. The BSE sensitive index

The BSE Sensitive index has long been known as the barometer of the daily temperature of Indian bourses. In 1978-79 stock market contained only private sector companies and they were mostly geared to commodity production. Hence, a sample 30 was drawn from them. With the passage of time more and more companies private as well as public came into the market. Even though the number of scrips in the sensdex basket remained the same 30, representations were given to new industrial sectors such as services, telecom, consumer goods, 2 and 3 wheeler auto sector. The continuity and integrity of the index are kept intact, so that a comparison of the current market condition with those of a decade ago is made easy and any distortion in the market analysis is avoided. The criteria adopted in the selection of 30 scrips are listed.

- 1. Industry representation:** The index should be able to capture the macro-industrial situation through price movements of individual scrips. The company's scrip should reflect the present state of the industry and its future prospects. Companies chosen should be representative of the industry. For example, company like ACC in the Sensex is a representative of the cement industry. The logic here is that ACC reflects the fortunes of the cement industry that inturn is discounted by the market in the scrip's pricing. Care is taken in selecting scrips across all the major industries to make the index act as a real barometer to the economy.

- 2. Market capitalisation:** The market capitalisation of the stock indicates the true value of the stock, as the outstanding number of shares is multiplied by the price. Price indicates the demand and growth potential for the stock. The outstanding shares depend on the equity base. The selected scrip should have wide equity base too.
- 3. Liquidity:** The liquidity factor is based on the average number of deals of a scrip. The average number of deals in the two previous years is taken into account. The market fancy for the share can be found out by the trading volumes. The Financial Express Equity Index is weighted by trading volume and not by market capitalisation.
- 4. The market depth:** The market depth factor is the average deal as a percentage of company's shares outstanding. The market depth depends upon the wide equity base. If the equity base is broad based then number of deals in the market would increase. For example Reliance Industries has a wide equity base and larger number of outstanding shares.
- 5. Floating stock depth:** The floating depth factor is the average number of deals as a percentage of floating stock. Low floating stock may get overpriced because the simple law of demand and supply apply here. For example MRF with its low floating stock is able to command high price. Its sound finance and internal generation of funds led growth may be the reason for the low flotation. Though the public holding is fairly high at around 40 per cent due to small equity of Rs. 4.24 Cr, the free float of the company stock is low.

Trading volumes are directly linked to the public holding in the equity of the company. Wide public holding is a pre-requisite for high trading

volume. Reliance industries is a good example. The free float of company is 45 per cent and it has its positive effect on the trading volume.

7.5. NSE-50 Index (Nifty)

This index is built by India Index Services Product Ltd (IISL) and Credit Rating Information Services of India Ltd. (CRISIL). The CRISIL has a strategic alliance with Standard and Poor Rating Services. Hence, the index is named as S & P CNX Nifty. NSE-50 index was introduced on April 22, 1996 with the objectives given below:

- * Reflecting market movement more accurately
- * Providing fund managers a tool for measuring portfolio returns vis-market return.
- * Serving as a basis for introducing index based derivatives.

Nifty replaced the earlier NSE-100 index, which was established as an interim measure till the time the automated trading system stabilised. To make the process of building an index as interactive and user driven as possible an index committee is appointed. The composition of the committee is structured to represent stock exchanges, mutual fund managers and academicians. To reflect the dynamic changes in the capital market, the index set is reduced and modified by the index committee based on certain predetermined entry and exit criteria.

There has been a recast of basket of Nifty stocks and the new basket came into effect on October 9, 1998. The accompanying Table 7.1 shows the earlier and present composition of the Nifty index. IT stocks are included. The Nifty composition in April 2000 is given below:

Table 7.1. The Nifty 2000

Composition of S & P CNX Nifty	
ACC	IPCL
Asea Brown Boveri	ITC
BHEL	Indian hotels
Britannia	Larsen and Toubro
BSES	MTNL
Bank of India	Mahindra and Mahindra
Bajaj Auto	Nestle India
Castrol	NIIT
Cipla	Novarits
Cochin Refineries	Oriental Bank
Colgate	Procter & Gamble
Dabur	Ranbaxy
Dr. Reddys	Reckitt & Colman
Glaxo India	Reliance industries
Grasim	Reliance Petroleum
Gujarat Ambuja	Satyam Computers
HDFC Bank	Smithkline Beechem
HCL Infosystems	TELCO
Hero Honda	Tata Chemicals
Hindustan Petroleum	Tata Power
Hindalco	TISCO
Hindustan Lever	Tata Tea
ICICI	Zee Telefilms

7.8. Selection criteria

The selection criteria are the market capitalisation and liquidity. The selection criterion for the index was applied to the entire universe of securities admitted on NSE. Thus, the sample set covers a large number of industry groups and includes equities of more than 1200 companies.

The market capitalisation of the companies should be Rs. 5 billion (US \$ 118 Million) or more. The selected securities are given weights in proportion to their market capitalisation.

Liquidity (Impact cost): Here the liquidity is defined as the cost of executing a transaction in security in proportion to the weightage of its market capitalisation as against the index market capitalisation at any point of time. This is calculated by finding out the percentage mark up suffered while buying/selling the desired quantity of security compared to its ideal price (best buy + best sell)/2

Order book

Buy	Price	Sell	Price
2000	90	2000	91
3000	91	2500	94
2000	92	1000	96

To buy 2500

$$\text{Ideal price} = \frac{90 + 91}{2} = 90.5$$

$$\begin{aligned} \text{Actual buy price} &= \frac{(2000 \times 91) + (500 \times 94)}{2500} \\ &= \frac{182000 + 47000}{2500} = 91.6 \end{aligned}$$

$$\text{Impact cost for 2500 shares} = \frac{91.6 - 90.5}{90.5} \times 100 = 1.21$$

Impact cost for selling price also can be calculated. The company scrip should be traded for 85% of the trading days at an impact cost less than 1.5%

Base period: The base period for the S & P. CNX Nifty index is the closing prices on November 3, 1995. The base period is selected to commensurate the completion of one year operation of NSE in the stock market. The base value of index is fixed at 1000 with the base

capital of Rs. 2.06 of trillion. Its unique features are:

1. S & P. CNX Nifty provides an effective hedge against risk. The effectiveness of hedging was compared with several portfolios that consist of small cap, madcap and large cap companies and found to be higher.
2. The index represents 45 per cent of the total market capitalisation.
3. The impact cost of S & P. NCX Nifty portfolio is less compared with other portfolios.
4. Nifty index is chosen for derivative trading.

7.9. CNX Nifty junior

The Nifty Junior also consists of fifty stocks, but these stocks belong to the madcap companies. Stocks that are having market capitalisation greater than Rs. 2 billion are included with the objective of measuring the performance of stock in the madcap range. The liquidity criterion is same as that of S & P. CNX Nifty. The impact cost should not be greater than 2.5% for 85% of the traded days. The base date is the same for Nifty and Nifty Junior but the base capital is Rs. 0.42 trillion. Nifty Junior represents about 7 per cent of the total market capitalisation and it is an ideal index to be used in derivative trading.

There is a recast in the nifty Junior in 1998 with the number of stocks going up to the Nifty. The composition of the Nifty Junior has also been overhauled. Apart from the six that moved to the nifty, Ispat Industries, Hindustan Powerplus, Alstom India, Kotak Mahindra and Lakme have been excluded. The eleven stocks replacing these in the Nifty Junior are: Bank of Baroda, Tata Infotech, Dr. Reddy's Labs,

Satyam Computers, Zee Telefilms, Pentafour Software, Nirma, Nicholas Piramal, ICI India, ICICI Bank and GSFC. Nifty Junior turns out to be as nimble as its predecessor. The odds are high because of the sluggish nature of five of the excluded stocks as well as the quality of the new entrants.

7.10. S & P CNX 500

It is a broad based index consisting of 500 scrips. The companies are selected on the basis of their market capitalisation, industry representation, trading interest and financial performance. The market capitalisation is used as weights. The companies influence on the index depends upon their market capitalisation. The companies selected are either leaders or representative of their industries. They should reflect the movement of their industry. The industry groups included in the S & P. CNX 500 are 79. The number of representation from each industry group is changed to reflect the market.

The selected companies should have minimum record of three years of operation with positive networth. The base year is 1994 because it is considered to be closer the post liberalisation era.

Since the index is a broad based one, it represents 72 per cent of the total market capitalisation and 98 per cent of the total traded value. As it is weighted with market capitalisation, it mirrors the market movement more effectively. The broad base of the index provides a bench mark for comparing portfolio return with market return.

7.11. Summary

1. Stock indices reflect the stock market behaviour.
2. The unweighted price index is a simple arithmetical average of share prices on a base date.

3. In the wealth index, prices are weighted by market capitalisation.
4. The indices differ from each other on the basis of the number, the composition of the stock, the weights and the base year.
5. BSE sensitive index comprises of 30 scrips on the basis of industry representation, market capitalisation, liquidity, the market depth, and the floating stock depth.
6. S & P. CNX Nifty, CNX Nifty Junior and S & P. CNX 500 are some of the indices based on stocks traded on NSE.

7.12 Key words

The market depth is the average deal as a percentage of company shares outstanding.

Unweighted price index is a simple arithmetical average of share prices on a base date.

Floating stock depth is the average number of deals as a percentage of floating stock.

Value weighted index is based on the total market value of the share (the number of outstanding shares multiplied by the current market price).

7.13 Self Assessment Questions

1. Describe the usefulness of market indices? How are they built?
2. Name some of the well-known national and international stock indices? How is BSE sensitive index constructed?
3. Discuss any two indices built with the help of the scrips traded on NSE.

4. 'Stock market indices are the barometers of the stock market'- Discuss.
5. What are the basic requirements for a stock to be included in the Sensex?
6. What are the basic requirements for a stock to be included in the Sensex?
7. Explain the criteria adopted in the selection of scrips for Sensex.
8. Discuss the salient features of Sensex and the recent changes in its composition.
9. Explain the stock selection criteria adopted in the NSE-Nifty.

7.14. Suggested readings

1. M. Ranganathan and R. Madhumathi: Investment Analysis and Portfolio Management, Pearson Education, New Delhi.
2. Punithavathy Pandian: Security Analysis and Portfolio Management, Vikas Publishing House Pvt. Ltd., New Delhi.
3. Bharti V. Phathak: Indian Financial System, Pearson Education, Delhi.
4. Donald E. Fischer and Ronald J. Jordon: Security Analysis and Portfolio Management, PHI.
5. Prasanna Chandra: Investment Analysis and Portfolio Management, TMH, Delhi.

Subject Code : FM 304

Author : Prof. B.S. Bodla

Lesson No. : 8

Vettor : Prof. M.S. Turan

INVESTMENT ALTERNATIVES

Structure

- 8.0 Objective
- 8.1. Introduction
- 8.2. Equity shares
- 8.3. Fixed income securities
- 8.4. Money market instruments
- 8.5. Mutual funds
- 8.6. Deposits
- 8.7. Tax sheltered saving schemes
- 8.8. Life insurance policies
- 8.9. Financial derivatives
- 8.10. Real estate
- 8.11. Precious objects
- 8.12. Summary
- 8.13. Key Words
- 8.14. Self Assessment Questions
- 8.15. Suggested Readings/References

8.0 Objective

This lesson intends to describe in brief a wide variety of investment avenues that are open to the investors.

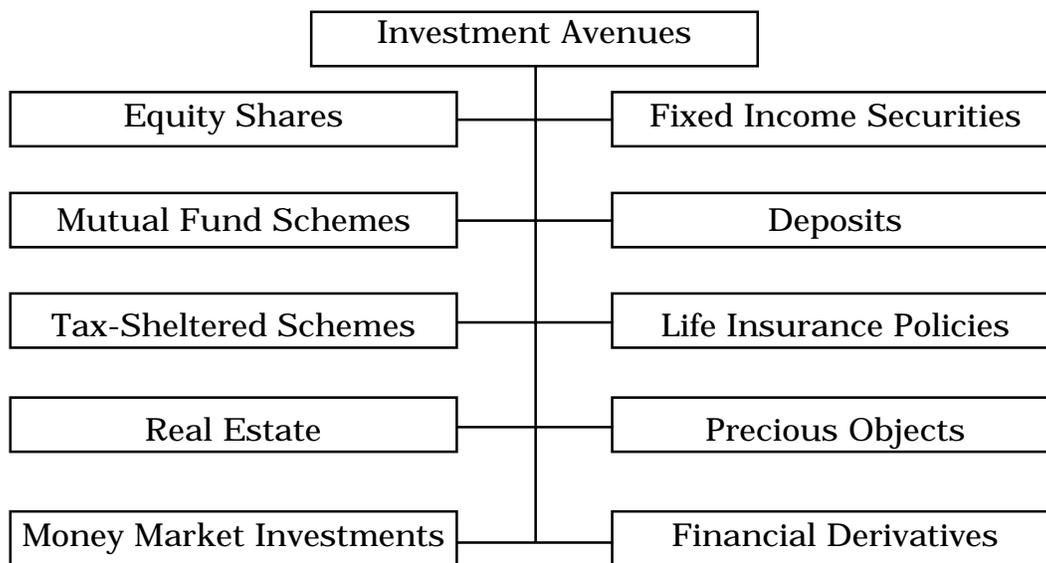
8.1. Introduction

Now-a-days a wide range of investment opportunities are available to the investor. These are primarily bank deposits, corporate deposits,

bonds, units of mutual funds, instruments under National Savings Schemes, pension plans, insurance policies, equity shares etc. All these instruments compete with each other for the attraction of investors. Each instrument has its own return, risk, liquidity and safety profile. The profiles of households differ depending upon the income-saving ratio, age of the household's head, number of dependents etc. The investors tend to match their needs with the features of the instrument available for investment. They do have varying degrees of preferences for savings vehicles.

Every investor tends to keep some cash balance and maintain a certain amount in the form of bank deposit to meet his/her transaction and precautionary needs. In the case of salaried people, contributions to Employees Provident Fund become compulsory. Life Insurance is widely preferred to meet situations arising out of untimely deaths of the bread earner. Besides these needs, the surplus income (savings) awaits investment in alternative financial assets. Investors have to take decisions relating to their investment in competing assets/avenues. An investor has a wide array of investment avenues, which may be classified as shown in the Exhibit 8.1.

Exhibit 8.1. Investment Avenues



8.2. Equity shares

Equity shares represent ownership capital and its owners (equity shareholders) share the rewards and risks associated with the ownership of corporate enterprises. These are also called, ordinary shares, in contrast with preference shares, which carry certain preferences/prior rights in regard to income and redemption. Equity investors have residual claim on income and assets besides enjoying rights to control and pre-emptive right. The return on common stocks comes from either of two sources - the periodic receipt of dividends, which are payments made by the firm to its shareholders, and increases in value, or capital gains, which result from selling the stock at a price above that originally paid. Further, common stock can be bought in round (a 100 unit share of stock, or multiples thereof) or odd (fewer than 100 shares of stock) lots.

Basically an investor incurs two types of transaction costs when buying or selling shares viz. STT (Security Transaction Tax) and brokerage. The major component is, of course, the brokerage paid at the time of transaction. As a rule, brokerage fees varies between 0.25 to 1 per cent of most transactions. Earlier the cost was dramatically high since the introduction of negotiated commissions on May 1, 1975 but the cost has declined substantially with the introduction of Demat services.

Shares have a better track record of appreciating and beating inflation than any other type of investment over time. However, stock markets are volatile by nature and are very risky. The stock market has lured many investors who have developed different kinds of tools to identify the past pattern of price movements and predict, to some extent, the future position of the securities. Investors can opt for corporate securities as investment in the stock market since there is a possibility to get dividends and capital gain returns.

Investors can invest in shares either through market offerings or in the secondary market. The primary market has shown abnormal returns to investors subscribed for the public issue and were allotted shares. The average initial returns (the difference between the first listed price and the issue price) for an investor in the public issues could be nearly 35 percent in the Indian market.

The investor, however, has to bear in mind that the shares of a blue chip company, though issued at a premium, could have a far greater demand in the market for various reasons. When there is an over subscription on the issue, many small investors might not get an allotment of the shares. Hence, demand for the shares goes up immediately when the shares are traded in the secondary market.

In India, the investments into shares and debentures including mutual funds units (except UTI units) as a percentage of household financial savings has dropped significantly from 23.3 per cent in 1991-92 to 1.4 per cent in 2003-04 (Table 8.1).

Table 8.1 Household sector investment pattern in financial assets
(Per cent)

Item	2003-04#	2002-03P	2001-02P	2000-01	1999-00	1998-99	1997-98	1996-97	1995-96	1994-95	1993-94	1992-93	1991-92	1990-91
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Financial saving (Gross)	100.0 (15.1)	100.0 (13.6)	100.0 (12.7)	100.0 (11.9)	100.0 (12.2)	100.0 (12.4)	100.0 (12.1)	100.0 (11.7)	100.0 (10.4)	100.0 (14.4)	100.0 (12.8)	100.0 (11.4)	100.0 (11.0)	100.0 (11.0)
a) Currency	10.1 (1.5)	8.5 (1.2)	9.7 (1.2)	6.3 (0.7)	8.8 (1.1)	10.1 (1.3)	7.0 (8.8)	8.6 (1.0)	13.4 (1.4)	10.9 (1.6)	12.2 (1.6)	8.2 (0.9)	12.0 (1.3)	10.6 (1.2)
b) Deposits	42.9 (6.5)	41.5 (5.7)	39.5 (5.0)	41.0 (4.9)	36.3 (4.4)	41.8 (5.2)	47.5 (5.7)	48.2 (5.6)	42.1 (4.4)	45.5 (6.6)	42.6 (5.4)	42.5 (4.8)	28.9 (3.2)	33.3 (3.7)
i) with banks banking companies	40.5	36.3	35.3	32.5	30.8	30.8	38.3	25.6	26.5	35.3	27.9	33.6	21.3	27.2
ii) with non-operative banks and societies	0.2	1.6	2.6	2.9	1.7	7.0	4.2	16.4	10.7	7.9	10.6	7.5	3.3	2.2
iii) with co-operative banks and societies	2.3	3.7	3.6	5.6	4.3	4.1	5.1	6.4	5.9	3.0	5.2	3.2	5.0	4.7
iv) trade debt (net)	-0.1	-0.1	-2.1	0.1	-0.4	-0.1	-0.1	-0.2	-1.0	-0.8	-1.1	-1.7	-0.6	-0.8
c) Shares and debentures	1.4 (0.2)	1.6 (0.2)	2.7 (0.3)	4.1 (0.5)	7.7 (0.9)	2.5 (0.3)	2.4 (0.3)	6.6 (0.8)	7.4 (0.8)	11.9 (1.7)	13.5 (1.7)	17.2 (2.0)	23.3 (2.6)	14.3 (1.6)
i) private corporate business	0.7	0.8	1.5	3.1	3.4	1.5	1.6	3.6	6.7	8.0	7.5	8.4	6.0	4.1
ii) co-operative banks and societies	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
iii) units of UTI	-0.4	-0.5	-0.6	-0.4	0.8	0.3	0.3	2.4	0.2	2.7	4.3	7.0	13.3	5.8

Item	2003-	2002-	2001-	2000-	1999-	1998-	1997-	1996-	1995-	1994-	1993-	1992-	1991-	1990-
	04# 2	03P 3	02P 4	01 5	00 6	99 7	98 8	97 9	96 10	95 11	94 12	93 13	92 14	91 15
iv) bonds of PSUs	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.5	0.1	0.8	0.8
v) mutual funds (other than UTI)	1.1	1.3	1.8	1.3	3.4	0.7	0.3	0.3	0.3	1.1	1.2	1.6	3.1	3.3
d) Claims on government	17.7	18.6	17.9	15.7	12.3	12.3	12.1	7.4	7.8	9.1	6.3	4.9	7.2	13.5
investment in government securities	(2.7)	(2.5)	(2.3)	(1.9)	(1.5)	(1.5)	(1.5)	(0.9)	(0.8)	(1.3)	(0.8)	(0.6)	(0.8)	(1.5)
ii) investment in small savings, etc.	4.0	4.3	5.8	1.7	0.9	1.7	1.5	0.4	0.4	0.1	0.4	0.0	-0.4	0.2
e) Insurance Funds	13.7	14.3	12.1	14.0	11.3	10.6	10.6	7.0	7.4	9.0	5.9	4.9	7.6	13.2
ii) life insurance funds	14.9	15.5	14.2	13.6	12.1	10.5	10.6	10.1	11.3	7.8	8.7	8.8	10.3	9.5
ii) postal insurance	(2.2)	(2.1)	(1.8)	(1.6)	(1.5)	(1.3)	(1.3)	(1.2)	(1.2)	(1.1)	(1.1)	(1.0)	(1.1)	(1.0)
iii) state insurance	14.5	14.8	13.5	12.9	11.2	10.0	9.9	9.5	10.5	7.2	8.0	8.0	9.4	8.5
ii) postal insurance	0.1	0.2	0.3	0.2	0.3	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.2
iii) state insurance	0.3	0.5	0.4	0.5	0.6	0.4	0.4	0.4	0.5	0.5	0.5	0.6	0.7	0.7
f) Provident and pension funds	13.2	14.3	16.1	19.3	22.8	22.7	20.5	19.1	18.1	14.7	16.7	18.4	18.3	18.9
	(2.0)	(2.0)	(2.0)	(2.3)	(2.8)	(2.8)	(2.5)	(2.2)	(1.9)	(2.1)	(2.1)	(2.1)	(2.0)	(2.1)

Source: RBI Annual Report, various issues

Preliminary; P-Provisional

Note: 1. Figures in parentheses are percentages to GDP at current market prices.

2. Components may not add up to the totals due to rounding off.

8.3. Fixed income securities

Preference shares : Preference shares refer to a form that partakes some characteristics of equity shares (ownership) and some attributes of debentures (fixed income). Generally, the dividend is cumulative and shares are redeemable. Redemption period is usually 7-12 years. But, preference dividend is payable only out of distributable profits. It does not carry voting rights. Investors, though enjoy the assurance of a stable dividend but generally receive modest returns and vulnerable to arbitrary managerial actions. It is, however, not a popular capital market instrument in India.

Preference shares also get traded in the market and give liquidity to investors. Though trading in preference shares is not quite frequent, investors can opt for this type of investment when their risk preference is very low.

Debentures and bonds : These are essentially long-term debt instruments. Many types of debentures and bonds have been structured to suit investors with different time needs. Though having a higher risk as compared to bank fixed deposits, bonds and debentures do offer higher returns.

Debenture investment requires scanning the market and choosing specific securities that will cater to the investment objectives of the investors. Investors also need to look into the following.

The credit rating of the issuing companies- rating by independent agencies such as ICRA, CRISIL, and CARE indicate the levels of safety of debt instruments.

The method of compounding by the companies- securities that offer more frequent compounding such as daily, monthly, quarterly, would result in higher returns. When all other parameters of risk, safety,

liquidity, and so on are the same, the choice of a security should depend on frequent compounding of interest.

Convertible debentures: A convertible bond is a bond that may be compulsorily or optionally converted into equity shares in future. The general features of a convertible bond include the conversion ratio, conversion price, conversion timing, and conversion (or stock) value. Holders are entitled to a fixed income till the conversion option is exercised and would share the benefits associated with equity shares after the conversion. All details about conversion terms are specified in offer document or prospectus. The convertible debentures presently in India can be compulsorily convertible within 18 months or optionally convertible within 36 months or convertible after 36 months with call and put features.

Government securities: They refer to the marketable debt instruments issued by the government or semi-government bodies. A government security is a claim on the government and totally secure financial instrument ensuring safety of both capital and income. That's why it is called gilt-edged security or stock. Central government securities are the safest among all securities. Government securities have maturities ranging from 2 to 30 years and presently these carry interest rates varying between 6 and 10 per cent. Interest is calculated on the basis of a 360-day year. Government securities are issued with a minimum denomination of Rs. 10,000, and in multiples of Rs. 10,000 thereafter. There are various types of government securities : fixed rate coupon, which is the most common, floating rate zero coupon (which are issued at a discount to face value) and partly paid bonds. Floating rate bonds are indexed to the prevalent 364-day T-bill rate. Sometimes the Government decides to sell convertible 91/364-day T-Bills. These T-bills convert into government securities on maturity date. The holder has the option to convert into government securities.

The interest earned on investment under government securities is charged under the head “Income from other sources” while the profit/loss on investment is charged under the head “income from business and profession.”

Withholding tax on government securities was abolished from June 1, 1997 by virtue of provision (iv) to Section 193 of Income Tax Act, tax payable on any security of Central or State government. There is no stamp duty payable either on registration of ownership. These securities carry some tax advantages also.

Public sector undertakings bonds: Public Sector Undertakings (PSUs) issue debentures that are referred to as PSU bonds. Minimum maturity of PSU bonds is generally 5 years for taxable bonds and 7 years for tax-free bonds. The maturity of some bonds is also 10 years. The typical maturity of a corporate debenture is between 3-12 years. Debentures with lower maturity are normally issued as debenture convertible partly or fully into equity. The interest income from bonds and debentures is classified under the heading “income from business or profession”. The difference between face value and issue price in the case of Deep Discount Bonds can be classified as interest to be accrued on field basis every year. The incidence of TDS on bonds and debentures depend on the terms and structure thereof. The interest on taxable bonds is exempt only upto a certain limit as per section 80L of the Income-Tax Act, whereas the interest on tax-free bonds is fully exempt. While PSUs are free to set the interest rates on taxable bonds, they cannot offer more than a certain interest rate on tax-free bonds, which is fixed by the Ministry of Finance. More important, a PSU can issue tax-free bonds only with the prior approval of Ministry of Finance.

In general, PSU bonds have the following investor-friendly features-

- a) there is no deduction of tax at source on the interest paid on these bonds;
- b) they are transferable by mere endorsement and delivery;
- c) there is no stamp duty applicable on transfer; and
- d) they are traded on the stock exchanges.

In addition, some institutions are ready to buy and sell these bonds with a small price difference.

Kisan Vikas Patra (KVP): Kisan Vikas Patra (KVP) comes in the denominations (face value) of Rs. 1,000, Rs. 5,000 and Rs. 10,000. There is no maximum limit on the purchase of certificate. KVP double the money in 8.7 years that works out to a yield of a little over 8 per cent. As tax concessions are not available on interest amount, for investors in higher tax brackets, the yields are somewhat lower. Investors can also use money in emergencies by breaking it after 2.5 years. However, early withdrawal lowers returns. Certificate can be encashed at the post-office of its issue.

8.4. Money market instruments

Money market securities have very short-term maturity i.e. less than a year. Common money market securities include treasury bills, commercial paper and certificate of deposit.

Treasury bills: A treasury bill is a short-term money market instrument issued by RBI for the government for financing the temporary funding requirements. T-bills have tenor like 14 days, 91 days, 182 days and 364 days. In the monetary and credit policy of 2001-2002, 14days and 182 days T-bills have been introduced. It is issued in the form of a zero coupon instrument at discount to face

value redeemable at par on maturity. The discount earned on T-bills, as well as the profit/loss on investment is charged under the head “Income from Business and Profession”. By virtue of provision (iv) to section 193 of Income Tax Act, no tax is required to be deducted at source on interest payable on any security of Central or State Government (Only for coupon payments). No TDS (Tax deducted at source) is attracted on discount i.e. differential between issue price and face value in case of treasury bills. Due to a large denomination and low rate of return, it has virtually no appeal for individual investors.

Commercial paper: It represents short-term unsecured promissory notes issued by firms that enjoy a fairly high credit-rating. Generally large firms with considerable financial strength are able to issue commercial paper. All commercial paper (CP) issues have to be mandatorily rated by one of the rating agencies in India. The minimum rating required is P2 (as per RBI guidelines dated October 10, 2001) or equivalent. CPs are issued at discount to face value and is redeemable at par on maturity. Typically CPs are issued for a period of 30/45/60/90/120/270/360 days. There are no brokers in the CP market. Trading is done over the counter with the counter parties involved. CP can be issued in denominations of Rs. 5 lakh or multiples thereof. Amount invested by single investor should not be less than Rs. 5 lakh (face value). Issue of CP is subject to payment for stamp duty. The stamp duty on a primary issue of CP is 0.25 per cent for all other investors, with a concessional rate of 0.05 for banks. CPs are transferable by endorsement and physical delivery. CPs are subject to liquidity risk, credit risk and operational risk. The provisions of the Income Tax Act relating to deduction of tax at source are not applicable in the case of CPs. Typically it is of high denomination and hence bought mainly by institutional investors and companies.

Certificate of deposits: A certificate of deposit (CD) represents a title to a negotiable deposit with a commercial bank. It carries a reasonably attractive interest rate. CDs are freely transferable by endorsement and delivery after 15 days of the date of issue. They are issued at a discount to face value and are redeemable at par on maturity. CDs are not required to be rated and are traded over the counter directly with the counterparty. The minimum size of a CD issue is Rs. 5 lakhs. It involves price risk- as exposed to interest rate risk, liquidity risk, credit risk (counterparty risk is minimal since CD is a secure instrument) and settlement risk. The RBI allows CD to be issued upto one year maturity. However the maturity most quoted in the market is 90 days. Being of high denomination, it is of interest mainly to institutional investors and companies.

The latest secondary money market round up is available in Table 8.2.

Table 8.2. Secondary money market round-up

(Week Ended 11 February, 2005)

	Rates (% per annum)			Volume (Rs. Crore)	
	<i>This week</i>	<i>Variability S.D.</i>	<i>Previous week</i>	<i>This week</i>	<i>Previous week</i>
Call money	4.00-5.25	0.13	4.00-6.50	69575.75	64485.19
364 day T-Bill	4.00-4.85	0.05	4.00-4.75	30329.44	34759.70
91 Day T-Bill	4.50-5.61	0.24	4.53-5.66	2653.48	5853.32
CP	4.60-5.30	0.16	4.75-5.40	2759.30	3126.21
CD	-	-	-	-	-
GOI Securities	4.39-7.50	0.26	4.34-7.50	22915.94	10387.80
State Government	6.70-6.54	0.11	5.97-7.80	276.57	370.88
PSU Bonds					
Tax Free	-	-	-	-	-
Taxable	6.16-8.80	0.71	6.18-8.80	335.20	247.70

Source: The Economic Times, 14 February, 2005, p. 10.

8.5. Mutual funds

While some of the investors prefer to build their own portfolio of stock market instruments, according to their own ability, knowledge and experience, many people do not have the inclination, time or knowledge to handle their own investments. Mutual funds provide this service to the latter. In fact, small investors face many handicaps in the share market. They cannot afford professional advice and also can't invest in a balanced and diversified portfolio with limited resources and incur huge expenses on buying and selling of shares. Mutual funds have come as a boon to the small and medium investors. Mutual fund is a special type of investment institution, which pools the savings of the community and invests large funds in a fairly large and well-diversified portfolio of sound investments for the mutual benefit of the members. So, it's a media through which investors can reap all benefits of good investing. In brief, there is no other way out for small investors to enter the capital market, except the mutual funds.

Open-ended mutual fund accepts funds from investors by offering its units or shares on a continuing basis. It permits investors to withdraw funds on a continuing basis under a re-purchase agreement. Such schemes have no maturity period and are ordinarily not listed. Contrarily, the subscription to a close-ended scheme is kept open only for a limited period (usually one month to three months). It does not allow investors to withdraw funds as and when they like. It has a fixed maturity period (usually five to fifteen years). Such schemes are listed on the secondary market.

Mutual funds in India invest in three broad kinds of instruments as follows-

- Equity shares and equity related instruments (convertible debentures and warrants)
- Debt instruments (non-convertible debentures, public sector bonds, and government securities)
- Money Market Instruments (certificate of deposits, commercial paper, and call money).

The asset mix of a mutual fund scheme is influenced by the objective of the scheme. Typically, it is as follows-

	<i>Equity</i>	<i>Debt Instruments</i>	<i>Money Market Instruments</i>
Growth Scheme	70-90%	5-20%	0-10%
Income Scheme	20-30%	60-70%	0-15%
Balanced Scheme	40-60%	40-50%	0-10%

The performance level of top 15 schemes (5 each from growth, income, and balanced funds) could be gauged from Table 8.3.

Table 8.3 Performance of select* mutual funds (as on 21st July, 2004)

	Return/ Risk	Avg. Return	Standard Deviation	% Growth			Negative periods	Max. Loss
				3 months	1 year	2 years			3 years
Income Funds								
UTI Monthly Income Scheme	0.81	0.59	0.73	-0.55	7.32	-	25.00	-0.54
DSP Merrill Lynch Savings Plus Fund	0.70	0.95	1.35	-0.68	11.87	-	8.33	-2.03
FT India Monthly Income Plan	0.66	1.06	1.61	-1.12	13.38	28.48	16.67	-2.57
Principal Monthly Income Plan	0.62	0.69	1.10	-1.23	8.49	23.81	25.00	-1.79
Templeton Monthly income Plan	0.62	0.90	1.46	-1.58	11.23	23.82	16.67	-2.49
Equity Funds								
HSBC Equity Fund	0.67	5.86	8.74	-7.74	90.29	-	8.33	-15.45
Reliance Growth Fund	0.57	5.58	9.74	-7.61	82.76	129.48	16.67	-14.21
HDFC Capital Builder Funds	0.57	4.87	8.54	-2.18	70.50	96.69	25.00	-12.86
Birla MIDCAP Fund	0.57	4.46	7.83	-1.13	63.57	-	25.00	-7.68
LIC MF Growth Fund	0.56	5.01	8.88	-10.46	72.30	108.03	8.33	-17.02
Balance Funds								
SBI Magnum Balanced Fund Scheme	0.55	4.02	7.26	-4.14	56.11	72.40	16.67	-11.75
DSP Merrill Lynch Balanced Fund	0.52	3.19	6.15	-3.65	42.95	80.35	16.67	-10.77
FT India Balanced Fund	0.51	3.26	6.36	-6.98	43.94	67.54	16.67	-10.57
Franklin India Balanced Fund	0.50	2.79	5.57	-5.80	36.86	65.43	16.67	-9.41
HDFC Prudence Fund	0.50	2.83	5.66	-4.94	37.32	93.48	25.00	-10.38

Source: The Economic Times, 21 July, 2004, pp. 15-18.

*Top five schemes of each category are considered.

8.6. Deposits

Among non-corporate investments, the most popular are deposits with banks such as savings accounts and fixed deposits. In fact, deposits are similar to fixed income securities as they earn a fixed return. However, unlike fixed income securities, deposits are not represented by negotiable instruments. The important types of deposits in India include- bank deposits, company deposits, post office time deposits, post office recurring deposits, and monthly income scheme of post office.

A bank deposit, which is a safe, liquid and convenient option, can be made by opening a bank account and depositing money in it. There are various kinds of bank accounts: current account, savings account, and fixed deposit account. While a deposit in current account does not earn any interest, deposits in other kinds of bank accounts earn interest. Deposits in scheduled banks are very safe because of the regulations of RBI and the guarantee provided by the Deposit Insurance Corporation.

While saving bank account gives an interest of 3.5 per cent per annum, bank fixed deposits give interest from 5 to 11 per cent depending on duration from 30 days to 5 years and above. The interest rates on bank deposits are generally slightly higher than those on post office time deposits. No withdrawal is permitted before six months from post office time deposits (POTD). Interest on POTDs is tax-exempt within certain limits under section 80L of the Income-Tax Act. Deposits with banks have always been the most preferred investment alternative in India (Table 8.1).

The tenure of recurring deposits is 5 years and can be extended for another five years. It presently gives an interest of 8 per cent compounded quarterly. Deposits may be made a minimum of Rs. 10

once in a calendar month, in multiples of Rs. 5. There is no ceiling on deposit. Loan upto half of the deposit may be taken one year before maturity.

Monthly Income Scheme of the Post Office (MISPO) was introduced in August 1987. This scheme provides regular income to the depositors. Its tenure is 6 years and minimum investment required is Rs. 1000 or multiples thereof and the maximum limit of deposit (Individual) Rs. 3,00,000 and Rs. 6,00,000 for joint account (w.e.f. 1.6.2000). This scheme steals the show by providing return of 8 per cent monthly with a 10 per cent bonus on maturity. This scheme is especially useful for all those who require a regular stream of income.

If premature withdrawal is made after 3 years from the date of deposit, there will be no deduction of principal or monthly interest upto the time of withdrawal. Interest earned is eligible for deduction u/s 80 L of Income Tax Act. Bonus paid will also be treated as interest and exempt from income tax upto Rs. 12,000.

Post-office Time Deposits (POTD) is another attractive opportunity for savings. These deposits give an interest of 8 per cent compounded quarterly. A deduction under Section 80L of Income Tax Act, is also allowed on interest upto a certain limit. However, the depositor cannot make any withdrawals before six months. Different accounts for different maturity periods may be opened in one name. Deposits may be made of Rs. 50 or multiples thereof upto any amount. The premature closure after six months before one year from the date of deposit will be allowed without payments of interest. The current rates of interest payable annually on different maturity period are as follows: (i) 1 year-6.25%, (ii) 2 year- 6.50%, (iii) 3 year- 7.25%, (iv) 5 year- 7.50%.

Government of India Saving Bond- These bonds provide a high yield

for investors. However, with the income here taxable, the effective rate of return for the investor dips. The only saving grace is that the interest here could qualify for Section 80L deduction.

Post-office Saving Account (POSA)- The account can be opened by an individual with minimum amount of Rs. 20. Maximum ceiling of deposit in a single account is Rs. 1 lakh and joint account Rs. 2 lakh. Rate of interest is 3.5 per cent annum in case of both single and joint accounts. The introduction of depositor will be necessary for opening of new account.

Senior Citizen Savings Scheme (SCSS)- An individual who has attained the age of 60 and above or of the age of 55 years but less than 60 years who has retired under VRS, are eligible to open the account. The joint account can also be opened with spouse. There can be only one deposit in the account. The minimum limit is Rs. 1,000 and maximum is 15 lakh. The maturity period is five years, which may be extended for another three years on the option of depositor. Rate of interest is 9 per cent per annum payable quarterly. Account can be closed after one year and before second year. The amount equal to 1.5 per cent on the balance amount will be deducted and balance will be paid to depositor. The scheme has special features- (i) nomination facility available; (ii) may be transferred from one post office to another post office; (iii) automatic credit of interest in POSA; (iv) SAS agency facility can be availed; and (v) 0.5 per cent commission is payable to SAS agents.

Company deposits- Many companies, large and small, solicit fixed deposits from the public. Fixed deposits mobilized by manufacturing companies are regulated by the Company Law Board and those mobilized by Finance Companies (more precisely NBFCs) are regulated by RBI. The company fixed deposit market is a risky market. However, credit rating services are available to rate the risk of company fixed deposit schemes.

For a manufacturing company the term of deposit can be one to three years, whereas for a finance company the term of deposit may be 25 months to 5 years. Fixed deposits represent unsecured loans taken by the borrowing companies. Should a company go into liquidation, the depositors, as unsecured creditors, rank after the secured creditors and lenders. The interest on company deposits is fully taxable. The maximum interest rate payable on fixed deposits is 14 per cent. Companies pay interest annually, semi-annually, quarterly and monthly. Company also offer cumulative deposit schemes. Table 8.4 indicates some of the fixed deposit schemes (2003) offered by corporate houses.

Table 8.4. Fixed deposit schemes (2003)

<i>Company</i>	<i>1 year rate (%)</i>	<i>2 year rate (%)</i>	<i>3 year and above rate (%)</i>
Sundaram Finance	10.00	11.00	12.00
CEAT Ltd.	12.00	12.50	13.00
J.K. Industries	12.50	12.75	13.00
Tata Investment Ltd.	NA	NA	10.50
Bajaj Auto Finance	9.50	NA	10.00
Cholamandalam Investment & Finance	9.92	10.90	11.39
Escort	11.00	11.50	12.00

Source: M. Rangnathan and R. Mathumathi (2005), "Investment Analysis and Portfolio Management, Pearson Education India, p. 100.

8.7. Tax sheltered saving schemes

Tax-sheltered saving schemes provide significant tax benefits to those who participate in them. The most important tax-sheltered saving

schemes in India are-

- Employees Provident Fund
- Public Provident Fund Scheme
- National Saving Scheme, 1992
- National Saving Certificate VIII Series

Employees Provident Fund Scheme (EPF) is a major vehicle of savings for salaried employees. Each employee has a separate PF account in which both the employer and the employee are required to contribute a certain minimum amount on a monthly basis. The employee can also choose to contribute additional amounts, subject to certain restrictions. While the contribution made by the employer is fully tax exempt (from the view point of employee), the contributions made by the employee qualify for tax rebate u/s 88 of the Income Tax Act. Presently, PF contributions earn a compound interest rate 9.5 per cent per annum that is totally exempt from taxes. The interest, however, is accumulated in the provident fund account and not paid annually to the employee.

Nowadays, *Public Provident Fund Scheme (PPF)* is one of the most attractive investment avenues available in India (Table 1.3). It gives an 8 per cent compounded tax free return and has been the traditional favourite in this category. A PPF account may be opened at any post office or branch of SBI or its subsidiaries or at specified branches of the other nationalised banks. The subscriber is required to make a minimum deposit of Rs. 500 per year. The maturity period is 15 years. Here the entire amount of interest received is fully exempt under the Income Tax Act, 1961. Moreover, under section 88, the investment attracts a rebate of 15 per cent (or 20% depending on

investor's gross total income) with a cap of Rs. 70,000 on the total investment for a financial year, which pushes the effective rate of return to 11, 10 and 8.88 per cent for investors under the tax brackets of 30, 20 and 10 per cent, respectively. The investment serves the need for both, tax saving as well as long term planning.

Loans can be availed from the 3rd financial year excluding the year of deposit. Deposit in this account is not subject to attachment under an order or a decree of court and are also free of wealth tax. Interest earned is completely free from income tax u/s 10 (a) (i) of Income Tax Act.

National Saving Certificate VIII Series (NSC) was introduced in 1989 in lieu of the earlier schemes. These certificates come in denominations of Rs. 100, Rs. 500, Rs. 1000, Rs. 5,000 and Rs. 10,000 and can be bought at post offices. An NSC investment of Rs. 10,000 becomes Rs. 16,010, after six years. The NSC-VIII offers now an interest of 8 per cent compounded half yearly, maturing in six years. This provides a yield of 8.16 per cent per annum. Moreover, the initial investment (upto Rs. 70,000) as well as the accrued interest qualifies for tax rebate under section 88. For medium-term investors, the NSCs are more attractive as compared to PPF since not only the effective return is higher in the case of former, but also maturity period is 6 years.

8.8. Life insurance policies

Till recently, life insurance in India was provided primarily by the Life Insurance Corporation of India (LIC), which was established by an Act of Parliament in 1956. However, the insurance sector has now been opened for private players also. Some of the life insurance policies are briefly described as follows:

Endowment assurance policy- insures the life of the policy-holder as well as provides him a lump-sum amount at the time of maturity.

Amount assured is payable at the end of endowment period or at the time of death, if it occurs earlier. *Money back policy*, the second most popular scheme, is of special interest to persons who feel the need for lump-sum benefits at periodic intervals. Unlike the ordinary endowment assurance policy where the full sum assured in the event of survival is payable only at the end of the endowment period, under this scheme part payments are made periodically. Under the whole life policy, the assured is required to pay insurance premiums throughout his life and, on his death, the assured amount is payable to his beneficiaries.

Unit Linked Insurance Plans (ULIPs)- In recent years, ULIPs have emerged as a significant investment vehicle. These are the insurance plans that invest the policyholder's money (net of expenses), by allotting units against them. The money is put in any or a combination of the funds offered by the company. These funds are typically money market, gilt, income, balanced, and provides a guaranteed amount on death of the person. Since the objective of the investor is to have a sufficiently large corpus of funds at the time of retirement, ULIP offers customers the opportunity to maximise earnings by investing in an equity scheme. ULIPs grow strongly even if there is a down turn in the stock markets because ULIPs are more transparent and offer greater flexibility. The flexibility is reflected in the variety of choices that an individual has in terms of tenure, size, frequency of premium, instalment sizes and choice of assets. There are two variants of unit-linked plans.

- *With guaranteed maturity and death amount:* In such plans, in the event of death or maturity, the policyholder gets the market value of units or the sum assured, whichever is higher. Thus, there is a sort of capital guarantee. *Kotak Safe Investment Plan* is one of the most cost-effective and well performing plans in the industry. *Birla Sun Life* also offers similar products.

- *With guaranteed death amount only-* In such plans, in the event of death, the policyholder gets the market value of units or the sum assured, whichever is higher. However, there is no guaranteed amount on survival of life insured. *Life Time from ICICI-Pru* is the leading plan in this category. HDFC and Allianz Bajaj also offer similar products. Kotak Life Insurance recently unveiled a single premium unit-linked plan that offers a guaranteed death benefit. The plan offers two choices of opting either for a 5 times cover or a 1.02 times cover.

The most widely held policy in India is the '*Money-back policy*' followed by a *traditional endowment policy*. Endowment policies are the ideal vehicle for retirement savings because, in addition to the sum assured, they provide a fat bonus at the time of retirement. Moreover, the insured does not have to track his investments and has to merely pay his instalments in time.

Innovative Products- With the entry of new players, the insurance market has been flooded with many new innovative products. While sales of traditional life insurance products like individual, whole life and term assurance will remain popular, sales of new products like single premium, investment-linked retirement products, variable life and annuity products are also on the rise. In fact, these products already have a significant share in the portfolios of companies that have introduced them.

LIC has launched two new products- *Jeevan Anurag* and *Jeevan Nidhi*. *Jeevan Anurag* is designed to provide parents for their child's education requirement. It is an endowment plan, under which lump-sum benefits are payable at pre-specified duration irrespective of whether the life assured survives at the end of the term. *Jeevan Nidhi* on the other hand, is a comprehensive pension plan providing lump-sum amount for pension payment at old age with insurance

coverage. This is also an endowment plan. Another innovative insurance product from LIC, '*Jeevan Anand*', combines the benefits of an endowment policy and a whole life policy. Under this plan, premiums are paid for a limited period. During the premium paying period, insured is covered to the extent of sum assured and the bonuses that vest on this policy. After the premium term is over the sum assured together with accumulated bonuses and final additional bonus (if any) become payable to the insured free of any income tax. The highlight of this plan is that even after the maturity of the policy the coverage on life continues for life time to the extent of the sum assured without the payment of any future premiums, thus clearly justifying the concept '*Zindagi ke saath bhi, zindagi ke baad bhi.*'"

As a part of the ongoing reforms, the government of India has recently launched the *Varishta Pension Bima Yojna (VPBY)* for the benefit of the senior citizens. The scheme is to be administered by the LIC and it offers an assured return of 9 per cent per annum to the policyholder against one-time payment of a minimum amount of Rs. 33,335 and a maximum of Rs. 2,66,665. It provides regular income for life with return of purchase price to the nominee in the event of pensioner's death. Pensions will be monthly, quarterly, half-yearly or yearly as desired. Exit option after 15 years available. The scheme, offering an assured return of 9 per cent, particularly in the current falling interest rate scenario, is no doubt a boon to the senior citizens.

8.9. Financial derivatives

The introduction of derivative products has been one of the most significant developments in the Indian capital market. Derivatives are helpful risk management tools that an investor has to look at for reducing the risk inherent in an investment portfolio. Financial derivative is an instrument whose value depends on the value of

some underlying asset. From the point of view of investors and portfolio managers, futures and options are the two most important financial derivatives. A futures contract is an agreement between two parties to exchange an asset for cash at a predetermined future date for a price that is specified today. The party who agrees to purchase the asset is said to have a long position and the party who agrees to sell the asset is said to have a short position. The party holding the long positions benefits if the price increases, whereas the party holding the short position loses if the price increases and vice-versa.

An option gives its owner the right to buy or sell an underlying asset on or before a given date at a predetermined price. There are two basic types of options- call options and put options.

A *call option* gives the option holder the right to buy a fixed number of shares of a certain stock, at a given exercise price on or before the expiration date.

A *put option* gives the option holder the right to sell a fixed number of shares of a certain stocks at a given exercise price on or before the expiration date.

Stock futures are traded in the market regularly and, in terms of turnover, have succeeded that of other derivative instruments. The distribution of turnover among various derivatives products (February 2004) is given in Table 8.5.

Derivative trading is a speculative activity. However, investors have to utilise the derivatives market since the opportunity of reducing the risk in price movements is possible through investments in derivative products.

Table 8.5. Derivatives turnover at NSE (February, 2004)

Derivative	Turnover (Rs. Crore)	Percent
Futures on Indices	86,359	31.65
Options on Individual Securities	161,464	59.18
Options on Indices	6,545	2.40
Options on individual Securities	18,472	6.77
Interest Rate Futures	0	0
Total	272,839	100.00

Source: M. Rangnathan and R. Mathumathi (2005), "Investment Analysis and Portfolio Management, Pearson Education India, p. 98.

8.10. Real estate

Buying property is an equally strenuous investment decision. Real estate investment generally offers easy entry and good hedge against inflation. But, during deflationary and recessionary periods, the value of such investments may decline. Real estate investments are classified as direct or indirect. In a direct investment, the investor holds legal title to the property. Direct real estate investments include single-family dwellings, duplexes, apartments, land and commercial property. In case of indirect investment, investors appoint a trustee to hold legal title on behalf of all the investors in the group.

The more affluent investors are likely to be interested in the following types of real estate: agricultural land, semi-urban land, and time-share in a holiday resort. The most important asset for individual investors generally is a residential house or flat because the capital appreciation of residential property is, in general, high. Moreover, loans are available from various quarters for buying/constructing a residential property. Interest on loans taken for buying/constructing a residential house is tax-deductible within certain limits. Besides,

ownership of a residential property provides psychological satisfaction. However, real estate may have the disadvantages of illiquidity, declining values, lack of diversification, lack of tax shelter, a long depreciation period and management problems.

Reasons for investing in real estate are given below:

- High capital appreciation compared to gold or silver particularly in the urban area.
- Availability of loans for the construction of houses. The 1999-2000 budget provides huge incentives to the middle class to avail of housing loans. Scheduled banks now have to disburse 3 per cent of their incremental deposits in housing finance.
- Tax rebate is given to the interest paid on the housing loan. Further Rs. 75,000 tax rebate on a loan upto Rs. 5 lakhs which is availed of after April 1999. If an investor invests in a house for about Rs. 6-7 lakh, he provides a seed capital of about Rs. 1-2 lakh. The Rs. 5 lakh loan, which draws an interest rate of 15 percent, will work out to be less than 9.6 per cent because of the Rs. 75,000 exempted from tax annually. In assessing the wealth tax, the value of the residential home is estimated at its historical cost and not on its present market value.
- The possession of a house gives an investor a psychologically secure feeling and a standing among his friends and relatives.

8.11. Precious objects

If one believes investing in real estate is too risky or too complicated, one might want to consider other-tangible investments, such as gold and other precious metals, gems and collectibles. Such investments may entail both risk and reward. Precious objects are items that are generally small in size but highly valuable in monetary terms.

The two most widely held precious metals that appeal to almost all

kinds of investors are gold and silver. Historically, they have been good hedges against inflation. Also, they are highly liquid with very low trading commissions. Investment in gold and silver, however, has no tax advantage associated with them. When the economy picks up, some investors predict higher inflation and therefore, may think precious metals such as gold and silver will regain some of their glitter.

Precious stones include diamonds, sapphires, rubies and emeralds. Precious stones appeal to investors because of their small size, ease of concealment, great durability and potential as a hedge against inflation. Collectibles include rare coins, works of art, antiques, Chinese ceramics, paintings and other items that appeal to collectors and investors. Each of these items offers the knowledgeable collector/investor both pleasure and the opportunity for profit. It does not provide current income, and may be difficult to sell quickly.

8.12. Summary

Investment alternatives are many in number. They are transferable financial securities and non-transferable financial investments. Equity offers high return with high risk. Bonds provide steady and fixed flow of income. The securities issued by government are secured investments. Treasury bills carry a very low rate of interest. Commercial paper has short-term maturity and is favoured by companies and institutional investors. Certificate of deposit's denomination is high and the interest rate is also high. Banks' deposits are safe form of investment.

The age-old post office deposits pay high interest rate. Post office monthly income scheme's annualised yield is higher. Public provident fund scheme is the post office scheme with the early withdrawal facilities. In NSS, the main advantage is the deferred tax payment.

Withdrawal of entire amount in a single period results in heavy taxation. Investment in National Savings Certificates provides tax exemption under Sec. 80L.

Life insurance provides wide variety life and accident cover. Deductions are allowed under U/S 80 DD. Mutual funds collect funds from investors and invest in equities or money market instruments as specified by the schemes. Gold and silver are the real asset form of investment. The appreciation of gold prices is rather very low in the past few years. However, real estate is a lucrative form of investment with high capital appreciation.

8.13 Key Words

Equity shares represent ownership capital and its owners.

Preference shares are shares which carry certain preferences/prior rights in regard to income and redemption.

Capital gains result from selling the stock at a price above that originally paid.

Debentures and bonds are essentially long-term debt instruments having fixed interest on them.

Convertible debenture is a bond that may be compulsorily or optionally converted into equity shares in future.

Option gives its owner the right to buy or sell an underlying asset on or before a given date at a predetermined price.

Call option gives the option holder the right (not the obligation) to buy a fixed number of shares of a certain stock, at a given exercise price on or before the expiration date.

Put option gives the option holder the right (not the obligation) to sell a fixed number of shares of a certain stocks at a given exercise price on or before the expiration date.

Endowment assurance policy insures the life of the policy-holder as well as provides him a lump-sum amount at the time of maturity.

Money back policy is of special interest to persons who feel the need for lump-sum benefits at periodic intervals.

Employees Provident Fund Scheme (EPF) is a scheme where employee has a separate PF account in which both the employer and the employee are required to contribute a certain minimum amount on a monthly basis.

8.14. Self Assessment Questions

1. What are the various forms of investment alternatives? Give a detailed account of any five.
2. Differentiate between capital and money market securities. Explain the commonly available money market securities.
3. What are the advantages of placing money in the bank deposits? Discuss some of the new innovative deposits of the banks.
4. “Bank service and deposit innovations are numerous to attract the customers”. Discuss.
5. Examine the tax sheltered schemes available in the market.
6. What are the advantages of investing in life insurance schemes?
7. “Mutual funds offer best form of investment”. Discuss.
8. Why do investors invest in gold and silver?

9. Why do investors add real estate in their portfolio?

8.15. Suggested readings/References

1. M. Ranganathan and R. Madhumathi: Investment Analysis and Portfolio Management, Pearson Education, New Delhi.
2. Punithavathy Pandian: Security Analysis and Portfolio Management, Vikas Publishing House Pvt. Ltd., New Delhi.
3. Bharti V. Phathak: Indian Financial System, Pearson Education, Delhi.
4. Donald E. Fischer and Ronald J. Jordon: Security Analysis and Portfolio Management, PHI.
5. Prasanna Chandra: Investment Analysis and Portfolio Management, TMH, Delhi.

Subject Code : FM 304

Author : Prof. B.S. Bodla

Lesson No. : 9

Vettor : Dr. Karam Pal

GOVERNMENT SECURITIES

Structure

- 9.0 Objectives
- 9.1. Introduction
- 9.2. Importance of the Government securities market
- 9.3. Issues, investors, and types of Government's securities
- 9.4. Government security markets in the pre-1991 period
- 9.5. Objectives of reforms in the Government securities market
- 9.6. Some policy measures undertaken in the 1990s
- 9.7. STRIPS in the Government securities market
- 9.8. Retailing of Government securities
- 9.9. The system of Ways and Means Advances (WMA) for the centre
- 9.10. Primary and secondary market segments of the Government securities market
- 9.11. Ownership pattern of central and state govt. securities
- 9.12. Maturity structure of central government dated securities
- 9.13. Interest rates in the primary market
- 9.14. Government dated securities- Secondary market
- 9.15. Tools for managing liquidity in the Govt. security market
- 9.16. Infrastructure development
- 9.17. Summary
- 9.18. Key Words
- 9.19. Self Assessment Questions
- 9.20. Suggested Readings/References

9.0 Objectives

After going through this lesson the learners will be able to :

- discuss meaning and types of government securities
- learn reforms in government securities market
- discuss ways and means advances
- describe primary and secondary market of government securities and
- evaluate the impact of reforms on this market.

9.1. Introduction

The government needs enormous amount of money to perform the following main functions:

- Provision of public services such as law and order; justice, national defence, and so on.
- Central banking and monetary regulation.
- Creation and maintenance of physical infrastructure.

The government generates revenue in the form of taxes and income from ownership of assets. Besides these, it borrows extensively from banks, financial institutions, and the public to finance its expenditure in excess of its revenues.

One of the important source of borrowing funds is the government securities market (GSM). The government raises short-term and long-term funds by issuing securities. These securities do not carry risk and are as good as the government guarantees the payment of interest and the repayment of principal. They are, therefore, referred to as gilt-edged securities. The government securities market is the largest market in any economic system and therefore, is the benchmark for other markets.

9.2. Importance of the Government Securities Market

GSM constitutes the major segment of the debt market. It not only provides resources to the government for meeting its short-term and long-term needs but also acts as a benchmark for pricing corporate papers of varying maturities. The government securities issues are helpful in implementing the fiscal policy of the government. It is critical in bringing about an effective and reliable transmission channel for the use of indirect instruments of monetary control. The working of the two of the major techniques of monetary control- Open Market Operations (OMOs) and Statutory Liquidity Ratio (SLR)- are closely connected with the dynamics of this market.

Government securities provide the highest type of collateral for borrowing against their pledge. They have the highest degree of security of capital and the return on each security depends on the coupon rate and period of maturity. They are traded for both long and short-term periods depending on the investment and liquidity preference of the investors. Switches between the short dated and long dated securities take place on the basis of difference in redemption yields.

9.3. Issues, Investors, and Types of Government Securities

Government securities are issued by the central government, state governments and semi-government authorities which also include local government authorities such as City Corporations and Municipalities.

The major investors in this market, besides the Reserve Bank, are the national banks as they have to subscribe to these securities to

meet their reserve requirements. The other investors are insurance companies, state governments, provident funds, individuals, corporates, non-banking finance companies, primary dealers, financial institutions and to a limited extent, foreign institutional investors and non-resident Indian (NRIs).

These investors can be classified into three segments.

- (i) Wholesale market segment, namely institutional players such as banks, financial institutions, insurance companies, primary dealers, and mutual funds.
- (ii) Middle segment comprising corporates, provident funds, trusts, non-banking finance companies, and small cooperative banks with an average liquidity ranging from Rs. 7 crore to Rs. 25 crore.
- (iii) Retail segment consisting of less active investors such as individuals and non-institutional investors.

The government securities market is mostly an institutional investors market as standard lots of trade are around Rs. 1 crore and 99 per cent of all trades are done through the Subsidiary General Ledger (SGL) account, which is a kind of depository account held by the Reserve Bank. Individuals cannot open SGL accounts. They have to open SGL-II accounts with a bank or a primary dealer provided they have a huge balance and agree to trade on an ongoing basis.

Government securities are of two types: treasury bills and government dated securities. The latter carry varying coupon rates and are of different maturities. Sometimes, the Reserve Bank converts maturing treasury bills into bonds thereby rolling over the government's debt.

9.4. Government Securities Market in the Pre-1991 Period

The Reserve Bank was established in 1935, after which it issued government securities on behalf of the government and sold them to various institutions and the public at large. In the 1930s, the government issued securities at interest rates as low as 2.5 per cent, as the cheap money policy was adopted. After independence, the Reserve Bank was nationalised; since then, it frames the monetary policy, structure of interest rates, programme of borrowing through government securities, and so on instructions from the government.

The programme of borrowing was gradually stepped up in the 1950s to finance development projects in various sectors of the economy. The rates of interest on government securities were also gradually stepped up to enable resource mobilisation. To facilitate this programme of higher borrowings, the Reserve Bank carried out open market operations which helped in creating a genuine market for government securities. Till the 1950s, government securities were more popular with individuals than with institutions.

Since the 1960s and until the 1990s, the government securities market remained dormant. The government was borrowing at pre-announced coupon rates from banks which were the predominant group of investors. During the 1980s, the volume of both long-term and short-term debt expanded considerably, especially the latter due to automatic accommodation through the issue of ad hoc T-bills. The Reserve Bank had also little control over some of the essential facets of debt management such as volume and maturity structure of securities to be marketed and the term structure of interest rates. The maturity structure of market loans remained highly skewed in favour of a longer term of more than 15 years.

Considering the significance of a vibrant government securities market and for activating an internal debt management policy, a number of measures were announced in the middle of 1991 to reform the government securities market.

9.5. Objectives of Reforms in the Government Securities Market

Reforms were undertaken in the government securities market to

- (i) increase the operational autonomy of the Reserve Bank;
- (ii) improve institutional infrastructure;
- (iii) improve the breadth and depth of the markets by introducing a variety of new instruments and bring about improvements in the market micro-structure such as yield-based and price-based auctions, tap about improvements in the market micro-structure such as yield-based and price-based auctions, tap loans, preannouncing notified amounts, reissues of dated securities, announcing calendar of T-bills, liquidity support to primary dealers, and so on;
- (iv) enable sound legal and regulatory framework by amendment to Securities Contracts (Regulation) Act and propose introduction of Government Securities Act;
- (v) bring in technology related improvements which include initiation of computerisation of Public Debt Offices (PDOs) of the Reserve Bank and of Real Time Gross Settlement System (RTGS);
- (vi) improve transparency and introduce standardised codes for market practices for encouraging standardised accounting norms.

9.6. Some Policy Measures Undertaken in the 1990s

The auction system for the sale of medium and long-term securities was introduced from June 3, 1992. Some innovative instruments

such as conversion of auction T-bills into term securities, zero coupon bonds, capital indexed bonds, tap stocks and partly paid stock were introduced.

From April 28, 1992, 364-days T-bills auctions were introduced and 91-day T-bills auctions from January 8, 1993. On June 6, 1997, 14-day T-bills were introduced but they were discontinued from May 2001.

Auctions of repurchase agreements (Repo) of dated government securities were introduced from December 1992.

To develop the market, Securities Trading Corporations of India (STCI) was set up in May 1994. It began its operations in June 1994.

The most notable policy development in the government securities market during 1994-95 was the delinking of the budget deficit from automatic monetisation by initially limiting the creation of ad hoc T-bills and subsequently discontinuing them.

The National Stock Exchange started trading in government securities from June 30, 1994.

As a move towards greater transparency, the transactions of government securities through SGL accounts have been made public by the Reserve Bank on a regular basis from September 1, 1994.

A Delivery versus Payment (DVP) system for transactions in government securities was introduced with effect from July 17, 1995. The DVP system synchronises the transfer of securities with cash payment thereby reducing the settlement risk in securities transactions and also preventing the diversion of funds in case of transactions routed through the SGL accounts. In 1999, the computer networking between Reserve Bank's SGL and NSDL was completed,

thus enabling electronic settlement for investors having depository accounts with NSDL.

The Reserve Bank set up a strong regulatory system which required that every trade must settle with funds and delivery of securities. IOUs and netting were prohibited. Trade reporting of the negotiated deals was made compulsory at the WDM (Ways and means advances) segment of NSF.

In May 1995, the government, for the first time, issued guidelines for non-government provident funds, superannuation funds, and gratuity funds to earmark 25 per cent of their total corpus for investment in central government securities.

A well developed government securities market enables other segments of the debt market to develop. As a step towards this, the government went for diversification of instruments- introduction of floating rate bonds indexed to yield on 364-day T-bills. Moreover, it reissued securities of two-year, three-year, five-year, and ten-year maturities at fixed coupon. Further, it permitted commercial banks to retail government securities with non-bank clients.

A scheme of Ways and Means Advances (WMA) was introduced effectively from April 1, 1997, to accommodate temporary mismatches between government receipts and payments. This scheme replaced the practice of automatic monetisation of deficit.

Foreign Institutional Investors, with a ceiling of 30 per cent investment in debt instruments, have been permitted to invest in government dated securities. In order to facilitate custodial and depository services to FIIs in government dated securities and T-bills, FII investments are now permitted through the SGL account of depositories, in addition to the SGL account of the designated banks, subject to certain conditions.

To encourage retail participation in the primary market for government securities, an allocation of upto 5 per cent has been provided to retail investors on a non-competitive basis.

The uniform price auction format for auctions which was confined to the auction of 91-days treasury bills was extended to the auction of dated securities. The central government issued two floating rate bonds on the basis of uniform price auction on November 21 and December 5, 2001, on an experimental basis.

The trading entities have been allowed to sell government securities allotted to them in primary issues on the same day, thus enabling sale, settlement, and transfer on the same day.

Some significant steps for further development of the government securities market which the Reserve Bank has taken in 2001-02 are as follows:

- (i) Enhancing fungibility and liquidity through consolidation by re-issuance of existing loans.
- (ii) Promoting retailing of government securities and introduction of floating rate bonds.
- (iii) Elongation of the maturity profile of outstanding issuance including issuance of bonds with a maturity of 25 years.
- (iv) Development of new benchmark government securities by consolidating new issuance in key maturities.
- (v) Setting up of an electronic Negotiated Dealing System (NDS) and Clearing Corporation of India Limited (CCIL) for facilitating trading and settlement in government securities. The NDS (Phase I) was operationalised from February 15, 2002 and CCIL

too commenced its operations for clearing and settling of transactions in government securities including repos.

- (vi) The Electronic Funds Transfer (EFT) and Real Time Gross Settlement System are being put in force by the Reserve Bank.
- (vii) A road map for developing Separate Trading for Registered Interest and Principal of Securities (STRIPS) was prepared, and put on the Reserve Bank's website for comments and suggestions from the market participants.

The government also announced, on February 28, 2001, that comprehensive legislation will be introduced on securitisation and clarification will be issued by the Central Board of Direct Taxes (CBDT) to promote the issuance of Separate Trading Registered Interest and Principal Securities (STRIPS), zero coupon bonds, deep discount bonds, and the like.

Retail trading in government securities at select stock exchanges commenced in January 2003.

9.7. STRIPS in the Government Securities Market

STRIPS is a process of stripping a conventional coupon bearing security into a number of zero coupon securities which can be traded separately. To illustrate, a 10-year government security can be stripped into a principal component and a set of 20 individual coupons/assuming half yearly coupon payments. Each of these 21 stripped securities can be treated as zero coupon bonds which can be traded at varying yields.

The conversion of one underlying security into a number of zero coupon securities called STRIPS increases the breadth of the debt market and provides a continuous market which ultimately helps in

improving liquidity. The creation of securities of varied maturities from a single security satisfies the needs of different investors who have diverse risk profiles and investment horizons. STRIPS benefits not only investors, but also issuers. STRIPS allows the issuer to issue securities with long-term maturity for any amount. These long-term securities can be stripped to meet the market needs for short-term securities. Moreover, the supply of securities increases with stripping and this boosts the secondary market activity. Further, banks can issue STRIPS against the securities held by them. Thus, STRIPS facilitates the management of the banks' asset-liability mismatches.

9.8. Retailing of Government Securities

The existence of a strong retail segment is a prerequisite for the development of the government securities market. Individual can buy government securities from the Reserve Bank's public debt office during auctions. However, most investors are not familiar with the functioning of the government securities market and most of them perceive government securities as an instrument meant for institutional investors. Owing to this, the retail market of government securities did not develop. The Reserve Bank has made efforts to promote retailing of government securities.

Banks are allowed to freely buy and sell government securities on an outright basis at prevailing market prices. They retail government securities to non-bank clients without any restriction on the period between sale and purchase. Further, the interest income on government securities was exempted from the provision of tax deduction at source with effect from June 1997, to facilitate genuine trading in the secondary market. With no TDS, government securities become an attractive investment for those interested in avoiding TDS, such as senior citizens.

One of the major objectives of setting up the primary dealer system and satellite dealer system was to increase the distribution channels and encourage voluntary holding of government securities among a wider investor base. The Reserve Bank has extended to them a scheme for availing liquidity support and the facility of repos (as lenders) for increasing the retail network.

With a view to enabling dematerialisation of securities of retail investors, the National Securities Depository Limited (NSDL), Stock Holding Corporation of India Limited (SHCIL) and National Securities Clearing Corporation Limited (NSCCL) were allowed to open SGL accounts with the Reserve Bank. The Reserve Bank allowed NSDL and CDSL to open a second SGL account for depository participants who, in turn, can hold in custody government securities on behalf of the ultimate investors. Retail investment in government securities has been made easy via demat accounts. The procedural hassels have been considerably reduced.

The Reserve Bank encouraged the setting up of mutual funds dealing exclusively in government securities called gilt funds with a view to creating a wider investor base for them. The Reserve Bank provides special liquidity support to the extent of 20 per cent of the investment in government dated securities. A primary dealer sells gilts with a minimum investment of Rs. 25,000 while gilt funds provide access to an individual investor with a low investment minimum of Rs. 5,000. The awareness about gilt funds is rising as they are offering good returns. PNB Gilts is using the Punjab National Bank branch network to popularise government securities with retail investors. It has tied up with NSDL to work around the problem of physical transfers and has also launched an advertising campaign to inform the public about the advantages of investing in government securities. Gilt funds were managing more than Rs. 3,200 crore as on June 30, 2001.

9.9. The System of Ways and Means Advances (WMA) for the Centre

The ad hoc treasury bills emerged as a popular mode of financing the central government's deficit in the mid-1950s. For the smooth conduct of the government's business, it was mutually agreed between the central government and the Reserve Bank that a minimum cash balance of Rs. 50 crore on Fridays and Rs. 4 crore on other days would be held by the central government. To adhere to this administrative arrangement, it was agreed that whenever the cash balances fell below Rs. 50 crore, the Reserve Bank would automatically issue fresh ad hoc T-bills of an amount that would restore the balance to Rs. 50 crore. This mechanism ensured an unlimited access to the Reserve Bank's resources. The ad hoc T-bills which were meant to be temporary, gained a permanent as well as a cumulative character. Indeed, it became an attractive source of financing government expenditure since it was available at an interest rate of 4.6 per cent per annum since 1974.

The Reserve Bank's credit to government is a source of reserve money generation and any investment in central government's securities by the Reserve Bank results in monetisation of government deficit. Monetised deficit is the increase in the Reserve Bank credit to the central government which is the sum of increase in the Reserve Bank's holdings of the government of India's dated securities, treasury bills, rupee coins, and loans and advances from the Reserve Bank to the centre since April 1, 1997, adjusted for changes in the centre's cash balances with the Reserve Bank. The Reserve Bank was expected to compulsorily finance ad hocs. The increase in the central bank's credit to the government led to an increase in money supply and inflation. The Reserve Bank had no way of containing monetisation of the budget deficit and effectively implementing its monetary policy. In order to

restore the role of the monetary policy in the economy, the government entered into an agreement with the Reserve Bank to put an annual ceiling on the issue of treasury bills, to reduce that ceiling over time, and finally to eliminate ad hocs.

The process of elimination of ad hocs was designed in three stages:

- (i) through limits on creation of ad hoc T-bills which operated between 1994-95 and 1996-97.
- (ii) through a transition period of two years which began on April 1, 1997, when ad hocs were eliminated, and the new system of Ways and Means was introduced. However, overdraft above Ways and Means was made permissible only beyond ten continuous working days; though at a cost.
- (iii) the full-fledged system of WMA has been operating effectively since April 1999.

What is Ways and Means Advances (WMA)

- (i) This scheme has been evolved to accommodate temporary mismatches in government receipts and payments
- (ii) The limit for WMA and the rate of interest on WMA will be mutually agreed to between the Reserve Bank and the government from time to time.
- (iii) Any withdrawals by the government from the Reserve Bank in excess of the limit of WMA would be permissible only for ten consecutive working days.
- (iv) When 75 per cent of WMA is utilized, the Reserve Bank would trigger fresh floatation of government securities.
- (v) Consistent with the discontinuance of ad hoc T-bills, the system of 91-day T-bills was also discontinued with effect from April 1, 1997. The outstanding ad hoc T-bills as on

March 31, 1997, were funded into special securities without any specified maturity, at an interest rate of 4.6 per cent per annum on April 1, 1997.

- (vi) With the discontinuance of ad hoc T-bills and with the introduction of WMA, the concept of conventional budget deficit was no more relevant. Therefore, the practice of showing budgetary deficit was discontinued; the Gross Fiscal Deposit (GFD) is now the key indicator of deficit. Gross fiscal deficit is the excess of total expenditure including loans, net of recoveries over revenue receipts (including external grains) and non-debt capital receipts.

WMA is not a source of financing budget deficit and is not included in the budget estimates. It is only a mechanism to cover day-to-day mismatches in receipts and payments of the government. It is charged at market related interest rate. Hence, the use of WMA have to be periodically abandoned.

Advantages of WMA

- (i) It is expected that WMA will not put an undue pressure on money supply as it is not a source of financing deficit.
- (ii) It would reflect the perceptions of both the issuer (the government) and the investors since the entire market borrowing programme of the government is an auction basis. This would lead to the deepening of the government securities market which, in turn, would facilitate the pricing of private corporate debt issues in relation to those of risk free government paper.
- (iii) The introduction of WMA is a major step towards the achievement of greater discretion. The Reserve Bank has larger flexibility in the choice of its assets which, in turn, provide it larger manoeuvrability over management of liquidity in the system.

WMA also entails important obligations. If the central government is not in a position to address its fiscal deficit suitably and if this results in a disproportionate rise in market borrowing, the rate of interest on government paper will start rising, affecting the entire interest rate structure.

WMA Limits

The Reserve Bank is required to set the limits of WMA for the government of India. For the year 1997-98, the limit for WMA was fixed at Rs.12,000 crore for the first half of the year (April-September) and Rs.8,000 crore for the second half of the year (October-March). These limits were revised in the year 1998-99 and lowered to Rs.11,000 crore and Rs.7,000 crore respectively. Furthermore, the interest rates on WMA were delinked from the cut-off yield for 91 day treasury bills and linked to the bank rate. For 2001-02, the WMA limits were scaled down to Rs.10,000 crore during the first half of the year and Rs.6,000 crore during the second half of the year. When 75 per cent of the limit for WMA is utilized by the government, the Reserve Bank may trigger fresh floatation of market loans, depending on market conditions. The interest rate on WMA is the bank rate, and on overdrafts the interest rate is the bank rate plus two percentage points. The minimum balance required to be maintained by the government of India with the Reserve Bank is not less than Rs.100 crore on Fridays, as at the close of the government's financial year and on June 30, and not less than Rs.10 crore on other days. Overdrafts are limited to 10 consecutive working days.

WMA Limits of Government of India

(Rs in crore)

Year	Limit during April-September	Limit during October-March
1997-98	12,000	8,000
1998-99	11,000	7,000
1999-2000	11,000	7,000
2000-01	11,000	7,000
2001-02	10,000	6,000
2002-03	10,000	6,000

9.10. Primary and Secondary Market Segments of the Government Securities Market

(a) Primary Market of Government Securities

Debt instruments are issued in the primary market where initially they are subscribed by the various investors who may not trade in them subsequently in the secondary market. The Reserve Bank of India issues government securities on behalf of the government.

The primary market operations of the Reserve Bank are mainly driven by the objectives of the debt management policy, which is to ensure funding of fiscal deficit from the market in a cost effective manner.

The primary market instruments are treasury bills and government dated securities. The central government mobilises funds mainly through the issue of treasury bills and dated securities while state government do so solely through dated securities.

Treasury Bills

T-bills are short term obligations issued by the Reserve Bank on behalf of the Government of India through weekly and fortnightly auctions. Till 2000, there were 14-day T-bills, 91-day T-bills, 182-day T-bills, and 364-day T-bills. The 14-day T-bills were discontinued from May 14, 2001. The 91-day auctions seek to manage the cash position of the government whose revenue collections are typically bunched towards the year end whereas revenue expenses are more evenly dispersed. Since April 1998, the practice of the notifying amounts in case of all auctions including 364-day T-bills has been introduced.

The minimum denomination of 91-day T-bills is Rs.25,000 while that of 364-day T-bills is Rs.1,00,000. The 91-day auctions occur every Wednesday and the 364-day on Wednesday preceding the reporting Fridays (fortnightly). Auctions are open to all resident individuals and corporates. Settlement for the auction occurs on the following Friday for both 91-day and 364-day T-bills. In 2001-02, the dates of payment for both 91-day T-bills, and 364-day treasury bills had been synchronised so that they could provide adequate fungible stock of treasury bills of varying maturity in the secondary market.

Calendar for Auction of Treasury Bills

Type of Treasury Bill	Periodicity	Notified Amount (Rs. in crore)	Day of Auction	Date of Payment
91-day	Weekly	250	Every Wednesday	Following Friday
364-day	Fortnightly	1,000	Wednesday preceding the reporting Friday	Following Friday

Source : RBI, Annual Report, 2001-02

Competitive Report, 2001-02

T-bills are issued through bidding wherein the competitive bidders are primary dealers, financial institutions, mutual funds, and banks. Besides these, individuals, corporate bodies, institutions, and trusts have been allowed to bid in government securities auctions. Bids can also be routed through both banks and primary dealers. Non-competitive bids are conducted to encourage participants who do not have sufficient expertise in bidding. The non-competitive bidders are state governments, municipalities, non-government provident funds, and other central banks. Non-competitive bids are kept outside the notified amount so that the non-competitive bidders do not face any uncertainty in purchasing the desired amount. Non-competitive bidders are issued T-bills at the weighted average price determined in auction.

The uniform price auction method is in use for selling T-bills. In such an auction, all successful bidders pay a uniform price, which is usually the cut-off price.

There exists a fixed calendar for auctions of all types of treasury bills and the auction is announced in advance through a public notification.

Government Dated Securities

The government of India securities are medium to long-term obligations issued by the Reserve Bank on behalf of the government to finance the latter's deficit and public sector development programme.

Government securities are predominantly coupon bearing and the coupon is paid semi annually on a 30/360 days basis.

However, there are floating rate or zero coupon securities also. No TDS is applicable. All government securities are SLR eligible. The central government securities are eligible for ready forward (Repo) facility, whereas state loans are not eligible for repos. These securities are highly liquid.

Primary Market Issuance of Government Securities

Government securities are issued either through (a) auction, (b) sale, or (c) private placement with the Reserve Bank.

(a) Auction : Auction is a form of allocative mechanism whereby commodities and financial assets are allocated to individuals and firms, particularly in a market-oriented economy. The government's preference for the auction system for selling securities stems from the ability of auctions to reveal more information about price determination and improve the allocation process. Auctions are designed to generate higher volumes for meeting the target market requirement without recourse to underwriting and/or devolvement, broaden participation to ensure that bids are not concentrated or skewed, and ensure efficiency through lowering the cost of borrowing for the government.

In June 1992, the government switched from the fixed price tender offer to the auction system for sale of government securities. The government, as a part of its annual budget exercise, announces the borrowing programme for the financial year. The Reserve Bank, acting in the capacity of merchant banker for the government's borrowing programme, raises money on behalf of the government by auctioning securities from time to time depending on the government's need for money, interest rates, and liquidity in the banking system.

The primary market for government securities starts with an auction. A brief outline of the auction :-

- The Reserve Bank announces the quantum, maturity, and date of the auction.
- On the day of the auction, all the participants submit their bid to the Reserve Bank. The bid includes the quantum and the yield at which they are bidding.
- The Reserve Bank decides the cut-off yield on the basis of the competitive bids it has received and as own view of the interest rates.
- Once the cut-off yield is decided, bids below the cut-off yield are accepted and bids above the cut-off yield are rejected.
- If the amount for which the bids are received falls short of the total quantum for which the auction is conducted, the Reserve Bank devolves the shortfall on itself or on the primary dealers (to the extent of their underwriting commitments).
- The cut-off yield becomes the coupon rate of that particular security.
- Lately, in order to promote liquidity in a particular security and to reduce the number of different government securities, the Reserve Bank has started issuing further tranches of existing securities in price based auction. Since the coupon rate and the maturity of the security are decided earlier, the bids are for the price. The auction procedure remains the same except that the bids higher than the cut-off price are accepted. Successful bidders are those that bid at a higher price, exhausting the accepted amount at the cut-off price. The multiple-price auctions are predominantly used in selling government securities. Since 1999-2000, most of the current primary issues of dated securities are through re-issues and price-based auctions, instead of yield-based auctions, to enable the consolidation of securities. Such consolidation is necessary

for ensuring sufficient volumes and liquidity in any one issue, to facilitate emergence of benchmarks, and development of Separately Traded Registered Interest and Principal of Securities. The uniform price auction format for auctions, which are confined to the auction of 91-day treasury bills, was extended to the auction of dated securities in November 2001. The government securities auction held on April 4, 2002, was also based on uniform price auction.

The government auctioned for the first time on July 17, 2002, a bond with call and put features. The notified amount was Rs.3,000 crore and the bond had a maturity of 10 years. On any coupon date on or after five years, the government can call the bond with two months notice. The investor also has the right to put the bond on the same terms.

Non-Competitive Bidding

The Reserve Bank introduced non-competitive bidding with a provision for allocation of upto 5 percent of the notified amount in specified auctions of dated securities for allotment to retail investors on a non-competitive basis at the weighted average rate. The scheme was operationalized from January 14, 2002, with the auction of 15 year government stock.

Retail investors such as individuals, firms, companies, corporate bodies, urban cooperative banks, institutions, provident funds, trusts, and any other entity as may be prescribed by the Reserve Bank are allowed to participate in auctions as non-competitive bidders. These bidders are required to submit their bids through banks and PDs. Allocation for non-competitive bidding is within the notified amount and if the amount tendered by the non-competitive bidders is less

than the reserved amount, all participants receive the full amount and the shortfall is transferred to a competitive position. If the amount received is more than the reserved amount, a pro-rata allotment is made to applicants. A non-competitive bidder is permitted to submit only one bid in the auction with a minimum amount of Rs. 10,000 and a maximum of Rs. 1 crore, Non-competitive bidders are issued securities at the weighted average price determined in competitive auctions.

There does not exist a fixed calendar for auctions of dated government securities. However, the auction of a dated security is announced in advance through a public notification. The securities are issued to successful bidders in the form of stock certificates or by credit to their SGL account.

(b) Sale : Earlier, the Reserve Bank used to adopt the sale route instead of auctions. Here, the coupon rate and maturity are predetermined and the securities are sold to investors at par. This approach is used predominantly for state loans. Of late, some states have tried the auction method successfully. As part of its open market operations, the Reserve Bank often sells outstanding securities (devolved or privately placed with itself earlier) through its sale window at preannounced prices.

(c) Private placement with the Reserve Bank : There are times when there is very tight liquidity in the banking system or when investors expect very high yields on the one hand and on the other, the Reserve Bank to hold an auction/sale. The Reserve Bank then places the securities with itself and funds the government. These securities are later sold in the market through its sale window at an opportune time. In this way, the Reserve Bank also signals its view on the interest rate.

The Reserve bank's ultimate objective is to move away from the primary market. Keeping this objective in view, a system of

underwriting was oriented towards facilitating larger absorption by primary dealers.

9.11. Ownership Pattern of Central and State Government Securities

The subscribers to government securities are the Reserve Bank, commercial banks, insurance companies, mutual funds, provident funds and others.

Ownership Pattern of Central and State Government Securities
(Percentage to Outstanding Government Securities)

Year	Subscribers				
	RBI	Commercial Banks	LIC	Provident Funds	Others
1990-91	20.3	59.4	12.3	1.7	6.3
1991-92	17.9	63.7	13.3	1.5	3.6
1992-93	8.2	66.4	14.7	1.5	9.2
1993-94	2.4	72.5	15.8	1.1	8.2
1994-95	2.0	69.6	16.2	1.0	11.2
1995-96	7.3	64.9	16.8	1.5	9.5
1996-97	2.8	67.3	18.7	1.9	9.3
1997-98	10.7	59.0	18.0	2.1	10.2
1998-99	9.1	59.5	17.8	1.8	11.8
1999-2000	7.0	60.9	18.1	2.0	13.0
2000-01	7.7	-	18.3	2.4	-

Source : RBI, Handbook of Statistics on Indian Economy, 2001.

As is seen from Table 9.11, notwithstanding various reform measures to develop and widen the primary market for government securities, the market continues to be dominated by captive investors such as

commercial banks and insurance companies. Banks have traditionally been the dominant investors the government securities due to SLR requirements. The investment of commercial banks constitutes, on an average, 65 per cent of the stock of government securities even through the SLR of the banks was significantly lowered to 25 per cent in 1997. Banks have found it advantageous to invest in government securities beyond the statutory requirements due to attractive market related interest rates offered since 1992-93, zero-risk nature of these securities, and depressed commercial credit market.

The Reserve Bank's holding of government securities declined steeply in 1994-95 to 2.0 per cent from 20.3 per cent in 1990-91. This reflects that the government securities market has developed after reforms. However, this trend reversed in 1997-98 with the surge in the Reserve Bank's holdings to 10.7 per cent as special securities in the bank's portfolio were converted to marketable lots with a view to facilitating open market operations.

9.12. Maturity Structure of Central Government Dated Securities Outstanding

With a move towards market related interest rates for meeting the borrowing requirements of the central government, there has been a significant shift in the maturity pattern of central government dated securities.

A significant transformation in the maturity structure is clearly discernible in Table 9.14. The maturity structure of dated securities was highly skewed at the short end. The government's heavy dependence on short to medium-term securities for the mobilization of market borrowing was due to uncertainty in market conditions and investor preference for short-term maturities. Moreover, it was a

conscious policy on the part of the government to minimize the cost borrowing by placing a large part of the borrowings at the shorter end of the market. This maturity structure tilted towards short-term securities, which led to significant higher gross borrowings to adhere to the repayment schedule. To avoid such high cost borrowings and redemption pressure entailing refinance risk, a conscious decision was taken to lengthen the maturity profile of new securities. Since 1998-99, the government has avoided excessive maturities at the short end and the trend is towards issue of long-term securities.

Table 9.14

**Maturity Structure of Central Government
Dated Securities Outstanding**

(percent of total primary issues)

Year	Over 10 years	Between 5 and 10 years	Under 5 years
1995-96	-	36.5	63.5
1996-97	-	36.0	64.0
1997-98	-	63.1	36.9
1998-99	13.5	55.0	31.5
1999-2000	65.0	35.0	-
2000-01	52.5	35.0	12.5
2001-02	84.2	14.0	1.8

In view of the bunching of redemption liabilities in the medium-term, no securities with maturities of less than five years were issued during 1999-2000. About 65 per cent of the total primary issues was raised through securities of above 10 years maturity in 1999-2000 as against 13.5 per cent in 1998-99. The market participants also found the

long-term paper to be attractive due to low inflationary expectations and improvement in liquidity. As a result, the weighted average maturity of dated securities during 1999-2000 increased to 12.64 years from 7.7 years in 1998-99 and 6.6 years in 1997-98. The weighted average maturity of debt dropped from 12.64 years to 10.6 years during 2000-01. This was due to the issue of short-term securities to accommodate the market's preference for short-term paper during the phases of market uncertainty. The weighted average maturity again rose to 14.3 years in 2001-02. The low inflation rate and development of the government securities market helped in the successful elongation of maturity.

9.13. Interest Rates in the Primary Market

The interest rates in the primary market are influenced by the prevailing liquidity conditions, Reserve Bank's intervention by way of devolvement and private placement, and amount and frequency of issues during the year.

The weighted average interest rate of dated securities of the Centre progressively rose from 11.41 per cent in 1990-91 to 13.75 per cent in 1995-96. (Table 9.15). The increased recourse to borrowing from the market and spells of tight liquidity put pressure on interest rates. Since 1996-1997, the interest rates have declined; in the year 1999-2000, the interest rates were very close to the interest rates in 1991-92. In spite of an increase in the market borrowing of the central government, the Reserve Bank was in a position to contain the interest rates. The Reserve Bank accepts the private placement of government stocks and releases them to the market when interest rate expectations become favourable. This policy of the Reserve Bank moderates the adverse impact.

Table 9.15
Weighted Average Coupon Rates on
Government of India Dated Securities

(Percent per annum)

Fiscal Year	Weighted average coupon rate	Range
1990-91	11.41	10.50-11.50
1991-92	11.78	10.50-12.50
1992-93	12.46	12.00-12.75
1993-94	12.63	12.00-13.40
1994-95	11.90	11.00-12.71
1995-96	13.75	13.25-14.00
1996-97	13.69	13.40-13.85
1997-98	12.01	10.85-13.05
1998-99	11.86	11.10-12.60
1999-2000	11.77	10.73-12.45
2000-01	10.95	9.47-11.70
2001-02	9.44	6.98-11.00

9.14. Government Dated Securities-Secondary Market

Secondary market in government securities can be categorised into two segments: (i) Wholesale institutional segment and (ii) Retail segment.

- (i) The wholesale institutional segment consists of active traders, mainly large banks, primary dealers, mutual funds, insurance companies, and others. The securities are traded in the SGL from and the market lot is Rs.5 crore. The secondary market for government securities is wholesale in nature, with most deals negotiated on telephone. The trades are generally closed on the telephone, which are then

reported on the wholesale Debt Market segment of the National Stock Exchange. Trades are then settled through the Reserve Bank, which acts as a depositing-cum-clearing house.

- (ii) The retail segment includes cooperative banks, provident funds, non-banking finance companies, and others. The securities are traded in the SGL or physical form and the lots are odd, that is, less than Rs.1 crore. Trades are settled directly by the counter parties and these trades may or may not be reported on the exchange. The high costs involved may not make it viable for the broker to report the transaction on the exchange.

With a view to promoting the retail market segment and providing greater liquidity to retail investors, banks were allowed to freely buy and sell government securities on an outright basis at prevailing market prices, without any restriction on the period between sale and purchase. Banks were permitted to undertake transactions in securities among themselves or with non-bank clients through the members of OTCEI in addition to NSE.

The interest income on government securities was exempted from the provisions of tax deduction at source with effect from June 1997 to facilitate quotations and trading in the secondary market. At present, the government securities market is predominantly institutional.

Trading System

Government securities do not have to be listed on an exchange. All government securities are deemed listed as and when they are issued.

The National Stock Exchange was the first stock exchange to introduce a transparent, screen-based trading system in the

wholesale debt market including government securities in June 1994. Prior to the commencement of trading in the WDM segment of NSE, the only trading mechanism available in the debt market was the telephone. NSE provided, for the first time in the country, an online, automated, screen-based system known as National Exchange for Automated Trading across a wide range of debt instruments. This system is an order-driven system which matches the best buy and sell orders on a price time priority and simultaneously protects the identity of the buyer and seller. Trading under this system leads to a risk-free, efficient price mechanism and transparency. The trades on the WDM segment could be outright trades or repo transactions with flexibility for varying days of settlement (T+0 to T+5) and repo periods (3-14 days). Order matching is carried out only between orders which carry the same conditions with respect to settlement days, trade type, and repo period, if any.

The OTCEI also started trading in government securities in July, 1997. The NSE and OTCEI members are authorised to transact business on behalf of commercial banks. Non-banking clients may also trade via brokers. In order to provide another platform for trading in government securities, the Reserve Bank permitted trading in government securities at the Bombay Stock Exchange in October 2000. The trading, however, commenced in June 2001. The Reserve Bank announced, in 2000-01, its decision to move over in due course to order-driven screen based trading in government securities on all stock exchanges.

Settlements

The government securities can be held and transacted in two forms- dematerialised SGL form and physical form. Registration of the participant with the Public Debt Office of the Reserve Bank is mandatory in case of holding and trading securities in the physical form.

Subsidiary General Ledger (SGL) Account

The Reserve Bank acts as a depository-cum-clearing house settlement is through accounts maintained with the Reserve Bank called the Subsidiary General Ledger (SGL) accounts. The physical securities are dematerialised and the relevant holdings are in the form of book entries. Every participant in the government securities market maintains SGL and current accounts with the Reserve Bank. Those not eligible to maintain direct accounts with the Reserve Banks have the facility to open constituent SGL accounts or SGL II accounts with banks who have direct SGL accounts. The Reserve Bank has permitted the National Securities Clearing Corporation Limited (NSCCL), banks, insurance companies, financial institutions, and primary dealers to offer constituent SGL account facility to an investor who is interested in participating in the government securities market. Any trade among participants are settled via this facility. The parties exchange the relevant SGL instruction receipts and the mode of transaction is delivery versus payment. The DVP system ensures settlement by synchronising the transfer of securities with cash payment. The Reserve Bank settles only on DVP-I basis where both funds and securities are settled on a gross basis. For all transactions undertaken directly between SGL participants, the settlement period is of T+0 or T+1 days while for transactions routed through brokers of NSE, BSE, or OTCEI, the settlement period is upto T+5 days. Participants have the flexibility to decide the terms of settlement. Trades are settled by T+3, if desired by participants. This reduces settlement risks in securities transactions and also prevents diversion of funds through SGL transactions.

SGL accounts are maintained by the Public Debt Office (PDO). The PDO oversees the settlement of transactions through SGL and enables the transfer of securities from one participant to another. The seller fills up the SGL form, the buyer countersigns it, and the seller sends

this form to the Reserve Bank. The buyer transfers funds towards payment. Inter-bank government securities trades are settled on the same business day while trades with non-bank counter parties settle either on the same day or upto five business days after the trade date. Secondary market trades in government securities between banks are carried on upto 1.00 p.m. on business days and settled on the same day. Trades after that are settled the next day.

The transfer of government securities does not attract stamp duty or transfer fee. Moreover, there is no tax education at source on these securities.

Trade in the physical form is settled by the parties directly. Securities are delivered in the form of a physical certificate along with the transfer deed duly executed by the authorised signatures of the transferor. The transferee has to lodge the certificates with the Reserve Bank for transfer.

9.15 Tools for Managing Liquidity in the Government Securities Market

The Reserve Bank uses basically two tools to manage liquidity in the government securities market. These are repos and open market operations. Repos have already been discussed in Chapter 4. The Reserve Bank manages short-term liquidity through repos and reverse repos and long-term liquidity through open market sales to absorb liquidity in conjunction with private placement/devolvement and open market purchases in tight liquidity conditions.

Open Market Operations (OMO)

Open market operation is an important tool of liquidity management. OMOs are actively used to neutralise excess liquidity in the system and to contain wide fluctuations in the domestic money and foreign

exchange markets. It is an actively used technique of monetary control in developed countries such as the UK, and USA. OMOs directly affect the availability and cost of credit. Its two objectives are (i) to influence the reserves of commercial banks, in order to control their power of credit creation and (ii) to affect the market rates of interest.

OMOs involve the sale or purchase of government securities by the central bank. When the Reserve Bank sells government securities in the market, it withdraws a part of the deposit resources of the banks, thereby reducing the resources available with the banks for lending. The bank's capacity to create credit, that is, give fresh loans, depends upon its surplus cash, that is, the amount of cash resources in excess of the statutory CRR stipulated by the Reserve Bank. The open market sale of securities reduces the surplus cash resources of banks as these resources are used to purchase government securities. Banks have to contract their credit supply to generate some cash resources to meet the CRR. The supply of bank credit which involves the creation of demand deposit falls and money supply contracts. The reverse happens when the Reserve Bank undertakes open market purchase of government securities. The open market purchase of securities leads to reduction in the stock of securities of the seller bank and an expansion in the free surplus cash which augments the credit creation capacity of banks. The result is an expansion in the supply of bank credit and an increase in money supply.

Open market operations do not alter the total stock of government securities but change the proportion of government securities held by the Reserve Bank and commercial and cooperative banks. Open market sales result in a fall in net RBI credit to government (NRCCG) and an increase in the other banks' (cooperative and commercial) credit to government (OBCG) without affecting the budget (fiscal) deficit in anyway.

The Reserve Bank resorts to private placement when market conditions for government securities is not favourable and conducts open market sales later when liquidity conditions turn favourable. Thus, the Reserve Bank influences the resources position of banks, yields on government securities, and cost of bank credit through the open market sale and purchase of government securities.

The Reserve Bank can buy or sell or hold government securities of all maturities without any restrictions. The bank purchased and sold government securities upto 1991-92 out of the surplus funds of IDBI, Exim Bank, NABARD, and other institutions under a special buy back arrangement. Till 1991-92, the market of open market operations was quite narrow as interest rates were administered and the government securities market was not broad based either. However, with the initiation of several measures to promote both primary and secondary markets in government securities, the OMO market has become active and OMOs have emerged as an important tool of debt management. Accordingly, various steps have been taken to alter the composition, maturity structure, and yield of government securities. The Reserve Bank also introduced the sale of securities from its own account on the basis of repo. Besides this, the bank offers for sale only a select number of securities which it wishes to undertake in response to market conditions, instead of maintaining a list including all dated securities in its portfolio. The Reserve Bank has also put on its purchase list a couple of securities for cash with a view to providing liquidity to at least a few securities.

In a move to augment the stock of marketable securities for active OMOs, special securities of value aggregating Rs.15,000 crore at 4.6 per cent were converted into marketable securities of 10 year, 7-year, and 8-year maturities at 13.05 per cent, 12.59 per cent, and

11.19 per cent on June 3, June 18, and August 12, 1997, respectively. The cost of additional interest on account of this conversion is fully borne by the Reserve bank and is paid to the government as part of transfer of profits from year to year.

The Reserve Bank included treasury bills of varying maturities in the OMOs in 1998-99. The resort to OMOs epitomises the move from direct to indirect instruments of monetary control.

OMOs have been successfully used by the Reserve Bank to groom or switch operations, that is, the sale of long-term scripts in exchange for short-term loans. This helps in lengthening the maturity structure of government securities which, in turn, becomes favourable for the working of the monetary policy.

Table 9.21 reveals that the volume of Reserve Bank's net sales (sales-purchase) increased over the years except in the year 1994-95 when tight money market conditions prevailed. Since 1996-97, OMOs have come into a sharper focus. The stock of marketable securities was augmented by conversion of special securities into marketable securities for conducting active OMOs. During 1996-97, outright sale of securities came into prominence to absorb excess liquidity which was due to large capital inflows and to maintain domestic interest rate and exchange rate at reasonable levels. The Reserve Bank did not purchase any security during 1998-99 through its OMO window. The open market sale rose significantly by 290 per cent in 1998-99. An important aspect in the OMO during 1998-99 was the inclusion of treasury bills of varying maturities. In 2000-01, due to uncertain foreign exchange market conditions and unfavourable market conditions for government securities, the Reserve Bank privately placed securities with itself. The securities were subsequently sold on-tap basis and through OMO auctions.

Table 9.21
The Reserve Bank's Open Market Operations
in Central Government Securities

Year	Purchases	Sales	Net sales (-) Net purchase(+)
1990-91	2,291.2 (14,287.1)	2,238.1(13,725.2)	+53.1 (431.8)
1991-92	3,244.8 (5,321.7)	7,327.1(9.365.6)	-4,082.3 (-4,043.9)
1992-93	6,273.4	11,792.5	-5,519.1
1993-94	967.6	10,804.6	-9.837.0
1994-95	1,560.98	2,309.03	-748.05
1995-96	1,645.24	1,130.89	+514.35
1996-97	633.95	11,097.55	-10,463.60
1997-98	466.50	8,081.49	-7,614.94
1998-99	-	2,348.3 (GDS) 3,230.0 (T-bills)	-26,348.3 (Govt. securities) -3,230.0 (T-bills)
1999-2000	1,244.00 (GDS) 5,700.50 (T-bills)	36,613.51 (GDS) 1,191.91 (T-bills)	-35,369.51 (GDS) +4,508.59 (T-bills)
2000-01	4,471.05 (GDS) 5.00 (T-bills)	23,795.1 (GDS) 2,679.00 (T-bills)	-19,324.05 (GDS) -2,674 (T-bills)
2001-02	5,084 (GDS)	35,418.59 (GDS)	-30,334.59 (GDS)

Note : Figures shown in brackets upto 1991-92 are inclusive of purchases/sales effected from time to time from surplus funds of IDBI, Exim Bank, NABARD, and other institutions under a special buy back arrangement. The Reserve Bank phased out the buy back arrangements in 1992-93.

Source : RBI, Annual Report, various issues.

The Reserve Bank conducted a series of open market purchases aggregating Rs.5,084 crore during September 18-October 10,2001, to support the government securities market in the face of the steep fall in the government securities prices due to adverse external

developments after September 11, 2001. Subsequently, with stability in market conditions and easing of liquidity, it resorted to open market sales. These sales helped the Reserve Bank to absorb surplus liquidity on an enduring basis, stabilizing the prices of government securities, and offloading the securities privately placed with it.

9.16. Infrastructure Development of the Government Securities Market

The government securities market constitutes the principal segment of the debt market. The development of any market requires the strengthening of the market infrastructure with large number of market players who have divergent perceptions about the market and who would continuously provide liquidity. One of the initiatives taken to develop the government securities market during the first stage of the reform process was the setting up of Securities Trading Corporation of India (STCI). The STCI together with Discount and Finance House of India (DFHI) had the task of developing an active secondary market in government securities.

The Reserve Bank introduced the primary dealer system and satellite dealer system to further strengthen the market infrastructure.

Primary Dealer System

A system of primary dealers was introduced in 1996, to further strengthen the market infrastructure and to make it more liquid and broad based. The objectives of the introduction of this system were :

- (i) to strengthen the government securities infrastructure;
- (ii) to bring about improvements in the secondary market trading, liquidity and turnover in government securities;
- (iii) to encourage a voluntary holding of government securities amongst a wider investor base; and
- (iv) to make PDs an effective conduit of open market operations.

The major focus of PDs would be on increasing the turnover of government securities rather than becoming a mere repository of this system. Hence, their role would be to act as market makers by providing two-way quotes in the secondary market, thereby ensuring liquidity and support to the primary market operation. In the long run, this system would facilitate the transfer of market-making activities from the Reserve Bank to primary dealers.

PDs can be subsidiaries of scheduled commercial banks, subsidiaries of all-India financial institutions, companies under Companies Act, 1956 engaged predominantly in government securities market, and subsidiaries of foreign banks/securities firms. Every PD has to maintain minimum net owned funds of Rs.50 crore deployed daily in the government securities market.

PDs institutional entities fall in the category of non-banking finance companies. PDs are registered with and regulated by the Reserve Bank of India, irrespective of whether they accept public deposits or not.

Obligations upon PDs Facilities Extended to them

In order to enable PDs to perform their role effectively, the Reserve Bank has cast certain obligations upon PDs which include an annual minimum bidding for dated securities and treasury bills with a minimum success ratio and commitment to underwrite the shortfall (gap) between the subscribed accepted amount and the notified amount. PDs have to achieve an annual turnover of not less than five times of average month-end stocks during the year in dated securities and ten times in treasury bills, within which outright transactions should be three and six times respectively.

To strengthen this system and to make PDs fulfil their obligations, the Reserve Bank extends to them various facilities like access to

SGL and current account facility with the Reserve Bank, liquidity support through reverse repos linked to both bidding commitment and performance of PDs in the primary and secondary markets, freedom to deal in money market instruments, facility of transfer of funds from one centre to another under the Reserve Bank's Remittance Facility Scheme, exclusive access to open market operations in treasury bills since February 2000 and a switch facility Scheme, exclusive access to open market operations in treasury bills since February 2000 and a 'switch facility' to swap their medium to long-term dated government securities with 364-day treasury bills during August 2000. Routing operations in the call money market are allowed through all PDs to increase their profitability. PDs are allowed to issue commercial papers (CPs) to raise resources.

The Reserve Bank provides liquidity support to PDs through repos/refinance against central government securities under three levels. At the first level, normal refinance at bank rate is provided upto a specified amount. A backstop refinance at a variable rate upto a fixed amount is provided at the second level. Finally, discretionary support is extended through Liquidity Adjustment Facility (LAF). The total assured liquidity support for all PDs together is about Rs.4,500 crore for 2002-03 as against Rs.6,000 crore during 2001-02, of which two-third is under the normal facility and one-third under the backstop facility. If any PD in any auction of treasury bills, fails to submit the required minimum bid or submits a bid lower than its commitment, the Reserve Bank will reduce liquidity support to the extent of shortfall/failure in submission of bids for a period of three months from the date so specified by the Bank. For instance, if a bid is short by an amount of Rs.10 crore, liquidity support will be reduced by an amount of Rs.10crore for 3 months.

As PDs have the status of 'Financial Institutions' for the purpose of section 18 of Banking Regulation Act, 1949 and section 42 of RBI

Act, 1934, the borrowings by commercial/cooperative banks from them is netted for reckoning their demand and time liabilities for computation of cash reserves.

PDs are expected to substantially underwrite the primary issues of government securities and treasury bills. In view of the increasing trend in government borrowings, the role of PDs in enhancing the market for government securities is becoming crucial. PDs give two-way quotes in the Press/Reuters screen and bid in the auctions of 91-day/364-day treasury bills and in the floatation of new loans. PDs are permitted to participate in the call/notice money market, term money market, and bill rediscounting scheme both as lenders and borrowers. The system of payment of commission on purchase of securities was replaced in 1997-98 by a system of underwriting fees on the amount underwritten by them through competitive bids. The uniform pricing approach is used in accepting bids for underwriting. The system of underwriting facilitates larger absorption by PDs, keeping in view the Reserve Bank's ultimate objective of moving away from the primary market. The underwriting commitment of each PD is broadly decided on the basis of its size, in terms of its net owned funds, its holding strength, committed amount of bids, and volume of turnover in government securities. In case of auctions of treasury bills, PDs are no longer required to undertake devolvement. Hence, the payment of commission for treasury bills was withdrawn with effect from June 5, 2001-02, a revised scheme for bidding and underwriting was announced. PDs are also given a favoured access to the Reserve Bank's OMOs.

Number of PDs

DFHI and STCI were accredited as dealers on March 1, 1996. ON June 1, 1996, four more PDs-SBI gilts, PNB gilts, Gilts Securities Trading Corporation Limited, and ICICI Securities-became operational. As on March 31, 2002, there were 18 approved PDs in

the gilts market. The initial six PDs constitute the subsidiaries of RBI/nationalized banks/financial institutions, while the remaining new PDs represent private sector participants. These 18 PDs have net owned funds of over Rs.4,000 crore and total assets of Rs.15,658 crore out of which government securities constitute Rs.12,236 crore (78 percent of total assets).

Primary Dealers Association of India (PDAI)

PDs formed an autonomous, self-regulatory organisation (SRO), Primary Dealers Association of India (PDAI) in 1996. The role of PDAI is

- (i) to promote a liquid debt market and set common standards for market participants;
- (ii) to achieve a harmonious integration of different segments of markets;
- (iii) to build a healthy relationship between different segments of market participants; and
- (iv) to remove some legal, procedural, and administrative bottlenecks in the efficient functioning of the market.

Banks and PDs together formed another autonomous self-regulatory body. Fixed Income Money Market and Derivatives Association of India (FIMMDAI), in 1997.

These two SROs have been proactive and the closely involved in contemporary issues relating to the development of the money market and government securities market. The credit for upgrading the technological infrastructure in these two markets goes to these two SROs. The representatives of the PDAI and FIMMDAI are members of the Technical Advisory Group on Money and Government Securities Markets of the Reserve Bank. The FIMMDAI has now taken over the responsibility of publishing the yield curve in the debt markets. The

FIMMDAI prepared the guidelines for standard procedures and documentation to be followed by the participants in the commercial paper market and certificate of deposit (CD) market. Currently, the FIMMDAI is working towards the development of uniform documentation and accounting principles of repo market.

Satellite Dealers

In order to widen the scope for organised dealing and distribution arrangement in the government securities market and to support the system of primary dealers, the Reserve Bank introduced a supporting infrastructure in the form of satellite dealers. SDs form the second tier of trading and distribution of government securities.

The guidelines for registration of satellite dealers in government securities market were announced on December 31, 1996. According to the guidelines, subsidiaries of scheduled commercial banks and all-India financial institutions (AIFIs) and companies incorporated under Companies Act, 1956 with minimum net owned funds of Rs.5 crore were eligible to be SDs. In pursuance of these guidelines, the Reserve Bank granted approval to 16 entities for registration as SDs in the government securities market.

SDs were permitted to issue commercial papers for raising resources and could avail of liquidity support from the Reserve Bank and the facility of ready forward transactions. Some of the satellite dealers were promoted as primary dealers.

The network of satellite dealers was created to promote the retailing of government securities but the performance of the satellite dealers was not found to be satisfactory. The Reserve Bank decided to discontinue the system after obtaining the view of the Primary Dealers Association of India. Accordingly, no new SDs will be licensed and existing SDs were required to make action plans satisfactory to the

Reserve Bank for termination of their operations as SDs by May 31, 2002.

Measures to Strengthen the Government Securities Market Infrastructure

For bringing about an improvement in trading and settlement in the money market and government securities market, the Negotiated Dealing System (NDS) and Clearing Corporation of India Limited (CCIL) have been setup.

Negotiated Dealing System : The Reserve Bank introduced NDSE with a view to reforming the secondary market in government securities and money market operations, introducing transparency, and facilitating electronic bidding in auctions. Test runs on the NDS started in November 2001 and phase I was operationalised from February 15, 2002 with 41 participants.

The NDS provides an on-line electronic bidding facility in the primary auctions of central/state government securities, OMOs/LAF auctions. It enables screen-based electronic dealing and reporting of transactions in money market instruments including repo, secondary market transactions in government securities, and dissemination of information on trades with the least time lags.

The NDS is integrated with the Securities Settlement System (SSS), of the Public Debt Office as also with the CCIL to facilitate paperless settlement of transactions in government securities and treasury bills and bring about improvement in services to investors in government securities. Once a trade is done/reported over NDS, it can be settled either through CCIL or directly through RBI-SGL. Settlement through CCIL is on Delivery versus Payment (DVP-II) mechanism. DVP-II refers to settlement of securities on gross basis (trade by trade basis) while funds will settle on net basis.

Banks, primary dealers, and financial institutions having SGL accounts and current accounts with the Reserve Bank are eligible to participate in NDS. It provides an electronic dealing platform for these participants in government securities. It enables the execution of deals in both the computer matching mode or a chat mode for negotiating deals on the system itself. Members are expected to report all the trades negotiated outside the system for settlement. It facilitates member participation in the primary auctions of government securities and treasury bills by submitting their bids/applications for auctions/floatation through their own terminals or pooled terminals. The pooled terminal facility is provided at all regional offices for use by SGL account holders not having member terminals. NDS is used by the Reserve Bank for extending the liquidity adjustment facility to eligible members. All entities having SGL accounts with the Reserve Bank were advised to become members eligible members of the NDS by May 31, 2002. Till August 5, 2002, 138 SGL account holders were members of NDS. On an average, 526 deals were reported daily on NDS, of which 473 deals for Rs. 11,688 crore were ready for settlement during the quarter ended June 2002. These deals comprised money market deals (109 deals for Rs. 8,762 crore), outright government securities trades (344 deals for Rs. 2,080 crore) and repo transactions among member participants. The settlement of the government securities transactions through the CCIL constituted 91.3 per cent of the total government securities trades dealt/reported on the NDS.

The NDS has brought about significant improvements in secondary markets also. It has helped in increasing the level of transparency of the dealings in government securities, T-bills, and other instruments. The system has facilitated screen-based trading, provision of on-line trade information, and reporting through trade execution system for settlement.

Clearing Corporation of India Limited: The Clearing Corporation of India Limited (CCIL) was registered on April 30, 2001 under the Companies Act, 1956. The State Bank of India is the chief promoter of CCIL. Its other promoters are banks, financial institutions, and primary dealers. It has been set up as an ordinary, limited liability, non-government company under the Companies Act, 1956 with an equity capital of Rs.50 crore. It functions like a business entity that is subject to corporate tax on its business profits.

It acts as the central counterparty in the settlement of all trades in government securities, treasury bills, money market instruments, repos, inter-bank foreign exchange deals, and derivatives of any kind where the underlying instrument is a security or money market instrument. CCIL is the clearing and settling agency in respect of all trades by institutional players such as banks, DFIs, primary dealers, mutual funds, corporates, and NBFCs who account for more than 98 per cent of the total trades.

In foreign exchange transactions, CCIL resorts to loss allocation mechanism to manage credit and market risk and restricts the membership to authorised dealers only.

To ensure liquidity for uninterrupted settlements, CCIL has arranged rupee securities through member contributions to the SGF, rupee funds through line of credit with various banks, and US dollar funds by way of a fully collateralised line of credit with the settlement bank.

To deal with operational risk, CCIL is developing a fully automated system for processing trades. A Disaster Recovery Site is being set up at the Institute for Development and Research in Banking Technology (IDRBT), Hyderabad, to ensure business continuity in case of a disaster.

9.17 Summary

The government raises short-term and long-term funds by issuing securities. These securities do not carry no risk and are as good as the government guarantees the payment of interest and the repayment of principal. The government generates revenue in the form of taxes and income from ownership of assets. Besides these, it borrows extensively from banks, financial institutions, and the public to finance its expenditure in excess of its revenues. Government securities are of two types: treasury bills and government dated securities. The latter carry varying coupon rates and are of different maturities. Sometimes, the Reserve Bank converts maturing treasury bills into bonds thereby rolling over the government's debt. The interest rates in the primary market are influenced by the prevailing liquidity conditions. Reserve Bank's intervention by way of devolvement and private placement, and amount and frequency of issues during the year. With a view to promoting the retail market segment and providing greater liquidity to retail investors, banks were allowed to freely buy and sell government securities on an outright basis at prevailing market prices, without any restriction on the period between sale and purchase. Banks were permitted to undertake transactions in securities among themselves or with non-bank clients through the members of OTCEI in addition to NSE. The Reserve Bank manages short-term liquidity through repos and reverse repos and long-term liquidity through open market sales to absorb liquidity in conjunction with private placement/devolvement and open market purchases in tight liquidity conditions. A system of primary dealers was introduced in 1996, to further strengthen the market infrastructure and to make it more liquid and broad based. In order to widen the scope for organised dealing and distribution arrangement in the government securities market and to support the system of primary dealers, the Reserve Bank introduced a supporting

infrastructure in the form of satellite dealers. SDs form the second tier of trading and distribution of government securities. For bringing about an improvement in trading and settlement in the money market and government securities market, the Negotiated Dealing System (NDS) and Clearing Corporation of India Limited have been setup

9.18. Key Words

Government securities are the securities issued by the government to raise short and long term funds also known as gilt-edged securities.

Gilt funds are mutual funds encouraged the RBI dealing exclusively in government securities with a view to creating a wider investor base for them.

STRIPS Separate Trading Registered Interest and Principal Securities is a process of stripping a conventional coupon bearing security into a number of zero coupon securities which can be traded separately.

T-bills are short term obligations issued by the Reserve Bank on behalf of the government of India through weekly and fortnightly auctions.

Government Dated Securities are medium to long-term coupon bearing obligations issued by the Reserve Bank on behalf of the government to finance the latter's deficit and public sector development programme.

Gross fiscal deficit is the excess of total expenditure including loans, net of recoveries over revenue receipts (including external grants) and non-debt capital receipts.

Auction is a form of allocative mechanism whereby commodities and financial assets are allocated to individuals and firms,

particularly in a market-oriented economy.

Open market operation is a tool of liquidity management actively used to neutralise excess liquidity in the system and to contain wide fluctuations in the domestic money and foreign exchange markets.

9.19 Self Assessment Questions

1. Why is the debt market an important segment of the capital market? Who are the participants in the debt market?
2. Discuss the role played by the Reserve Bank of India in the government securities market.
3. Which are the tools for managing liquidity in the government securities market?
4. State the objectives for the introduction of the primary dealer system? Discuss the role played by them in the government securities market.
5. Explain in brief the Negotiated Dealing System and the role of the Clearing Corporation of India Limited in the government securities market.
6. Explain uniform price auctions and multiple price auctions.

9.20 Suggested Readings/References

1. Chandrashekhar, C P and Jayanti Ghosh (2000), "Monetary Policy, Post-Reforms," *Business Line*, September 5, 2000.
2. Patil, R.H. (2002), "Reforming Indian Debt Markets." *Economic and Political Weekly*, February 2-8, 2002. pp.409-20.
3. Prasad, P G R, (1998), "Primary Debt Market Regulatory

Aspects,” in Gautam Bhardwaj (ed). *The Future of India’s Debt Market*, Tata McGraw Hill, pp.51-68.

4. Reddy Y V, (1998), “The Debt Market : The Regulators Perspective.” In Gautam Bhardwaj (ed). *The Future of India’s Debt Market*, Tata McGraw Hill, pp.9-50.
5. Reddy, Y V, (2000), “Government Securities Market : Some Issues,” *RBI Bulletin*, February 2000, p.169.

Subject Code : FM 304

Author : Ashish Garg

Lesson No. : 10

Vettor : Prof. B.S. Bodla

**VALUATION OF FIXED INCOME SECURITIES OR
VALUATION OF BONDS**

Structure

- 10.0 Objective
- 10.1. Introduction
- 10.2. Bond valuation-Terminology
- 10.3. Valuation model
- 10.4. Bond return
- 10.5. Price-yield relationship
- 10.6. Bond market
- 10.7. The term structure of interest rate (yield curve)
- 10.8. Riding the yield curve
- 10.9. Duration
- 10.10. Immunisation
- 10.11. Summary
- 10.12. Key Words
- 10.13. Self Assessment Questions

10.0 Objectives

After going through this lesson the learners will be able to :

- understand the main characteristics of fixed income instruments.
- discuss the time value concept
- describe basic discounted cash flow valuation model and its application to bonds.

10.1. Introduction

Fixed income financial instruments which, traditionally, have been identified as a long-term source of funds for a corporate enterprise are the cherished conduit for investor's money. An assured return and high interest rate are responsible for the preference of bonds over equities. The year 1996-97 witnessed hectic trading in the debt market, as resource mobilisation reached a record level of almost Rs. 25,000 crores which was much above the equity segment. In the first seven months of the fiscal year 1998-99, the funds mobilised by ICICI (Four debt issues) and IDBI have accounted for 90 per cent of Rs. 3,175 crores mopped in the primary market. Financial institutions, banks and corporate bodies are offering attractive bonds like retirement bonds, education bonds, deep discount bonds, encash bonds, money multiplier bonds and index bonds. Knowing how to value fixed income securities (bonds) is important both for investors and managers. Such knowledge is helpful to the former in deciding whether they should buy or sell or hold securities at prices prevailing in the market.

10.2. Bond valuation-Terminology

A bond or debenture is a debt instrument issued by the government or a government agency or a business enterprise. Exhibit 10.1 describes briefly the variety of debt instruments in the Indian market.

Exhibit 10.1. Debt instruments

Type	Typical features
Central Government Securities	Medium- to long-term bonds issued by RBI on behalf of GOI. Coupon payments are semi-annual.
State Government Securities	Medium- to long-term bonds issued by RBI on behalf of the state government. Coupon payments are semi-annual.

Government-Guaranteed Bonds	Medium- to long-term bonds issued by government agencies and guaranteed by the central government or a state government. Coupon payments are semi-annual.
PSU Bonds	Medium- to long-term bonds issued by public sector companies in which the central or state government has an equity stake of 51 per cent or more.
Corporate Debentures	Short-to medium-term debt issued by private and public sector companies.
Money Market Instruments	Debt instruments like Treasury Bills (issued by GOI), Commercial Paper (issued by corporates) and Certificates of deposits (issued by banks and financial institutions) that have a maturity of less than a year.

In order to understand the valuation of bonds, we need to be familiar with certain bond-related terms.

Par Value- It is the value stated on the face of the bond. It represents the amount the firm borrows and promises to repay at the time of maturity. Usually the par or face value of bonds issued by business firms is Rs. 100. Sometimes it can be Rs. 1000.

Coupon Rate and Interest- A bond carries a specific interest rate which is called the coupon rate. The interest payable to the bond holder is simply par value of the bond \times coupon rate. Most bonds pay interest semi-annually. For example, a GOI security which has a par value of Rs. 1000 and a coupon rate of 11 per cent pays an interest of Rs. 55 every six months.

Maturity Period- Typically, bonds have a maturity period of 1-10 years; sometimes they have a longer maturity. At the time of maturity the par (face) value plus perhaps a nominal premium is payable to the bondholder.

The time value concept

The time value concept for money is that the rupee received today is more valuable than a rupee received tomorrow. The investor will postpone current consumption only if he could earn more future consumption opportunities through investment. Individuals generally prefer current consumption to future consumption. If there is inflation in the economy, a rupee today will represent more purchasing power than a rupee at a future date.

Interest is the rent paid to the owners to part their money. The interest that the borrower pays to the lender causes the money to have a future value different from its present value. The time value of money makes the rupee invested today grow more than a rupee in the future. To quantify this concept mathematically compounding and discounting principles are used. The one period future time value of money is given by the equation:

Future Value = present value (1 + interest rate). If hundred rupees are put in a savings bank account in a bank for one year, the future value of money will be:

$$\begin{aligned}\text{Future Value} &= \text{Rs. } 100 (1.0 + 6\%) \\ &= 100 \times 1.06 = \text{Rs. } 106.\end{aligned}$$

If the deposited money is allowed to cumulate for more than one time, the period exponent is added to the previous equation.

$$\text{Future value} = (\text{Present Value}) (1 + \text{interest rate})^t$$

t- the number of time periods the deposited money accumulates as interest. Suppose Rs. 100 is put for two years at the 6% rate of interest, money will grow to be Rs. 112.36.

$$\begin{aligned}
\text{Future Value} &= \text{Present value} (1 + \text{interest rate})^2 \\
&= 100 (1 + 0.06)^2 \\
&= 100 (1.1236) \\
&= 112.36.
\end{aligned}$$

To find out the values in a simple manner, the compound sum of Re. 1 at the end of a period FVIF_{1, /K, n} and compound sum of an annuity of Re. 1 per period FVIFA tables are given in the appendix 1 and 2 of the book on- Financial Management for MBA second semester.

The present value

The present value of money can be found simply by reversing the earlier equation.

$$\text{Present value} \times (1 + \text{interest rate}) = \text{Future value}$$

$$\text{Present value} = \frac{\text{Future value}}{1 + \text{interest rate}}$$

Here, the discounting principle is used. Today's worth of Rs. 100 to be received after a year at 10 per cent interest would be:

$$\begin{aligned}
\text{Present value} &= \frac{\text{Future value}}{1 + \text{interest rate}} \\
&= \text{Rs. } \frac{100}{1+0.10} = \frac{100}{1.1} = \text{Rs. } 90.90.
\end{aligned}$$

The multiple period of present value equation takes into account of the multiple periods.

$$\text{Present value} = \frac{\text{Future value}}{(1 + \text{interest rate})^t}$$

10.3. Valuation model

The value of a bond- or any asset, real or financial- is equal to the present value of the cash flows expected from it. Hence, determining the value of a bond requires:

- An estimate of expected cash flows
- An estimate of the required return.

To simplify the analysis of bond valuation we will make the following assumptions:

- The coupon interest rate is fixed for the term of the bond.
- The coupon payments are made every year and the next coupon payment is receivable exactly a year from now.
- The bond will be redeemed at par on maturity.

Given these assumptions, the cash flow for a non-callable bond comprises an annuity of a fixed coupon interest payable annually and the principal amount payable at maturity. Hence the value of a bond is:

$$P = \sum_{t=1}^n \frac{C}{(1+r)^t} + \frac{M}{(1+r)^n} \quad (10.1)$$

Where P = value (in rupees)

n = number of years

C = annual coupon payment (in rupees)

r = periodic required return

M = maturity value

t = time period when the payment is received.

Since the stream of semi-annual coupon payments is an ordinary

annuity, we can apply the formula for the present value of an ordinary annuity. Hence the bond value is given by the formula:

$$P = C \times PVIFA_{r, n} + M \times PVIF_{r, n} \quad (10.1 a)$$

To illustrate how to compute the value of a bond, consider a 10-year, 12 per cent coupon bond with a par value of Rs. 1000. Let us assume that the required yield on this bond is 13 per cent. The cash flows for this bond are as follows:

- 10 annual coupon payments of Rs. 120.
- Rs. 1000 principal repayment 10 years from now.

The value of the bond is:

$$\begin{aligned} P &= 120 \times PVIFA_{13\%, 10 \text{ yr}} + 1,000 \times PVIF_{13\%, 10 \text{ yr}} \\ &= 120 \times 5.426 + 1000 \times 0.295 \\ &= 651.1 + 295 = \text{Rs. } 946.1 \end{aligned}$$

Bond values with semi-annual interest

Most bonds pay interest semi-annually. To value such bonds, we have to work with a unit period of six months, and not one year. This means that the bond valuation equation has to be modified along the following lines:

- The annual interest payment, C, must be divided by 2 to obtain the semi-annual interest payment.
- The number of years to maturity must be multiplied by two to get the number of half-yearly periods.
- The discount rate has to be divided by two to get the discount rate applicable to half-yearly periods.

- With the above modifications, the basic bond valuation becomes:

P =

$$= C/2 (PVIFA_{r/2, 2n}) + M (PVIF_{r/2, 2n}) \quad (10.2)$$

where P = value of the bond

C/2 = semi-annual interest payment

R/2 = discount rate applicable to a half-year period

M = maturity value

2n = maturity period expressed in terms of half-yearly periods.

Illustration 10.1. Consider a 8-year, 12 per cent coupon bond with a par value of Rs. 100 on which interest is payable semi-annually. The required return on this bond is 14 per cent.

$$P = \frac{C/2}{r/2} \left[1 - \frac{1}{(1+r/2)^{2n}} \right] + \frac{M}{(1+r/2)^{2n}}$$

Solution.

Applying Eq. 10.2, the value of the bond is:

P =

$$\begin{aligned} &= 6 (PVIFA_{7\%, 16 \text{ yr}}) + 100 (PVIF_{7\%, 16 \text{ yr}}) \\ &= \text{Rs. } 6 (9.447) + \text{Rs. } 100 (0.388) = \text{Rs. } 95.5. \end{aligned}$$

Illustration 10.2. At an annual rate of compounding of 9 per cent, how long does it take for a given sum to become double and triple its original value?

Solution.

$$P_t = P_0 (1 + r)^n$$

When the n value is not given it can be solved by using log ln

$$n \ln (1 + r) = \ln P_t$$

$$n \ln (1 + 0.09) = \ln 2$$

$$n \cdot \ln 0.0862 = \ln 0.6931$$

$$n = 8.04 \text{ years}$$

To triple

$$n \ln (1 + 0.09) = \ln 3$$

$$n \cdot \ln 0.0862 = \ln 1.0986$$

$$= 12.74 \text{ years} \quad \frac{2100}{(1 + r)^n}$$

Illustration 10.3. Of the following which amount is worth more at 16 per cent; Rs. 1000 today or Rs. 2100 after five years.

Solution.

The present worth of Rs. 2100

=

$$= \frac{2100}{(1 + 0.16)^5}$$

$$= 2100 \times 0.476 = 999.60$$

The present worth of Rs. 2100 is Rs. 999.60 which is less than Rs. 1,000. Hence Rs. 2100 after five years is not worthwhile.

Illustration 10.4. Determine the price of Rs. 1,000 zero coupon bond with yield to maturity of 18 per cent and 10 years to maturity. What is YTM of this bond if its price is Rs. 220 ?

Solution.

$$\begin{aligned}
 \text{(a)} \quad \text{Price} &= \frac{\text{Face value}}{(1 + \text{YTM})^n} \\
 &= \frac{1,000}{(1 + 0.18)^{10}} = \frac{1,000}{5.2338} \\
 &= \text{Rs. } 191.07
 \end{aligned}$$

$$\text{(b)} \quad \left(\frac{\text{Face value}}{\text{Bond value}} \right)^{1/T} - 1 = \text{YTM}$$

$$\left(\frac{\text{Rs. } 1000}{\text{Rs. } 200} \right)^{1/w} - 1 = \text{YTM}$$

$$(4.55)^{0.1} - 1 = \text{YTM}$$

$$1.163 - 1 = 0.163$$

$$\text{YTM} = 16.3$$

Illustration 10.5. Arvind considers Rs. 1000 par value bond bearing a coupon rate of 11% that matures after 5 years. He wants a minimum yield to maturity of 15%. The bond is currently sold at Rs. 870. Should he buy the bond ?

Solution.

$$P_0 = \frac{\text{Coupon}}{(1+Y)} + \dots + \frac{\text{Coupon} + \text{Face value}}{(1+Y)^5}$$

(or)

$$P_0 = (\text{Coupon}) (\text{PVIFA}, n) + (\text{Principal amount}) (\text{PVIF}/k,n)$$

$$\begin{aligned}
P_0 &= 110 (\text{PVIFA } 15\%, 5 \text{ years}) + 1000 (\text{PVIF}/15\%, 5 \text{ yrs}) \\
&= 110 (3.352) + 1000 (0.497) \\
&= 368.7 + 497 = 865.7.
\end{aligned}$$

At Arvind's anticipated minimum yield of 15% the price should be Rs. 865.70 but the market price is higher. Hence, he should not buy.

Illustration 10.6. Anand owns Rs. 1,000 face value bond with five years to maturity. The bond has an annual coupon of Rs. 75. The bond is currently priced at Rs. 970. Given an appropriate discount rate of 10%, should Anand hold or sell the bond?

Solution.

$$\begin{aligned}
P_0 &= \text{Coupon (PVIFA } k, n) + \text{Principal amount (PVIF } k, n) \\
&= 75 (\text{PVIFA } 10\%, 5 \text{ yrs}) + 1000 (\text{PVIF } 10\%, 5 \text{ yrs}) \\
&= 75 \times 3.7908 + 1000 (0.6209) \\
&= \text{Rs. } 284.31 + 620.9 \\
&= \text{Rs. } 905.21.
\end{aligned}$$

The market price Rs. 970 is higher than the estimated price Rs. 905.2. It is better for Anand to sell the bond.

10.4. Bond return

Holding period return- An investor buys a bond and sells it after holding for a period. The rate of return in that holding period is:

$$\text{Holding period return} = \frac{\text{Price gain or loss during the holding period} + \text{Coupon interest rate, if any}}{\text{Price at the beginning of the holding period}}$$

(302)

The holding period rate of return is also called the one period rate of return. This holding period return can be calculated daily or monthly or annually. If the fall in the bond price is greater than the coupon payment the holding period return will turn to be negative.

Illustration 10.7. (a) An investor 'A' purchased a bond at a price of Rs. 900 with Rs. 100 as coupon payment and sold it at Rs. 1000. What is his holding period return ?

(b) If the bond is sold for Rs. 750 after receiving Rs. 100 as coupon payment, then what is the holding period return?

Solution.

$$\begin{aligned} \text{(a) Holding period return} &= \frac{\text{Price gain} + \text{Coupon payment}}{\text{Purchase price}} \\ &= \frac{100 + 100}{900} = \frac{200}{900} = 0.2222 \end{aligned}$$

$$\text{Holding period return} = 22.22\%$$

$$\begin{aligned} \text{(b) Holding period return} &= \frac{\text{Gain or loss} + \text{Coupon payment}}{\text{Purchase price}} \\ &= \frac{-150 + 100}{900} = \frac{-50}{900} = 0.0555 \end{aligned}$$

$$\text{Holding period return} = 5.5\%$$

The current yield- The current yield is the coupon payment as a percentage of current market prices

$$\text{Current yield} = \frac{\text{Annual coupon payment}}{\text{Current market price}}$$

With this measure the investors can find out the rate of cashflow from their investments every year. The current yield differs from the coupon rate, since the market price differs from the face value of the

bond. When the bond's face value and market price are same, the coupon rate and the current yield would be the same. For example, when the coupon payment is 8% for Rs. 100 bond with the same market price, the current yield is 8%. If the current market price is Rs. 80 then the current yield would be 10%.

Yield to maturity

The concept of yield-to-maturity (YTM) is one of the widely used tools in bond investment management. Arithmetically, YTM is the single discount factor that makes present value of future cashflows from a bond equal to the current price of the bond. Intuitively, YTM is the rate of return, which an investor can expect to earn if the bond is held till maturity.

The yield to maturity is calculated based on certain assumptions. They are:

1. There should not be any default. Coupon and principal amount should be paid as per schedule.
2. The investor has to hold the bond till maturity.
3. All the coupon payments should be reinvested immediately at the same interest rate as the same yield to maturity of the bond.

Understanding this, is crucial for better investment decisions. For example, if an 11 per cent coupon paying bond with four years to mature has a TYM, of say 13 per cent it would be realised only if two conditions are met: One, the bond is held till maturity (for four years), and two, the interest received from the bond is reinvested for the rest of the period at 13 per cent. Otherwise actual or realised rate of return of the investor will be different from the expected return.

In the above example, if coupon receipts are re-invested at say, 10 per cent for the rest of the period then the realised rate of return will be less than the YTM. Conversely, if the coupon receipts are reinvested at 14 per cent, the realised rate of return will be higher than the YTM.

Any difference in the re-investment rate will cause a difference between the actual return and the YTM. In this sense, the YTM is only a measure of yield. It cannot be regarded as a measure of return from a coupon-paying bond.

The YTM concept has a slightly different meaning for Zero Coupon Bonds (ZCB), popularly known as Deep Discount Bonds (DDB). ZCBs do not carry any coupon but are issued at a price discounted to the face value. On maturity, these bonds are redeemed at face value. Since these bonds do not have any coupon payments during the life of the bond, the question of re-investment of coupon payments does not arise at all. There is no re-investment risk for ZCBs.

To find out the yield to maturity the present value technique is adopted. The formula is,

$$\text{Present value} = \frac{\text{Coupon}_1}{(1 + y)^1} + \frac{\text{Coupon}_2}{(1 + y)^2} + \dots + \frac{(\text{Coupon}_n + \text{face value})}{(1 + y)^n}$$

Y = The yield to maturity.

Illustration 10.8. A four-year bond with the 7% coupon rate and maturity value of Rs. 1000 is currently selling at Rs. 905. What is its yield to maturity?

Solution. Since all the three values are known out of the four values, it can be found out by using trial and error procedure. Let us try ten per cent.

Cash flow	PV for 10%	PV of CF
70	0.9091	63.64
70	0.8264	57.85
70	0.7513	52.59
1070	0.6830	730.82
		Rs. 904.90

The yield to maturity is 10 per cent

The approximate yield to maturity can be found out by using the following formula too.

$$Y = \frac{C + (P \text{ or } D / \text{years to maturity})}{(P_0 + F) / 2}$$

Y = Yield to maturity

C = Coupon interest

P or D = Premium or discount

P_0 = Present value

F = Face value

In the case of previous sum

$$= \frac{70 + (95/4)}{(905 + 1000)/2} = \frac{93.75}{952.5} = 0.098$$

Y = 9.8%

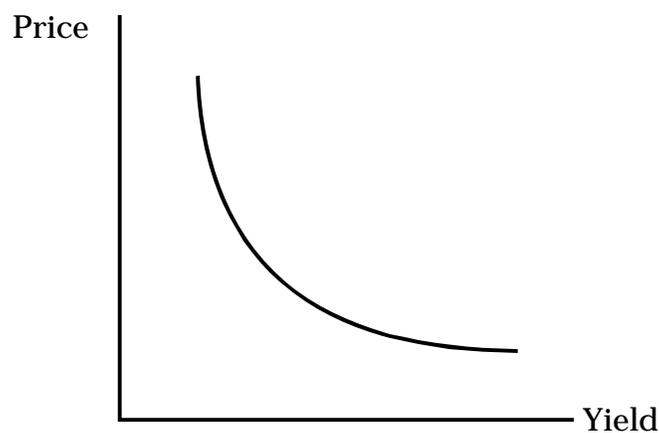
Yield to maturity is 9.8%.

10.5. Price-yield relationship

A basic property of a bond is that its price varies inversely with yield.

The reason is simple. As the required yield increases, the present value of the cash flow decreases; hence the price decreases. Conversely, when the required yield decreases, the present value of the cash flow increases; hence the price increases. The graph of the price-yield relationship for any callable bond has a convex shape as shown in Exhibit 10.2.

Exhibit 10.1. Price-yield relationship

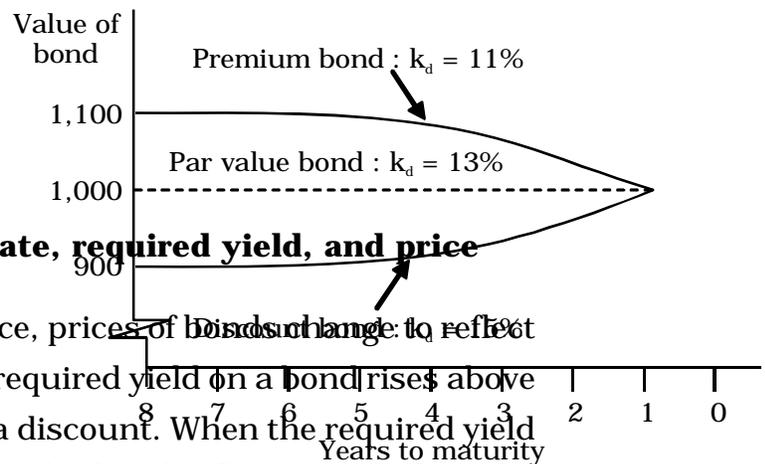


Relationship between bond price and time

Bond prices, generally, change with time as the price of a bond must equal its par value at maturity (assuming that there is no risk of default). For example, a bond that is redeemable for Rs. 1000 (which is its par value) after 5 years when it matures, will have a price of Rs. 1000 at maturity, no matter what the current price is. If its current price is, say, Rs. 1100, it is said to be a premium bond. If the required yield does not change between now and the maturity date, the premium will decline over time as shown by curve A in Exhibit 10.2. On the other hand, if the bond has a current price of say Rs. 900, it is said to be a discount bond. The discount too will disappear over

time as shown by curve B in Exhibit 10.2. Only when the current price is equal to par value-in such a case the bond is said to be a par bond-there is no change in price as time passes, assuming that the required yield does not change between now and the maturity date. This is shown by the dashed line in Exhibit 10.2.

Exhibit 10.2. Price changes with time



Relationship between coupon rate, required yield, and price

As yields change in the marketplace, prices of bonds change to reflect the new required yield. When the required yield on a bond rises above its coupon rate, the bond sells at a discount. When the required yield on a bond equals its coupon rate, the bond sells at par. When the required yield on a bond falls below its coupon rate, the bond sells at a premium. We can summarise the relationship between coupon rate, required yield, and price as follows:

Coupon rate < Required yield ⇔ Price < Par (Discount bond)

Coupon rate = Required yield \Leftrightarrow Price = Par

Coupon rate > Required yield \Leftrightarrow Price > Par (Premium bond)

Realised yield to maturity

The YTM calculation assumes that the cash flows received through the life of a bond are reinvested at a rate equal to the yield to maturity. This assumption may not be valid as reinvestment rate/s applicable to future cash flows may be different. It is necessary to define the future reinvestment rates and figure out the realised yield to maturity. How this is done may be illustrated by an example.

Consider a Rs. 1000 par value bond, carrying an interest rate of 15 per cent (payable annually) and maturing after 5 years. The present market price of this bond is Rs. 850. The reinvestment rate applicable to the future cash flows of this bond is 16 per cent. The future value of the benefits receivable from this bond, calculated in Exhibit 10.3 works out to Rs. 2032. The realised yield to maturity is the value of r^* in the following equation.

$$\text{Present market price } (1 + r^*)^5 = \text{Future value}$$

$$850 (1 + r^*)^5 = 2032$$

$$(1 + r^*)^5 = 2032/850 = 2.391$$

$$1 + r = (2.391)^{1/5}$$

$$r^* = 0.19 \text{ or } 19\%.$$

Exhibit 10.3. Future value of benefits

	0	1	2	3	4	5
• Investment	850					
• Annual interest		150	150	150	150	150
• Re-investment period (in years)		4	3	2	1	0

• Compound factor (at 16%)	1.81	1.56	1.35	1.16	1.00
• Future value of intermediate cash flows	271.5	234.0	202.5	174.0	150.0
• Maturity value					1000
• Total future value	$= 271.5 + 234.0 + 202.5 + 174.0 + 150.0 + 1000 = 2032$				

10.6. Bond market

Bonds are bought and sold in large quantities. Most trading in bonds, however, takes place over the counter. This means that the transactions are privately negotiated and they do not take place through the process of matching of orders on an organised exchange. This is a characteristic of bond markets all over the world, not just in India. Because the bond market is largely over the counter, it lacks transparency. A financial market is transparent if you can easily observe its prices and volumes.

The National Stock Exchange has a Wholesale Debt Market (WDM) segment. The WDM segment is a market for high value transactions in government securities, PSU bonds, commercial papers, and other debt instruments. The quotations of this segment mostly reflect over-the-counter transactions that are privately negotiated over the phone or computer and registered with the exchange for reporting purposes.

10.7. The term structure of interest rate (yield curve)

The bond portfolio manager is often concerned with two aspects of interest rates; the level of interest rate and the term structure of interest rate. The relationship between the yield and time or years to maturity is called term structure. The term structure is also known as yield curve. In analysing the effect of maturity on yield all other

influences are held constant. Usually pure discount instruments are selected to eliminate the effect of coupon payments. The bonds chosen do not have early redemption features. The maturity dates are different but the risks, tax liabilities and redemption possibilities are similar.

The general reception is that the curve will be upward moving up to a point then it becomes flat. This is indicated in the following Figure 10.5.

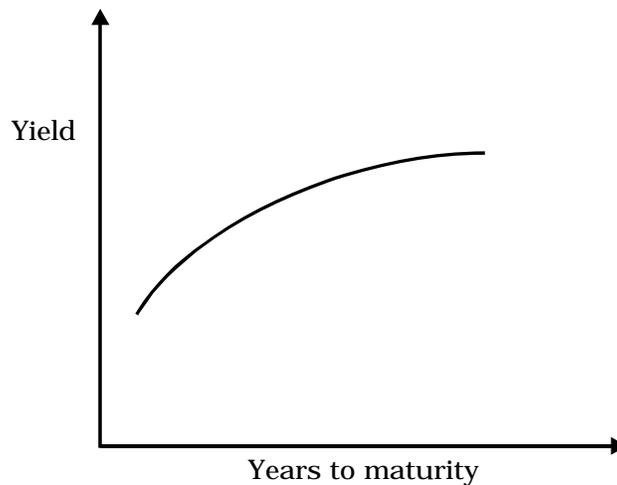


Fig. 10.5. Rising yield curve

There are at least three competing theories that attempt to explain the term structure of the interest rates viz., the expectation theory, liquidity preference theory and preferred habitat or segment theory.

Expectation theory- The theory was developed by J.. Hicks (1939), F. Lutz (1940) and B. Malkiel (1966). According to the expectation theory, the shape of the curve can be explained by the expectations of the investors about the future interest rates. If the short term rates are expected to be relatively low in the future, then the long term rate

will be below the short term rate. There are three reasons for the investors to anticipate the fall in the interest rate.

1. Anticipation of the fall in the inflation rate and reduction in the inflation premium.
2. Anticipation of balanced budget or cut in the fiscal deficit.
3. Anticipation of recession in the economy, and a fall in the demand for funds by the private corporate.

The long term rates will exceed the current short term rates if there is an expectation that the market rates would be higher in the future. Thus the yield curve depends upon the expectations of the investors.

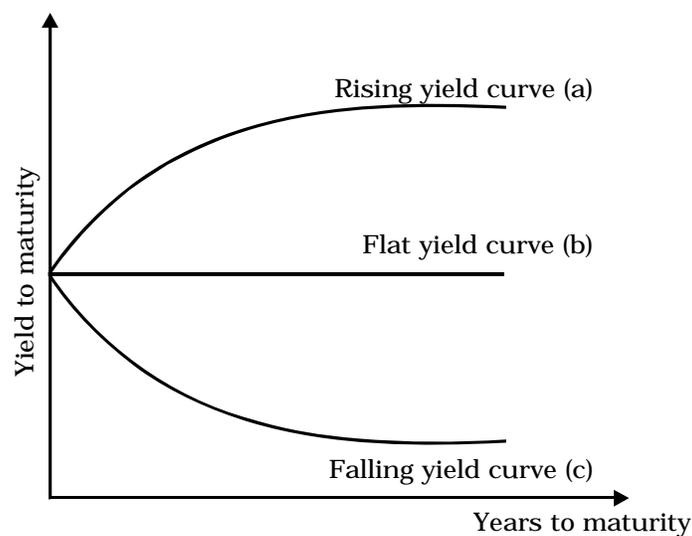


Fig. 10.6

A rising yield curve (a) indicates that the investors' expectation of a continuous rise in interest rate. The flat yield curve (b) means that the investors expect the interest rate to remain constant. The declining yield curve (c) shows that the investor expects the interest rate to

decline.

Liquidity preference theory- Keynes' liquidity preference theory as advocated by J.R. Hicks (1939) accepts that expectations influence the shape of the yield curve. In a world of uncertainty, it would be more desirable for the investors to invest in short term bonds than on long term bonds because of their liquidity property. If no premium exists for holding the long term instruments, investors would prefer to hold short term bonds to minimise the possible variation in the nominal value of their portfolio.

The exponents of the liquidity preference theory believe that the investors prefer short term rather than long term. Hence they must be motivated to buy the long term bonds or lengthen the investment horizon. The bond issuing corporate or contributor pay premium to motivate the investors to buy. This liquidity premium theory indicates that in years time the forward rates are actually higher than the projected interest rate.

Sementation theory- Critics of the expectation theory, such as, J. Culbertson (1957) and F.V. Modigliani and R. Sutch (1966) pointed out that the liquidity preferences cannot be the main consideration for all classes of investors. In their view insurance companies, pension funds and even retired persons prefer the long term rather than short term securities to avoid the possible fluctuations in the interest rate. This can be explained in detail.

Life insurance companies offer insurance policies that do not require any payment for a long time. For example, an insurance policy issued to a 25 year old individual may involve another 20 or more years before the company has to make a payment. Premium payments are fixed by the expected future rate of interest. If the insurance company invests the funds in a long term bond, the interest the bond would

earn is certain and if the earned interest rate is higher than the promised interest rate, the company stands to gain and its risk is also reduced. If it invests in one year bonds, the risk of re-investment is there and if there is a fall in the market interest rate, the insurance company stands to lose and it would be difficult for the company to meet its obligation. This leads the insurance companies to prefer the long term bonds rather than short term bonds.

On the other hand, commercial banks and corporates may prefer liquidity to meet their short term requirements and therefore, they prefer short-term issues. Supply and demand for fund are segmented in sub markets because of the preferred habitats of the individuals. Thus the yield is determined by the demand and supply of the funds.

10.8. Riding the yield curve

When the long term coupon rates are higher than the short term rates, the yield curve would have an upward sloping shape. Bond portfolio manager tries to exploit this to his advantage and tries to increase the yield by purchasing the long term bonds. This strategy is known as riding the yield curve. When the long term bond approaches to maturity, the interest rate may get closer to the short term bond but, there would be capital gain. The bond portfolio manager may maintain the long term bond to utilise the capital gains as the bond moves to maturity date and “rides down the yield curve” to the lower interest rate, which will be appropriate when it becomes shorter term bond. Riding the yield curve would be successful only if the market interest rate does not rise. Sometimes the market interest rate may increase or short term end of the yield curve may slope upwards causing capital losses to the bond portfolio manager. To manage the situation efficiently the bond portfolio manager should be continuously watchful about the shape of the yield curve and the shifts that occur in the market interest rates.

10.9. Duration

Duration measures the time structure of a bond and the bond's interest rate risk. The time structure ways. The common way to state is how many years until the bond matures and the principal money is paid back. This is known as asset time to maturity or its years to maturity. The other way is to measure the average time until all interest coupons and the principal is recovered. This is called Macaulay's duration. Duration is defined as the weighted average of time periods to maturity, weights being present values of the cash flow in each time period. The formula for duration is,

$$D = \frac{C_1}{(1+r)} + \frac{C_2}{(1+r)^2} + \dots + \frac{C_t}{(1+r)^t} \times T$$

This can be summarised as

$$D = \sum_{t=1}^T \frac{P_v(C_t)}{P_o} \times t$$

D = Duration

C = Cash flow

R = Current yield to maturity

T = Number of Years

PV (C) = Present value of the Cash flow

P = Sum of the present values of cash flow.

Illustration 10.9. Calculate the duration for bond A and Bond B with 7 per cent and 8 per cent coupons having maturity period of 4 years. The face value is Rs. 1000. Both the bonds are currently yielding 6 per cent.

Solution.

$$D = \frac{C_1}{(1+r)} \cdot 1 + \frac{C_2}{(1+r)^2} \cdot 2 + \frac{C_3}{(1+r)^3} \cdot 3 + \frac{C_4}{(1+r)^4} \cdot 4$$

C_4 includes principal repayment

Bond 'A' with 7% coupon rate.

Year	Cash flow C_t	$\frac{1}{(1+r)^t}$	$PV \times CT$	$\frac{C_t}{(1+r)^t}$ P_o	$\frac{C_t}{(1+r)^t} \times t$ P_o
1.	70	0.943	66.01	0.0638	0.0638
2.	70	0.890	62.30	0.0602	0.1204
3.	70	0.8396	58.77	0.0568	0.1704
4.	1070	0.7921	847.55	0.8191	3.2764
		$P_o = \text{Rs. } 1034.63$		$D = 3.6310$	

Bond 'B' with 8% coupon rate.

Year	Cash flow C_t	$\frac{1}{(1+r)^t}$	$PV \times CT$	$\frac{C_t}{(1+r)^t}$ P_o	$\frac{C_t}{(1+r)^t} \times t$ P_o
1.	80	0.943	75.44	0.0706	0.0706
2.	80	0.890	71.200	0.0666	0.1332
3.	80	0.8396	67.168	0.0628	0.1884
4.	1080	0.7921	855.468	0.8000	3.2000
		$P_o = \text{Rs. } 1069.276$		$D = 3.5922$	

Example	'A' Bond	'B' Bond
Face value	Rs. 1000.00	Rs. 1000.00
Coupon rate	7%	8%
Years to maturity	4.0	4.0
Macaulay's duration	3.631 Years	3.592 Years

From the above example 10.9, it is clear that the bond with larger coupon payments has a shorter duration compared to the bond with low coupon rate.

General rule

1. Larger the coupon rate, lower the duration and less volatile the bond price.
2. Longer the term to maturity, the longer the duration and more volatile the bond.
3. Higher the yield to maturity, lower the bond duration and bond volatility, and vice versa.
4. In a zero coupon bond, the bond's term to maturity and duration are the same. The zero coupon bond makes only one balloon payment to repay the principal and interest on the maturity date.

Importance of duration- The concept of duration is important because it provides more meaningful measure of the length of a bond, helpful in evolving immunisation strategies for portfolio management and measures the sensitivity of the bond price to changes in the interest rate.

Duration and price changes- The price of the bond changes according to the interest rate. Bond's price changes are commonly called bond volatility. Duration analysis helps to find out the bond price changes as the yield to maturity changes. The relationship between the duration of a bond and its price volatility for a change in the market interest rate is given by the following formula.

$$\text{Percentage change in price} = \frac{-\text{MD} [\Delta\text{BP}]}{100}$$

MD = Modified duration

BP = Basis point is 0.01 of 1% (1% = 100).

$$\text{Modified duration MD} = \frac{D}{1 + \frac{R}{P}}$$

Where

D = Duration

R = Market Yield

P = Interest payment per year (usually two)

10.10. Immunisation

Immunisation is a technique that makes the bond portfolio holder to be relatively certain about the promised stream of cash flows. The bond interest rate risk arises from the changes in the market interest rate. The market rate affects the coupon rate and the price of the bond. In the immunisation process, the coupon rate risk and the price risk can be made to offset each other. Whenever there is an increase in the market interest rate, the prices of the bonds fall. At the same time the newly issued bonds offer higher interest rate. The coupon can be reinvested in the bonds offering higher interest rate and losses that occur due to the fall in the price of bond can be offset and the portfolio is said to be immunized.

The process- The bond portfolio manager or investor has to calculate the duration of the promised outflow of the funds and invest in a portfolio of bonds which has an identical duration. The bond portfolio duration is the weighted average of the durations of the individual bonds in the portfolio. For example if an investor has invested equal amount of money in three bonds namely A, B and C with a duration of 2, 3 and 4 years respectively, then the bond portfolio duration is

$$D = 1/3 \times 2 + 1/3 \times 3 + 4 \times 1/3$$

$$= 0.66 + 1 + 1.33.$$

$$D = 2.99 \text{ (or) } 3 \text{ years.}$$

By matching the outflow duration with cash inflow duration from bond investment the bond manager can offset the interest rate risk and price risk. The portfolio of money to be invested between the different types of bonds also can be found. The equation is

Investment outflow = X_1 (×) Duration of bond 1) + $(X_2$ (×) Duration of bonds 2) X_1 , X_2 proportion of investment on bond 1 and 2.

Illustration 10.10. Abisekh has Rs. 50,000 to make one time investment. His son has entered the Higher Secondary school and he needs his money back after two years for his son's educational expenses. As Abisekh's outflow is one time outflow, duration is simply two years. Now he has a choice of two types of bonds.

1. Bond 'A' has a coupon rate of 7 per cent and maturity period of four years with a current yield of 10 per cent. Current price is Rs. 904.90.
2. Bond 'B' has the coupon rate of 6 per cent, a maturity period of one year and a current yield of 10 per cent. The current price is Rs. 963.64.

Risk- The two bonds pose two types of risk to him. He can invest all his money in bond 'B' with the aim of reinvesting the proceeds from the maturing bonds into another issue of one year period. If the interest rate declines in the market during the next year, he has to reinvest his money in low yielding bonds and may incur a loss. Now, he has to face the reinvestment risk.

On the other hand, if he invests his money in 'A' bond, that also

involves certain amount of risk. He cannot hold it till it matures, because he needs the money after two years and has to sell it in the middle. If there is a rise in the market interest rate then the price of the bond will fall down and vice versa. If a rise in interest rate is assumed, the investor has to incur loss.

Solution. Abisekh can solve the problem by investing part of the money in one year bonds and a part in four year bonds. But, he should know how much to be invested in each of these bonds. This can be got by solving the following equation.

$$(X_1 \times D_1) + (X_2 \times D_2) = 2$$

That is X_1 = the proportion of investment in bond 'A'

X_2 = the proportion of investment in bond 'B'

D_1 = Duration of bond 'A'

D_2 = Duration of bond 'B'

The duration of the one year bond is only one year because it makes one time payment.

$$\left[\sum_{t=1}^T \frac{P_v(C_t)}{P_0} \times t \right]$$

Duration of bond 2,

D =

Year	Cash flow C_t	Present value factor 10%	$P_v(C_t)$	$\frac{P_v(C_t)}{P_0}$	$\frac{P_v(C_t)}{P_0} \times t$
1	70	0.9091	63.64	0.0703	0.0703
2	70	0.8264	57.85	0.0639	0.1278
3	70	0.7513	52.59	0.0581	0.1743
4	1070	0.6830	730.81	0.8076	3.2305
			$P_0=904.89$		$D=3.6029$

Applying the formula

$$(X \times 1) + (X_2 \times 3.6030) = 2$$

X_1 can be written as $(1 - X_2)$, then

$$[(1 - X_2)1] + [X_2 \cdot 3.603] = 2$$

$$1 - X_2 + 3.6030 X_2 = 2$$

$$X_2 = 0.3842$$

$$X_1 = 0.6158.$$

Abisekh should put 61.58% of his investible funds in one year bond and 38.42 per cent in the four year bond.

For investing in both the bonds he needs Rs. 41322.31 = Rs. 50,000% $(1.10)^2$] to have fully immunised bond portfolio. The money to be invested is,

$$\begin{aligned} \text{One year bond} &= \text{Rs. } 41322.31 \times X_1 = \text{Rs. } 41322.31 \times 0.6158 \\ &= \text{Rs. } 25446.28. \end{aligned}$$

$$\text{Four year bond} = 41322.31 \times 0.3842 = 15876.03.$$

From here we can find out how many bonds he can buy,

$$\begin{aligned} \text{One year bond price} &\text{Rs. } 963.64 \\ &= \text{Rs. } \frac{25446.28}{963.64} = 26.4 \end{aligned}$$

Approximately 26 bonds,

$$\begin{aligned} \text{Four year bond price} &= 904.89 \\ &= \text{Rs. } \frac{15876.03}{904.89} \end{aligned}$$

$$= 17.54$$

Approximately = 18 bonds.

According to the theory the rise in the market interest is offset by the reinvestment of matured bonds at a higher rate of interest. Theoretically it seemed to be very simple, but in practice it is not so simple because of the following reasons:

1. Immunisation and duration are based on the assumption that the change in the interest rate would occur before payments are received from both the bonds. This may not be true always. The shift may occur after receiving the cash flow.
2. Another assumption is that the bonds have same yield. This also may not be applicable. The yield may vary according to the period of maturity.
3. It is assumed that the shift in the interest rate affects all the bonds equally. Many a time, the shift in interest rates affects different bonds differently.
4. The whole analysis is based on the belief that there will not be any call risk or default risk. But evidence has proved that bond investment is not free from call risk or default risk.

10.11. Summary

- Bonds, do have risk. Changes that occur in the market interest rate affect the value of the bond. It is known as interest rate risk. Other than this, there are default risk, marketability risk and callability risk.
- Holding period return = $\frac{\text{Price gain or loss during the holding period} + \text{Coupon interest}}{\text{Price at the beginning of holding period}}$
- Yield to maturity is the single discount factor that makes the present value of future cash flows from a bond equal to current

price of the bond.

$$\text{Present value} = \frac{\text{Coupon}_1}{(1 + Y)} + \frac{\text{Coupon}_2}{(1 + Y)^2} + \dots + \frac{\text{Coupon} + \text{Face value}}{(1 + Y)^n}$$

- Bond value theorem states that market price affects the yield and vice versa. This leads to convexity in the yield curve.
- The relationship between the yield and time to maturity is the term structure of interest rate. The term structure of interest rate is explained by expectation theory, liquidity theory and segmentation theory.
- When the long term coupon rate is higher than the short term rate, the bond portfolio manager may switch over from short term bond to long term bond and earn capital gains. This is known as riding the yield curve.
- Duration is a measure of the average time until all interest coupons and the principal amount is recovered.

$$D = \left[\sum_{t=1}^T \frac{P_v(C_t)}{P_o} \times t \right]$$

- Immunisation is the technique adopted to make the cashflows from holding the bond relatively certain. On the basis of duration immunisation can be done.

10.12 Key Words

Par Value is the value stated on the face of the bond.

Coupon Rate and Interest bond carries a specific interest rate which is called the coupon rate.

Time value concept of money is that the rupee received today is more valuable than a rupee received tomorrow.

Holding period return is a return on a bond after holding it for a period.

YTM Yield To Maturity is the rate of return, which an investor can expect to earn if the bond is held till maturity.

ZCBs Zero Coupon Bonds do not carry any coupon rate but are issued at a price discounted to the face value.

Current yield is the coupon payment as a percentage of current market prices.

Term Structure is relationship between the yield and time or years to maturity and is also known as **yield curve**.

Expectation theory according to the this theory, the shape of the yield curve can be explained by the expectations of the investors about the future interest rates.

Liquidity preference theory preference theory advocates that expectations influence the shape of the yield curve.

Duration measures the time structure of a bond and the bond's interest rate risk.

Riding the yield curve

When the long term coupon rates are higher than the short term rates, the yield curve would have an upward sloping shape. Bond portfolio manager tries to exploit this to his advantage and tries to increase the yield by purchasing the long term bonds. This strategy is known as riding the yield curve.

10.13. Self Assessment Questions

1. How would you assess the present value of a bond? Explain the various bond value theorems with examples.
2. Discuss the term structure of the interest rate? How do theories explain the term structure of the interest rate?

3. What is meant by duration? Explain the relationship between duration and price change.
4. How would you immunise the bond portfolio using the immunisation technique?
5. Find out the yield to maturity on a 8 per cent 5 year bond selling at Rs. 105?
6. (a) Determine the present value of the bond with a face value of Rs. 1000, coupon rate of Rs. 90, a maturity period of 10 years for the expected yield to maturity of 8 per cent.

(b) If N is equal to 7 years in the above example, determine the present value of the bond. Discuss the effect of the maturity period on the value of the bond.
7. Bond A and B have similar characters except the maturity period. Both the bonds carry 9 per cent coupon rate with the face value of Rs. 10,000. The yield to maturity is 9%. If the yield to maturity is to rise to 11% what will be the respective percentage price change in bond A with 7 years to maturity and B with 10 years to maturity?
8. A bond with the face value of Rs. 1000 pays a coupon rate of 9 per cent. The maturity period is 9 years (a) Find out the approximate yield to maturity (b) current yield and the nominal interest rate.
9. Determine the yield to maturity if a zero coupon bond with a face value of Rs. 1000 is sold at Rs. 300. The maturity period is 10 years.
10. Prem is considering the purchase of a bond currently selling at Rs. 878.50 the bond has four years to maturity, face value

of Rs. 1,000 and 8% coupon rate. The next annual interest payment is due after one year from today. The required rate of return is 10%.

- (a) Calculate the intrinsic value (Present value) of the bond. Should Prem buy the bond?
 - (b) Calculate the yield to maturity of the bond.
11. What is the value of a Rs. 1,000 bond that paying 5 per cent annual coupon rate in semiannual payments over 5 years until it matures if its yield to maturity is 7 per cent?
12. Determine Macaulay's duration of a bond that has a face value of Rs. 1,000 with 10 per cent annual coupon rate and 3 years term to maturity. The bond's yield to maturity is 12 per cent.

Subject Code : FM 304

Author : Ashish Garg

Lesson No. : 11

Vettor : Prof. B.S. Bodla

**VALUATION OF VARIABLE INCOME SECURITIES OR
EQUITY SHARE VALUATION**

Structure

- 11.0. Objective
- 11.1. Introduction
- 11.2. Share valuation
 - 11.2.1. Earnings valuation
 - 11.2.2. Cash flow valuation
 - 11.2.3. Asset valuation
 - 11.2.4. Dividend-Discount model
- 11.3. Summary
- 11.4. Key Words
- 11.5. Self Assessment Questions
- 11.6 Suggested Readings/References

11.0 Objectives

After going through this lesson the learners will be able to :

- learn valuations of equity instruments
- discuss their interpretation and applicability of valuation in the stock market.
- compute and analyse share valuation through the most often used methods such as earnings valuation, cash flow valuation, book valuation and dividend valuation.

11.1. Introduction

Equity shares are floated in the market at face value, or at a premium or at a discount. Only companies with a track record or companies

floated by other firms/companies with a track record are allowed to charge a premium. The premium is normally arrived at after detailed discussions with the merchant bankers. This is the first exercise involving the valuation of share by the company itself.

After allotment of shares to the shareholders, the company may distribute its surplus profits as returns to investors. The returns to equity shareholders are in the form of distribution of business profits. This is termed as declaration of dividends. Dividends are declared only out of the profits of the company. Dividends are paid in the form of cash and are called cash dividends. When shares are issued additionally to the existing investors in the form of returns, they are called bonus shares. These decisions are taken in the annual general meeting of the shareholders. The announcement of dividend is followed by the book closure dates, when the register of shareholders maintained by the company is closed till the distribution of dividends. The shareholders whose names appear on the register on the date are entitled to receive the dividend payment. Cash dividend payments reduce the cash balance of the company while bonus share payments reduce the reserve position of the company.

Thus, the dividends are a direct benefit from the company to its owners. It is an income stream to the owners of equity capital. Many expectations surround the company's quarterly announcement periods in terms of the dividend declared by the corporate enterprises to its shareholders. The payment of dividend itself is expected to influence the share price of the company. To the extent that cash goes out of the company, the book value of the company stands reduced and it is theoretically expected to lower the market price of the share. This is based on the argument that future expectations are exchanged for current benefits from the company in the form of dividends.

While bonus shares do not reduce the cash flow of the company, they increase the future obligations of the company to pay extra dividend in the future. Bonus shares result in an increase in the number of existing shares. Hence, the company has to pay dividend on its newly issued bonus shares in addition to its existing number of shares. These bonus shares are different from stock splits. Stock splits simply imply a reduction in the face value of the instrument with an increase in the quantity of stock. A stock split does not increase the value of current equity capital. Bonus shares, on the other hand, increase the value of equity capital to the company.

All these exercises by the company call for a renewed valuation of the shares traded in the secondary market. Hence, investment evaluation begins with the computation of the value of securities.

11.2. Share valuation

Share valuation is the process of assigning a rupee value to a specific share. An ideal share valuation technique would assign an accurate value to all shares. Share valuation is a complex topic and no single valuation model can truly predict the intrinsic value of a share. Likewise, no valuation model can predict with certainty how the price of a share will vary in the future. However, valuation models can provide a basis to compare the relative merits of two different shares.

Common ways for equity valuations could be classified into the following categories:

1. Earnings valuation
2. Cash flow valuation
3. Asset valuation
4. Dividend-discount model

11.2.1. Earnings valuation

Earnings (net income or net profit) is the money left after a company meets all its expenditure. To allow for comparisons across companies and time, the measure of earnings is stated as earnings per share (EPS). This figure is arrived at by dividing the earnings by the total number of shares outstanding.

Thus, if a company has one crore shares outstanding and has earned Rs. 2 crore in the past 12 months, it has an EPS of Rs. 2.00.

Rs. 20,000,000/10,000,000 shares = Rs. 2.00 earnings per share

EPS alone would not be able to measure if a company's share in the market is undervalued or overvalued. Another measure used to arrive at investment valuation is the Price/Earnings (P/E) ratio that relates the market price of a share with its earnings per share. The P/E ratio divides the share price by the EPS of the last four quarters. For example, if a company is currently trading at Rs. 150 per share with a EPS of Rs. 5 per share, it would have a P/E of 30.

The P/E ratio or multiplier has been used most often to make an investment decision. A high P/E multiplier implies that the market has overvalued the security and a low P/E multiplier gives the impression that the market has undervalued the security. When the P/E multiple is low, it implies that the earnings per share is comparatively higher than the prevailing market price. Hence, the conclusion that the company has been 'undervalued' by the market. Assume a P/E multiplier of 1.0. The implication is that the earnings per share is equal to the prevalent market price. While market price is an expectation of the future worth of the firm, the earnings per share is the current results of the firm. Hence, the notion that the firm has been 'undervalued' by the market. On the other hand, a high P/E ratio would imply that the market is 'overvaluing' the security

for a given level of earnings.

Asian paints had a P/E ratio of 25.3 on July 26, 2005. The market price as on that date was Rs. 457.65 and the earnings per share was Rs. 18.1. Zee Telefilms, had a consistent P/E multiplier. ICICI Bank, had a price of Rs. 509.25 and PE ratio of 18.8 on the same date. The interpretation of 'overvaluation' will hold good when the market is expected to adjust towards the real worth of the company. A consistent high ratio, on the other hand, implies that the future returns expectations from the company is consistently good and that the high P/E ratio need not necessarily indicate a 'overvalued' position for the company.

The forward P/E valuation is another technique that is based on the assumption that prices adjust to future P/E multipliers. The assumption is that shares typically trade at a constant P/E and therefore the 'future' value of a share can be calculated by comparing the current P/E with the future P/E (as predicated using analysts' estimated earnings for that year).

The forecasted market price is calculated as $[\text{Price} * (\text{P/E, current}) / (\text{P/E, future})]$. For example, if current market price is Rs. 20, current P/E is 4 and forecasted P/E is 2.5, the forecast price is Rs. 32 $\left(\frac{20 \times 4}{2.5}\right)$. This valuation technique cannot be applied to shares with negative current or future earnings.

The forward P/E ratio is most often used in comparison with the current rate of growth in earnings per share. This is based on the assumption that for a growth company, in a fairly valued situation, the price/earnings ratio ought to be equal to the rate of EPS growth. When the growth rate is not in tune with P/E multiplier, then P/E multiplier can be modified to include the growth ratio.

Assume, for example, that a company's P/E ratio is 15; earnings growth rate of 13 per cent -14 per cent would substantiate the fair valuation of the share in the market price. This can be incorporated in the P/E growth ratio (PEG). The PEG considers the annualised rate of growth and compares this with the current share price. Since it is future growth that makes a company valuable to the investors in the market, the earnings growth is expected to depict the valuation of a company better than the historical earnings per share. If a company is expected to grow at 10 per cent a year over the next two years and has a current P/E multiple of 15, the PEG will be computed as $15/10 = 1.5$. The interpretation of PEG is that the market price is worth 0.5 times more than what it really is worth, since the assumption is that the P/E multiplier ought to be equal to the earnings growth rate.

A PEG of 1.0 suggests that a company is fairly valued. That is, in the previous example, if the P/E multiplier is 15 and the earnings growth rate is also 15, then PEG is equal to $(15/15) 1.0$. Here the company is evaluated as priced correctly by the market. If the company in the above example had a P/E of 15 but was expected to grow at 20 per cent a year, it would have a PEG of $(15/20)$, 0.75. This means the shares are selling for 75 per cent of their real value. This leads to the conclusion that the shares are 'underpriced' in the market.

The PEG measure is useful only for positive growth companies. When the companies are not experiencing a growth opportunity or there is a short spell of negative performance due to various factors, the PEG will not be the right measure to use to assess the valuation of shares.

The forward P/E and growth ratio (FPEG) can be used for valuing companies with an expected long-term performance. Rather than looking at the current historical price earning multiplier, the measure considers the price earnings multiplier forecast by analysts. This is

compared with the expected earnings growth rate to evaluate the fair price of the shares. Assuming the analysts' expectation of the P/E multiplier of a company is 20 and the earnings growth is expected to be 25 per cent over the next five years, the FPEG is computed as $(20/25) = 0.8$. The interpretation of this number is similar to the interpretation of PEG, that is, the company is evaluated in the market at only 80 per cent of its realistic price. This will be an indicator of 'underpricing' of shares in the market. Similarly, a company that has an expected P/E multiplier of 20 and the growth in earnings in the next five years of 10 per cent will have a FPEG of $(20/10) 2.0$. This indicates an 'overpricing' of the share by the market by double its fair value.

Although the PEG and FPEG are helpful, they both operate on the assumption that the P/E should equal the EPS rate of growth. In the real market, the assumptions behind the earnings valuation methods need not necessarily hold good. A modification to the P/E multiplier approach is to determine the relationship between the company's P/E and the average P/E of the stock index. This is called as the price-earnings relative. Price-earnings relative is given by the following formula:

$$\text{P/E relative} = (\text{share P/E}) / (\text{Index P/E})$$

This formula estimates the shares' P/E movement along with the index P/E. A P/E relative of 1.5 implies that the share is sold in the market 1.5 times that of the index price/earnings.

However, these earnings multipliers become inapplicable when the earnings are negative. Negative earnings cannot be used for valuation of shares. However, when negative earnings occur, appropriate alternative estimates may be used for valuation. The substitute measures would depend on the cause for negative earnings.

There are a number of reasons for a company to have negative

earnings. Some of the reasons for negative earnings can be listed as follows:

- Cyclical nature of industry
- Unforeseeable circumstances
- Poor management
- Persistent negative earnings
- High leverage cost

Earnings forecast

Earnings can be forecast through the forecasts of the rates resulting in the earnings. The variables that can be considered for forecasting earnings can be the future return on assets, expected financial cost (interest cost), the forecasted leverage position (debt equity ratio), and the future tax obligation of the company. The formula for forecasting the earnings could be stated as follows:

$$\text{Forecasted earnings (value)} = (1-t) \cdot [\text{ROA} + (\text{ROA}-I) \cdot (D/E)] \cdot E$$

Where,

ROA = Forecasted return on assets

I = Future interest rate

D = Total expected long term debt

E = Expected equity capital

t = Expected tax rate

Alternatively, a forecast of sales and projected profit margin can be made to compute the forecasted earnings. The sales forecast would depend on the market share of the estimated industry sales forecast. The profit margin forecast will depend on the operational and financial expenses of the company. From this information earnings can be forecast using the following formula:

$$\text{Forecasted sales} = \text{Industry sales target} * \text{company's expected share in industry sales}$$

Forecasted earnings = Forecasted sales * projected profit margin

The third method of forecasting earnings is to identify the individual variables constituting the earnings determination and forecast each of these variables separately. This will involve the forecast of the fixed and variable components of the operational expenses and the financial expense. This method is most applicable when the fixed and variable components of the cost structure of a company do not vary drastically with that of the average industry cost figures.

Consider a company with a high fixed cost relative to that of the industry average. The company will be able to make a positive return only when the projected sales dramatically exceeds this high cost.

The company's total cost far exceeds the industry total cost. Given a sales level and variable cost level, a company whose fixed costs are above the industry average will be able to reach a profit figure at a comparatively higher level of activity. Similarly, any company that is able to minimise its fixed costs will have a better position in terms of profitability than the industry average. Hence the need to forecast the individual variables that constitute profit rather than the overall return on assets.

Cash flows valuation

Cash flows indicate the net of inflows less outflows from operations. Cash flows differ from book profits reported by companies since accounting profits identify expenses that are non-cash items such as depreciation. Cash flows can also be used in the valuation of shares. It is used for valuing public and private companies by investment bankers. Cash flow is normally defined as earnings before depreciation, interest, taxes, and other amortisation expenses (EBDIT). There are also valuation methods that use free cash flows. Free cash flows is the money earned from operations that a business

can use without any constraints. Free cash flows are computed as cash from operations less capital expenditures, which are invested in property, plant and machinery and so on.

EBDIT is relevant since interest income and expense, as well as taxes, are all ignored because cash flow is designed to focus on the operating business and not secondary costs or profits. Taxes especially depend on the legal rules and regulation of a given year and hence can cause dramatic fluctuations in earning power. The company makes tax provisions in the year in which the profits accrue while the real tax payments will be made the following year. This is likely to overstate/understate the profit of the current year.

Depreciation and amortisation, are called non-cash charges, as the company is not actually spending any money on them. Rather, depreciation is an accounting allocation for tax purposes that allows companies to save on capital expenditures as plant and equipment age by the year or their use deteriorates in value as time goes by. Amortisation is writing off a capital expenses from current year profit. Such amortised expenses are also the setting aside of profit rather than involving real cash outflows. Considering that they are not actual cash expenditures, rather than accounting profits, cash profits will indicate the real strength of the company while evaluating its worth in the market.

Cash flow is most commonly used to value industries that involve tremendous initial project (capital) expenditures and hence have large amortisation burdens. These companies take a longer time to recoup their initial investments and hence tend to report negative earnings for years due to the huge capital expense, even though their cash flow has actually grown in these years.

The most common valuation application of EBDIT is the discounted

cash flow method, where the forecast of cash flows over a period of time are made and these are discounted for their present worth.

The formula for computing the value of the firm will be

$$V = \sum_{i=1}^n \frac{C_i}{(1+d)^i}$$

Where C_i = cash flows forecast for year i

d = expected rate of return

n = number of years for which forecasts have been made.

This can be easily computed using software applications such as the spreadsheet. The following table illustrates the computation of the value of firm based on cash flow expectations.

Year	Expected cash flows (Rs. In crore)	Discounted cash flows (Discount rate 12%) (Formula)	Discounted cash flows (Discount Rate 12%)
1	200	= B2/(1.12)^A2	178.57143
2	254	= B3/(1.12)^A3	202.48724
3	236	= B4/(1.12)^A4	167.98014
4	280	= B5/(1.12)^A5	177.94506
5	310	= B6/(1.12)^A6	175.90233
6	324	= B7/(1.12)^A8	164.14848
7	356	= B8/(1.12)^A8	161.03632
8	368	= B9/(1.12)^A9	148.62903
9	375	= B 10/(1.12)^A10	135.22876
10	420	= B11/(1.12)^A11	135.22876
11	451	= B12/(1.12)^A12	129.65172
12	473	= B13/(1.12)^A13	121.40732
13	492	= B14/(1.12)^A14	112.7537
14	520	= B15/(1.12)^A15	106.4023
15	534	= B16/(1.12)^A16	97.5598
16	567	= B17/(1.12)^A17	92.4899
17	591	= B18/(1.12)^A18	86.0758

18	612	= B19/(1.12)^A19	79.5842
19	634	= B20/(1.12)^A20	73.6116
20	657	= B21/(1.12)^A21	68.1090
Cash flows		= SUM (C2:C21)	2614.8032
No. of shares (in crore)		200	200
Value per share		= (C23/C24)	13.0740

Buying a company with good cash flows can yield a lot of benefits to an investor. Cash can fund product development and strategic acquisitions and can be used to meet operational and financial expenditures.

Cash forecasts are made for a limited time duration. However, the shares are valued for their ability to produce an indefinite stream of cash flows. This is referred to as the terminal value of shares. Terminal value usually refers to the value of the company (or equity) at the end of a high growth period. When an indefinite duration of growth is considered, it is normal to assume that a stable growth will follow the high growth. This stable growth rate is expected to remain constant. With this assumption, the terminal value computation can be given by the following formula:

$$\text{Terminal value in year } n = \text{Cash flow in year } (n + 1) / (d - g)$$

Where,

'd' is the discount rate of the cash flows

'g' is the stable growth rate

This approach also requires the assumption that growth is constant forever, and that the cost of capital (discount rate) will not change over time.

A stable growth rate is one that can be sustained forever. Since no

company, in the long term, can grow faster than the economy that it operates in, a stable growth rate cannot be greater than the growth rate of the economy.

This stable growth rate cannot be greater than the discount rate either because of the risk-free rate that is implied in the discount rate. This invariably means that the discount rate has to be fixed after considering the inflation rate, economic growth rate, time value, and so on.

Price to cash flow ratio can also be used as a valuation model. Cash flow multiplier is computed as: market price/cash flow per share. For example, if the current market price is Rs. 60 and cash flow per share is Rs. 20, the cash flow multiplier would be 3. If the forecasted cash flow per share is Rs. 23, then the market value can be estimated as (23×3) Rs. 69.

Economic value added (EVA) is another modification of cash flow that considers the cost of capital and the incremental return above that cost.

Assuming the after tax return from operations is 18% and the cost of capital is 10%, the incremental return for the company would be 8% $(18 - 10)$. If the face value of the investment in the company is Rs. 100 per share, the economic value added per share will be Rs. 8. If the current market price of the share is Rs. 200, then the EVA multiplier will be $(200/8)$ 25. EVA multiple can then be used to identify the under pricing or over pricing of a share in the market.

Asset valuation

Expectation of earnings, and cash flows alone may not be able to identify the correct value of a company. This is because the intangibles such as brand names give credentials for a business. In view of this,

investors have begun to consider the valuation of equity through the company's assets.

Asset valuation is an accounting convention that includes a company's liquid assets such as cash, immovable assets such as real estate, as well as intangible assets. This is an overall measure of how much liquidation value a company has if all of its assets were sold off. All types of assets, irrespective of whether those assets are office buildings, desks, inventory in the form of products for sale or raw materials and so on are considered for valuation.

Asset valuation gives the exact book value of the company. Book value is the value of a company that can be found on the balance sheet. A company's total asset value is divided by the current number of shares outstanding to calculate the book value per share. This can also be found through the following method- the value of the total assets of a company less the long-term debt obligations divided by the current number of share outstanding.

The formulas for computing the book value of the share are given below:

Book value = Equity worth (capital including reserves belonging to shareholders)/Number of outstanding shares

Book value = (Total assets – Long-term debt)/Number of outstanding shares

Book value is a simple valuation model. If the investor can buy the shares from the market at a value closer to the book value, it is most valuable to the investor since it is like gaining the assets of the company at cost. However, the extent of revaluation reserve that has been created in the books of the company may distract the true value of assets. The revaluation reserve need not necessarily reflect the

true book value of the company; on the other hand, it might be depicting the market price of the assets better.

Book value, however, may not correctly depict the company value, since most companies use different accounting methods. Further, the adjustment to the historical figures in terms of economic inflation or deflation of the asset book values are not incorporated in these value estimations. The book values are also subject to adjustments depending on the tax framework within which the company falls and the consequences relating to the company's tax planning measures. But, with increased corporate governance practices, the book value concept is becoming more relevant to the investor for valuation purposes.

Another useful measure of asset valuation is the price to book ratio. This ratio is arrived at by relating the current market price of the share to the book value per share. The intention is to compare the prevailing market price with the book value per share and identify if the shares are undervalued or overvalued in the market. The computation of price to book ratio is computed as follows:

Price to book value ratio = Market price/Book value per share.

The undervaluation of shares will be established when the price to book ratio is relatively low. A high price to book ratio, on the other hand, implies that the shares are sold at a price not supported by its asset value in the market.

For example, if a company has total assets less long-term liabilities as Rs. 43950 crores and the number of outstanding shares at 2,000 crores, the book value per share will be $(43950/2000)$ Rs. 21.975. If the market price is quoted at Rs. 84, the Price to Book multiplier will be $(84/21.975)$ 3.82.

Another use of asset valuation is through the return on equity, (ROE). Return on equity is a measure of how much earnings a company generates in four quarters compared to its shareholder's equity. For instance, if a company earned Rs. 2 crores in the preceding year and has a shareholder's equity of Rs. 10 crores, then the ROE is 20 per cent. Investors might use ROE as a filter to select companies that can generate large profits with a relatively small amount as capital investment. The nature of ROE, however, depends on the type of industry the company belongs to. The ROE figures of trading companies are expected to be comparatively higher than that of heavy manufacturing concerns since trading companies need not necessarily require constant capital expenditure.

The book value computation that includes within its fold the valuation of intangible assets such as brands and patents, are viewed positively by investors. Investors view brands as valuable and they are assumed to increase the expected future profits of the company. Brands also tend to have a strong market potential since customers prefer a brand exclusively for its name and sometimes, brands convey more meaning than the product quality. Specific value is given to brands that have recently established unshakable credentials. Companies also spend a lot of money on building brands in their product portfolios. Some companies build the brand name around their company name; this has a direct impact on the valuation by companies build the brand name around their company name; this has a direct impact on the valuation by investors. Companies such as Colgate, Intel, Nestle, and Bata have built their company names into brands that give them an incredible edge over their competitors in the market.

Intangibles can also sometimes mean that a company's shares can trade at a premium to its historical growth rate. Thus, a company with large profit margins, a dominant market share, consistent

performance can trade at a slightly higher multiple than its growth rate would otherwise suggest.

A company can sometimes be worth more in reality than when viewed individually in terms of all the assets in its Balance Sheet. Many times, human resource strength is an intangible that is built inside the organisation and neither the company nor the shareholders give a uniform quantification to such strengths. The book valuation process of a company is hence the exercise of a few investment bankers and consultants who get to know the intricate details of the company. Rather than attempting to make a book valuation of the company individually, investors can rely on such sources to assess the undervaluation or overvaluation of shares in the market.

11.2.4. Dividend discount model

According to the dividend discount model, conceptually a very sound approach, the value of an equity share is equal to the present value of dividends expected from its ownership plus the present value of the sale price expected when the equity share is sold. For applying the dividend discount model, we will make the following assumptions: (i) dividends are paid annually- this seems to be a common practice for business firms in India; and (ii) the first dividend is received one year after the equity share is bought.

Single-period valuation model

Let us begin with the case where the investor expects to hold the equity share for one year. The price of the equity share will be:

$$P_0 = \frac{D_1}{(1+r)} + \frac{P_1}{(1+r)}$$

Where, P_0 = current price of the equity share; D_1 = dividend expected a year hence; P_1 = price of the share expected a year hence; and r =

rate of return required on the equity share.

Illustration. Prestige's equity share is expected to provide a dividend of Rs. 2.00 and fetch a price of Rs. 18.00 a year hence. What price would it sell for now if the investors' required rate of return is 12 per cent?

Solution. The current price will be

$$P_0 = \frac{2.0}{(1.12)} + \frac{18.00}{(1.12)} = \text{Rs. } 17.86$$

What happens if the price of the equity share is expected to grow at a rate of g per cent annually? If the current price, P_0 , becomes $P_0(1 + g)$ a year hence, we get:

$$P_0 = \frac{D_1}{(1+r)} + \frac{P_0(1+g)}{(1+r)}$$

Simplifying Eq. (5.5)² we get:

$$P_0 = \frac{D_1}{r-g}$$

Example. The expected dividend per share on the equity share of Roadking Limited is Rs. 2.00. The dividend per share of Roadking Limited has grown over the past five years at the rate of 5 per cent per year. This growth rate will continue in future. Further, the market price of the equity share of Roadking Limited, too, is expected to grow at the same rate. What is a fair estimate of the intrinsic value of the equity share of Roadking Limited if the required rate is 15 per cent?

Applying Eq. (5.8) we get the following estimate:

$$P_0 = \frac{2.00}{0.15 - 0.05} = \text{Rs. } 20.00$$

Expected rate of return

In the preceding discussion we calculated the intrinsic value of an equity share, given information about (i) the forecast values of dividend and share price, and (ii) the required rate of return. Now we look at a different question: What rate of return can the investor expect, given the current market price and forecast values of dividend and share price? The expected rate of return is equal to:

$$R = D_1/P_0 + g$$

Example. The expected dividend per share of Vaibhav Limited is Rs. 5.00. The dividend is expected to grow at the rate of 6 per cent per year. If the price per share now is Rs. 50.00, what is the expected rate of return?

Applying Equation, the expected rate of return is:

$$R = 5/50 + 0.06 = 16 \text{ per cent}$$

Multi-period valuation Model

Having learnt the basics of equity share valuation in a single-period framework, we now discuss the more realistic, and also the more complex, case of multiperiod valuation.

Since equity shares have no maturity period, they may be expected to bring a dividend stream of infinite duration. Hence the value of an equity share may be put as:

$$P_0 = \frac{D_1}{(1+r)^1} + \frac{D_2}{(1+r)^2} + \dots + \frac{D_n}{(1+r)^n} + \frac{P_n}{(1+r)^n} \quad \dots(a)$$

$$= \sum_{t=1}^n \frac{D_t}{(1+r)^t} + \frac{P_n}{(1+r)^n}$$

Now, what is the value of P_n in Eq.? Applying the dividend capitalisation principle, the value of P_n , would be the present value of the dividend stream beyond the n th period, evaluated as at the end of the n th year. This means:

$$P_n = \frac{D_{n+2}}{(1+r)^2} + \dots + \frac{D_\infty}{(1+r)^{\infty-n}} \quad \dots(b)$$

Substituting this value of P_n in Eq. (a) we get:

$$\begin{aligned} P_0 &= \frac{D_1}{(1+r)^1} + \frac{D_2}{(1+r)^2} + \dots + \frac{D_n}{(1+r)^n} \\ &+ \frac{1}{(1+r)^n} \left[\frac{D_{n+1}}{(1+r)} + \frac{D_{n+2}}{(1+r)^2} + \dots + \frac{D_\infty}{(1+r)^{\infty-n}} \right] \\ &= \frac{D_1}{(1+r)} + \frac{D_2}{(1+r)^2} + \dots + \frac{D_n}{(1+r)^n} + \frac{D_{n+1}}{(1+r)^{n+1}} + \dots + \frac{D_\infty}{(1+r)^\infty} \\ &= \sum_{t=1}^{\infty} \frac{D_t}{(1+r)^t} \end{aligned}$$

This is the same as Eq. which may be regarded as a generalised multi-period valuation formula. Eq. is general enough to permit any dividend pattern-constant, rising, declining, or randomly fluctuating. For practical applications it is helpful to make simplifying assumptions about the pattern of dividend growth. The more commonly used assumptions are as follows:

- The dividend per share remains constant forever, implying that the growth rate is nil (the zero growth model).
- The dividend per share grows at a constant rate per year forever (the constant growth model).
- The dividend per share grows at a constant extraordinary rate

for a finite period, followed by a constant normal rate of growth forever thereafter (the two-stage model).

- The dividend per share, currently growing at an above-normal rate, experiences a gradually declining rate of growth for a while. Thereafter, it grows at a constant normal rate (the H model).

Zero Growth model

If we assume that the dividend per share remains constant year after year at a value of D, Eq. (b) becomes:

$$P_0 = \frac{D}{(1+r)} + \frac{D}{(1+r)^2} + \dots + \frac{D^n}{(1+r)^n} + \dots \infty \quad \dots(c)$$

Equation (c), on simplification, becomes:

$$P_0 = \frac{D}{r} \quad \dots (d)$$

Remember that this is a straightforward application of the present value of perpetuity formula discussed in the previous chapter.

Constant growth model

One of the most popular dividend discount models assumes that the dividend per share grows at a constant rate (g). The value of a share, under this assumption, is:

$$P_0 = \frac{D_1}{(1+r)} + \frac{D_1(1+g)}{(1+r)^2} + \dots + \frac{D_1(1+g)^n}{(1+r)^{n+1}} + \dots \quad \dots (e)$$

Applying the formula for the sum of a geometric progression, the above expression simplifies to:

$$P_0 = \frac{D_1}{r-g} \quad \dots (f)$$

Example. Ramesh Engineering Limited is expected to grow at the rate of 6 per cent per annum. The dividend expected on Ramesh's equity share a year hence is Rs. 2.00. What price will you put on it if your required rate of return for this share is 14 per cent?

$$P_0 = \frac{2.00}{0.14 - 0.06} = \text{Rs. } 25.00$$

Two stage growth model

The simplest extension of the constant growth model assumes that extraordinary growth (good or bad) will continue for a finite number of years and thereafter normal growth rate will prevail indefinitely.

Assuming that the dividends move in line with the growth rate, the price of the equity share will be:

$$P_0 = \left[\frac{D_1}{(1+r)} + \frac{D_1(1+g_1)}{(1+r)^2} + \frac{D_1(1+g_1)^2}{(1+r)^3} \dots + \frac{D_1(1+g_1)^{n-1}}{(1+r)^n} \right] + \frac{P_n}{(1+r)^n} \quad \dots(g)$$

Where P_0 = current price of the equity share; D_1 = dividend expected a year hence; g_1 = extraordinary growth rate applicable for n years; P_n = price of the equity share at the end of year n .

The first term on the right hand side of Eq. (g) is the present value of a growing annuity. Its value is equal to:

$$D_1 \left[\frac{1 - \left(\frac{1+g_1}{1+r} \right)^n}{(r - g_1)} \right] \quad \dots(h)$$

Remember that this is a straightforward application of Eq. (4.7) developed in the previous chapter.

Hence

$$P_0 = D_1 + \dots \text{(i)}$$

Since the two-stage growth model assumes that the growth rate after n years remains constant, P_n will be equal to:

$$\frac{D_{n+1}}{r - g_2} \dots \text{(j)}$$

where D_{n+1} = dividend for year $n + 1$

g_2 = growth rate in the second period.

D_{n+1} , the dividend for year $n+1$, may be expressed in terms of the dividend in the first stage.

$$D_{n+1} = D_1 (1 + g_1)^{n-1} (1 + g_2) \left[\frac{D_1 (1 + g_1)^n}{(1 + r)^n} \right]^{n-1} (1 + g_2) \dots \text{(k)}$$

Substituting the above expression, we have:

$$P_0 = D_1 \left[\frac{1 - \left(\frac{1 + g_1}{1 + r} \right)^n}{(r - g_1)} \right] + \frac{1}{(1 + r)^n} \dots \text{(l)}$$

Example. The current dividend on an equity share of Vertigo Limited is Rs. 2.00. Vertigo is expected to enjoy an above-normal growth rate of 20 per cent for a period of 6 years. Thereafter the growth rate will fall and stabilise at 10 per cent. Equity investors require a return of 15 per cent. What is the intrinsic value of the equity share of Vertigo?

The inputs required for applying the two-stage growth model are:

$$g_1 = 20\%$$

$$g_2 = 10\%$$

$$n = 6 \text{ years}$$

$$r = 15\%$$

$$D_1 = D_0 (1 + g_1) = \text{Rs. } 2(1.20) = 2.40$$

Plugging these inputs in the two-stage model, we get the intrinsic value estimate as follows:

$$P_0 = 2.40 \left[\frac{1 - \left(\frac{1.20}{1.15}\right)^6}{0.15 - 0.20} \right] + \left[\frac{1}{(1.15)^6} \right]$$

$$= 2.40 \left[\frac{1 - 1.291}{-0.05} \right] + \left[\frac{2.40(2.488)(1.10)}{0.5} \right] [0.497]$$

$$= 13.968 + 65.289$$

$$= \text{Rs. } 79.597. \quad \left[\frac{2.40(1.20)^5(1.10)}{0.15 - 0.10} \right]$$

Impact of growth on price, returns, and P/E Ratio

The expected growth rates of companies differ widely. Some companies are expected to remain virtually stagnant or grow slowly; other companies are expected to show normal growth; still others are expected to achieve supernormal growth rate.

Assuming a constant total required return, differing expected growth rates mean differing stock prices, dividend yields, capital gains yields, and price-earnings ratios. To illustrate, consider three cases:

	Growth rate (%)
Low growth firm	5
Normal growth firm	10
Supernormal growth firm	15

The expected earnings per share and dividend per share of each of the three firms are Rs. 3.00 and Rs. 2.00 respectively. Investors' required total return from equity investments is 20 per cent.

Given the above information, we may calculate the stock price, dividend yield, capital gains yield, and price-earnings ratio for the three cases as shown in Exhibit 11.1.

The results in Exhibit 11.1 suggest the following points:

- As the expected growth in dividend increases, other things being equal, the expected return depends more on the capital gains yield and less on the dividend yield.
- As the expected growth rate in dividend increases, other things being equal, the price- earnings ratio increases.
- High dividend yield and low price-earnings ratio imply limited growth prospects.
- Low dividend yield and high price-earnings ratio imply considerable growth prospects.

Exhibit 11.1. Price, Dividend Yield, Capital Gains Yield, and Price-Earnings Ratio under Differing Growth Assumptions for 15% Return

	Price $P_0 = \frac{D_1}{r-g}$	Dividend yield (D_1/P_0)	Capital gains yield $(P_1 - P_0)/P_0$	Price earnings ratio (P/E)
Low growth firm	$P_0 = \frac{\text{Rs. } 2.00}{0.20 - 0.05} = \text{Rs. } 13.33$	15.0%	5.0%	4.44
Normal growth firm	$P_0 = \frac{\text{Rs. } 2.00}{0.20 - 0.10} = \text{Rs. } 20.00$	10.0%	10.0%	6.67
Supernormal growth firm	$P_0 = \frac{\text{Rs. } 2.00}{0.20 - 0.15} = \text{Rs. } 40.00$	5.0%	15.0%	13.33

Multi-factor share valuation

Quantitative approaches convert a hypothetical relationship between numbers into a unique set of equations. These equations mostly consider company-level data such as market capitalisation, P/E ratio, book-to-price ratio, expectations in earnings, and so on. Quantitative methods assume that these factors are associated with shares returns, and that certain combinations of these factors can help in assessing the value and, further, predict future values. When several factors are expected to influence share price, a multi-factor model is applied in share valuation.

The choice of the right combination of factors, and how to weigh their relative importance (that is, predicting factor returns) may be achieved through quantitative multivariate statistical tools. Many factors that have been considered individually can be combined to arrive at a best-fit model for valuing equity shares. Value factors such as price to book, price to sales, and P/E or growth factors such as earnings estimates or earnings per share growth rates, can be used to develop the quantitative model. These quantitative models help to determine what factors best determine valuation during certain market periods. These multifactor share valuation models can also be used to forecast future share values.

11.3. Summary

Equity shares carry with them ownership rights. They give voting rights to the holders. They have a face value (in monetary terms) at the time of issue and are evaluated at their market value when they are listed on a stock exchange.

Equity valuation is a complex procedure since there is no consistent definition regarding what constitutes the intrinsic value of a share. Different valuation approaches and models with different assumptions

and implications are available to investors to assess the true worth of a share. These include earnings approach, cash flow approach and dividend discount approach.

An investor can choose the appropriate procedure of valuation for shares and make profits from the stock market.

11.4 Key Words

Share valuation is the process of assigning a value to a specific share. **Price/Earnings (P/E) ratio** relates the market price of a share with its earnings per share.

Free cash flows are computed as cash from operations less capital expenditures.

Asset valuation is an accounting convention that includes a company's liquid assets such as cash, immovable assets such as real estate, as well as intangible assets.

Two stage growth model is the simplest extension of the constant growth model which assumes that extraordinary growth (good or bad) will continue for a finite number of years and thereafter normal growth rate will prevail indefinitely.

Economic value added (EVA) is another modification of cash flow that considers the cost of capital and the incremental return above that cost.

11.5. Self Assessment Questions

1. Discuss the assumptions and implications of earnings approach to equity valuation.
2. What are the quantitative models of equity valuation? What are their limitations?

3. Discuss the merits and limitations of the dividend discount model to valuation.
4. Briefly discuss the various equity valuation approaches. Which do you think is a more practical application for investors?
5. Following are the financial forecasts of a company for three years. Compute the value of its share.

Year	2005	2006	2007
Expected dividend	1.80	1.50	2
Cost of capital	0.06	0.063	0.059
Growth rate	0.111	0.2	-0.25

6. Suppose Mahindra and Mahindra had the following historical earnings report. Compute the market price of its shares.

Year	2001	2002	2003	2004
Capital employed per share	16.9	14.6	14.2	6.0
Earnings per share	24.3	21.9	23.8	10.9
Cash earnings per share	33.9	32.7	35	23.6
dividend payout	6.1	6.1	6.1	6.1
Book value per share	130	145.3	182.6	187.2

7. ITC Ltd. Has the following historical financial data. Identify if its share is a good investment.

Year	1999	2000	2001	2002	2003
EPS	10.64	13.74	20.99	24.8	30.64
DPS	2.5	4	4.5	5.5	7.5
Retention ratio	76.5	70.88	78.56	77.82	75.52
Payout ratio	23.5	29.12	21.44	22.18	24.48
Share price	227	358.25	714	963	735

Subject Code : FM 304

Author : Ms.Richa Verma

Lesson No. : 12

Vettor : Dr. Karam Pal

FUNDAMENTAL ANALYSIS: I

Structure

- 12.0. Objective
- 12.1. Introduction
- 12.2. Economic Analysis
- 12.3. Industry Analysis
- 12.4. Summary
- 12.5. Key Words
- 12.6. Self Assessment Questions
- 12.7. Suggested Readings/References

12.0 Objective:

The objective of this lesson is to make students to learn about the fundamental aspects affecting stock's values such as economic outlook and market conditions.

12.1. INTRODUCTION

Security analysis is the basis for rational investment decisions. If a security's estimated value is above its market price, the security analyst will recommend buying the stock. If the estimated value is below the market price, the security should be sold before its price drops. However, the values of the securities are continuously changing as news about the securities becomes known. The search for the security pricing involves the use of fundamental analysis. Under

fundamental analysis, the security analysts studies the fundamental facts affecting a stock's values, such as company's earnings, their management, the economic outlook, the firm's competition, market conditions etc.

Fundamental analysis is primarily concerned with determining the intrinsic value or the true value of a security. For determining the security's intrinsic value the details of all major factors (GNP, industry sales, firm sales and expense etc) is collected or an estimates of earnings per share may be multiplied by a justified or normal prices earnings ratio. After making this determination, the intrinsic value is compared with the security's current market price. If the market price is substantially greater than the intrinsic value the security is said to be overpriced. If the market price is substantially less than the intrinsic value, the security is said to be under priced. However, fundamental analysis comprises:

1. Economic Analysis
2. Industry Analysis
3. Company Analysis

Here, in this lesson Economic and Industry analysis are explained in detail and the company analysis is discussed the next lesson.

12.2. ECONOMIC ANALYSIS

For the security analyst or investor, the anticipated economic environment, and therefore the economic forecast, is important for making decisions concerning both the timings of an investment and the relative investment desirability among the various industries in the economy. The key for the analyst is that overall economic activities manifest itself in the behaviour of the stocks in general. That is, the

success of the economy will ultimately include the success of the overall market. For studying the Economic Analysis, the Macro Economic Factors and the Forecasting Techniques are studied in following paragraphs.

12.2.1 MACRO ECONOMIC FACTORS

The macro economy is the study of all the firms operates in economic environment. The key variables to describe the state of economy are explained as below:

1. *Growth rate of Gross Domestic Product (GDP):* GDP is a measure of the total production of final goods and services in the economy during a year. It is indicator of economic growth. It consists of personal consumption expenditure, gross private domestic investment, government expenditure on goods and services and net export of goods and services. The firm estimates of GDP growth rate are available with a time lag of one or two years. The expected rate of growth of GDP will be 7.5 percent in year 2005-06. Generally, GDP growth rate ranges from 6-8 percent. The growth rate of economy points out the prospects for the industrial sector and the returns investors can expect from investment in shares. The higher the growth rate of GDP, other things being equal, the more favorable it is for stock market.
2. *Savings and investment:* Growth of an economy requires proper amount of investments which in turn is dependent upon amount of domestic savings. The amount of savings is favorably related to investment in a country. The level of investment in the economy and the proportion of investment in capital market is major area of concern for investment analysts. The level of investment in the economy is equal to: Domestic savings + inflow of foreign capital - investment made abroad. Stock market

is an important channel to mobilize savings, from the individuals who have excess of it, to the individual or corporate, who have deficit of it. Savings are distributed over various assets like equity shares, bonds, small savings schemes, bank deposits, mutual fund units, real estates, bullion etc. The demand for corporate securities has an important bearing on stock prices movements. Greater the allocation of equity in investment, favorable impact it have on stock prices.

3. *Industry Growth rate:* The GDP growth rate represents the average of the growth rate of agricultural sector, industrial sector and the service sector. The current contribution of industry sector in GDP in the year 2004-05 is 6.75 percent approximately. Publicly listed company play a major role in the industrial sector. The stock market analysts focus on the overall growth of different industries contributing in economic development. The higher the growth rate of the industrial sector, other things being equal, the more favourable it is for the stock market.
4. *Price level and Inflation:* If the inflation rate increases, then the growth rate would be very little. The increasingly inflation rate significantly affect the demand of consumer product industry. The inflation rate in the Indian economy has been around 7 percent till 1990s. In recent years, the inflation rate has fallen significantly. At present it ranges from 4-5 percent (2005). The industry which have a weak market and come under the purview of price control policy of the government may lose the market, like sugar industry. On the other hand the industry which enjoy a strong market for their product and which do not come under purview of price control may benefit from inflation. If there is a mild level of inflation, it is good to the

stock market but high rate of inflation is harmful to the stock market.

5. *Agriculture and monsoons:* Agriculture is directly and indirectly linked with the industries. Hence increase or decrease in agricultural production has a significant impact on the industrial production and corporate performance. Companies using agricultural raw materials as inputs or supplying inputs to agriculture are directly affected by change in agriculture production. For example- Sugar, Cotton, Textile and Food processing industries depend upon agriculture for raw material. Fertilizer and insecticides industries are supplying inputs to agriculture. A good monsoon leads to higher demand for inputs and results in bumper crops. This would lead to buoyancy in stock market. If the monsoon is bad, agriculture production suffers and cast a shadow on the share market.
6. *Interest Rate:* Interest rates vary with maturity, default risk, inflation rate, productivity of capital etc. The interest rate on money market instruments like Treasury Bills are low, long dated government securities carry slightly higher interest rate and interest rate on corporate debenture is still higher. With the deregulation interest rates are softened, which were quite high in regulated environment. Interest rate affects the cost of financing to the firms. A decrease in interest rate implies lower cost of finance for firms and more profitability and it finally leads to decline in discount rate applied by the equity investors, both of which have a favourable impact on stock prices. At lower interest rates, more money at cheap cost is available to the persons who do business with borrowed money, this leads to speculation and rise in price of share.
7. *Government budget and deficit:* Government plays an important

role in the growth of any economy. The government prepares a central budget which provides complete information on revenue, expenditure and deficit of the government for a given period. Government revenue come from various direct and indirect taxes and government made expenditure on various developmental activities. The excess of expenditure over revenue leads to budget deficit. For financing the deficit the government goes for external and internal borrowings. Thus, the deficit budget may lead to high rate of inflation and adversely affects the cost of production and surplus budget may results in deflation. Hence, balanced budget is highly favourable to the stock market.

8. *The tax structure:* The business community eagerly awaits the government announcements regarding the tax policy in March every year. The type of tax exemption has impact on the profitability of the industries. Concession and incentives given to certain industry encourages investment in that industry and have favourable impact on stock market.
9. *Balance of payment, forex reserves and exchange rate:* Balance of payment is the record of all the receipts and payment of a country with the rest of the world. This difference in receipt and payment may be surplus or deficit. Balance of payment is a measure of strength of rupee on external account. The surplus balance of payment augments forex reserves of the country and has a favourable impact on the exchange rates; on the other hand if deficit increases, the forex reserve depletes and has an adverse impact on the exchange rates. The industries involved in export and import are considerably affected by changes in foreign exchange rates. The volatility in foreign exchange rates affects the investment of foreign institutional

investors in Indian Stock Market. Thus, favourable balance of payment renders favourable impact on stock market.

10. *Infrastructural facilities and arrangements:* Infrastructure facilities and arrangements play an important role in growth of industry and agriculture sector. A wide network of communication system, regular supply of power, a well developed transportation system (railways, transportation, road network, inland waterways, port facilities, air links and telecommunication system) boost the industrial production and improves the growth of the economy. Banking and financial sector should be sound enough to provide adequate support to industry and agriculture. The government has liberalized its policy regarding the communication, transport and power sector for foreign investment. Thus, good infrastructure facilities affect the stock market favourable.
11. *Demographic factors:* The demographic data details about the population by age, occupation, literacy and geographic location. These factors are studied to forecast the demand for the consumer goods. The data related to population indicates the availability of work force. The cheap labour force in India has encouraged many multinationals to start their ventures. Population, by providing labour and demand for products, affects the industry and stock market.
12. *Sentiments:* The sentiments of consumers and business can have an important bearing on economic performance. Higher consumer confidence leads to higher expenditure and higher business confidence leads to greater business investments. All this ultimately leads to economic growth. Thus, sentiments influence consumption and investment decisions and have a bearing on the aggregate demand for goods and services.

12.2.2 ECONOMIC FORECASTING TECHNIQUES

To estimate the stock price changes, an analyst has to analyze the macro economic environment. All the economic activities affect the corporate profits, investor's attitudes and share price. For the purpose of economic analysis and in order to decide the right time to invest in securities some techniques are used. These are explained as below:

1. *Anticipatory Surveys*: Under this prominent people in government and industry are asked about their plans with respect to construction, plant and equipment expenditure, inventory adjustments and the consumers about their future spending plans. To the extent that these people plan and budget for expenditure in advance and adhere to their intentions, surveys of intentions constitute a valuable input in forecasting process. It is necessary that surveys of intentions be based on elaborate statistical sampling procedures, the greatest short coming of intentions, surveys is that the forecaster has no guarantee that the intention will be carried out. External shocks, such as strikes, political turmoil or government action can cause changes in intentions.
2. *Barometric or Indicator approach*: Barometric technique is based on the presumption that relationship can exist among various economic time series. For example, industrial production overtime and industrial loans by commercial banks over time may move in same direction. Historical data are examined in order to ascertain which economic variables have led, lagged after of moved together with the economy. A leading indicator may be leading because it measures something that overshadows a change in production activity. Examples of these indicators are highlighted in Figure-1. There are three kind of relationships among economic time series:

- a) **Leading series:** Leading series consists of the data that move ahead of the series being compared. For example- applications for the amount of housing loan over time is a leading series for the demand of construction material, birth rate of children is the leading series for demand of seats in schools etc. In other words, leading indicators are those time series data that historically reach their high points (peaks) or their low points (troughs) in advance of total economic activity.

Figure-1 Components of Current Composite Indexes
<p>Composite Index of Leading Indicators</p> <ul style="list-style-type: none">• Average weekly hours of manufacturing/production workers.• Average weekly initial unemployment claims.• Manufacturer's new orders for consumer goods and material industries.• Contracts and orders for plant and equipment.• Number of new building permits issued.• Index of S&P 500 stock prices/Index of BSE sensitive stock prices.• Money supply.• Change in sensitive material prices.• Change in manufacturers' unfilled orders, durable goods industries.• Index of consumer expectations. <p>Composite Index of Coincident Indicators</p> <ul style="list-style-type: none">• Employees on nonagricultural payrolls.• Personal Income less transfer payments.• Index of industrial production.• Manufacturing and trade sales. <p>Composite Index of Lagging Indicators</p> <ul style="list-style-type: none">• Average duration of unemployment.• Ratio of manufacturing and trade inventories to sales.• Average prime rate.• Commercial and industrial loans outstanding.• Ratio of consumer installment credit outstanding to personal income.• Change in Index of labour cost per unit of manufacturing output.• Change in consumer price index for services.

- b) **Coincident series:** When data in series moves up and down along with some other series, it is known as coincident series. A series of data on national income is often coincident with the series of employment in an economy (over a short-period). In other words, coincident indicators reach their peaks or trough at approximately the same time as the economy.
 - c) **Lagging series:** Where data moves up and down behind the series being compared, example, data on industrial wages over time is a lagging series when compared with series of price index for industrial workers. They reach their turning points after the economy has already reached its own.
3. *Diffusion Indexes:* Some of the indicators appear in more than one class, and then the problem of choice may arise. Furthermore, it is not advisable to rely on just one of the indicators. This leads to the usage of what is referred to as the diffusion index. A diffusion index copes with the problem of differing signals given by the indicators. It is percentage of rising indicators. In this method a group of leading indicators is initially chosen. Then the percentage of the group of chosen indicators which have fallen (or, risen) over the last period is plotted against time to get the diffusion index. For example, if there are say 9 leading indicators for forecasting the construction activity of dwelling units and if by plotting we find that say, 6 indices show a rise, then we can calculate that diffusion index is $(6/9*100) = 66.7$ percent. When the index exceeds 50 percent, we can predict a rise in forecast variable.
4. *Money and Stock Prices:* Monetary theory in its simplest form states that fluctuations in the rate of growth of money supply

are of utmost importance in determining GNP, corporate profits, interest rates, stock prices etc. Monetarists contend that changes in growth rate of money supply set off a complicated series of events that ultimately affects share prices. In addition, these monetary changes lead stock price changes. Thus, while making forecasts, changes in growth rate of money supply should be given due importance. Some thinkers states that stock market leads changes in money supply. However, sound monetary policy is a necessary ingredient for steady growth and stable prices.

5. *Econometric Model Building*: The econometric methods combine statistical tools with economic theories to estimate economic variables and to forecast the intended economic variables. The forecast made through econometric method are much more reliable than those made through any other method. For applying econometric technique, the user is to specify in a formal mathematical manner the precise relation between the dependent and independent variable. In using econometrics, the forecaster must quantify precisely the relationships and assumptions he is making. This not only gives him direction but also the magnitudes.

An econometric model may be a single-equation regression model or it may consist of a system of simultaneous equations. Single equation regression serves the purpose of forecasting in many cases. But where the relationship between economic variables are complex and variable are so interrelated that unless one is determined, the other cannot be determined, a single-equation regression model does not serve the purpose. In that case, a system of simultaneous equations is used to estimate and forecast the target variable.

6. *Opportunistic Model Building*: Opportunistic model building or GNP model building or sectoral analysis is widely used forecasting method. Initially, the forecaster must hypothesize total demand and thus total income during the forecast period. Obviously, this will necessitate assuming certain environmental decisions, such as war or peace, political relationships among the level of interest rates. After, this work has been done, the forecaster begins building a forecast of the GNP figure by estimating the levels of the various component of GNP like the number of consumption expenditures, gross private domestic investment, government purchases of goods and services and net exports. After adding the four major categories the forecaster comes up with a GNP forecast. Now he tests this total for consistency with an independently arrived at a priori forecast of GNP.

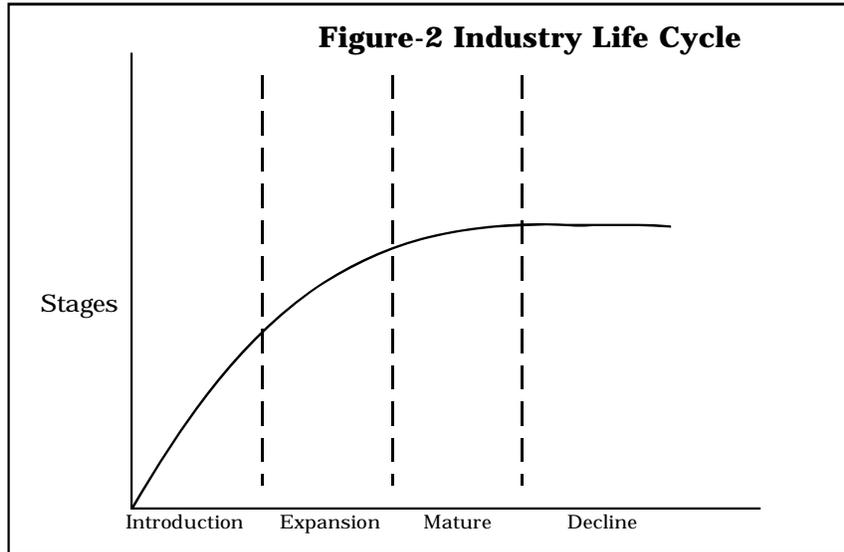
12.3 INDUSTRY ANALYSIS

The mediocre firm in the growth industry usually out performs the best stocks in a stagnant industry. Therefore, it is worthwhile for a security analyst to pinpoint growth industry, which has good investment prospects. The past performance of an industry is not a good predictor of the future- if one look very far into the future. Therefore, it is important to study industry analysis. For an industry analyst- industry life cycle analysis, characteristics and classification of industry is important. All these aspects are enlightened in following sections:

12.3.1 INDUSTRY LIFE CYCLE ANALYSIS

Many industrial economists believe that the development of almost every industry may be analyzed in terms of following stages (Figure-2):

1. *Pioneering stage*: During this stage, the technology and product is relatively new. The prospective demand for the product is promising in this industry. The demand for the product attracts many producers to produce the particular product. This lead to severe competition and only fittest companies survive in this stage. The producers try to develop brand name, differentiate the product and create a product image. This would lead to non-price competition too. The severe competition often leads to change of position of the firms in terms of market share and profit.
2. *Rapid growth stage*: This stage starts with the appearance of surviving firms from the pioneering stage. The companies that beat the competition grow strongly in sales, market share and financial performance. The improved technology of production leads to low cost and good quality of products. Companies with rapid growth in this stage, declare dividends during this stage. It is always advisable to invest in these companies.
3. *Maturity and stabilization stage*: After enjoying above-average growth, the industry now enters in maturity and stabilization stage. The symptoms of technology obsolescence may appear. To keep going, technological innovation in the production process should be introduced. A close monitoring at industries events are necessary at this stage.



4. *Decline stage:* The industry enters the growth stage with satiation of demand, encroachment of new products, and change in consumer preferences. At this stage the earnings of the industry are started declining. In this stage the growth of industry is low even in boom period and decline at a higher rate during recession. It is always advisable not to invest in the share of low growth industry.

12.3.2 CLASSIFICATION OF INDUSTRY

Industry means a group of productive or profit making enterprises or organizations that have a similar technically substitute goods, services or source of income. Besides Standard Industry Classification (SIC), industries can be classified on the basis of products and business cycle i.e. classified according to their reactions to the different phases of the business cycle. These are classified as follows:

1. *Growth Industries:* These industries have special features of high rate of earnings and growth in expansion, independent of the business cycle. The expansion of the industry mainly

depends on the technological change or an innovative way of doing or selling something. For example-in present scenario the information technology sector have higher growth rate. There is some growth in electronics, computers, cellular phones, engineering, petro-chemicals, telecommunication, energy etc.

2. *Cyclical Industries:* The growth and profitability of the industry move along with the business cycle. These are those industries which are most likely to benefit from a period of economic prosperity and most likely to suffer from a period of economic recession. These especially include consumer goods and durables whose purchase can be postponed until persona; financial or general business conditions improve. For example- Fast Moving Consumer Goods (FMCG) commands a good market in the boom period and demand for them slackens during the recession.
3. *Defensive Industries:* Defensive industries are those, such as the food processing industry, which hurt least in the period of economic downswing. For example- the industries selling necessities of consumers withstands recession and depression. The stock of defensive industries can be held by the investor for income earning purpose. Consumer nondurable and services, which in large part are the items necessary for existence, such as food and shelter, are products of defensive industry.
4. *Cyclical-growth Industries:* These possess characteristics of both a cyclical industry and a growth industry. For example, the automobile industry experiences period of stagnation, decline but they grow tremendously. The change in technology and introduction of new models help the automobile industry to resume their growing path.

12.3.3 CHARACTERISTICS OF AN INDUSTRY ANALYSIS

In an industry analysis, the following key characteristics should be considered by the analyst. These are explained as below:

- 1. Post sales and Earnings performance:* The two important factors which play an important role in the success of the security investment are sales and earnings. The historical performance of sales and earnings should be given due consideration, to know how the industry have reacted in the past. With the knowledge and understanding of the reasons of the past behaviour, the investor can assess the relative magnitude of performance in future. The cost structure of an industry is also an important factor to look into. The higher the cost component, the higher the sales volume necessary to achieve the firm's break-even point, and vice-versa.
- 2. Nature of Competition:* The numbers of the firms in the industry and the market share of the top firms in the industry should be analyzed. One way to determine competitive conditions is to observe whether any barriers to entry exist. The demand of particular product, its profitability and price of concerned company scrip's also determine the nature of competition. The investor before investing in the scrip of a company should analyze the market share of the particular company's product and should compare it with other companies. If too many firms are present in the organized sector, the competition would be severe. This will lead to a decline in price of the product.
- 3. Raw Material and Inputs:* Here, we have to look into the industries, which are dependent upon imports of scarce raw material, competition from other companies and industries, barriers to entry of a new company, protection from foreign

competition, import and export restriction etc. An industry which has a limited supply of materials domestically and where imports are restricted will have dim growth prospects. Labour is also an input and industries with labour problems may have difficulties of growth.

4. *Attitude of Government towards Industry:* It is important for the analyst or prospective investor to consider the probable role government will play in industry. Will it provide financial support or otherwise? Or it will restrain the industry's development through restrictive legislation and legal enforcement? The government policy with regard to granting of clearance, installed capacity and reservation of the products for small industry etc. are also factors to be considered for industry analysis.
5. *Management:* An industry with many problems may be well managed, if the promoters and the management are efficient. The management likes Tatas, Birlas, Ambanies etc. who have a reputation, built up their companies on strong foundations. The management has to be assessed in terms of their capabilities, popularity, honesty and integrity. In case of new industries no track record is available and thus, investors have to carefully assess the project reports and the assessment of financial institutions in this regard. A good management also ensures that the future expansion plans are put on sound basis.
6. *Labour Conditions and Other Industrial Problems:* The labour scenario in a particular industry is of great importance. If we are dealing with a labour intensive production process or a very mechanized capital intensive process where labour performs crucial operations, the possibility of strike looms as an important factor to be reckoned with. Certain industries

with problems of marketing like high storage costs, high transport costs etc leads to poor growth potential and investors have to be careful in investing in such companies.

7. *Nature of Product Line:* The position of the industry in the life cycle of its growth- initial stage, high growth stage and maturing stage are to be noted. It is also necessary to know the industries with a high growth potential like computers, electronics, chemicals, diamonds etc., and whether the industry is in the priority sector of the key industry group or capital goods or consumer goods groups. The importance attached by the government in their policy and of the Planning Commission in their assessment of these industries is to be studied.
8. *Capacity Installed and Utilized:* The demand for industrial products in the economy is estimated by the Planning Commission and the Government and the units are given licensed capacity on the basis of these estimates. If the demand is rising as expected and market is good for the products, the utilization of capacity will be higher, leading to bright prospects and higher profitability. If the quality of the product is poor, competition is high and there are other constraints to the availability of inputs and there are labour problems, then the capacity utilization will be low and profitability will be poor.
9. *Industry Share Price Relative to Industry Earnings:* While making investment the current price of securities in the industry, their risk and returns they promise is considered. If the price is very high relative to future earnings growth, the investment in these securities is not wise. Conversely, if future prospects are dim but prices are low relative to fairly level future patterns of earnings, the stocks in this industry might be an attractive investment.

10. Research and Development: For any industry to survive in the national and international markets, product and production process have to be technically competitive. This depends upon the research and development in the particular industry. Proper research and development activities help in obtaining economic of scale and new market for product. While making investment in any industry the percentage of expenditure made on research and development should also be considered.

11. Pollution Standards: These are very high and restricted in the industrial sector. These differ from industry to industry, for example, in leather, chemical and pharmaceutical industries the industrial effluents are more.

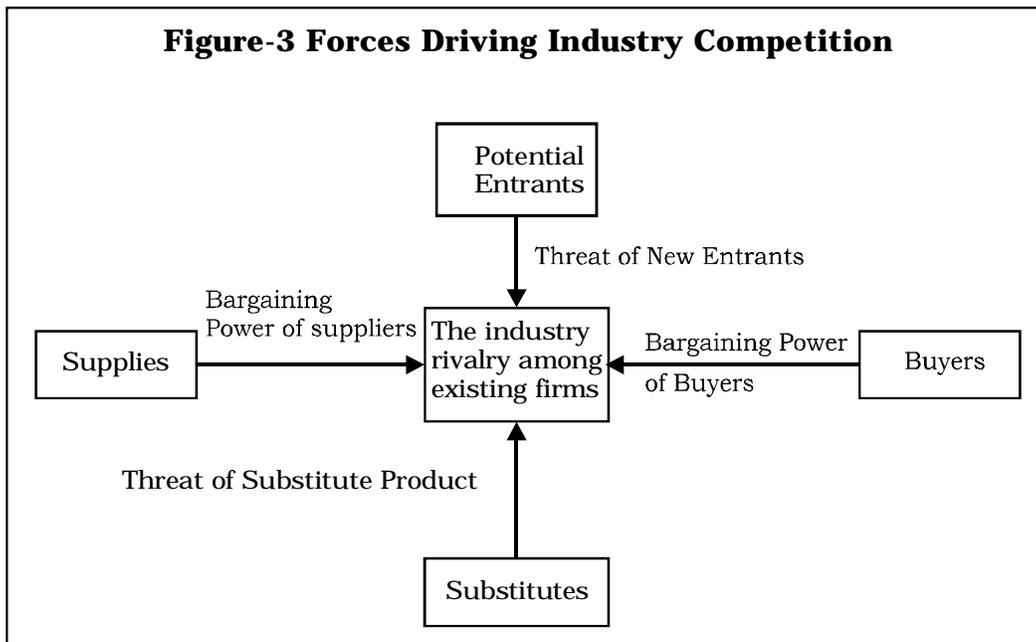
12.3.4 PROFIT POTENTIAL OF INDUSTRIES: PORTER MODEL

Michael Porter has argued that the profit potential of an industry depends on the combined strength of the following five components as explained below. Figure-3 depicts the forces that drive competition and determine industry profit potential. These are:

1. Threat of New Entrants: New entrants add capacity, inflate costs, push prices down and reduce profitability. Hence, if an industry face threat of new entrants, its profit potential would be limited. The threat from new entrants is low if the entry barriers confer an advantage on existing firms and deter new entrants. Entry barriers are high when:

- The new entrants have to invest substantial resources to enter the industry.
- Economics of scale are enjoyed by the industry.

- The government policy limits or even prevents new entrants.
- Existing firms control the distribution channels, benefit from product differentiation in the form of brand image and customer loyalty, and enjoy some kind of proprietary experience curve.



2. *Rivalry among the Existing Firms:* Firms in an industry compete on the basis of price, quality, promotion service, warranties etc. If the rivalry between the firms in an industry is strong, competitive moves and countermoves dampen the average profitability of the industry. The intensity of rivalry in an industry tends to be high when:

- The number of competitors in the industry is large.
- At least a few firms are relatively balanced and capable of engaging in a sustained competitive battle.

- The industry growth is sluggish, prodding firms to strive for a higher market share.
- The industry confronts high exit barriers.
- The industry's product is regarded as a commodity or near-commodity, stimulating strong price and service competition.

3. *Pressure from Substitute Products:* All the firms in an industry face competition from industries producing substitute products. The substitute goods may limit the profit potential of the industry by imposing a ceiling on the prices that can be charged by the firms in the industry. The threat from substitute products is high when:

- The price-performance trade off offered by the substitute products is attractive.
- The switching costs for prospective buyers are minimal.
- The substitute products are being produced by industries earning superior profits.

4. *Bargaining Power of Buyers:* Buyer is a competitive force. They can bargain for price cut, ask for superior quality and better services and induce rivalry among competitors. If they are powerful, they can depress the profitability of the supplier industry. The bargaining power of a buyer group is high when:

- Its purchases are large relative to the sales of the seller.
- Its switching costs are low.
- It poses a strong threat of backward integration.

5. *Bargaining Power of Suppliers:* Suppliers, like buyers, can exert a competitive force in an industry as they can raise prices, lower quality and curtail the range of free services they provide. Powerful suppliers can hurt the profitability of the buyer industry. Suppliers have strong bargaining power when:

- Few suppliers dominate and the supplier group is more concentrated than the buyer group.
- There are hardly any viable substitutes for the products supplied.
- The switching costs for the buyers are high.
- Suppliers do present a real threat of forward integration.

12.3.5 TECHNIQUES FOR EVALUATING RELEVANT INDUSTRY FACTORS

The techniques (long term and short term) for evaluating industry factors are explained in the following sections. These are:

1. *End-Use and Regression Analysis:* End-use analysis for product demand analysis refers to a process whereby the analyst attempts to diagnose the factors that determine the demand for output of the industry. In a single product firm, units demanded multiplied by price will equal sales revenue. The analyst frequently forecast the factors like disposable income, per capita consumption, price elasticity of demand etc. that influence the demand of the product. For studying the relationship between various variables simple linear regression analysis and correlation analysis is used.

Industry sales against time, industry sales against macro economic variables like gross national product, personal income

disposable income and industry earnings over time may be regressed. When two or more independent variables are better able to explain variability in the dependent variables, the multiple regression analysis is used.

2. *Input-Output Analysis*: It is a way of getting inside demand analysis or end use analysis. It reflects the flow of goods and services through the economy including intermediate steps in the production process as goods proceed from raw material stage to final consumption stage. Thus input-output analysis observes patterns of consumption at all stages in order to direct any changing patterns or trends that might indicate the growth or decline on industries. This technique is more appropriate for an intermediate or long term forecast than for short term forecast.
3. *Growth Rate*: The growth rate of different industry should be forecasted by considering historical data. Once the growth rate is estimated, future values of earnings or sales may be forecast. Since the growth rate is such an important factor in determining the stock prices, not only its size but its duration must be estimated. Sometimes, patents expire, competition within an industry becomes more aggressive because foreign firms begin to compete, economically depressed periods occur or other factors cause growth rate to drop.

12.4 SUMMARY

The earnings potential and riskiness of a firm are linked to the prospects of the industry to which it belongs. The prospects of various industries, in turn are largely influenced by the development of macro economy. The macro economy is the overall economic environment in which all firms operate. The key variables describe the state of

macro economy are- GDP, savings and investments, industrial growth rate etc. Many economists believe that the development of almost every industry may be analyzed in terms of its life cycle. The systematic study of specific features and characteristics are also important for making the investment decisions.

12.5 Key Words

Fundamental analysis is primarily concerned with determining the intrinsic value or the true value of a security.

Growth rate of Gross Domestic Product (GDP): GDP is a measure of the total monetary value of final goods and services produced in the economy during a year. Econometric Model Building are the econometric methods which combine statistical tools with economic theories to estimate economic variables and to forecast the intended economic variables.

Opportunistic Model Building Opportunistic model building or GNP model building or sectoral analysis is widely used forecasting method in which the forecaster must hypothesize total demand and thus total income during the forecast period.

12.5 SELF ASSESSMENT QUESTIONS

1. Define Fundamental Analysis. What is the importance of economic variables in such analysis?
2. Do you think that knowing the current status of economy is useful in analyzing stock market movements? If so, explain.
3. Why industry analysis is important in security valuation? Bring out the important considerations in industry analysis.

4. What are the important points to be considered in industry analysis? Discuss the techniques of evaluating industry and economic factors.
5. What is industry life cycle? Bring out its relevance in security analysis.
6. How would you classify shares into growth, cyclical and defensive? Name some stock in each group and explain.

12.6 SUGGESTED READINGS/REFERENCES

- Donald E. Fischer and Ronald J. Jordan, Security Analysis and Portfolio Management ,Prentice-Hall, Inc.
- Prasanna Chandra, Security Analysis and Portfolio Management, Tata McGraw-Hill.
- Punithavathy Pandian, Security Analysis and Portfolio Management ,Vikas Publication.
- V.A. Avadhani, Security Analysis and Portfolio Management, Himalyana Publication.
- Jack Clark Francis Investment: Analysis and Management
- Investments by William F. Sharpe and Gordon J. Alexander, Investments

Subject Code : FM 304

Author : Ms. Richa Verma

Lesson No. : 13

Vettor : Dr. Karam Pal

FUNDAMENTAL ANALYSIS: II

Structure

- 13.0. Objective
- 13.1. Introduction
- 13.2. Company Analysis
- 13.3. Summary
- 13.4. Key Words
- 13.5. Self Assessment Questions
- 13.6. Suggested Readings/References

13.0 Objective:

The objective of this lesson is to make students to learn about the fundamental aspects related to companies that affect stock's values.

13.1 INTRODUCTION

In the previous lesson we have discussed about Economic Analysis and Industry Analysis and now in this lesson light is thrown on company analysis. In the company analysis the investment analyst collect all the information related to the company and evaluates the present and future value of the stock. In this analysis, all the factors affecting the earnings of a particular company are considered. The risk and return associated with the purchase of a stock is analyzed to take a better investment decisions. The valuation process depends upon the investor ability to elicit information from the relationship

and inter-relationship among the company related variables. Up-to-date information is required on the status and trends in the economy, particular industries and firms. Success in investing will be largely dependent on:

- Discovering new and credible information rapidly and in more details than others do. This depends upon the analyst ability to develop a system that couples original thoughts and unique ways of forming expectations about the prospects for individual company. For this purpose various public and private sources of information are analyzed.
- Applying superior judgement so as to ascertain the relevance of information to the decision at hand. Judgement depends upon one's knowledge and experiences. By applying various tools of analysis to the data, the investor formulates expectations and judgement about the alternatives available to him.

For company analysis, the internal and external information need to be studied. *Internal information* consists of data and events made public by firms concerning their operations. The principle information sources generated internally by a firm are its financial statements. *External sources* of information are those generated independently outside the company. They provide supplement to internal sources. A good analyst must train himself to understand the kind of flexibility permitted in accounting and the effect of this flexibility on his interpretation of what he sees. For company analysis, the factors that need to be considered and the methods of analyzing financial statement of the company are highlighted in following lines.

13.2 COMPANY ANALYSIS

Fundamental analysis is the method of analyzing companies

based on factors that affect their intrinsic value. There are two sides to this method: the quantitative and the qualitative. The *quantitative side* involves looking at factors that can be measured numerically, such as the company's assets, liabilities, cash flow, revenue and price-to-earnings ratio. The limitation of quantitative analysis, however, is that it does not capture the company's aspects or risks unmeasurable by a number - things like the value of an executive or the risks a company faces with legal issues. The analysis of these things is the other side of fundamental analysis: the *qualitative side or non-number side*. Although relatively more difficult to analyze, the qualitative factors are an important part of a company. Since they are not measured by a number, they more represent an either negative or positive force affecting the company.

But some of these qualitative factors will have more of an effect, and determining the extent of these effects is what is so challenging. To start, identify a set of qualitative factors and then decide which of these factors add value to the company, and which of these factors decrease value. Then determine their relative importance. The qualities one analyzes can be categorized as having a positive effect, negative effect or minimal effect. The best way to incorporate qualitative analysis into evaluation of a company is to do it once you have done the quantitative analysis. The conclusion come to on the qualitative side can put quantitative analysis into better perspective. If when looking at the company numbers one saw good reason to buy/invest in the company, but then found many negative qualities, he may want to think twice about buying/investing. Negative qualities might include potential litigations, poor R and D prospects or a board full of insiders.

The conclusions of qualitative analysis either reconfirm or raise questions about the conclusions of quantitative analysis. Fundamental analysis is not as simple as looking at numbers and computing ratios; it is also important to look at influences and

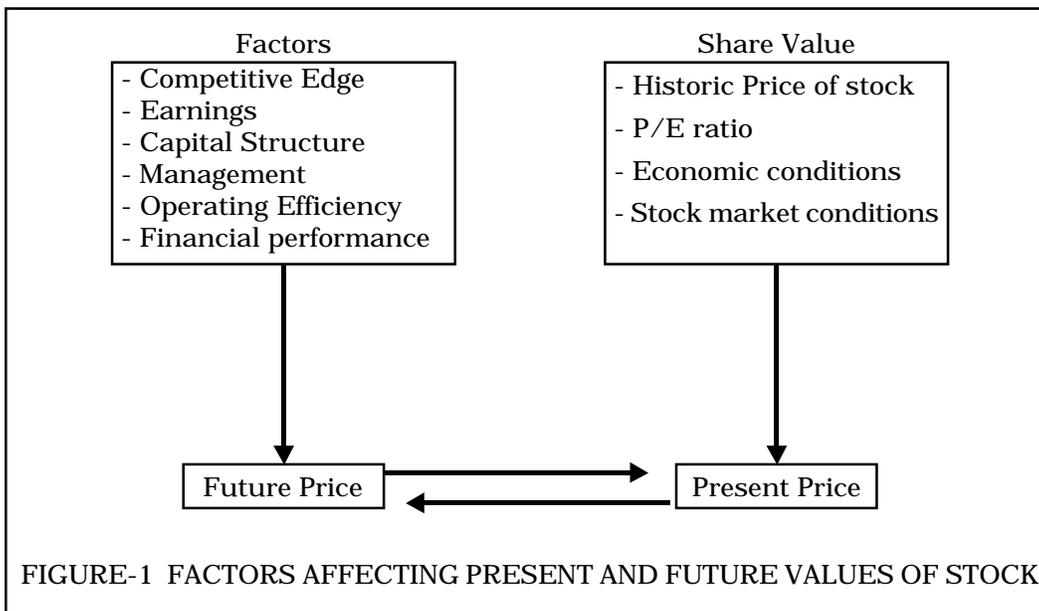
qualities that do not have a number value. The present and future values are affected by the following factors (*Figure-1*):

1) Competitive Edge: Many industries in India are composed of hundreds of individual companies. The large companies are successful in meeting the competition and some companies rise to the position of eminence and dominance. The companies who have obtained the leadership position; have proven his ability to withstand competition and to have a sizable share in the market. The competitiveness of the company can be studied with the help of:

- a) *Market share:* The market share of the company helps to determine a company's relative position within the industry. If the market share is high, the company would be able to meet the competition successfully. The size of the company should also be considered while analyzing the market share, because the smaller companies may find it difficult to survive in the future.
- b) *Growth of annual sales:* Investor generally prefers to study the growth in sales because the larger size companies may be able to withstand the business cycle rather than the company of smaller size. The rapid growth keeps the investor in better position as growth in sales is followed by growth in profit. The growth in sales of the company is analyzed both in rupee terms and in physical terms.
- c) *Stability of annual sales:* If a firm has stable sales revenue, other things being remaining constant, will have more stable earnings. Wide variation in sales leads to variation in capacity utilization, financial planning and dividends. This affects the company's position and investor's decision to invest.

2) Earnings: The earning of the company should also be analyzed along with the sales level. The income of the company is generated through the operating (in service industry like banks- interest on loans and investment) and non-operating income (ant company, rentals from lease, dividends from securities). The investor should analyze the sources of income properly. The investor should be well aware with the fact that the earnings of the company may vary due to following reasons:

- Change in sales.
- Change in costs.
- Depreciation method adopted.
- Inventory accounting method.
- Wages, salaries and fringe benefits.
- Income tax and other taxes.



3) Capital Structure: Capital structure is combination of owned capital and debt capital which enables to maximize the value of

the firm. Under this, we determine the proportion in which the capital should be raised from the different securities. The capital structure decisions are related with the mutual proportion of the long term sources of capital. The owned capital includes share capital

- a) *Preference shares*: Preference shares are those shares which have preferential rights regarding the payment of dividend and repayment of capital over the equity shareholders. At present many companies resort to preference shares. The preference shares induct some degree of leverage in finance. The leverage effect of the preference shares is comparatively lesser than that the debt because the preference shares dividend are not tax deductible. If the portion of preference share in the capital is large, it tends to create instability in the earnings of equity shares when the earnings of the company fluctuate.
 - b) *Debt*: It is an important source of finance as it has the specific benefit of low cost of capital because interest is tax deductible. The leverage effect of debt is highly advantageous to the equity shareholders. The limits of debt depend upon the firm's earning capacity and its fixed assets.
- 4) Management:** The basic objective of the company is to attain the stated objectives of the company for the good of the equity holders, the public and employees. If the objectives of the company are achieved, investor will have a profit. Good management results in high profit to investors. Management is responsible for planning, organizing, actuating and controlling the activities of the company. The good management depends upon the qualities of the manager.
- 5) Operating Efficiency:** The operating efficiency of the company directly affects the earnings capacity of a company. An expanding

company that maintains high operating efficiency with a low break even point earns more than the company with high break even point. If a firm has stable operating ratio, the revenues also would be stable. Efficient use of fixed assets with raw materials, labour and management would lead to more income from sales. This leads to internal fund generation for the expansion of the firm.

6) Financial Performance:

- a) *Balance Sheet:* The level, trends, and stability of earnings are powerful forces in the determination of security prices. Balance sheet shows the assets, liabilities and owner's equity in a company. It is the analyst's primary source of information on the financial strength of a company. Accounting principles dictate the basis for assigning values to assets. Liability values are set by contracts. When assets are reduced by liabilities, the book value of share holder's equity can be ascertained. The book value differs from current value in the market place, since market value is dependent upon the earnings power of assets and not their cost of values in the accounts.
- b) *Profit and Loss account:* It is also called as income statement. It expresses the results of financial operations during an accounting year i.e. with the help of this statement we can find out how much profit or loss has taken place from the operation of the business during a period of time. It also helps to ascertain how the changes in the owner's interest in a given period has taken place due to business operations.

Last of all, for analyzing the financial position of any company following factors need to be considered for evaluating present situation and prospects of company. The questions that need to be answered for company analysis are:

- a) *Availability and Cost of Inputs:* Is the company well placed with respect to the availability of basic raw materials, power, fuel and other production inputs? What are the costs advantages/disadvantages of the company vis-à-vis its competitors?
- b) *Order Position:* What is the order position of the company? How many months or years of production does it represent? Is the order position improving or deteriorating?
- c) *Regulatory Framework:* What is the licensing policy applicable to the industry to which the firm belongs? Are there any price and/or distribution controls applicable to the company? If so, what are their implications for profitability?
- d) *Technological and Production Capabilities:* What is the technological competence of the firm? What is the state of its plant and machinery? Does the company have unutilized capacity to exploit favourable market developments?
- e) *Marketing and Distribution:* What is the image of the company in the marketplace? How strong is the loyalty of its customers/clients? What is the reach of the distribution network?
- f) *Finance and Accounting:* What are the internal accruals? How much access the companies have to external financing? What are the products in the portfolio of the company? How competitive is the position of the company in these products?
- g) *Human Resource and Personnel:* How competent and skilled is the workplace of the company? Is the company over-staffed or under-staffed? What is the extent of employee turnover

and absenteeism? What is the level of employee motivation and morale?

All information relating to these factors may be available from the annual reports and from the published sources also. The first hand information is also available from the official sources of the company.

13.2.1 COMPANY ANALYSIS: THE STUDY OF FINANCIALS STATEMENTS

Financial statement means a statement or document which explains necessary financial information. Financial statements express the financial position of a business at the end of accounting period (Balance Sheet) and result of its operations performed during the year (Profit and Loss Account). In order to determine whether the financial or operational performance of company is satisfactory or not, the financial data are analyzed. Different methods are used for this purpose. The main techniques of financial analysis are:

1. Comparative Financial Statements
2. Trend Analysis
3. Common Size Statement
4. Fund Flow Statement
5. Cash Flow Statement
6. Ratio Analysis

1) *Comparative Financial Statements*: In comparative financial statement, the financial statements of two periods are kept by side so that they can be compared. By preparing comparative statement the nature and quantum of change in different items can be calculated and it also helps in future estimates. By

comparing with the data of the previous years it can be ascertained what type of changes in the different items of current year have taken place and future trends of business can be estimated.

- 2) *Trend Analysis*: In order to compare the financial statements of various years trend percentages are significant. Trend analysis helps in future forecast of various items on the basis of the data of previous years. Under this method one year is taken as base year and on its basis the ratios in percentage for other years are calculated. From the study of these ratios the changes in that item are examined and trend is estimated. Sometimes sales may be increasing continuously and the inventories may also be rising. This would indicate the loss of market share of a particular company's product. Likewise sales may have an increasing trend but profit may remain the same. Here the investor has to look into the cost and management efficiency of the company.
- 3) *Common Size Statement*: Common size financial statements are such statements in which items of the financial statements are converted in percentage on the basis of common base. In common size Income Statement, net sales may be considered as 100 percent. Other items are converted as its proportion. Similarly, for the Balance sheet items total assets or total liabilities may be taken as 100 percent and proportion of other items to this total can be calculated in percentage.
- 4) *Fund Flow Statement*: Income Statement or Profit or Loss Account helps in ascertainment of profit or loss for a fixed period. Balance Sheet shows the financial position of business on a particular date at the close of year. Income statement does not fully explain funds from operations of business because various non-fund items are shown in Profit or Loss Account. Balance Sheet shows only static financial position of business and financial changes occurred

during a year can't be known from the financial statement of a particular date. Thus, Fund Flow Statement is prepared to find out financial changes between two dates. It is a technique of analyzing financial statements. With the help of this statement, the amount of change in the funds of a business between two dates and reasons thereof can be ascertained. The investor could see clearly the amount of funds generated or lost in operations. These reveal the real picture of the financial position of the company.

- 5) *Cash Flow Statement*: The investor is interested in knowing the cash inflow and outflow of the enterprise. The cash flow statement expresses the reasons of change in cash balances of company between two dates. It provides a summary of stocks of cash and uses of cash in the organization. It shows the cash inflows and outflows. Inflows (sources) of cash result from cash profit earned by the organization, issue of shares and debentures for cash, borrowings, sale of assets or investments, etc. The outflows (uses) of cash results from purchase of assets, investment redemption of debentures or preferences shares, repayment of loans, payment of tax, dividend, interest etc. With the help of cash flow statement the investor can review the cash movement over an operating cycle. The factors responsible for the reduction of cash balances in spite of increase in profits or vice versa can be found out.
- 6) *Ratio Analysis*: Ratio is a relationship between two figures expressed mathematically. It is quantitative relationship between two items for the purpose of comparison. Ratio analysis is a technique of analyzing financial statements. It helps in estimating financial soundness or weakness. Ratios present the relationships between items presented in profit and loss account and balance sheet. It summaries the data for easy understanding, comparison and interpretation. The ratios are divided in the following group:

a) Liquidity Ratios: Liquidity ratios means ability of the company to pay the short term debts in time. These ratios are calculated to analyze the short term financial position and short term financial solvency of firm. Commercial banks and short term creditors are interested in such analysis. These ratios are:

i) Current Ratio = $\frac{\text{Current Assets}}{\text{Current Liabilities}}$

ii) Acid Test Ratio = $\frac{\text{Current assets} - \text{Inventories}}{\text{Current Liabilities}}$

b) Turnover Ratios: These ratios show how well the assets are used and the extent of excess inventory. The different type of turnover ratios are as follows:

i) Inventory turnover ratio = $\frac{\text{Net Sales}}{\text{Inventory}}$

ii) Receivables turnover ratio = $\frac{\text{Net Sales}}{\text{Receivables}}$

iii) Fixed assets turnover ratio = $\frac{\text{Net Sales}}{\text{Fixed Assets}}$

iv) Total assets turnover ratio = $\frac{\text{Net Sales}}{\text{Total Assets}}$

c) Profit Margin Ratios: Earning of more and more profit with the optimum use of available resources of business is called profitability. The investor is very particular in knowing net profit to sales, net profit to total assets and net profit to equity. The profitability ratio measures the overall efficiency and control of firm.

$$\text{Net Profit Margin} = \frac{\text{Profit after Tax}}{\text{Sales}}$$

13.2.2 FORECASTING EARNINGS

There is strong evidence that earnings have a direct and powerful effect upon dividends and share prices. So the importance of forecasting earnings can not be overstated. These ratios are generally known as 'Return on Investment Ratios'. These ratio help in evaluating whether the business is earning adequate return on the capital invested or not. With the help of the following ratios the performance of the business can be measured. The earning forecasting ratios are:

- **Return on Total Assets:** Changes in reported earnings can result from changes in methods of accounting, changes in the operations of the business and/or in financing of business, that is, changes in productivity or in resource base. This ratio represents the overall efficiency of capital invested in business. This ratio can also be called as gross capital employed ratio. The total assets here are combination of fixed assets and current assets. The Return on Total Assets is calculated as follows:

$$\text{Return on Assets} = \frac{\text{Net Income (EBIT)}}{\text{Total Assets}}$$

In general, the greater the return on assets, the higher the market value of the firm, other things being equal. Return on assets is the product of the turnover of assets and the margin of profits:

$$\text{Return on Assets} = \frac{\text{Sales}}{\text{Assets}} * \frac{\text{Earnings before interest and Tax}}{\text{Sales}}$$

- **Return on Equity:** This ratio is calculated to evaluate the profitability of the business from the point of view of the ordinary shareholders.

$$\text{Return on Equity} = \frac{\text{Net Profit}}{\text{Net Worth}}$$

Or

$$\text{Return on Equity} = \frac{\text{Equity Earnings}}{\text{Equity}}$$

Or

$$\text{ROE} = \frac{\text{Profit after tax}}{\text{Sales}} * \frac{\text{Sales}}{\text{Assets}} * \frac{\text{Assets}}{\text{Equity}}$$

Net Profit Margin Assets Turnover Leverage

- Earnings and Role of Financing

Borrowing of money at a fixed cost and the use of these funds to earn return on assets is known as employing leverage. If one can earn more on borrowed money than you have to pay for it, the leverage is to firm's advantage. However, leverage should be used within reasonable limits because excessive use of debt relative to equity increases borrowing costs and also the cost of equity funds. The volatility of share holders returns increases with the expansion of the degree of financial leverage. The greater volatility of earnings owing to increased leverage can, at certain levels of debt financing, cause the market to pay less per rupee of earnings. Further with the use of more debts it may become progressively difficult to maintain (or improve) the rate of return on assets. One of the best ways of measuring the proportions of debt and equity financing is:

a) Debt to asset ratio = $\frac{\text{Total Debt}}{\text{Total Assets}}$

$$\text{b) Debt to equity ratio} = \frac{\text{Total Debt}}{\text{Net Worth}}$$

$$\text{c) Long term debt to equity} = \frac{\text{Long Term Debt}}{\text{Net Worth}}$$

- Valuation Ratios: Earnings and Dividend Level

- a) Book value per share: This ratio indicates the share of equity shareholders after the company has paid all its liabilities, creditors, debenture holder and preference shareholders. It is calculated as follows:

$$\text{Book value per share} = \frac{\text{Paid up Equity share capital} + \text{Reserves \& Surplus}}{\text{Total number of equity shares outstanding}}$$

- b) Earnings per share (EPS): This ratio measures the earnings per share available to ordinary shareholders. Equity shareholders have the right to all profits left after payment of taxes and preference dividend. This ratio is calculated by dividing the profits available for equity shareholders by the number of equity shares issued.

$$\text{EPS} = \frac{\text{Equity Earnings or EAT}}{\text{Number of equity shares outstanding}}$$

This ratio is quite significant. EPS affects the market value of shares. It is an indicator of the dividend paying capacity of the firm. By comparing the EPS with other firms, management can know whether ordinary share capital is being utilized effectively or not.

- c) Dividend per Share (DPS): All the profits after tax and preference dividend available for equity shareholders are not distributed among them as dividend. Rather, a part of it is related in

business. The balance of profits is distributed among equity shareholders. To calculate dividend per share, the profits distributed as dividend among equity shareholders is divided by number of equity shares.

$$\text{DPS} = \frac{\text{Profits distributed to Equity shareholders}}{\text{Number of Equity shares}}$$

- d) Dividend Payout Ratio (D/P ratio): This ratio establishes the relationship between the earnings available for ordinary shareholders and the dividend paid to them. In other words, it explains what percentage of profit after tax and preference dividend has been paid to equity shareholders as dividend. It can be calculated as under:

$$\text{D/P ratio} = \frac{\text{Equity Dividends}}{\text{Equity Earnings}}$$

- e) Dividend and Earnings Yield: These ratios are used to evaluate the profitability from the stand point of ordinary shareholders. Earning per share (EPS) and Dividend per Share (DPS) are calculated on the basis of book value of share but yield is always calculated on the basis of market value of shares. This ratio is called as Earnings Price ratio.

$$\text{Dividend Yield} = \frac{\text{Dividend per share}}{\text{Market value per share}}$$

$$\text{Earnings Yield} = \frac{\text{Earnings per share}}{\text{Market value per share}}$$

- f) Price to Earnings Ratio: This ratio is calculated by dividing the market price of a share by earnings per share.

$$\text{P/E ratio} = \frac{\text{Market Price of the share}}{\text{EPS}}$$

Practical Example

Competitive Benchmarking Reports RocSearch Competitive Benchmarking Report provides information that enables a company to analyze and compare its financial performance, business segments, geographical presence, products and services and business strategies vis-à-vis its competitors.

- **GOLD Analysis** The Gold Profiles provide very comprehensive information about the company. These reports include price history and charting, an extended business summary, the five-year financial history and information on management, insiders and institutions. The Gold Profiles also successfully outline the strategic position of the company within the market and provide detailed information on the functioning of the company under various constraints.
- **Silver Analysis** The Silver Profiles are a scaled down version of the Gold Profiles that provide detailed information about the company. These include information on performance of the company, its strategy, joint ventures, key executives, new products, M&A etc. Timely, precise and up-to-date information presented in these reports allows decision makers to make successful strategic decisions.
- **Porter Analysis** In the globalised market scenario, companies need to understand and challenge the competitive markets they operate in. RocSearch analysts use Porter's Five Forces Framework developed by marketing guru Michael Porter to analyze various industries and enable companies to identify and develop appropriate strategies.
- **PEST Analysis** PEST refers to all Political, Economic, Social and Technological factors affecting any industry. RocSearch's acclaimed team of industry analysts religiously follow industry trends and monitor any changes that occur in the business

scenario. All reported information including insider titbits is examined and analysed to produce an original document that effectively mirrors the external business environment.

- **SWOT Analysis** Our industry analysts put into perspective all political, economic, social and technological factors affecting any industry to identify the emerging opportunities for any company operating in that industry. Strengths and weaknesses of the company are analyzed to establish whether it can take advantage of the emergent opportunities. Various threats that can hamper its progress are also examined and listed. The findings can be used to take advantage of opportunities and to make contingency plans for threats.

13.3 SUMMARY

The competitive edge of the company could be measured with the help of company market share, growth and stability of its annual sales. The financial statement of the company reveals the needed information to the investor to make investment decision. Analysis of the financial statistics must be supplemented with an appraisal, mostly of a qualitative nature, of the company present situation and prospects. Based on how the company has done in the past and how it is likely to do in future, the investment analyst use different ratios like EPS, DPS etc.

13.4 Key Words

Competitive edge is said to be enjoyed by the companies which have obtained the leadership position; have proven ability to withstand competition and to have a sizable share in the market.

PEST Analysis PEST refers to all Political, Economic, Social and Technological factors affecting any industry.

Dividend Payout Ratio (D/P ratio) is the ratio which establishes the relationship between the earnings available for ordinary shareholders and the dividend paid to them. Book value per share is the ratio which indicates the share of equity shareholders after the company has paid all its liabilities, creditors, debenture holder and preference shareholders.

Liquidity Ratios indicate the ability of the company to pay the short term debts in time. Trend analysis helps in future forecast of various items on the basis of the data of previous years.

13.4 SELF ASSESSMENT EXERCISE

- 1) What is Company Analysis? What is its objective? Bring out the relevance of such analysis in investment decisions.
- 2) What are the significant factors to be considered for Company Analysis?
- 3) What are the methods adopted to analyze the financial statements of a company?
- 4) What do you mean by P/E ratio? What is the logic of using this concept in investment decisions?

13.5 SUGGESTED READINGS

- Security Analysis and Portfolio Management by Donald E. Fischer and Ronald J. Jordan, Prentice-Hall, Inc.
- Security Analysis and Portfolio Management by Personna Chandra, Tata McGraw-Hill.
- Security Analysis and Portfolio Management by Punithavathy Pandian, Vikas Publication.

- Security Analysis and Portfolio Management by V.A. Avadhani, Himalyana Publication.
- Investment: Analysis and Management by Jack Clark Francis.
- Investments by William F. Sharpe and Gordon J. Alexander.

Subject Code : FM 304

Author : Ms. Kiran Jindal

Lesson No. : 14

Vettor : Dr. B.S. Bodla

TECHNICAL ANALYSIS

Structure

- 14.0. Objective
- 14.1. Introduction
- 14.2. Meaning of Technical Analysis
- 14.3. Tools of Technical Analysis
- 14.4. Evaluation of Technical Analysis
- 14.5. Summary
- 14.6. Key Words
- 14.7. Self Assessment Questions
- 14.8. Suggested Readings/References

14.0 Objective

After going through this lesson the learners will be able to :

- define technical analysis to predict price behaviour of securities.
- describe the techniques of technical analysis.
- evaluate technical analysis

14.1 Introduction

The technical approach is the oldest approach to equity investment dating back to the late 19th century. It continues to flourish in modern

times as well. As an investor, we often encounter technical analysis because newspapers cover it; television programmers routinely call technical experts for their comments and investment advisory services circulate technical reports. As an approach to investment analysis, technical analysis is radically different from fundamental analysis. The basic differences are –

1. While the fundamental analysis believes that the market is 90 percent logical and 10 percent psychological, the technical analysis assumes that the market is 90 percent psychological and 10 percent logical.
2. Like fundamental analysis, technical analysis does not evaluate the large number of fundamental factors relating to the company, the industry and the economy but in it, the internal market data is analyzed with the help of charts and graphs.
3. Technical analysis mainly seeks to predict short-term price movement appealing the short-term traders where fundamental analysis tries to establish long-term values. Hence, it appeals to long term investors.
4. The technical analysis is based on the premise that the history repeats itself. Therefore, the technical analysis answers the question “What had happened in the market” while on the basis of potentialities of market fundamental analysis answers the question, “What will happen in the market”.

14.2 Meaning of Technical Analysis

Technical analysis involves a study of market-generated data like prices and volumes to determine the future direction of price movement. It is a process of identifying trend reversal at an earlier stage to formulate the buying and selling strategy. With the help

of several indicators, the relationship between price –volume and supply-demand is analyzed for the overall market and individual stocks.

Assumptions

The basic premises, on which technical analysis is formulated, are as follows:

1. The market value of the scrip is determined by the interaction of demand and supply.
2. Supply and demand is governed by numerous factors, both rational and irrational. These factors include economic variables relied by the fundamental analysis as well as opinions, moods and guesses.
3. The market discounts everything. The price of the security quoted represents the hope, fears and inside information received by the market players. Insider information regarding the issuance of bonus shares and right issues may support the prices. The loss of earnings and information regarding the forthcoming labor problem may result in fall in price. These factors may cause a shift in demand and supply, changing the direction of trends.
4. The market always moves in the trends except for minor deviations.
5. It is known fact that history repeats itself. It is true to stock market also. In the rising market, investors' psychology has upbeats and they purchase the shares in great volumes driving the prices higher. At the same time in the down trend, they may be very eager to get out of the market by selling them and thus plunging the share price further. The market technicians assume that past prices predict the future.

6. As the market always moves in trends, analysis of past market data can be used to predict future price behavior.

14.3 Tools of Technical Analysis

Generally used technical tools to analyze the market data are as follows:

14.3.1 Dow theory

Originally proposed in the late nineteenth century by Charles H Dow, the editor of Wall Street Journal, the Dow theory is perhaps the oldest and best-known theory of technical analysis. Dow developed this theory on the basis of certain hypothesis, which are as follows:

- a. No single individual or buyer or buyer can influence the major trends in the market. However, an individual investor can affect the daily price movement by buying or selling huge quantum of particular scrip.
- b. The market discounts everything. Even natural calamities such as earth quake, plague and fire also get quickly discounted in the market. The world trade center blast affected the share market for a short while and then the market returned back to normalcy.
- c. The theory is not infallible and it is not a tool to beat the market but provides a way to understand the market.

Explanation of the Theory

Dow described stock prices as moving in trends analogous to the movement of water. He postulated three types of price movements over time: (1) major trends that are like tide in ocean, (2) intermediate trends that resemble waves, and (3) short run movements that are

like ripples. Followers of the Dow theory hope to detect the direction of the major price trend (tide) known as primary trend, recognizing the intermediate movements (waves) or secondary trends that may occasionally move in the opposite direction. They recognize that a primary trend does not go straight up, but rather includes small price declines as some investors decide to take profits. It means share prices don't rise or fall in a straight manner. Every rise or fall in price experiences a counter move. If a share price is increasing, the counter move will be a fall in price and vice-versa. The share prices move in a zigzag manner. The trend lines are straight lines drawn connecting either the top or bottoms of the share price movement. To draw a trend line, the analyst should have at least two tops or bottoms. The following figure shows the trend line.

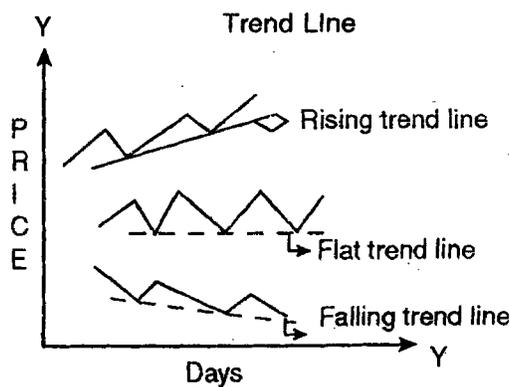


Figure 1.

Primary Trend

The price trend may be either increasing or decreasing. When the market exhibits the increasing trend, it is called bull market. The bull market shows three clear-cut peaks. Each peak is higher than the previous peak and this price rise is accompanied by heavy trading

volume. Here, each profit taking reversal that is followed by an increased new peak has a trough above the prior trough, with relatively light trading volume during the reversals, indicating that there is limited interest in profit taking at these levels. And the phases leading to the three peaks are revival, improvement in corporate profit and speculation. The revival period encourages more and more investors to buy scrips, their expectations about the future being high. In the second phase, increased profits of corporate would result in further price rise. In the third phase, prices advance due to inflation and speculation. The figure 2 shows the three phases of bull market.

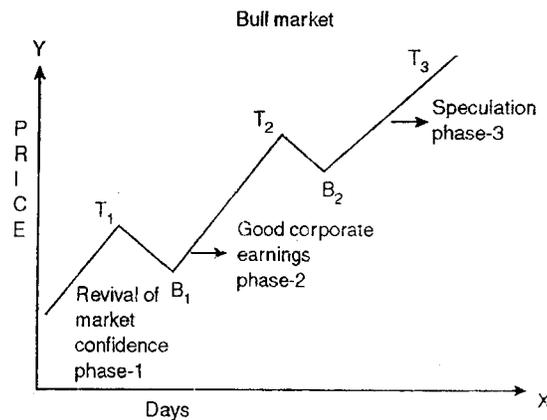


Figure 2

The reverse trend is true with the bear market. Here, first phase starts with the abandonment of hopes. The chances of prices moving back to the previous high level seemed to be low. This would result in the sale of shares. In the second phase, companies are reporting lower profits and dividends. This would lead to selling pressure. The final phase is characterized by the distress selling of shares. During the bear phase of 1996, in the Bombay Stock Exchange more than 2/3 of the stocks were inactive. Most of the scrips were sold below their par values. The figure 3 shows the phases of bear market where

the tops and troughs are lower than previous ones.

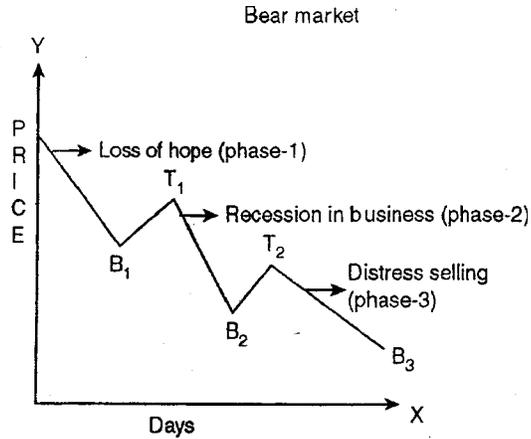


Figure 3

Secondary Trend

The secondary trend moves against the main trends and leads to the correction. In the bull market, the secondary trend would result in the fall of about 33-66 percent of the earlier rise. In the bear market, the secondary trend carries the price upward and corrects the main trend. Compared to the time taken for the primary trend, secondary trend is swift and quicker. The figure 4 shows the secondary trend.

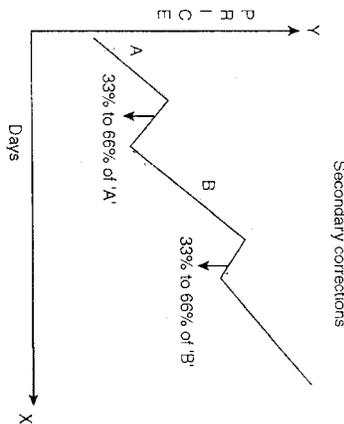


Figure 4

Minor Trends

Minor trends are just like the ripples in the market. They are simply the daily price fluctuations. Minor trend tries to correct the secondary price movement. It is better for the investor to concentrate on the primary or secondary trends than on the minor trends.

14.3.2 Support and Resistance Level

A support level is the price range at which technician would expect a substantial increase in the demand for a stock. Generally, a support level will develop after a stock has enjoyed a meaningful price increase and the stock has begun to experience profit taking. When the price reaches this support price, demand surges and price and volume begin to increase again. A resistance level is the price range at which the technician would expect an increase in the supply of stock and any price increase to reverse abruptly. A resistance level tends to develop after a stock has experienced a steady decline from a higher price level. It is reasoned that the decline in the price leads some investors who acquired the stock at a higher price to look for an opportunity to sell it near their break even points. Therefore, the supply of stocks owned by these investors is overhanging the market. When the price rebounds to the target price set by these investors, this overhanging supply of stock comes to the market and dramatically reverses the price increase on heavy volume.

This can be explained with an example. Suppose scrip price hovers around Rs 100 for some weeks, and then it may rise and reach Rs 210. At this point, the price starts to fall. The scrip keeps on falling back to around its original price Rs 100 and then again starts to rise. In this case, Rs 100 is the support level. At this point, the scrip is cheap and investors buy it and demand makes the price move upward. Whereas Rs 210 becomes the resistance level, the

price is high and there would be selling pressure resulting in the decline of the price. The support and resistance level is shown in the figure 5.

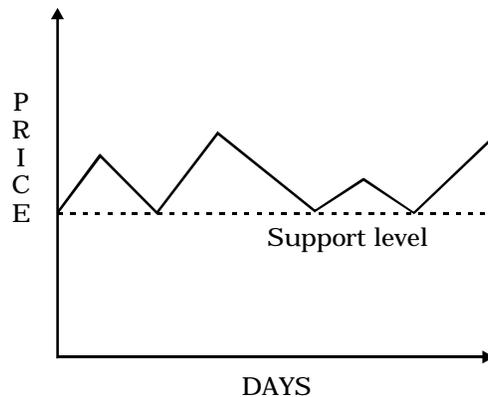


Figure 5

14.3.3 Volume of Trade

Dow gave special emphasis to volume. Technical analysts use volume as an excellent method of confirming the trend. Therefore, the analyst looks for a price increase on heavy volume relative to the stock's normal trading volume as an indication of bullish activity. Conversely, a price decline with heavy volume is bearish. A generally bullish pattern would be when price increase are accompanied by heavy volume and the small price increase reversals occur with the light trading volume, indicating limited interest in selling and taking profits and vice-versa.

14.3.4. Breadth of the market

The breadth of the market is the term often used to study the advances and declines that have occurred in the stock market. Advances mean the number of shares whose prices have increased

from the previous day's trading. Decline indicates the number of shares whose prices have fallen from the previous day's trading. This is easy to plot and watch indicator because data are available in all business dailies. The net difference between the number of stocks advanced and declined during the same period is the breadth of market. A cumulative index of net differences measures the net breadth. An illustrative calculation of the breadth of the market is shown in Table below:

Table 1: Breadth of the Market

Day	Advances	Declines	Net Advances or declines	Breadth of the market
Tuesday	630	527	103	103
Wednesday	690	475	215	318
Thursday	746	424	322	640
Friday	492	630	-138	502
Monday	366	701	-335	167
Tuesday	404	698	-294	-127

To analyze the breadth of the market, it is compared with one or two market indices. Ordinarily, the breadth of the market is expected to move in tandem with market indices. However, if there is a divergence between the two, the technical analysts believe that it signals something. It means, if the market index is moving upwards whereas the breadth of the market is moving downwards, it indicates that the market is likely to turn bearish. Likewise, if the market index is moving downwards but the breadth of the market is moving upwards, then it signals that the market may turn bullish.

14.3.5 Short Selling

Short selling refers to the selling of shares that you don't have. The short sellers are those who sell now in the hope of purchasing at

a lower price in the future to make a profit. A short seller behaves in this way because he feels that the price of the stock will fall. And it is must for short sellers to cover their positions, i.e. the purchase of shares. This buying activity increases the potential demand for the stock. Therefore, rising short sales foretell future demand for the security and increase the future prices.

Monthly short selling for the month can be compared with average daily volume for the preceding month. This ratio shows, how many days of trading it would take to use up total short sales. If the ratio is less than one, market is said to be weak or overbought and a decline can be expected. The value between 1 and 1.5 shows neutral conditions of the market. Values above 1.5 indicate bullish trend and if it is above 2 the market is said to be oversold. At market tops, short selling is high and at market bottoms short selling is low.

14.3.6 Odd Lot Trading

Small investors quite often buy an odd lot (i.e. non tradable lot) and such buyers and sellers are known as odd lotters. If we relate odd lot purchases to odd lot sales, we get an odd lot index. The increase in odd lot purchase results in an increase in the index. Relatively more selling leads to fall in the index. It is generally considered that the professional investor is more informed and stronger than the odd lotters and they are less sensible to price change than retail investor. When the professional investors dominate the market, the stock market is technically strong. If the odd lotters dominate the market, the market is considered to be technically weak. The notion behind is that odd lot purchase is concentrated at the top of the market cycle and selling at the bottom. High odd lot purchase forecasts fall in the market price and low purchases/sales ratios are presumed to occur toward the end of bear market or at the beginning of bull market.

14.3.7 Moving Average

The market indices don't rise or fall in straight line. The upward and downward movements are interrupted by counter moves. The underlying trends can be studied by smoothening the data. To smooth the data, moving average is used. The word moving means the body of data moves ahead to include the recent observation. If it is the five-day moving average, on the six day the body of data moves to include the sixth day observation eliminating the first day observation. A five-day moving average of daily closing prices is calculated as follows:

Trading Day	Closing price	Sum of five most recent closing prices	Moving Average
1	25		
2	26		
3	25.5		
4	24.5		
5	26	127	25.4
6	26	128	25.6
7	26.5	128.5	25.7
8	26.5	129.5	29.9
9	26	131	26
10	27	132	26.4

The moving averages are used to study the movement of the market as well as the individual security prices. These moving averages are used along with the price of a stock. The stock prices may intersect the moving average at a particular point and give the buy and sell signal.

The moving average analysis recommends buying a stock when

1. Stock price line rises through the moving average line when graph of the moving average line is flattening out.
2. Stock price line falls below the moving average line, which is rising.
3. Stock price line, which is above the moving average line, falls but begins to rise again before reaching the moving average line.

Moving average analysis recommends selling a stock when

1. Stock price line falls through the moving average line when graph of the moving average line is flattening out.
2. Stock price line rises above the moving average line, which is falling.
3. Stock price line, which is below the moving average line, rises but begins to fall again before reaching the moving average line.

The buy and sell signals initiated by a moving average trading system vary with the length of time over which the moving average is calculated.

14.3.8 Relative Strength Analysis

Relative Strength analysis is an oscillator used to identify the inherent technical strength and weakness of a particular stock or market. It is based on the assumption that prices of some securities rise rapidly during the bull phase but fall slowly during the bear phase in relation to the market as a whole. Put differently, such

securities possess greater relative strength and hence outperform the market. Y investing in securities that have shown relative strength in past, an investor can earn higher returns because the relative strength of a security continues for some time.

Technical analysts measure relative strength in different ways. One way to measure RS is to calculate rates of return and classify those securities with historically high average return as securities with high relative strength. Another way, which is most frequently used, is to observe certain ratios to detect relative strength in a security or an industry. For example, consider the data for ABC corp. a hypothetical growth firm in the electronic industry shown in the table below.

Relative Strength Data for ABC Corp.

Year	Price of A*	Price of IA**	Price of MA***	P_A/P_{IA}	P_A/P_{MA}	P_{IA}/P_{MA}
2001	30	17	210	1.78	.144	.081
2002	36	18	250	2	.144	.072
2003	72	20	285	3.6	.253	.070

*=Average price of ABC Corp., **= Industry Average Price, ***= Market Average Price

From 2001 to 2002, ABC did slightly well than most of the firms in the industry as its price grew relatively more than the industry average (from 1.78 to 2). Moreover, from 2001 to 2002, the electronic industry showed weakness relative to all industrial stock as the ratio declined from .081 to .072. From 2001 to 2002, ABC showed no increased strength relative to its market average as the ratio is constant at .144. But from 2002 to 2003, ABC showed considerable strength relative both to its industry and the market. Therefore, the technical analyst would select certain industries and firms, which demonstrated relative strength to be the most promising investment opportunities.

14.3.9 Charts

Charts are the valuable and easiest tools in the technical analysis. The graphic presentation of the data helps the investor to find out the trend of the price without any difficulty. A large number of charts are used to analyze the trend of the market.

The bar and line chart is the simplest and most commonly used tool of a technical analyst. Bar charts contain measures on both axis: price on the vertical axis and time on the horizontal axis. On bar charts, the analysts plot a vertical line to represent the range of prices of the stock during the period that may be a day, week or month etc. thus the top of the vertical line would represent the highest price of the stock during the day and the bottom of the line would represent the low price of the stock during the same day. A small horizontal line is drawn across the bar to denote the closing price at the end of the time period.

Line chartists have found key patterns to determine the most probable action of a stock.

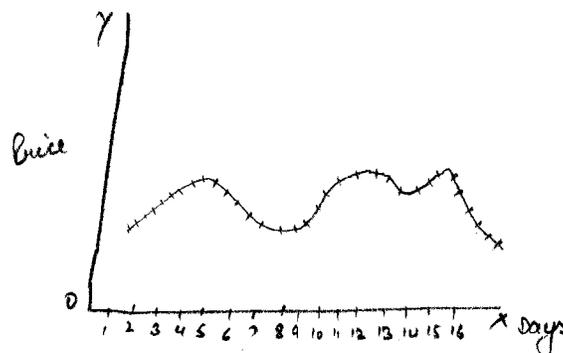


Figure 6

Five Standard Chart Patterns

a) Stocks with downside potential:

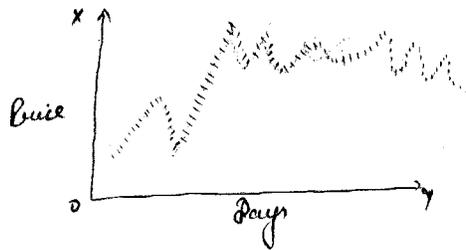


Figure 7

b) Stocks that appear to have reached possible lows but need consolidation:

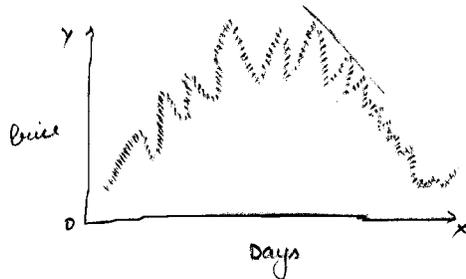


Figure 8

c) Stocks that have declined and experienced consolidation and could do well in a favorable market:

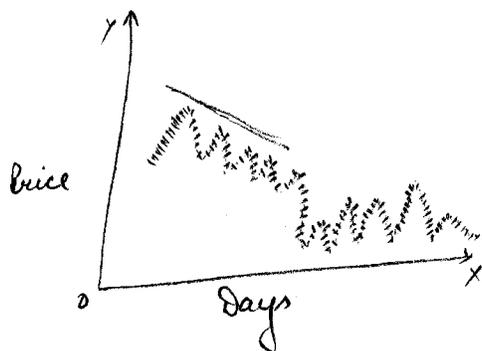


Figure 9

- d) Stocks that have performed relatively well but are currently in neutral trends:

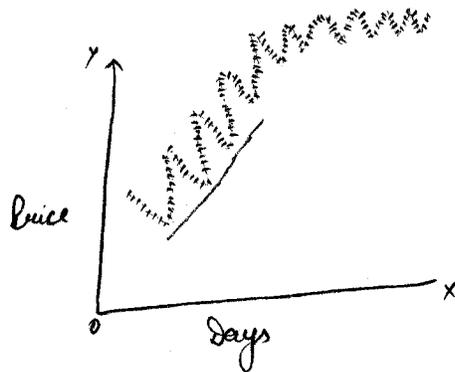


Figure 10

- e) Stocks in established up trends and/or with possible upside potential:

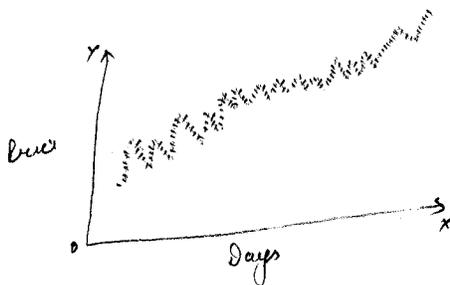


Figure 11

14.3.10 Mutual Fund Liquidity

According to the theory of contrary opinion, it makes sense to go against the crowd because the crowd is generally wrong. Based on this theory, several indicators have been developed. One of them reflects mutual fund liquidity. If mutual fund liquidity is low, it means that the mutual funds are bullish. So contrarians argue that the

market is at or near a peak and hence is likely to decline. Thus low mutual fund liquidity is considered as a bearish indicator. Conversely, when the mutual fund liquidity is high, it means that the mutual funds are bearish. So, contrarians believe that the market is at or near a bottom and hence is poised to rise because it is an indication of potential purchasing power that can be injected into the market to lift it upward. . Thus, high mutual fund liquidity is considered as a bullish indication.

14.3.11 Put/Call Ratio

Another indicator monitored by technical analyst is the put/call ratio. Speculators buy calls when they are bullish and buy puts when they are bearish. Since speculators are often wrong, some technical analysts consider the put/call ratio as a useful indicator. The put/call ratio is defined as

$$\frac{\text{Numbers of Puts purchased}}{\text{Numbers of calls purchased}}$$

For example, a ratio of .7 means that only seven puts are purchased for every 10 calls purchased. A rise in put/call ratio means that speculators are pessimistic. For the contrary technical analyst, however this is a buy signal because he believes that the option speculators are generally wrong. Conversely, when the put/call ratio falls, it means that the speculators are optimistic. The contrary technical analyst, however, regards the same as sell signal.

14.4 Evaluation of Technical Analysis

Technical analysis appears to be a high controversial approach to security analysis. The analysts offer arguments as well as disarguments for this alternative of security analysis. Among them, few are as follows:

Arguments

1. Under the influence of crowd psychology, trends persist for quite some time. Tools of technical analysis that help in identifying these trends early are helpful in investment decision-making.
2. Shifts in demand and supply are gradual rather than instantaneous. Technical analysis helps in detecting these shifts rather early and hence provides clues to future price movements,
3. Fundamental information about a company is absorbed and assimilated by the market over the period of time. Hence, the price movement tends to continue in more or less in the same direction till the information is fully assimilated in the market.
4. Charts provide a picture of what has happened in the past and hence give a sense of volatility that can be expected from the stock. Further, the information on trading volume, which is ordinarily provided at the bottom of a bar chart, gives a fair idea of the extent of public interest in the stock.

Disagreements

1. Most technical analysts are not able to offer convincing explanations for the tools employed by them.
2. Empirical evidence in support of the random walk hypothesis casts its shadow over the usefulness of technical analysis.
3. By the time an up trend or downtrend may have been signaled by the technical analysis, may already have taken place.

4. Ultimately, technical analysis must be a self-defeating proposition. As more and more people employ it, the value of such analysis tends to decline.
 5. There is a great deal of ambiguity in the identification of configurations as well as trend lines and channels on the charts. The same chart can be interpreted differently.
- Despite these limitations, technical analysis is very popular. It is only in the rational, efficient and well ordered market where technical analysis has no use. But given the imperfections, inefficiencies and irrationalities that characterize real markets, technical analysis can be helpful. Hence, it can be concluded that technical analysis may be used, albeit to a limited extent, in conjunction with fundamental analysis to guide investment decision-making, as it is supplementary to fundamental analysis rather than substitute for it.

14.5 Summary

As an approach to investment analysis, technical analysis is radically different from fundamental analysis. Technical analysis doesn't evaluate a large number of factors relating to the company, the industry and the economy. Instead they analyzed market-generated data like prices and volumes to determine the direction of price movement. The basic premises of technical analysis are:

1. The market value of the scrip is determined by the interaction of demand and supply.
2. Supply and demand is governed by numerous factors, both rational and irrational.
3. The market discounts everything.

4. The market always moves in the trends except for minor deviations.
5. It is known fact that history repeats itself. It is true to stock market also and the market technicians assume that past prices predict the future.
6. As the market always moves in trends, analysis of past market data can be used to predict future price behavior.

Technical analysts use a variety of tools to predict the market. Among them, important are Dow Theory, charts, moving average, short selling, odd lot theory,

Relative strength analysis, volume of trade, breadth of the market etc. technical analysis appears to be highly controversial approach to security analysis having severe critics. In a rational, well-ordered and efficient market, technical analysis is a worthless exercise. However, given the imperfections, inefficiencies and irrationalities that characterize the real world market, technical analysis can be helpful to earn abnormal return in the market.

14.6 Key Words

Technical analysis involves a study of market-generated data like prices and volumes to determine the future direction of price movement of securities.

Bull market is the market exhibiting the increasing trend.

Put/call ratio is defined as :

$$\frac{\text{Numbers of Puts purchased}}{\text{Numbers of calls purchased}}$$

Odd lotters are small investors who quite often buy an odd lot (i.e. non tradable lot) an

Relative Strength analysis is based on the assumption that prices of some securities rise rapidly during the bull phase but fall slowly during the bear phase in relation to the market as a whole.

Short selling refers to the selling of shares that you don't have.

Short sellers are those who sell now in the hope of purchasing at a lower price in the future to make a profit.

14.7 Self Assessment Questions

1. Technical analysts believe that one can use past price changes to predict future price changes. How do they justify this belief?
2. Discuss the Dow theory and its three components. Which component is most important?
3. Write short notes on
 - Short Selling
 - Relative Strength Analysis
 - Odd Lot Theory.

14.7 Suggested Readings

- Security Analysis and Portfolio Management by Fischer and Jordon.
- Modern Investments and Security Analysis by Fuller and Farrell.
- Investment Analysis and Portfolio Management by Prasanna Chandra.
- Investment analysis and Portfolio Management by Reilly and Brown.

Subject Code : FM 304

Author : Prof. B.S. Bodla

Lesson No. : 15

Vettor : Dr. Karam Pal

EFFICIENT MARKET THEORY

Structure

15.0. Objectives

15.1. Introduction

15.2. Random walk theory

15.3. Efficient market hypothesis (EMH)

15.4. Efficient market hypothesis and mutual fund performance

15.5. Summary

15.6. Key Words

15.7. Self Assessment Questions

15.8. Suggested studies/References

15.0 Objectives

After going through this lesson the learners will be able to :

- review briefly fundamental analysis and technical analysis
- discuss random walk model
- describe efficient market hypothesis.

15.1. Introduction

We may recall that in the fundamental approach, the security analyst or prospective investor is primarily interested in analyzing factors such as economic influences, industry factors, and pertinent company information such as product demand, earnings, dividends, and management, in order to calculate an intrinsic value for the firm's

securities. He reaches an investment decision by comparing this value with the current market price of the security.

Technical analysts believe that they can discern patterns in price or volume movements, and that by observing and studying the past behaviour patterns of given stocks, they can use this accumulated historical information to predict the future price movements in the security. Technical analysis, as we observed in the preceding chapter, comprises many different subjective approaches, but all have one thing in common- a belief that these past movements are very useful in predicting future movements.

In essence, the technician says that it is somewhat an exercise in futility to evaluate accurately a myriad of detailed information as the fundamentalist attempts to do. He chooses not to engage in this type of activity, but rather to allow others to do it for him. Thus, after numerous analysts and investors evaluate this mountain of knowledge, their undoubtedly diverse opinions will be manifested in the price and volume activity of the shares in question. As this occurs, the technician acts solely on the basis of that price and volume activity, without cluttering his mind with all the detail that he feels is superfluous to his analysis. He also believes that his price and volume analysis incorporates one factor that is not explicitly incorporated in the fundamentalist approach-namely, the psychology of the market.

15.2. Random Walk Theory

Random walk theory poses a question- Can a series of historical stock prices or rates of return be an aid in predicting future stock prices or rates of return?

The empirical evidence in the random-walk literature existed before

the theory was established. That is to say, empirical results were discovered first, and then an attempt was made to develop a theory that could possibly explain the results. After these initial occurrences, more results and more theory were uncovered. This has led then to a diversity of theories, which are generically called the random-walk theory (Eugene F. Fama, 1970). A good deal of confusion resulted from the diversity of the literature; and only recently has there been some clarification of the proliferation of empirical results and theories. Our purpose here is to discuss briefly the substantive differences among these theories.

Misconceptions of the Random Walk Model

Our generalisation of the random-walk model, then, says that previous price changes or changes in return are useless in predicting future price or return changes. That is, if we attempt to predict future prices in absolute terms using only historical price-change information, we will not be successful.

Note that random walk says nothing more than that successive price changes are independent. This independence implies that prices at any time will on the average reflect the intrinsic value of the security. (Often one will find this intrinsic worth referred to as the present value of the stock's price, or its equilibrium value). Furthermore, if a stock's price deviates from its intrinsic value because, among other things, different investors evaluate the available information differently or have different insights into future prospects of the firm, professional investors and astute non-professionals will seize upon the short-term of random deviations from the intrinsic value, and through their active buying and selling of the stock in question will force the price back to its equilibrium position.

It is unfortunate that so many misconceptions of the random-walk model exist. It is, in point of fact, a very simple statement.

The random-walk model says nothing about relative price movements—that is, about selecting securities that may or may not perform better than other securities. It says nothing about decomposing price movements into such factors as market, industry, or firm factors. Certainly, it is entirely possible to detect trends in stock prices after one has removed the general market influences or other influences; however, this is no way would refute the random-walk model, for after these influences have been removed, we will in fact be dealing with relative prices and not with absolute prices, which lie at the heart of the random-walk hypothesis. Furthermore, these ‘trends’ provide no basis for forecasting the future.

In addition, it should be reemphasized that the empirical results came first, to be followed by theory to explain the results; therefore, discussions about a competitive market, or instantaneous adjustments to new information, or knowledgeable market participants, or easy access to markets, are all in reality not part of the random-walk model, but rather possible explanations of the results we find when performing our empirical investigations.

Also, there seems to be a misunderstanding by many to the effect that believing in random walk means that one must also believe that analyzing stocks, and consequently stock prices, is a useless exercise, for if indeed stock prices are random, there is no reason for them to go up or down over any period of time. This is very wrong. The random-walk hypothesis is entirely consistent with an upward or downward movement in price, for as we shall see, the hypothesis supports fundamental analysis and certainly does not attack it.

15.3. The efficient market hypothesis (EMH)

Efficient market theory states that the price fluctuations are random and do not follow any regular pattern. Fama suggested that efficient market hypothesis can be divided into three categories. They are: (1) the weak form, (2) the semistrong form, and (3) the strong form. The level of information being considered in the market is the basis for this segregation.

15.3.1. Weak form of EMH

The weak form hypothesis says that the current prices of stocks already fully reflect all the information that is contained in the historical sequence of prices. Therefore, there is no benefit in examining the historical sequence of prices forecasting the future. This weak form of the efficient market hypothesis is popularly known as the random-walk theory. Clearly, if this weak form of the efficient market hypothesis is true, it is a direct repudiation of technical analysis. If there is no value in studying past prices and past price changes, there is no value in technical analysis. As we saw in the preceding chapter, however, technicians place considerable reliance on the charts of historical prices that they maintain even though the efficient-market hypothesis refutes this practice.

Now, we will analyze statistical investigations of this weak form of the efficient-market hypothesis.

Empirical tests of the weak form

Over the years an impressive literature has been developed describing empirical tests of random walk (Paul H. Cootner, 1967). This research has been aimed at testing whether successive or lagged price changes

are independent. In this section we will review briefly some of the major categories of statistical techniques that have been employed in this research, and we will summarize their major conclusions. These techniques generally fall into two categories: those that test for trends in stock prices and thus infer whether profitable trading systems could be developed and those that test such mechanical systems directly. Although certain of these studies were conducted many years ago, they are the basis upon which research on the efficient-market theory has been based, and are included here to provide the necessary conceptual basis for the theory and its evolution.

Simulation tests: In the year 1959, Harry Roberts produced some graphs (Fig. 15.1 and 15.2) as part of an interesting experiment. The essence of this experiment was to examine the appearance of the actual level of the Dow Jones index expressed both in levels and in terms of weekly changes, and to compare these graphs with a simulated set of graphs (Harry Roberts, 1959). A series of price changes was generated from random-number tables and then these changes were converted to graphs (on Figures 15.1, 15.2 and 15.3) depicting levels of the simulated Dow Jones index.

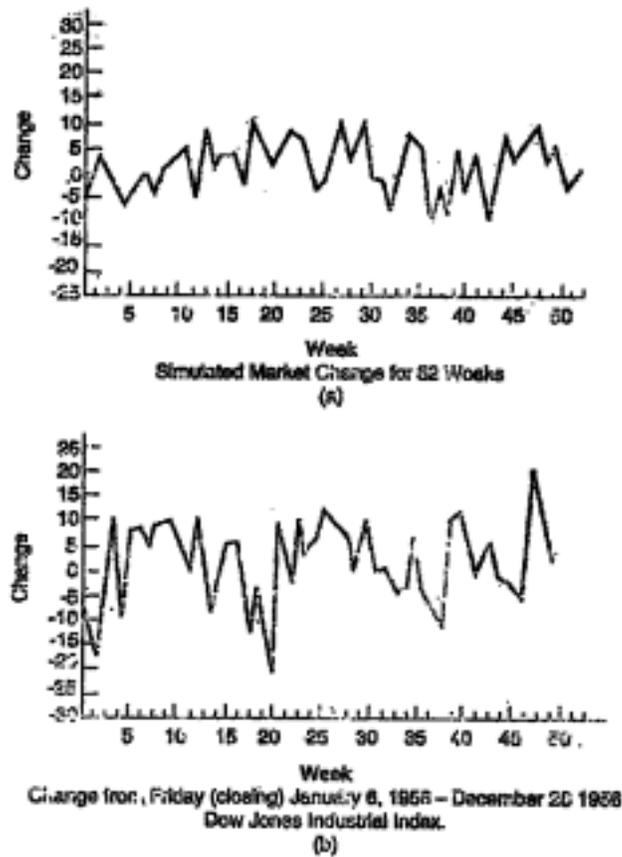


Figure 15.1. Simulated and Actual Market Changes (Source: Harry Roberts, *Stock Market Patterns and Financial Analysis: Methodological Suggestions*, *Journal of Finance* (March 1959). Quoted in *Security Analysis and Portfolio Management* authored by Jordon and Fischer (PHI))

We can note the similarity between parts (a) and (b) of Figure 15.1, and also the similarity between Figures 15.2 and 15.3. Both figures reveal the 'head-and-shoulders' pattern that is often referred to in the chartist literature. Because these very similar patterns were observed, between the actual and the simulated series, the inference is that the actual results may well be the result of random stock price movements.

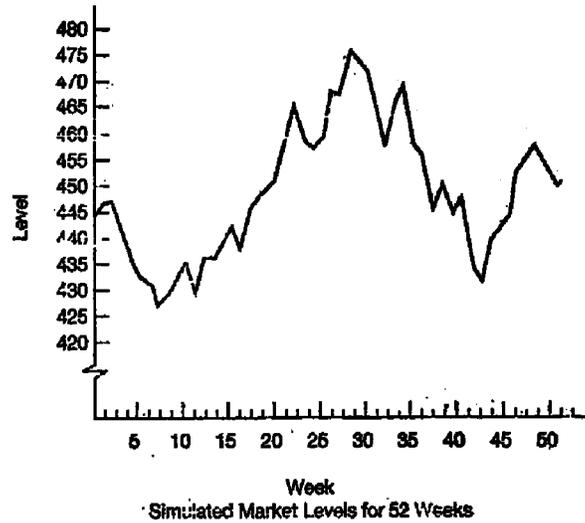


Fig. 15.2

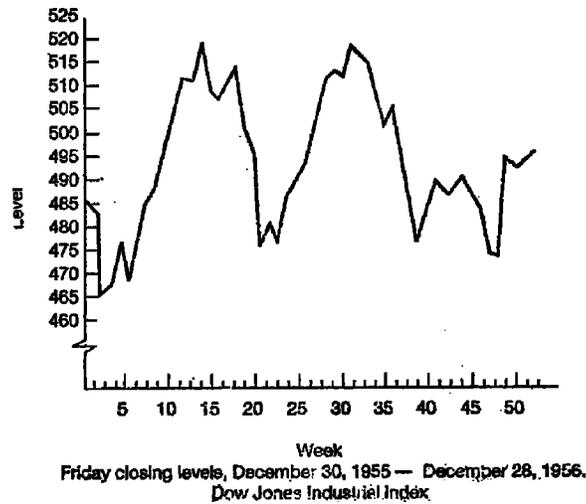


Fig. 15.3

Serial correlation test: A case study of India

Another way to test for randomness in stock price changes is to look at their serial correlations (also called auto-correlations). That is, whether the price change in one period correlated with the price change in some other period? If such auto-correlations are negligible, the price changes are considered to be serially independent.

To examine whether the Indian stock market is efficient in its weak form, *runs test* and *serial correlation test* have been applied to the daily stock price data for three calendar years, commencing January 2001 through December 2003. Initially the sample size consisted of all the 50 scrips of S & P CNX Nifty which is considered as the most representative index in India. However, due to non-availability of data on three scrips, we had to rely on daily closing price data of only 47 scrips obtained from website of NSE (i.e. www.nseindia.com).

As the period covered under study includes both bearish phase (March 2001 to March 2003) and bull phase (March 2003 to Dec. 2003), it is expected that the results of the study would offer a true picture of the efficiency of National Stock Exchange.

In order to test the null hypothesis that share prices follow the random walk behaviour or that successive price changes are linearly independent, the Log Random Walk (LRW) model has been applied in this study. This is a suitable data transformation procedure, which is used to make the original series stationary. Mathematically, the testable form of LRW model is-

$$I_n(P_t)/P_{t-1} = e_t$$

Where $E(e_t) = 0$, Covariance $(e_t, e_{t-s}) = 0$, all $s \neq 0$; P_t and P_{t-1} are the prices at time t and time $t-1$ respectively, and e_t is the residual of the time series data at time t . On computing the daily stock returns based on this model, the weak form of efficient market hypothesis has been tested with the help of 'runs test' and 'serial correlation test'.

In the present study the auto-correlation of return series has been examined for the period 1st January 2001 to 31st December 2003. The auto correlation coefficients are computed by the inbuilt programme for the purpose using SPSS package. For testing the

joint hypotheses that all the auto correlation coefficients are simultaneously equal to zero, Box-Ljung (BL) statistics which is defined as

$$BL = n(n + 2) \sum_{k=1}^m \left(\frac{\hat{\rho}_k^2}{n - k} \right) \sim \chi^2_m$$

has been applied for 16 lags.

Where,

n = sample size

m = lag length and degree of freedom

$\hat{\rho}_k$ = Serial correlation coefficient

BL statistics follow the chi-square distribution with 'm' degree of freedom.

The Runs Test

After computing the stock returns as per the LRW model, the runs test was applied. The runs test is a statistical technique used to detect if a time series is random or not. The computational procedure of runs test is that it ignores the absolute values in a time series and deals only with the signs, plus or minus. The test is essentially concerned with the direction of changes in a given time series. Since it is a non-parametric test, there is no need to predefine the nature of probability distribution of the time series data.

A runs test is performed by comparing the observed number of runs (O) in the sample against its sampling distribution under the random walk hypothesis. In other words, we compare the observed number with the expected number of runs. If the observed number of runs is not significantly different from the expected number of runs (E), then it may be concluded that the successive price changes are independent and the series is characterized by mean reversion. On the other hand,

if this difference is statistically significant, then the price series would be regarded as dependent, and the series is characterized by trends. This conclusion will indicate that the future share prices may be predicted using historical information.

When each observation is assumed independent and identically distributed, and the null hypothesis of randomness is true, then the mean or expected number of runs can be calculated as:

$$E(R) = \frac{2n_1n_2}{n_1 + n_2} + 1$$

The standard error of the number of runs can be calculated as-

$$SE(R) = \frac{\sqrt{2n_1n_2(2n_1n_2 - n)}}{n^2(n - 1)}$$

To test whether the time series is random or not, we use the statistic

$$Z = \frac{R - E(R)}{\frac{\sqrt{2n_1n_2(2n_1n_2 - n)}}{n^2(n - 1)}} \sim N(0, 1)$$

$$Z = \frac{R - E(R)}{SE(R)} \sim N(0, 1)$$

Where,

R = Number of actual runs in the sample,

Z = Standard normal variate,

SE(R) = Standard error of the number of runs, and

E(R) = Expected number of runs.

In this study, the null and alternative hypotheses that were tested with the help of runs test are as follows-

Under H_0 : The stock price series are random.

Against H_1 : The stock price series are not random.

Results of Runs Test

The results of runs test applied to various sample companies have been presented in Table 15.1. It is evident from the table that z statistics, which have been computed to test the significance of the difference between the number of actual runs and the expected runs, are significant at .01 level in case of only 4 stocks out of 47 (8.5%). While 3 values (6.38%) are so at 0.10 level of significance. Thus only 14.89 per cent of the z-values turn as significant upto 5 per cent level of significance. The table further pinpoints that of the 47 values of standardized variable z, 27 (i.e. 57.45%) reveal negative signs. The negative signs of z values indicate that actual number of runs have fallen short of the expected number of runs, but the

Table 15.1. Results of runs test

S. No.	Scrip (Company) Name	Actual No. of Runs	Expected No. of Runs	Z Value	2 tailed distribution (Sign)
1	Asia Brown Boverital	386	376.78	0.659	0.510
2	Associated Cement Co. Ltd.	361	376.98	-1.166	0.244
3	Bajaj Auto Ltd.	365	376.26	-0.874	0.382
4	Bharat Heavy Electricals	385	375.94	0.584	0.559
5	Bharat Petroleum Corp. Ltd.	365	375.38	-0.873	0.383
6	Britannia Industries Ltd.	393	373.93	1.17	0.242
7	BSES Ltd.	387	377	0.733	0.464
8	Cipla Ltd.	367	376.93	-0.73	0.466
9	Colgate Palmolive (India) Ltd.	390	376.4	0.949	0.343
10	Dabur India Ltd.	385	375.27	0.6	0.549
11	Digital Equipment Ltd.	375	376.32	-0.146	0.884
12	Dr. Reddy's Laboratories Ltd.	353	375.59	-1.751	0.080
13	Gas Authority of India Ltd.	308	310.01	-0.424	0.611
14	Glaxo Consumer	62	55.28	1.252	0.211
15	Glaxosmithkline	366	376.01	-0.803	0.422
16	Grasim Industries Ltd.	358	376.73	-1.387	0.166
17	Gujarat Ambuja Cements Ltd.	337	376.93	-2.915	0.004
18	HCL Technologies Ltd.	353	376.93	-1.747	0.081

S. No.	Scrip (Company) Name	Actual No. of Runs	Expected No. of Runs	Z Value	2 tailed distribution (Sign)
19	HDFC Bank	378	375.83	0.076	0.939
20	Hero Honda Motors Ltd.	364	376.99	-0.949	0.343
21	Hindustan Lever Ltd.	367	376.48	-0.729	0.466
22	Hindustan Petroleum Corporation Ltd.	375	376.45	-0.143	0.886
23	Housing Development Finance Corporation Ltd.	378	376.99	0.076	0.939
24	ICICI Banking Company Ltd.	380	376.68	0.224	0.823
25	Indian Hotels Co. Ltd.	352	376.78	-1.81	0.070
26	Indian Petroleum Corporation Ltd.	349	376.04	-2.039	0.041
27	ITC Ltd.	382	376.62	0.366	0.715
28	Larsen & Toubro	342	376.14	-2.55	0.011
29	Mahindra & Mahindra	327	376.68	-3.645	0.000
30	MTNL Ltd.	371	376.62	-0.429	0.668
31	National Aluminium Co. Ltd.	381	376.96	0.295	0.768
32	NIIT Ltd.	383	377	0.438	0.661
33	Oriental Bank of Commerce	380	373.55	0.224	0.823
34	Ranbaxy Lab. Ltd.	360	375.27	-1.24	0.215
35	Reliance Ind. Ltd.	385	376.47	0.585	0.559
36	Satyam Computers Ltd.	381	376.23	0.292	0.770
37	Shipping Corp. of India	377	376.78	0.003	0.998
38	State Bank of India	379	376.4	0.147	0.883
39	Steel Authority of India Ltd.	351	369.24	-1.36	0.174
40	Sun Pharmaceuticals (I) Ltd.	388	376.87	0.803	0.422
41	Tata Chemicals Ltd.	359	376.93	-1.309	0.191
42	Tata Power Ltd.	331	375.83	-3.346	0.001
43	Tata Tea Ltd.	340	376.96	-2.699	0.007
44	TISCO Ltd.	347	376.32	-2.175	0.030
45	VSNL Ltd.	359	376.5	-1.313	0.189
46	Wipro Ltd.	380	376.4	0.219	0.827
47	Zea Telefilms Ltd.	374	376.78	-0.219	0.827
48	S & P CNX Nifty	333	374.28	-3.211	0.001

differences between the two is not significant except in the aforesaid cases. Thus, the runs test confirms randomness in about 85 per cent of the companies. To determine whether day-to-day price changes follow a random walk, we have also applied runs test to the daily closing S & P CNX Nifty Index for the period January 1, 2001 to December 31, 2003. The results of runs test, as shown at serial

number 48 in Table 15.1, reject the null hypothesis of independence, since the standardized variable z is found significant at 1 per cent level in this case. Thus, the market index hints that the market is not efficient.

Results of Serial Correlation Test

The results of serial correlation test are presented in Table 15.2 and summarised in Table 15.3. The autocorrelation coefficients were computed upto 16 lags from the return series using SPSS. It is evident from the results that out of the 752 autocorrelation coefficients computed, only 61 (8.11%) and 19 (2.53%) are significant at 5 per cent and 1 per cent level, respectively. Thus this test gives supportive evidence for the weak form of efficiency. However, the Box-Ljung statistics are significant at 1 per cent and 5 per cent level for 10 (21.28%) and 9 (19.15%) series respectively. This suggests that successive daily price changes are independent of previous day price changes in case of approximately 60 per cent price series. These results of serial correlation test are, by and large in keeping with the results obtained under runs test (Table 15.1). Putting again, both the tests indicate that successive daily price changes are independent of previous day price changes.

A perusal of serial correlation coefficients according to number of lags shows that out of 47 coefficients for price changes with one day lag, 7 are significant at 1 per cent level and 9 at 5 per cent level. With two days lag, 4 coefficients out of 47 are significant at 1 per cent and 15 coefficients at 5 per cent levels. However, only 6 coefficient with lag 3 are found significant upto 5 per cent level of significance. In aggregate, 41 (29.08%) coefficients from lag 1 to 3 are significant. A close look at the coefficients upto 3 lags indicates that 67 coefficients (47.5%) have negative signs. The above finding also conforms to the random walk theory. Further, it is noteworthy that merely 13 (3.95%)

serial correlation coefficients are significant at 5 per cent level with a lag 10 to 16. It indicates that prices during the days of successive week are independent of the price changes during the days of previous week.

Table 15.2: Serial Correlation Coefficients

Companies	Lags								
	1	2	3	4	5	6	7	8	9
Asia Brown Boverital	-0.016	-0.039	-0.017	0.024	0.004	-0.029	0.011	-0.053	0.028
Associated Cement Co. Ltd.	0.007	-0.09*	-0.029	0.033	-0.028	0.028	0.006	0.068	-0.013
Bajaj Auto Ltd.	0.07	-0.024	-0.029	-0.021	0.056	0.023	0.042	0.019	0.04
Bharat Heavy Electricals	-0.009	-0.066	0.036	0.01	-0.032	-67	0.044	0.075*	-0.04
Bharat Petroleum Corp. Ltd.	0.037	-0.019	0.019	-0.052	0.02	0.002	-0.024	-0.025	0.033
Britannia Industries Ltd.	-0.112**	0.004	0.045	0.012	-0.007	0.067	0.012	0.006	0.039
BSES Ltd.	0.031	-0.121**	-0.026	-0.01	0.073*	0.055	-0.03	0.006	-0.052
Cipla Ltd.	0.062	0.004	-0.066	0.023	0.052	-0.04	0.012	0.002	0.041
Colgate Palmolive (India) Ltd.	0.011	0.096*	-0.055	-0.072*	-0.055	-0.035	0.049	0.001	0.033
Dabur India Ltd.	-0.016	-0.055	-0.003	0.027	-0.027	-0.075*	0.043	0.066	0.009
Digital Equipment Ltd.	0.1	-0.072*	0.022	0.029	0.032	0	0.026	-0.004	-0.023
Dr. Reddy's Laboratories Ltd.	0.021	-0.0565	-0.017	0.005	0.001	-0.037	-0.086*	-0.006	0.062
Gas Authority of India Ltd.	0.069	0.012	0.086*	0.08*	0.018	0.023	0.026	-0.009	-0.041
Glaxosmithkline	0.06	0.049	-0.026	-0.019	-0.071	0.017	0.031	0.04	-0.012
Glaxo Consumer	-0.126**	-0.027	0.159**	-0.06	0.123**	0.0531	-0.025	0.169**	-0.166**
Grasim Industries Ltd.	0.034	-0.129**	0.025	-0.003	-0.005	0.052	-0.04	0.004	0.023
Gujarat Ambuja Cements Ltd.	.073*	.163**	0.054	0.06	0.026	-0.039	0.001	0.031	0.021
HCL Technologies Ltd.	0.083*	-0.029	-0.048	-0.012	-0.096*	-0.036	0.118**	0.008	-0.029
HDFC Bank	-0.085*	-0.098*	0.03	-0.015	0.021	-0.013	0.007	-0.036	0.003
Hero Honda Motors Ltd.	0.007	0.004	0.004	0.006	0.009	-0.004	0.007	-0.011	-0.031
Hindustan Lever Ltd.	0.043	-0.103*	-0.065	-0.034	-0.034	0.004	0.013	-0.004	0.105*
Hindustan Petroleum Corp. Ltd.	0.044	-0.04	0.007	-0.017	0.044	0.052	0.011	0.014	0.054
Housing Devel. Finance Corp. Ltd.	-0.061	-0.034	0.007	-0.016	-0.019	0.005	0.011	0.034	0.009
ITC Ltd.	-0.055	-0.075*	-0.054	0.002	0.038	0.018	-0.032	0.047	0.008
ICICI Banking Company Ltd.	0.061	-0.075*	0.025	0.022	0.005	0.024	-0.034	-0.05	-0.049
Indian Hotels Co. Ltd.	0.095*	-0.002	0.048	0.033	0.093*	0.022	-0.006	-0.007	-0.002
Indian Petroleum Corp. Ltd.	0.108**	0.064	0.102*	0.084*	0.054	0.019	0.063	0.038	0.028
Larsen & Toubro	0.086*	-0.095*	0.072*	0.058	0.023	0.002	0.029	0.039	-0.022
MTNL Ltd.	0.087*	-0.095*	-0.015	0.039	-0.081*	-0.005	0.052	0.043	-0.075*

Mahindra & Mahindra	0.155**	-0.049	0.096*	-0.01	0.012	0.024	0.037	0.081*	0.038
National Aluminium Co. Ltd.	0.006	-0.042	0.047	-0.022	-0.027	-0.019	-0.011	0.006	0.018
NIIT Ltd.	0.088*	-0.074**	0.021	0.095*	0.063	0.041	0.01	0.025	0.096*
Oriental Bank of Commerce	0.038	-0.084*	0.05	0.004	-0.047	0.002	0.082*	-0.019	0.007
Ranbaxy Lab. Ltd.	0.055	-0.003	-0.02	-0.03	-0.049	-0.013	-0.001	-0.015	-0.033
Reliance Ind. Ltd.	0.026	0.068	-0.021	-0.048	0.043	-0.106*	-0.01	-0.027	0.009
Satyam Computers Ltd.	0.046	-0.081*	-0.004	0.02	-0.005	-0.054	-0.041	0.052	-0.028
Shipping Corp. of India	0.02	0.009	0.006	0.037	0.029	0.045	0.01	0.047	-0.015
State Bank of India	0.047	-0.074*	0.055	0.007	-0.011	-0.079*	0.048	0.07	0.013
Steel Authority of India Ltd.	0.105*	-0.092*	0.037	0.061	0.004	0.042	0.048	0.078*	0.043
Sun Pharmaceuticals (I) Ltd.	-0.011	-0.021	0.03	0.003	0.024	-0.022	-0.003	0.012	0.013
Tata Chemicals Ltd.	0.07	-0.077*	-0.002	0.036	0.162**	-0.016	-0.088*	0.053	0.01
TISCO Ltd.	0.034	-0.047	0.012	0.059	-0.009	-0.008	0.018	0.008	0.026
Tata Power Ltd.	.133**	-.149**	0.01	0.049	0.071	0.002	-0.015	-0.001	0.016
Tata Tea Ltd.	.134**	-.084*	-0.05	0.046	.085*	-0.043	-0.06	-0.01	0.109*
VSNL Ltd.	0.055	-0.014	-0.004	-0.027	-0.017	0.006	0.039	0.036	-0.051
Wipro Ltd.	.087*	-0.047	-0.024	0.017	0.001	-0.01	-0.005	-0.008	0.029
Zea Telefilms Ltd.	.123**	-0.032	0.024	-0.048	-0.031	-0.034	-0.068	0.034	0.047
S & P CNX Nifty	.136**	-0.062	0.013	0.069	0.076*	-0.019	-0.018	0.015	0.042

Companies	Lags							
	10	11	12	13	14	15	16	BL
Asia Brown Boverital	0.031	0.022	-0.029	0.009	0.054	0.023	-0.028	10.569
Associated Cement Co. Ltd.	-0.051	-0.035	-0.007	-0.023	0.007	0.04	0.006	17.162
Bajaj Auto Ltd.	0.021	0.006	0.009	0.01	-0.007	0.013	-0.04	12.702
Bharat Heavy Electricals	-0.009	-0.066	0.036	0.01	-0.032	-0.067	0.044	0.075
Bharat Petroleum Corp. Ltd.	0.006	-0.045	-0.017	-0.009	0.015	0.029	-0.076*	22.678
Britannia Industries Ltd.	-0.053	-0.029	0.027	-0.054	-0.017	0.006	0.044	23.251
BSES Ltd.	-0.008	0.025	0.004	-0.016	-0.0465	-0.0415	0.066	29.068**
Cipla Ltd.	0.017	-0.06	-0.013	0.012	-0.009	-0.025	-0.017	15.269
Colgate Palmolive (India) Ltd.	0.014	0	0.027	-0.06	-0.002	0.032	0.004	19.295
Dabur India Ltd.	0.05	0	-0.064	0.044	-0.017	0.006	0.043	20.83
Digital Equipment Ltd.	0.036	0.038	-0.041	0.023	0.063	-0.065	-0.067	27.768**
Dr. Reddy's Laboratories Ltd.	-0.002	-0.014	-0.029	0.008	0.049	0.005	0.025	15.79
Gas Authority of India Ltd.	-0.02	-0.105	-0.026	-0.054	0.053	-0.021	-0.043	26.77**
Glaxosmithkline	-0.015	0.039	0.011	-0.021	0.021	0.02	0.016	21.138
Glaxo Consumer	-0.083*	0.057	0.014	0.017	0.014	-0.062	0.059	16.381
Grasim Industries Ltd.	-0.011	0.05	-0.027	-0.124	-0.014	0.069	-0.038	36.717*
Gujarat Ambuja Cements Ltd.	-0.029	-0.009	0.002	-0.04	-0.068	0	-0.069	40.833*
HCL Technologies Ltd.	0.006	0.041	-0.065	-0.005	0.025	-0.024	-0.027	32.995

HDFC Bank	-0.024	0.017	-0.014	-0.028	0.008	0	0.047	18.225
Hero Honda Motors Ltd.	-0.007	-0.005	0.023	0.015	-0.001	0.009	-0.012	1.827
Hindustan Lever Ltd.	-0.011	-0.014	0.005	-0.066	0.022	0.032	-0.035	28.615**
Hindustan Petroleum Corp. Ltd.	-0.061	0.024	-0.054	-0.02	0.074*	-0.012	0.006	19.128
Housing Devel. Finance Corp. Ltd.	0.006	-0.016	0.007	0.011	-0.012	-0.022	0.002	7.341
ITC Ltd.	-0.027	-0.098*	0.026	0.003	0.051	-0.057	-0.032	25.674***
ICICI Banking Company Ltd.	-0.032	0.053	0.016	0.009	0.01	0.090*	0.023	23.399***
Indian Hotels Co. Ltd.	0.033	0.067	0.088*	0.018	-0.037	-0.042	0.031	30.177**
Indian Petroleum Corp. Ltd.	-0.02	0	0.042	0.048	0.017	0.033	0.042	36.827*
Larsen & Toubro	0.012	0.052	0.027	-0.052	-0.033	0.07	-0.002	30.946**
MTNL Ltd.	-0.034	0.01	-0.045	-0.009	0.003	-0.02	0.011	29.789**
Mahindra & Mahindra	0.06	0.015	-0.056	-0.015	-0.008	0	-0.016	40.415*
National Aluminium Co. Ltd.	-0.053	-0.028	-0.088*	0.008	0.05	-0.042	-0.005	16.628
NIIT Ltd.	0.052	0.014	0.036	0.032	0.064	-0.027	-0.048	38.613*
Oriental Bank of Commerce	-0.016	0.026	0.043	-0.056	-0.027	0.011	-0.041	21.834
Ranbaxy Lab. Ltd.	-0.001	0.01	0.026	0.016	0.015	-0.017	-0.013	7.537
Reliance Ind. Ltd.	-0.007	0.035	0.052	0.022	0.017	-0.046	0.013	22.09
Satyam Computers Ltd.	0.043	0.043	-0.031	0.034	0.024	-0.069	-0.05	23.549***
Shipping Corp. of India	-0.031	-0.011	0.01	0.006	-0.014	0.028	-0.074*	11.456
State Bank of India	0.017	-0.026	-0.055	-0.011	-0.009	0	-0.014	21.926
Steel Authority of India Ltd.	0.018	-0.029	-0.004	0.036	0.062	0.054	-0.077*	39.426*
Sun Pharmaceuticals (I) Ltd.	-0.005	-0.02	-0.006	0.008	-0.035	-0.009	-0.001	3.778
Tata Chemicals Ltd.	-0.004	-0.007	-0.113**	-0.011	0.005	-0.042	-0.046	50.251*
TISCO Ltd.	0.048	-0.007	-0.013	0.042	0	-0.01	-0.001	10.121
Tata Power Ltd.	0.031	-0.049	0.041	0.046	-0.042	0.024	0.009	43.45*
Tata Tea Ltd.	0.043	-0.031	-0.042	-0.009	0.06	-0.003	-0.025	47.915*
VSNL Ltd.	-.083*	-0.018	-0.049	0.009	-0.009	0.025	-0.025	15.752
Wipro Ltd.	0.067	.113**	-0.008	0.032	0.056	-.078*	-0.049	31.721**
Zea Telefilms Ltd.	0.025	-0.01	-0.03	0.015	0.059	0.047	-0.039	29.103**
S & P CNX Nifty	0.014	0.019	-0.023	0.022	0.058	-0.019	-0.029	31.772**

*Significant at 0.05 level, **Significant at 0.01 level

BL: Box-Ljung Statistics Significant at 0.01, 0.05 and 0.10 level for *, ** and *** respectively.

We have tested the weak form of market efficiency with the two tests, namely the runs test and serial correlation test using daily data for three years period commencing January 2001 through December 2003. The results of the runs test have given a clear-cut inkling of the existence of weak form market efficiency in the Indian securities market. Similarly, the serial correlation analysis based on its coefficients confirms the weak form hypothesis of efficient market.

However, the Box-Ljung (BL) statistics gives mixed conclusions as forty percent of the BL values are significant, rejecting the joint hypothesis that all the serial correlation coefficients are simultaneously equal to zero. As, the above hypothesis is accepted in case of majority (60%) of the series, we may conclude that successive price changes are independent of the previous day price changes. Although, a few lower order serial correlation coefficients of daily price changes as well as S & P CNX Nifty disclosed some departure from random walk hypothesis, the results of runs test conforms to the results in favour of random-walk theory. Thus,, the existence of efficient market reduces the likelihood of continuously earning extra returns by forecasting the security prices.

Filter tests: Filter test examines the random-walk hypothesis from a different, but more direct, approach. Categorized as filter tests, they have been developed as direct tests of specific mechanical trading strategies. In other words, no inferences about such strategies need be made, for the approach is to examine directly the validity of specific systems.

One such test is based on the premise that once a movement in price has surpassed a given percentage movement, the security's price will continue to move in the same direction. Thus the following rule, which is similar to the famous Dow theory:

If the daily closing price of a security moves up at least X%, buy the security until its price moves down at least X% from a subsequent high, at which time simultaneously sell and go short. The short position should be maintained until the price rises at least X% above a subsequent low, at which time cover and buy (R.A. Brealy, 1969).

As the reader has undoubtedly observed, the selection of a high filter will cut down his number of transactions and will lead to fewer false starts or signals, but it will also decrease his potential profit because he would have missed the initial portion of the move. Conversely, the selection of a smaller filter will ensure his sharing in the great bulk of the security's price movement, but he will have the disadvantage of performing many transactions, with their accompanying high costs,

as well as often operating on false signals.

As we see in Table 15.3, only when the filter was at its smallest did this mechanical procedure outperform a simple buy-and-hold strategy, and even then, only before transactions costs were considered.

Table 15.3. Average annual rates of return per stock

Value of x (%)	Return with trading strategy (%)	Return with buy-and-hold strategy (%)	Total transactions with trading strategy	Return with trading strategy, after commissions (%)
0.5	11.5	10.4	12,514	-103.6
1.0	5.5	10.3	8,660	-74.9
2.0	0.2	10.3	4,784	-45.2
3.0	-1.7	10.3	2,994	-30.5
4.0	0.1	10.1	2,013	-19.5
5.0	-1.9	10.0	1,484	-16.6
6.0	1.3	9.7	1,071	-9.4
7.0	0.8	9.6	828	-7.4
8.0	1.7	9.6	653	-5.0
9.0	1.9	9.6	539	-3.6
10.0	3.0	9.3	435	-1.4
12.0	5.3	9.4	289	2.3
14.0	3.9	10.3	224	1.4
16.0	4.2	10.3	172	2.3
18.0	3.6	10.0	139	2.0
20.0	4.3	9.8	110	3.0

Source: R.A. Brealey, *An Introduction to Risk and Return from Common Stocks* (Cambridge, Mass: MIT Press, 1969), Quoted in *Security Analysis and Portfolio Management*, authored So Jordon and Fisher (PHI), p. 549.

15.3.2. Semistrong form of EMH

The semistrong form of the efficient-market hypothesis says that current prices of stocks not only reflect all informational content of historical prices but also reflect all publicly available knowledge about the corporations being studied. Further-more, the semistrong form says

that efforts by analysts and investors to acquire and analyze public information will not yield consistently superior returns to the analyst. Examples of the type of public information that will not be of value on a consistent basis to the analyst are corporate reports, corporate announcements, information relating to corporate dividend policy, forthcoming stock splits, and so forth.

In effect, the semistrong form of the efficient market hypothesis maintains that as soon as information becomes publicly available, it is absorbed and reflected in stock prices. Even if this adjustment is not the correct one immediately, it will in a very short time be properly analyzed by the market. Thus the analyst would have great difficulty trying to profit using fundamental analysis. Furthermore, even while the correct adjustment is taking place, the analyst cannot obtain consistent superior returns. Why? Because the incorrect adjustments will not take place con-

Empirical tests of the semistrong form

We have learnt that the semistrong form says that current stock prices will instantaneously reflect all publicly available information. The tests that will be summarized briefly in this section test whether in fact all publicly available information and news announcements, such as quarterly earnings reports, changes in accounting information, stocks splits, stock dividends, and the like, are quickly and adequately reflected in stock prices. Furthermore, these tests attempt to analyze if an analyst using such data when they become available to him can successfully use this information to obtain superior investment results. Fama, Fisher, Jensen, and Roll made a major contribution with their study of the semistrong-form hypothesis (Eugene F. Fama, 1969). They tested the speed of the market's reaction to a firm's announcement of a stock split and the accompanying information with respect to a change in dividend policy. The authors

concluded that the market was efficient with respect to its reaction to information on the stock split and also was efficient with respect to reacting to the informational content of stock splits vis-à-vis changes in dividend policy.

Ball and Brown conducted another test in this area by analyzing the stock market's ability to absorb the informational content of reported annual earnings per share information. In their study the authors examined stock price movements of companies that experience 'good' earnings reports as opposed to the stock price movements of companies that experienced 'bad' earnings reports. A 'good' earnings report was a reported earnings per share figure that was higher than the previously forecast earnings per share, and conversely a 'bad' earnings report was a reported earnings per share figure that was lower than had been forecast previously. They found that those companies with 'good' earnings reports experienced price increases in their stock and those with 'bad' earnings reports experienced stock price declines. The interesting result was that about 85 per cent of the informational content of the annual earnings announcement was reflected in stock price movements prior to the release of the actual annual earnings figure (Ray Ball and Philip Brown, 1968).

Joy, Litzenberger, and McEnally conducted another stock price-earnings report test in this area. In their study the authors tested the impact of quarterly earnings announcements on the stock price adjustment mechanism. Some of their results somewhat contradicted the semistrong form of the efficient-market hypothesis. In some of their subtests, the authors found that favourable information contained in published quarterly earnings reports was not instantaneously reflected in stock prices (O. Maurice Joy *et al.*, 1977).

Basu also conducted a test of the semistrong form (S. Basu, 1977). In his study, Basu tested for the informational content of the price-

earnings multiple. He tested to see whether low P/E stocks tended to outperform stocks with high P/E ratios. If historical P/E ratios provided useful information to investors in obtaining superior stock market returns, this would be a refutation of the semistrong form of the efficient market hypothesis. Because if historical publicly available P/E information led an investor to buy a particular type of stock and this in turn led to abnormal returns, this would be a direct contradiction of the semistrong form. His results indicated that the low P/E portfolios experienced superior returns relative to the market and high P/E portfolios performed in an inferior manner relative to the overall market.

A similar anomaly to the semistrong form of the efficient-markets hypothesis—namely, the size effect—was also tested by researchers. These studies attempt to test whether smaller firms tended to experience larger returns than the larger firms experienced over the same time period. These studies indicated that small firms did provide the investor with significantly larger risk-adjusted returns than did the larger firms examined. However, other researchers have pointed out that this apparent anomaly results more from inappropriate risk measurements, the amount of attention analysts pay to the securities, volume of trading, frequency of trading, and transaction costs, rather than the size differential alone.

By way of summary, of the semistrong efficient tests, we have reviewed here, the great majority provide strong empirical support for the hypothesis; however, there have been some notable exceptions to this support. Most of the reported results demonstrate that stock prices do adjust rapidly to announcements of new information about stocks. Some of the studies indicate further that investors are typically unable to utilize this information to earn consistently above-average returns.

15.3.3. Strong form of EMH

In the sub-sections (15.3.1 and 15.3.2), we have seen that the weak form of the efficient-market hypothesis maintains that past prices and past price changes cannot be used to forecast future price changes and future prices. Semistrong form of the efficient-market hypothesis says that publicly available information cannot be used to earn consistently superior investment returns. Some studies that tend to support the semistrong theory of the efficient-market hypothesis were cited. Finally, the strong form of the efficient-market hypothesis maintains that not only is publicly available information useless to the investor or analyst but all information is useless. Specifically, no information that is available, be it public or 'inside', can be used to earn consistently superior investment returns.

The semistrong form of the efficient-market hypothesis could only be tested indirectly- namely, by testing what happened to prices on days surrounding announcements of various types, such as earnings announcements, dividend announcements, and stock-split announcements. To test the strong form of efficient-market hypothesis, even more indirect methods must be used. For the strong form, as has already been mentioned, says that no information is useful. This implies that not even security analysts and portfolio managers who have access to information more quickly than the general investing public are able to use this information to earn superior returns. Therefore, many of the tests of the strong form of the efficient market hypothesis deal with tests of mutual-fund performance. We will review some of the findings of these tests of mutual-fund performance in section 15.4.

Tests of the trading of specialists on the floor of the stock exchanges

and tests of the profitability of insider trading suggest that the possibility of excess profits exists for these two very special groups of investors who can use their special information to earn profits in excess of normal returns (See J. H. Lorie and Victor N. (1968). It should, however, be emphasised that these two examples of market inefficiencies represent very minor inefficiencies when compared with the market as a whole.

The strict form of the efficient-market hypothesis states that two conditions are met: first, that successive price changes or changes in return are independent; and second, that these successive price changes or return changes are identically distributed- that is, these distributions will repeat themselves over time. In a practical sense, this seems to imply that in a random-walk world, stock prices will at any time fully reflect all publicly available information, and furthermore, that when new information becomes available, stock prices will instantaneously adjust to reflect it. The reader will note that the random-walk theorist is not interested in price or return levels, but rather in the changes between successive levels.

The more general efficient-market model, when interpreted loosely, acknowledges that the markets may have some imperfections, such as transactions costs, information costs, and delays in getting pertinent information to all market participants; but it states that these potential sources of market inefficiency do not exist to such a degree that it is possible to develop trading systems whose expected profits or returns will be in excess of expected normal, equilibrium returns of profits. Generally, we define equilibrium profits as those that can be earned by following a simple buy-and-hold strategy rather than a more complex, mechanical system. Thus, we see that the random-walk model represents a special, restrictive case of the efficient-market model.

15.4. The efficient-market hypothesis and mutual-fund performance

It has often been said that large investors such as mutual funds perform better in the market than the small investor does because they have access to better information. Therefore, it would be interesting to observe if mutual funds earned above-average returns, where these are defined as returns in excess of those that can be earned by a simple buy-and-hold strategy. The results of such an investigation would have interesting implications for the efficient-market hypothesis.

Researchers have found that mutual funds do not seem to be able to earn greater net returns (after sales expenses) than those that can be earned by investing randomly in a large group of securities and holding them. Furthermore, these studies indicate, mutual funds are not even able to earn gross returns (before sales expenses) superior to those of the native buy-and-hold strategy. These results occur not only because of the difficulty in applying fundamental analysis in a consistently superior manner to a large number of securities in an efficient market but also because of portfolio overdiversification and its attendant problems- two of which are high book-keeping and administrative costs to monitor the investments, and purchases of securities with less favourable risk-return characteristics. Therefore, it would seem that the mutual-fund studies lend some credence to the efficient-market hypothesis.

15.5. Summary

There are three broad theories concerning stock price movements. The fundamentalists believe that by analyzing key economic and financial variables, they can estimate the intrinsic worth of the security and then determine what investment action to take. The technical or

chartist school maintains that fundamental analysis is unnecessary; all that has to be done is to study historical price patterns and then decide how current price behaviour fits into these. Because the technician believes that history repeats itself, he can then predict future movements in price based on the study of historical patterns. The random-walk school has demonstrated to its own satisfaction through empirical tests that successive price changes over short periods, such as a day, a week, or a month, are independent. To the extent that this independence exists, the random-walk theory directly contradicts technical analysis; and furthermore, to the extent that the stock markets are efficient in the dissemination of information and that they have informed market participants and the proper institutional setting, the random-walk school poses an important challenge to the fundamentalist camp as well.

If the markets are truly efficient, then the fundamentalist will be successful only when (1) he has inside information, or (2) he has superior ability to analyze publicly available information and gain insight into the future of the firm, and (3) he uses (1) and/or (2) to reach long-term buy-and-hold investment decisions.

The empirical evidence in support of the random-walk hypothesis rests primarily on statistical tests, such as runs tests, correlation analysis, and filter tests. The results have been almost unanimously in support of the random-walk hypothesis, the weak form of the efficient market hypothesis. The results of semistrong-form tests have been mixed.

15.6 Key Words

Intrinsic worth/value refers to the present value of the stock's price, or its equilibrium value.

Random walk model says that successive price changes are independent i.e. previous price changes or changes in return are useless in predicting future price or return changes.

Weak form of efficient-market hypothesis says that the current prices of stocks fully reflect all the information that is contained in the historical sequence of prices.

Semi-strong form of efficient-market hypothesis says that current prices of stocks not only reflect all past price information but also reflect all public information.

Strong form of the efficient-market hypothesis maintains that all information is useless to the investor or analyst for predicting future prices of shares.

15.7. Self Assessment Questions

1. How do technicians and random-walk advocates differ in their view of the stock market?
2. Describe briefly the tests of weak form, semi-strong and strong form of efficient market hypothesis.
3. What is the connection between the efficient-market hypothesis and the studies of mutual-fund performance?
4. Explain the implications of the serial-correlation tests for
 - a. the random-walk theory,
 - b. technical analysis, and
 - c. fundamental analysis.
5. What sequence of events might bring about an 'efficient market'?
6. Does the random-walk theory suggest that security price levels are random? Explain.
7. How is technical analysis generally regarded in the academic literature? Why? What do technical analysts have to say about this.

15.8. References and suggested studies

- Brown, David, and Robert H. Jennings. "On Technical Analysis." *Review of Financial Studies* 2 (1989), pp. 527-52.
- Cohen, A. *How to use the three-point reversal method of point-and-figure stock market trading*. Larchmont, N.Y.: Chartcraft, 1980.
- Lehman, Bruce. "Fads, Martingales and Market Efficiency". *Quarterly Journal of Economics* (February 1990), pp. 1-28.
- Malkiel, Burton G. *A Random Walk Down Wall Street*. New York: W.W. Norton 1990.
- Paul H. Cootner, ed., *The Random Character of Stock Market Prices* (Cambridge, Mass: MIT Press, 1967).
- Harry Roberts, "Stock Market Patterns and Financial Analysis: Methodological Suggestions", *Journal of Finance* (March 1959), pp. 1-10.
- R.A. Brealey, *An Introduction to Risk and Return from Common Stocks* (Cambridge, Mass: MIT Press, 1969), p. 25, quoted in Jordon and Fisher, "Security Analysis and Portfolio Management". PHI.
- Eugene F. Fama *et al.*, "The Adjustment of Stock Prices to New Information", *International Economic Review* 10, no. 1 (February 1969), pp. 1-21.
- Ray Ball and Philip Brown, "An Empirical Evaluation of Accounting Income Numbers", *Journal of Accounting Research* 6 (Autumn 1968), pp. 159-78.
- O. Maurice Joy *et al.*, "The Adjustment of Stock Prices to Announcements of Unanticipated changes in Quarterly Earnings", *Journal of Accounting Research* 15 (Autumn 1977), pp. 207-25.

- Roger G. Ibbotson and Jeffrey Jaffe, "Hot Issues Markets", *Journal of Finance* 30, no. 4 (September 1975), pp. 1027-42; Stanley Block and Marjorie Stanley, "The Financial Characteristics and Price Movement Patterns of Companies Approaching the Unseasoned Securities Market in the Late 1970s", *Financial Management* 9, No. 4 (Winter 1980), pp. 30-36.
- S. Basu, "The Investment Performance of Common Stocks in Relation to Their Price-Earnings Ratios: A Test of the Efficient-Market Hypothesis", *Journal of Finance* 32 (June 1977), pp. 663-82.
- Eugene F. Fama *et al.*, "The Adjustment of Stock Prices to New Information", *International Economic Review* 10, No. 1 (February 1969), pp. 1-21.
- Myron S. Scholes, "The Market for Securities: Substitution vs. Price Pressure and the Effects of Information on Share Prices", *Journal of Business* 45, No. 2 (April 1972), pp. 179-211.
- James H. Lorie and Victor Niederhoffer, "Predictive and Statistical Properties of Insider Trading", *Journal of Law and Economics* 11 (1968), pp. 35-53.
- O. Maurice Joy and Charles P. Jones, "Earnings Reports and Market Efficiencies: An Analysis of Contrary Evidence", *Journal of Financial Research* 2, No. 1 (Spring 1979), pp. 51-63.
- Turan, M.S. and Bodla, B.S. (2004), *Risk and Rewards of Equity Investments: A Study of Select Asian Stock Markets*, Excel Book, New Delhi.

Subject Code : FM 304

Author : Dr. Ashish Garg

Lesson No. : 16

Vettor : Dr. B.S. Bodla

PORTFOLIO CONSTRUCTION

Structure

- 16.0. Objectives
- 16.1. Introduction
- 16.2. Benefits of portfolios
- 16.3. Approaches in portfolio construction
- 16.4. Portfolio risk return
- 16.5. Markowitz portfolio selection
- 16.6. Sharpe's single index model
- 16.7. Managing the portfolio
- 16.8. Summary
- 16.9. Key Words
- 16.10. Self Assessment Questions
- 16.11. Suggested Readings/References

16.0 Objectives

After going through this lesson the learners will be able to :

- describe the meaning of portfolio construction
- discuss the approaches of portfolio construction
- understand reasons and process of portfolio construction of financial instruments.

16.1. Introduction

Portfolio is a combination of securities such as stocks, bonds and money market instruments. The process of blending together the broad asset classes so as to obtain optimum return with minimum

risk is called portfolio construction. Individual securities have risk-return characteristics of their own. Portfolios may or may not take on the aggregate characteristics of their individual parts. Diversification of investment helps to spread risk over many assets. A diversification of securities gives the assurance of obtaining the anticipated return on the portfolio. In a diversified portfolio, some securities may not perform as expected, but others may exceed the expectation and making the actual return of the portfolio reasonably close to the anticipated one. Keeping a portfolio of single security may lead to a greater likelihood of the actual return somewhat different from that of the expected return. Hence, it is a common practice to diversify securities in the portfolio.

16.2. Benefits of portfolios

You know that expected return from individual securities carrying some degree of risk. Risk was defined as the standard deviation around the expected return. In effect we equated a security's risk with the variability of its return. More dispersion or variability about a security's expected return meant the security was riskier than one with less dispersion.

The simple fact that securities carrying differing degrees of expected risk lead most investors to the notion of holding more than one security at a time, is an attempt to spread risks by not putting all their eggs into one basket. Diversification of one's holdings is intended to reduce risk in an economy in which every asset's returns are subject to some degree of uncertainty. Even the value of cash suffers from the inroads of inflation. Most investors hope that if they hold several assets, even if one goes bad, the others will provide some protection from an extreme loss.

16.3. Approaches in portfolio construction

Commonly, there are two approaches in the construction of the portfolio of securities viz. traditional approach and Markowitz efficient frontier approach. In the traditional approach, investor's needs in terms of income and capital appreciation are evaluated and appropriate securities are selected to meet the needs of the investor. The common practice in the traditional approach is to evaluate the entire financial plan of the individual. In the modern approach, portfolios are constructed to maximise the expected return for a given level of risk. It views portfolio construction in terms of the expected return and the risk associated with obtaining the expected return.

16.3.1. Traditional approach

The traditional approach basically deals with two major decisions. They are:

- (a) Determining the objectives of the portfolio.
- (b) Selection of securities to be included in the portfolio.

Normally, this is carried out in four to six steps. Before formulating the objectives, the constraints of the investor should be analysed. Within the given framework of constraints, objectives are formulated. Then based on the objectives, securities are selected. After that, the risk and return of the securities should be studied. The investor has to assess the major risk categories that he or she is trying to minimise. Compromise on risk and non-risk factors has to be carried out. Finally relative portfolio weights are assigned to securities like bonds, stocks and debentures and then diversification is carried out. The flow chart 16.1 explains this.

1. *Analysis of constraints*-The constraints normally discussed are:

income needs, liquidity, time horizon, safety, tax considerations and the temperament.

Income needs- The income needs depend on the need for income in constant rupees and current rupees. The need for income in current rupees arises from the investor's need to meet all or part of the living expenses. At the same time inflation may erode the purchasing power, the investor may like to offset the effect of the inflation and so, needs income in constant rupees.

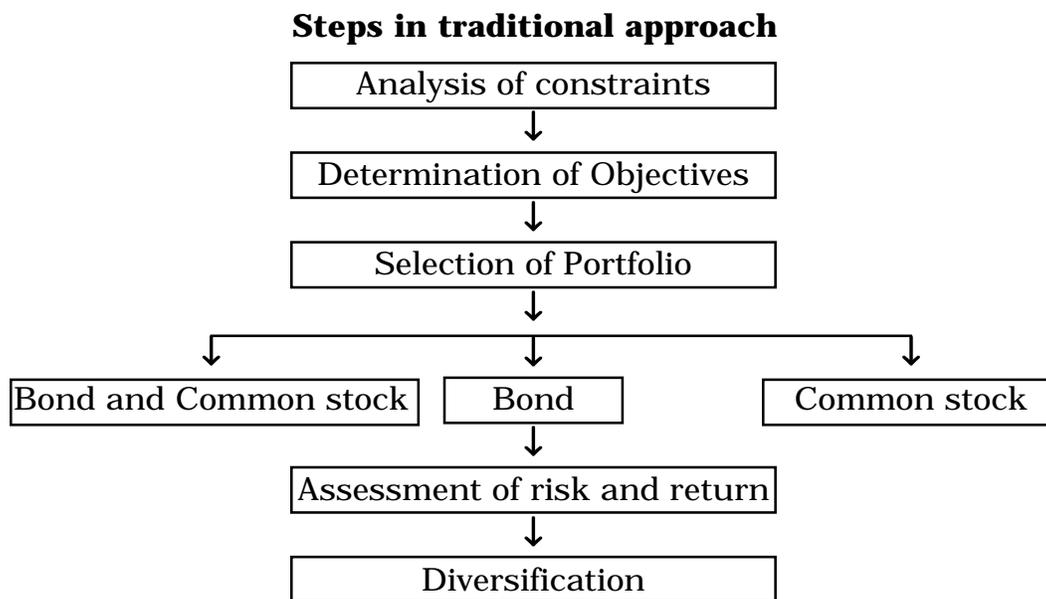


Fig. 16.1.

- (a) **Need for current income:** The investor should establish the income which the portfolio should generate. The current income need depends upon the entire current financial plan of the investor. The expenditure required to maintain a certain level of standard of living and all the other income generating sources should be determined. Once this information is arrived at, it is possible to decide how much income must be provided for the portfolio of securities.

(b) Need for constant income: Inflation reduces the purchasing power of the money. Hence, the investor estimates the impact of inflation on his estimated stream of income and tries to build a portfolio which could offset the effect of inflation. Funds should be invested in such securities where income from them might increase at a rate that would offset the effect of inflation. The inflation or purchasing power risk must be recognised but this does not pose a serious constraint on portfolio if growth stocks are selected.

Liquidity- Liquidity need of the investment is highly individualistic of the investor. If the investor prefers to have high liquidity, then funds should be invested in high quality short term debt maturity issues such as money market funds, commercial papers and shares that are widely traded. Keeping the funds in shares that are poorly traded or stocks in closely held business and real estate lack liquidity. The investor should plan his cash drain and the need for net cash inflows during the investment period.

Safety of the principal- Another serious constraint to be considered by the investor is the safety of the principal value at the time of liquidation, investing in bonds and debentures is safer than investing in the stocks. Even among the stocks, the money should be invested in regularly traded companies of longstanding. Investing money in the unregistered finance companies may not provide adequate safety.

Time horizon- Time horizon is the investment-planning period of the individuals. This varies from individual to individual. Individual's risk and return preferences are often described in terms of his 'life cycle'. The states of the life cycle determine the nature of investment. The first stage is the early career situation. At the career starting point assets are lesser than their liabilities. More goods are purchased on credit. His house might have been built with the help of housing

loan scheme. His major asset may be the house he owns. His priority towards investments may be in the form of savings for liquidity purposes. He takes life insurance for protecting him from unforeseen events like death and accidents and then he thinks of the investments. The investor is young at this stage and has long horizon of life expectancy with possibilities of growth in income, he can invest in high-risk and growth oriented investments.

The other stage of the time horizon is the mid-career individual. At this stage, his assets are larger than his liabilities. Potential pension benefits are available to him. By this time he establishes his investment program. The time horizon before him is not as long as the earlier stage and he wants to protect his capital investment. He may wish to reduce the overall risk exposure of the portfolio but, he may continue to invest in high risk and high return securities.

The final stage is the late career or the retirement stage. Here, the time horizon of the investment is very much limited. He needs stable income and once he retires, the size of income he needs from investment also increases. In this stage, most of his loans are repaid by him and his assets far exceed the liabilities. His pension and life insurance programmes are completed by him. He shifts his investment to low return and low risk category investments, because safety of the principal is given priority. Mostly he likes to have lower risk with high interest or dividend paying component to be included in his portfolio. Thus, the time horizon puts restrictions on the investment decisions.

Tax consideration- Investors in the income tax paying group consider the tax concessions they could get from their investments. For all practical purpose, they would like to reduce the taxes. For income tax purpose, interests and dividends are taxed under the head “income from other sources”. The capital appreciation is taxed under the head

“capital gains” only when the investor sells the securities and realises the gain. The tax is then at a concessional rate depending on the period for which the asset has been held before being sold. From the tax point of view, the form in which the income is received i.e. interest, dividend, short term capital gains and long term capital gains are important. If the investor cannot avoid taxes, he can delay the taxes. Investing in government bonds and NSC can avoid taxation. This constraint makes the investor to include the items which will reduce the tax.

Temperament- The temperament of the investor himself poses a constraint on framing his investment objectives. Some investors are risk lovers or takers who would like to take up higher risk even for low return. While some investors are risk averse, who may not be willing to undertake higher level of risk even for higher level of return. The risk neutral investors match the return and the risk. For example, if a stock is highly volatile in nature then the stock may be selling in a range of Rs. 100-200, and returns may fluctuate between Rs. 00-100 in a year. Investors who are risk averse would find it disturbing and do not have the temperament to invest in this stock. Hence, the temperament of the investor plays an important role in setting the objectives.

2. Determination of objectives

Portfolios have the common objective of financing present and future expenditures from a large pool of assets. The return that the investor requires and the degree of risk he is willing to take depend upon the constraints. The objectives of portfolio range from income to capital appreciation. The common objectives are stated below:

- Current income
- Growth in income
- Capital appreciation

→ Preservation of capital

The investor in general would like to achieve all the four objectives, nobody would like to lose his investment. But, it is not possible to achieve all the four objectives simultaneously. If the investor aims at capital appreciation, he should include risky securities where there is an equal likelihood of losing the capital. Thus, there is a conflict among the objectives.

3. Selection of portfolio

The selection of portfolio depends on the various objectives of the investor. The selection of portfolio under different objectives are dealt subsequently.

Objectives and asset mix- If the main objective is getting adequate amount of current income, sixty per cent of the investment is made on debts and 40 per cent on equities. The proportions of investments on debt and equity differ according to the individual's preferences. Money is invested in short term debt and fixed income securities. Here the growth of income becomes the secondary objective and stability of principal amount may become the third. Even within the debt portfolio, the funds invested in short term bonds depends on the need for stability of principal amount in comparison with the stability of income. If the appreciation of capital is given third priority, instead of short term debt the investor opts for long term debt. The period may not be a constraint.

Growth of income and asset mix- Here the investor requires a certain percentage of growth in the income received from his investment. The investor's portfolio may consist of 60 to 100 per cent equities and 0 to 40 per cent debt instrument. The debt portion of the portfolio may consist of concession regarding tax exemption. Appreciation of principal amount is given third priority. For example computer

software, hardware and non-conventional energy producing company shares provide good possibility of growth in dividend.

Capital appreciation and asset mix- Capital appreciation means that the value of the original investment increases over the years. Investment in real estates like land and house may provide a faster rate of capital appreciation but they lack liquidity. In the capital market, the values of the shares are much higher than their original issue prices. For example Satyam Computers, share value was Rs. 306 in April 1998 but in October 1999 the value was Rs. 1658. Likewise, several examples can be cited. The market capitalisation also has increased. Next to real assets, the stock markets provide best opportunity for capital appreciation. If the investor's objective is capital appreciation, 90 to 100 per cent of his portfolio may consist of equities and 0-10% of debts. The growth of income becomes the secondary objective.

Safety of principal and asset mix- Usually, the risk averse investors are very particular about the stability of principal. According to the life cycle theory, people in the third stage of life also give more importance to the safety of the principal. All the investors have this objective in their mind. No one like to lose his money invested in different assets. But, the degree may differ. The investor's portfolio may consist more of debt instruments and within the debt portfolio more would be on short term debts.

4. Risk and return analysis: The traditional approach to portfolio building has some basic assumptions. First, the individual prefers larger to smaller returns from securities. To achieve this goal, the investor has to take more risk. The ability to achieve higher returns is dependent upon his ability to judge risk and his ability to take specific risks. The risks are namely interest rate risk, purchasing power risk, financial risk and

market risk. The investor analyses the varying degrees of risk and constructs his portfolio. At first, he establishes the minimum income that he must have to avoid hardships under most adverse economic condition and then he decides risk of loss of income that can be tolerated. The investor makes a series of compromises on risk and non-risk factors like taxation and marketability after he has assessed the major risk categories, which he is trying to minimise. The methods of calculating risk and return of a portfolio is classified in following pages of this chapter.

- 5. Diversification:** Once the asset mix is determined and the risk and return are analysed, the final step is the diversification of portfolio. Financial risk can be minimised by commitments to top-quality bonds, but these securities offer poor resistance to inflation. Stocks provide better inflation protection than bonds but are more vulnerable to financial risks. Good quality convertibles may balance the financial risk and purchasing power risk. According to the investor's need for income and risk tolerance level portfolio is diversified. In the bond portfolio, the investor has to strike a balance between the short term and long term bonds. Short term fixed income securities offer more risk to income and long term fixed income securities offer more risk to principal. In the stock portfolio, he has to adopt the following steps which are shown in the following figure.

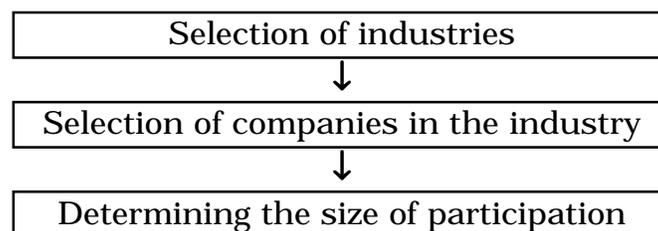


Fig. 16.2

As investor, we have to select the industries appropriate to our investment objectives. Each industry corresponds to specific goals of the investors. The sales of some industries like two wheelers and steel tend to move in tandem with the business cycle, the housing industry sales move counter cyclically. If regular income is the criterion then industries, which resist the trade cycle should be selected. Likewise, the investor has to select one or two companies from each industry. The selection of the company depends upon its growth, yield, expected earnings, past earnings, expected price earning ratio, dividend and the amount spent on research and development. Selecting the best company is widely followed by all the investors but this depends upon the investors' knowledge and perceptions regarding the company. The final step in this process is to determine the number of shares of each stock to be purchased. This involves determining the number of different stocks that is required to give adequate diversification. Depending upon the size of the portfolio, equal amount is allocated to each stock. The investor has to purchase round lots to avoid transaction costs.

16.3.2. Modern approach: We have seen that the traditional approach is a comprehensive financial plan for the individual. It takes into account the individual needs such as housing, life insurance and pension plans. But these types of financial planning approaches are not done in the Markowitz approach. Markowitz gives more attention to the process of selecting the portfolio. His planning can be applied more in the selection of common stocks portfolio than the bond portfolio. The stocks are not selected on the basis of need for income or appreciation. But the selection is based on the risk and return analysis. Return includes the market return and dividend. The investor needs return and it may be either in the form of market return or dividend. They are assumed to be indifferent towards the form of return.

Among the list of stocks quoted at the Bombay Stock Exchange or at any other regional stock exchange, the investor selects roughly some group of shares say of 10 or 15 stocks. For these stocks' expected return and risk would be calculated. The investor is assumed to have the objective of maximising the expected return and minimising the risk. Further, it is assumed that investors would take up risk in a situation when adequately rewarded for it. This implies that individuals would prefer the portfolio of highest expected return for a given level of risk.

In the modern approach, the final step is asset allocation process that is to choose the portfolio that meets the requirement of the investor. The risk taker i.e. who are willing to accept a higher probability of risk for getting the expected return would choose high risk portfolio. Investor with lower tolerance for risk would choose low level risk portfolio. The risk neutral investor would choose the medium level risk portfolio.

16.4. Portfolio risk/return

As mentioned earlier, an investment decision involves selection of a combination or group of securities for investment. This group of securities is referred to as a portfolio. The portfolio can be a combination of securities irrespective of their nature, maturity, profitability, or risk characteristics. Investors, rather than looking at individual securities, focus more on the performance of all securities together. While portfolio returns are the weighted returns of all securities constituting the portfolio, the portfolio risk is not the simple weighted average risk of all securities in the portfolio. Portfolio risk considers the standard deviation together with the covariance between securities. Co-variance measures the movement of assets together.

The portfolio risk and return using historical data is computed using

the following formula:

$$\text{Portfolio return} = E(r) = \sum_{i=1}^n \omega_i r_i$$

$$\text{Portfolio risk} = \sqrt{\sum_{i=1}^n \omega_i^2 \sigma_i^2 + \sum_{i=1}^n \sum_{j=1}^n \omega_i \omega_j \sigma_{ij}}$$

Where

ω = weights (percentage value)

r = return on the securities

Portfolio risk is thus the summation of the individual security variance and the co-movement with other securities in the portfolio. The above formula can be split into a spreadsheet showing all the co-movement measures of the securities.

The total variance is the summation of all cells in the following table. The diagonal summation represents the first part. This is the variance of each security individually. The weights of the securities in the portfolio are represented by the variables ω_i . Weights are the market values of the securities held by the investor. When all securities in the portfolio are given equal weights, the ω_i will be simply $(1/n)$. In a two security portfolio with equal weights the value of ω_i is $(1/2)$ 0.5. When there are three securities in a portfolio, the market values being equal for all the three securities, the weights for each security will be $(1/3)$ 0.33. Similar weights result in the multiplication of ω_i twice.

The second part of the variance computation equation is the summation of all other cells except the diagonal cells. These are the co-variance of one security with another security in the portfolio. The total covariance is computed by considering the weight of each security in the portfolio. When the weight of each security is different

the weight of a combination in a portfolio will be $(\omega_i \times \omega_j)$; where i and j represent the two securities.

The square root of the variance gives the standard deviation of the portfolio, i.e., the risk of the portfolio. The following table gives the computation of the standard deviation elaborately. The group of individual securities 1,2,3, ... n are related with each other to arrive at the co-variance matrix.

Security	1	2	3	...	n
1	$\omega_1 \omega_1 \sigma_{11}$	$\omega_1 \omega_2 \sigma_{12}$	$\omega_1 \omega_3 \sigma_{13}$	...	$\omega_1 \omega_n \sigma_{1n}$
2	$\omega_2 \omega_1 \sigma_{21}$	$\omega_2 \omega_2 \sigma_{22}$	$\omega_2 \omega_3 \sigma_{23}$	...	$\omega_2 \omega_n \sigma_{2n}$
3	$\omega_3 \omega_1 \sigma_{31}$	$\omega_3 \omega_2 \sigma_{32}$	$\omega_3 \omega_3 \sigma_{33}$	...	$\omega_3 \omega_n \sigma_{3n}$
...
n	$\omega_n \omega_1 \sigma_{n1}$	$\omega_n \omega_2 \sigma_{n2}$	$\omega_n \omega_3 \sigma_{n3}$	...	$\omega_n \omega_n \sigma_{nn}$

$$\sigma_p^2 = \boxed{\sum_{i=1}^n \omega_i^2 \sigma_i} + \sum_{i=1}^n \sum_{j=1}^n \omega_i \omega_j \sigma_{ij}$$

$$\sigma_p = \sqrt{\sum_{i=1}^n \omega_i^2 \sigma_i + \sum_{i=1}^n \sum_{j=1}^n \omega_i \omega_j \sigma_{ij}} \quad \bar{r}_i$$

The computation of co-variance i.e., σ_{ij} when i is not equal to j is as follows:

$$\sigma_{ij} = \frac{1}{n} \sum_{t=1}^n (r_{it} - \bar{r}_i) \times (r_{jt} - \bar{r}_j)$$

Co-variance can also be measured in terms of the correlation coefficient. The correlation coefficient is a measure of the relationship between two assets. The correlation coefficient ranges between the value +1 and -1. A correlation coefficient of +1 indicates that two securities returns move perfectly in tandem with each other. A negative correlation coefficient of -1 implies that when one securities' returns increase, the other securities' return reduces by the same quantum.

The computation of the co-variance σ_{ij} through the correlation coefficient is by the application of the following formula:

$$\sigma_{ij} = \sigma_i \times \sigma_j \times \rho_{ij}$$

ρ_{ij} is the correlation coefficient

The correlation coefficient between two securities can be stated in any of the following formats.

$$\rho_{ij} = \frac{\frac{1}{n} \sum_{t=1}^n (r_{it} - \bar{r}_i) \times (r_{jt} - \bar{r}_j)}{\sqrt{\frac{\sum_{t=1}^n (r_{it} - \bar{r}_i)^2}{n}} \sqrt{\frac{\sum_{t=1}^n (r_{jt} - \bar{r}_j)^2}{n}}}$$

$$\rho_{ij} = \frac{\sigma_{ij}}{\sigma_i \times \sigma_j}$$

Illustration 16.1. Two securities P and Q are considered for investment. Compute the risk and return of the portfolio assuming the two securities, whose correlation coefficient of returns is -0.84 , are combined in the following proportions in the portfolio: (a) 0: 100, (b) 10: 90, (c) 20: 80, (d) 50: 50, (e) 80: 20, (f) 90: 10, (g) 100: 0. The historical risk-return of the two securities is as follows:

Table 16.1. Risk-return

Security	Risk % (Std. Dev.)	Return %
P	20	15
Q	30	20

Solution. Computation of portfolio return:

(a) 0 : 100 = 20%

(b) 10 : 90 = $(0.1 \times 15) + (0.9 \times 20) = 19.5\%$

- (c) $20 : 80 - (0.2 \times 15) + 0.8 \times 20 = 19\%$
 (d) $50 : 50 - (0.5 \times 15) + (0.5 \times 20) = 17.5\%$
 (e) $80 : 20 - (0.8 \times 15) + (0.2 \times 20) = 16\%$
 (f) $90 : 10 - (0.9 \times 15) + (0.1 \times 20) = 15.5\%$
 (g) $100 : 0 = 15\%$

Computation of portfolio risk:

- (a) $0 : 100 = 30\%$

$$\sigma_p = \sqrt{(0.1^2 \times 20^2) + (0.9^2 \times 30^2) + (2 \times 0.1 \times 0.9 \times -0.84 \times 20 \times 30)}$$
 (b) $10 : 90 = 25.34\%$

$$\sigma_p = \sqrt{(0.2^2 \times 20^2) + (0.8^2 \times 30^2) + (2 \times 0.2 \times 0.8 \times -0.84 \times 20 \times 30)}$$
 (c) $20 : 80 = 20.75\%$

$$\sigma_p = \sqrt{(0.5^2 \times 20^2) + (0.5^2 \times 30^2) + (2 \times 0.5 \times 0.5 \times -0.84 \times 20 \times 30)}$$
 (d) $50 : 50 = 8.54\%$

$$\sigma_p = \sqrt{(0.8^2 \times 20^2) + (0.2^2 \times 30^2) + (2 \times 0.8 \times 0.2 \times -0.84 \times 20 \times 30)}$$
 (e) $80 : 20 = 11.43\%$

$$\sigma_p = \sqrt{(0.9^2 \times 20^2) + (0.1^2 \times 30^2) + (2 \times 0.9 \times 0.1 \times -0.84 \times 20 \times 30)}$$
 (f) $90 : 10 = 15.57\%$

$$\sigma_p = \sqrt{(0.9^2 \times 20^2) + (0.1^2 \times 30^2) + (2 \times 0.9 \times 0.1 \times -0.84 \times 20 \times 30)}$$
 (g) $100 : 0 = 20\%$

Illustration 16.2. Compute the risk return characteristic of an equally weighted portfolio of three securities whose individual risk and return are given in the following table. the correlation between Security A and B is -0.43 and the correlation between security B and C is 0.21 and the correlation coefficient between security A and C is -0.62.

Table 16.2. Risk return

Security	Risk	Return
A	15%	12%
B	20%	18%
C	25%	22%

Solution. The portfolio return is computed as follows:

$$(0.33 \times 12) + (0.33 \times 18) + (0.33 \times 22) = 17.16\%$$

the portfolio risk is computed as follows:

$$\begin{aligned} \sigma &= \sqrt{(0.33^2 \times 15^2) + (0.33^2 \times 20^2) + (0.33^2 \times 25^2) + (2 \times 0.33^2 \times -0.43 \times 15 \times 20) + (2 \times 0.33^2 \times 0.21 \times 20 \times 25) + (2 \times 0.33^2 \times -0.62 \times 15 \times 25)} \\ &= 8.96\%. \end{aligned}$$

When the correlation coefficient ranges between 0 and -1, there is a possibility of minimising the total risk by combining the two securities.

For a two security combination it is possible to find the ratio of investment in the two securities that will result in minimum risk portfolio. The percentage of investment in security (A) can be ascertained using the following equation.

$$\omega_A = \frac{\sigma_B^2 - \rho_{AB} \times \sigma_A \times \sigma_B}{\sigma_A^2 + \sigma_B^2 - 2 \times \rho_{AB} \times \sigma_A \times \sigma_B}$$

The proportion of investment in security (B) will be $1 - \omega_A$ or can also be computed using the following equation.

$$\omega_B = \frac{\sigma_A^2 - \rho_{AB} \times \sigma_A \times \sigma_B}{\sigma_A^2 + \sigma_B^2 - 2 \times \rho_{AB} \times \sigma_A \times \sigma_B}$$

When the correlation coefficient is -1, the proportion of investment in each security can be given by the following equation.

$$\omega_A = \frac{\sigma_B^2 - \rho_{AB} \times \sigma_A \times \sigma_B}{\sigma_A^2 + \sigma_B^2 - 2 \times \rho_{AB} \times \sigma_A \times \sigma_B} = \frac{\sigma_A (\sigma_A + \sigma_B)}{(\sigma_A + \sigma_B)^2} = \frac{\sigma_B}{\sigma_A + \sigma_B}$$

$$\omega_B = \frac{\sigma_A^2 - \rho_{AB} \times \sigma_A \times \sigma_B}{\sigma_A^2 + \sigma_B^2 - 2 \times \rho_{AB} \times \sigma_A \times \sigma_B} = \frac{\sigma_A (\sigma_A + \sigma_B)}{(\sigma_A + \sigma_B)^2} = \frac{\sigma_A}{\sigma_A + \sigma_B}$$

Illustration 16.3. From the two securities available for investment opportunity, find the proportion of investment in each security that will minimise the risk for the investor. The correlation coefficient between the two securities is -0.65 . Determine portfolio risk.

Table 16.3. Risk-return

Security	Risk%	Return%
A	25	18
B	30	22

$$\omega_A = \frac{\sigma_B^2 - \rho_{AB} \times \sigma_A \times \sigma_B}{\sigma_A^2 + \sigma_B^2 - 2 \times \rho_{AB} \times \sigma_A \times \sigma_B}$$

$$\omega_A = \frac{30^2 - (-0.65 \times 25 \times 30)}{30^2 + 25^2 - (2 \times -0.65 \times 25 \times 30)}$$

$$\omega_A = 0.556 \quad \omega_B = 1 - 0.556 = 0.444$$

The risk return composition for a portfolio with these weights are as follows:

Portfolio return

$$(0.556 \times 18) + (0.444 \times 22) = 19.78\%$$

Portfolio risk

$$\sigma_P = \sqrt{(0.556^2 \times 25^2) + (0.444^2 \times 30^2) + (2 \times -0.65 \times 25 \times 30)}$$

$$= 11.40\%$$

Minimal risk is achieved since the correlation coefficient is ranging between 0 and -1 . A positive correlation coefficient increases the

portfolio risk proportionately. The following table illustrates the risk-return profile of a two security portfolio when the correlation coefficient is 0, 0.5, 1, -0.5 and -1.

Security	Risk%	Return%
A	20	15
B	30	20

ρ	0,100		40,60		50,50		60,40		100,0	
	Risk	Return	Risk	Return	Risk	Return	Risk	Return	Risk	Return
0	30	20	19.7	18	18	17.5	17	17	20	15
0.5	30	20	23.1	18	21.8	17.5	20.8	17	20	15
1	30	20	26	18	25	17.5	24	17	20	15
-0.5	30	20	15.6	18	13.2	17.5	12	17	20	15
-1	30	20	10	18	5	17.5	10	17	20	15

The graph in Figure 16.1 plots all the combinations of securities for different correlation coefficients.

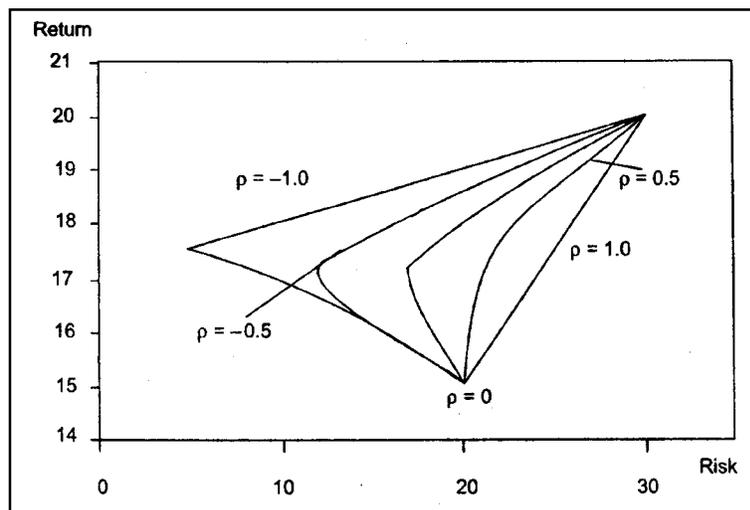
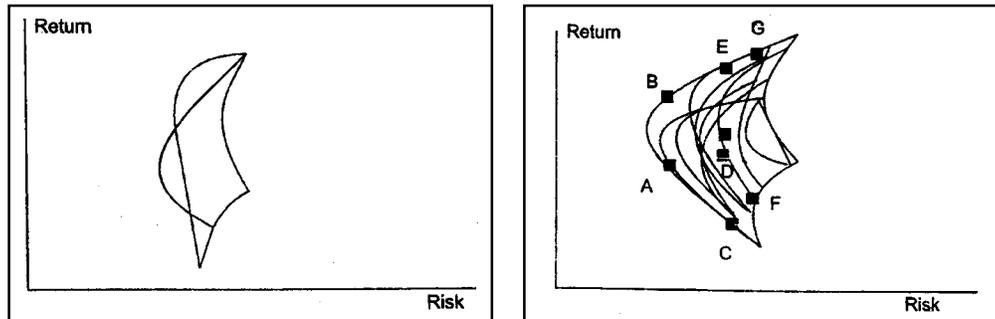


Figure 16.1. Risk-return impact of different correlations

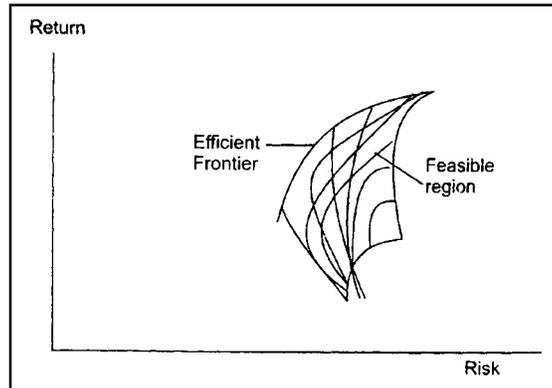
Plots for a larger number of securities are similar and can be represented through the graphs in Figure 16.2 and Figure 16.3.



A rational investor, given the above options of portfolios, will tend to select only those portfolios that give the highest return for a given risk or on the other hand, a lowest risk for a given return option. Consider the points A and B in Figure 16.3. Given the same risk level the return from B is higher than A, hence the rational investor will prefer B rather than A. Similarly, consider the points C, D, and E, compared to points C, and D, E gives a higher return for the same level of risk. The preference of investors will be E. Also, as risk level increases between the points F and G, G will be a preferred investment considering the higher return from this investment. The choice between B, E, and G will depend on the risk preference of investors. Given a higher risk preference level the choice of an investor will be towards point G. On the other hand if the investor is averse to risk the preference will be towards B rather than E and G.

The selection of portfolios for the investor is thus made only between the top most points in the feasible portfolio region shown in Figure 16.4. The feasible region is the combination of securities available in the market. The outer layer of the feasible region gives the investor maximum returns for a specific risk. Hence this is called the efficient

frontier. An investor can evaluate among the efficient frontier to select the specific risk return portfolio that is preferred. These portfolios provide the highest return for a given level of risk.



16.5. Markowitz Portfolio Selection

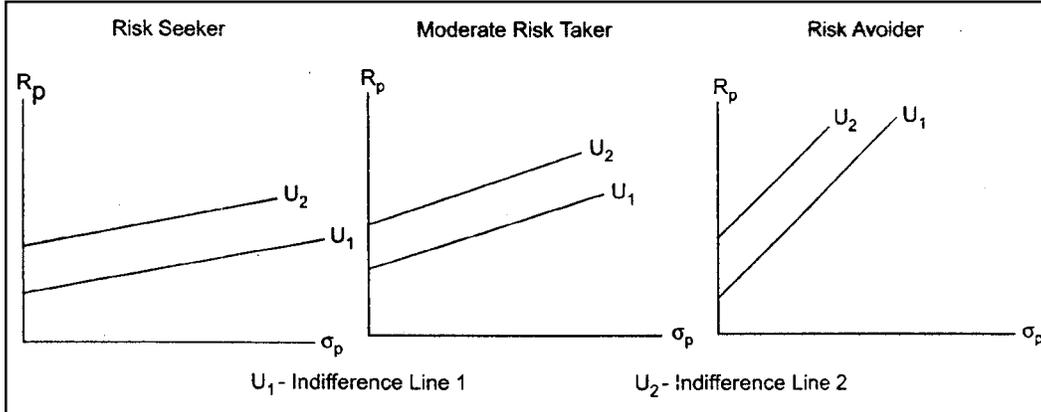
Markowitz Portfolio Selection Method identifies an investor's unique risk-return preferences, namely utilities. The Markowitz portfolio model has the following assumptions:

Investors are risk averse

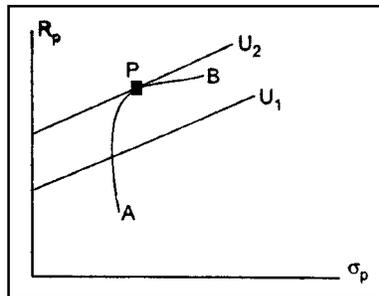
Investors are utility maximisers than return maximisers

All investors have the same time period as the investment horizon

An investor who is a risk seeker would prefer high returns for a certain level of risk and he is willing to accept portfolios with lower incremental returns for additional risk levels. A risk averse investor would require a high incremental rate of return as compensation for every small amount of increase in risk. A moderate risk taker would have utilities in between these two extremes. The utilities of different categories of investors is illustrated in Figure 16.5.



Once an investor is able to map the precise utility pattern of a risk-return combination, the investor can then superimpose the efficient frontier into this utility map. The indifference line point that is tangential to the efficient frontier will be the optimal portfolio selection for an investor. The portfolio selection point for a moderate risk taker is shown in Figure 16.6.



AB - Efficient Frontier U - Utility Lines
P - Portfolio Selection

Fig. _____ Portfolio selection point of a moderate risk taker

Markowitz H.M. (1952) introduced the term 'risk penalty' to state the portfolio selection rule. A security will be selected into a portfolio if the risk adjusted rate of return is high compared to other available securities. This risk adjusted rate of return is computed as:

$$\text{Risk adjusted return utility) = Expected return} - \text{Risk penalty}$$

Risk penalty is computed as:

$$\text{Risk Penalty} = \frac{\text{Risk squared}}{\text{Risk tolerance}}$$

Risk squared is the variance of the security return and risk tolerance is a number between 0 and 100. Risk tolerance of an investor is stated as a percentage point between these numbers and a very high risk tolerance could be stated as 90 or above and a very low risk tolerance level could be stated as between 0 and 20.

Assuming the expected return from a portfolio is 24 per cent, standard deviation (risk) is 20 per cent, and risk tolerance level is rated as 40, the utility of the portfolio for the investor with a risk tolerance level of 40 will be:

$$\text{Portfolio utility} = 24 - (400/40) = 24 - 10 = 14\%.$$

Illustration 16.4. The following risk-return combinations of portfolios are available to an investor. Assume the risk tolerance level for the investor is 30 per cent, rank the portfolios and select the best portfolio that fits investor requirement.

Portfolio	A	B	C	D	E	F	G	H	I	J
Return (%)	10	18	25	28	30	27	27	30	35	13
Risk (%)	15	20	25	24	29	25	23	28	30	17
Risk penalty	7.5	13.33	20.83	19.2	28.03	20.83	17.63	26.13	30	9.63
Portfolio utility	2.5	4.67	4.17	8.8	1.97	6.17	9.37	3.87	5	3.37

Solution. The ranking of the portfolios will be as follows:

Portfolio	G	D	F	I	B	C	H	J	A	E
Utility	9.37	8.8	6.17	5	4.67	4.17	3.87	3.37	2.5	1.97
Rank	1	2	3	4	5	6	7	8	9	10

The portfolio that best fits the investor is G, with the portfolio utility of 9.37 per cent.

16.6. Sharpe's Single Index Portfolio Selection Method

Sharpe W.E. (1964) justified that portfolio risk is to be identified with respect to their return co-movement with the market and not necessarily with respect to within the security co-movement in a portfolio. He therefore concluded that the desirability of a security for its inclusion is directly related to its excess return to beta ratio, i.e.,

$$\frac{R_i - R_f}{\beta_i}$$

Where

R_i = expected return on security i

R_f = return on a riskless security

β_i = beta of security i

This ranking order gives the best securities that are to be selected for the portfolio.

Cut-off Rate

The number of securities that are to be selected depends on the cut-off rate. The cut-off rate is determined such that all securities with higher ratios are included into the portfolio. The cut-off rate for the selection of a security into a portfolio is determined as:

$$C_i = \frac{\sigma_m^2 \sum_{i=1}^i \frac{(R_i - R_f) \beta_i}{\sigma_{ei}^2}}{1 + \sigma_m^2 \sum_{i=1}^i \frac{\beta_i^2}{\sigma_{ei}^2}}$$

Where

σ_m^2 = market variance

R_i = security return

R_f = risk free return

β_i = security beta

σ_{ei}^2 = security error variance

The final cutoff rate C^* is one where the cut-off value is highest and the next inclusion of a security reduces the cut-off value noticeably.

Percentage of investment in each security

The percentage of investment in each of the securities in a portfolio with optimal C^* cut-off rate is decided as follows:

$$\omega_i = \frac{Z_i}{\sum_{i=1}^n Z_i}$$

where

$$Z_i = \frac{\beta_i}{\sigma_{ei}^2} \left(\frac{(R_i - R_f)}{\beta_i} - C^* \right)$$

R_i = security return

R_f = risk free return

β_i = security beta

σ_{ei}^2 = security error variance

C^* = Cut-off value

Illustration 16.5. The following securities are available for investment for an investor. Select the optimal portfolio using the Sharpe's Single Index Portfolio Selection method. Assume the risk free rate of return as 5 per cent and the standard deviation of the market return as 25 per cent.

Security	A	B	C	D	E	F	G	H	I	J
Return	12%	15%	13%	18%	14%	16%	13%	14%	11%	20%
Beta	1.5	1.8	1.2	1.3	1.02	0.6	0.8	1.5	1.2	1.5
Error	15%	16%	17%	20%	15%	14%	16%	13%	14%	16%

Solution. The selection of the portfolio from these securities will be by building the following table. The table ranks the securities on the basis of the Sharpe measure of excess returns relative to beta risk:

Stock	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
F	11	0.003	0.034	0.034	21	0.002	0.002	2.15	9.798
J	15	0.006	0.088	0.122	76	0.009	0.011	7.64	9.943
D	13	0.003	0.042	0.164	102	0.004	0.015	10.28	9.958
G	8	0.003	0.025	0.189	118	0.003	0.017	11.84	9.963
E	9	0.005	0.041	0.230	144	0.005	0.022	14.73	9.740
C	8	0.004	0.033	0.263	164	0.005	0.027	17.85	9.204
H	9	0.009	0.080	0.343	214	0.013	0.040	26.17	8.185
B	10	0.007	0.070	0.413	258	0.013	0.053	34.08	7.575
I	6	0.006	0.037	0.450	281	0.007	0.060	38.67	7.269
A	7	0.007	0.047	0.496	310	0.010	0.070	44.92	6.907

Columns: (1) $(R_i - R_f)$ (2) $(\beta_i / \sigma_{ei}^2)$
(3) $(1) * (2)$ (4) Cumulative of column 3 values
(5) $\sigma_m^2 * (4)$ (6) $(\beta_i^2 / \sigma_{ei}^2)$
(7) Cumulative of column 6 values
(8) $1 + [\sigma_m^2 * (7)]$ (9) $C_i = (5) / (8)$

The ranking of securities on the basis of their risk related returns is then followed by the computation of C_i for a portfolio of the combined securities. The maximum C_i or C^* is that amount after which the inclusion of other securities do not contribute to increased returns

with respect to the risk inherent in that security. In the example, inclusion of the first four securities is optimal for the investor, since after that, the C_i values ((column (9)) are less. The quantum of investment in these securities J, D, F and G are determined using the following Table:

Stock	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
F	11	0.003	0.034	0.034	21	0.002	0.002	2.15	9.798	8.594	0.0263
J	15	0.006	0.088	0.122	76	0.009	0.011	7.64	9.943	0.260	0.0015
D	13	0.003	0.042	0.164	102	0.004	0.015	10.28	9.958	0.260	0.0008
G	8	0.003	0.025	0.189	118	0.003	0.017	11.84	9.963	0.260	0.0008

Computation of the columns (10) and (11) are

The proportion of investments in each security is determined as follows:

$$\begin{aligned}
 \omega_f &= (0.0263/0.0295) = 89.21\% & (10) & [(1) / \beta_i] - C^* \\
 \omega_j &= (0.0015/0.0295) = 5.17\% & (11) & (2) * (10) \\
 \omega_d &= (0.0008/0.0295) = 2.87\% \\
 \omega_d &= (0.0008/0.0295) = 2.87\% \\
 \omega_g &= (0.0008/0.0295) = 2.76\%
 \end{aligned}$$

16.7. Managing the portfolio

After establishing the asset allocation, the investor has to decide how to manage the portfolio over time. He can adopt passive approach or active approach towards the management of the portfolio. In the passive approach the investor would maintain the percentage allocation for asset classes and keep the security holdings within its place over the established holding period. In the active approach the investor continuously assess the risk and return of the securities within the asset classes and changes them accordingly. He would be

studying the risks (1) market related (2) group related and (3) security specific and changes the components of the portfolio to suit his objectives.

16.8. Summary

- Portfolio is a combination of various securities.
- Portfolios can be constructed according to the traditional approach or modern approach.
- In the traditional approach the constraints, investor's need for current income and income in constant rupees are analysed. Liquidity, safety, time horizon of the investment, tax consideration and temperament of the individual investor's are the other constraints to frame the objectives.
- The general objectives of the portfolio are current income, constant income, capital appreciation and preservation of capital.
- According to the objectives the portfolio whether it is a bond portfolio or a stock portfolio or combination of both of bond and stock is decided. After that, the equity component of the portfolio is chosen. The traditional approach takes the entire financial plan of the individual investor.
- In the modern approach, Markowitz model is used. More importance is given to the risk and return analysis.

16.9 Key Words

Portfolio construction is the process of blending together the broad asset classes to obtain optimum return with minimum risk.

Traditional approach of portfolio construction is based on the financial needs of the individual investors.

Modern approach is based on the risk and return analysis.

Portfolio returns are the weighted returns of all securities constituting the portfolio,

Portfolio risk is the simply weighted average risk of all securities in the portfolio and is measured by the standard deviation together with the covariance between securities.

16.10. Questions

1. What are the steps in the traditional approach?
2. Explain the constraints in the formation of objectives.
3. How would you formulate the asset mix according to the given objectives?
4. What are the differences between the traditional approach and modern approach?
5. State the modern approach in the construction of the portfolio.
6. Consider two situations: a young man X in early twenties and another young man Y in the late thirties X and Y earns same amount of money. Mr. Y has a family, a house, a car and all the encumbrances related with the marital status. Both of them like to invest in securities, what would be their constraints and objectives?
7. Ajay, aged 26 is chalking out an investment program to invest in common stocks. Ajay is married and working in a MNC. He is paid nearly 5 lakhs per year. He is having a well furnished house and a car. He is a member of the life insurance scheme. He has purchased his house on loan scheme. The MNC with whom he is working has given him 15 years of job contract.

They may or may not renew their contract. Assist him in his investment plan. Advise him about the components of his portfolio worth of 5 lakhs.

8. Compute the risk and return of a portfolio of these securities. Assume equal weights.

Security	S1	S2	S3	S4	S5
Return	12%	10%	8%	15%	18%
Risk (standard deviation)	20%	18%	10%	18%	25%

9. Give the minimum risk portfolio from the combination of the following securities.

Security	S1	S2
Risk (standard deviation)	15%	20%
Return	20%	30%

10. Select suitable portfolios for an investor who falls in the risk bracket of 40 per cent.

Portfolio	P1	P2	P3	P4	P5
Standard deviation	15%	16%	18%	12%	19%
Return	16%	18%	22%	19%	23%

11. Use the Sharpe Index Model to select the best combination of securities for a portfolio. The risk free rate is 5% and market standard deviation is 20%.

Security	S1	S2	S3	S4	S5
Risk (Beta)	1.5	1.2	1.3	1.4	0.85
Return	12%	15%	10%	16%	8%
Error	20%	15%	12%	24%	22%

12. Compute the beta for the following security:

Security price	410	421	415	417	418	422	420	419
Market price	3282	3285	3286	3290	3285	3290	3294	3298

16.11. References

Farrell, J.I., Jr. *Guide to Portfolio Management*. New York: McGraw-Hill, 1983.

Harrington, D.R. *Modern Portfolio Theory*. 2d ed. Englewood Cliffs, N.J.: Prentice Hall, 1987.

Markowitz, H.M. *Portfolio Selection: Diversification of Investments*. New York: John Wiley, 1959.

Markowitz, H.M. "Individual versus Institutional Investing." *Financial Services Review* 1 (1991).

Sharpe, W.F. "Capital Asset Prices: A Theory of Market Equilibrium under Conditions of Risk." *Journal of Finance* (September 1964).

Sharpe, W.F. *Portfolio Theory and Capital Markets*. New York: McGraw-Hill, 1970.

Statman, M. "How Many Stocks Make a Diversified Portfolio?" *Journal of Financial and Quantitative Analysis* (September 1987).

Subject Code : FM 304

Author : Ashish Garg

Lesson No. : 17

Vettor : Prof. B.S. Bodla

**SECURITIES AND EXCHANGE BOARD OF INDIA AND
STOCK MARKET REGULATION**

Structure

- 17.0. Objectives
- 17.1. Need for regulatory environment
- 17.2. Securities and Exchange Board of India
- 17.3. Regulation in the primary market
- 17.4. Regulation in the secondary market
- 17.5. Mutual fund/institutional investors regulatory environment
- 17.6. Regulation of derivative trading
- 17.7. Summary
- 17.8. Key Words
- 17.9. Self Assessment Questions
- 17.10. Suggested Readings/References

17.0 Objectives

After going through this lesson the learners will be able to :

- understand the objectives of setting up the Securities and Exchange Board of India (SEBI) in India.
- learn the need of regulation of stock market.
- describe the legal framework for a self-regulated market and the functioning of SEBI.
- discuss the role of SEBI as a regulator and the various rules and schedules of SEBI in regulating the stock market
- evaluate SEBI and its responsibility as an investor protection agency.

17.1. Need for regulatory environment

Regulations protect the integrity of the market place, member firms, and most importantly, the investors/customers. The concept of self-regulation is more pertinent than authority-enforced regulation in any capital market. Given the strength and nature of market participants, it is imperative that the stock exchanges adhere strictly to the regulations to ensure that these transactions are executed properly and fairly.

Every transaction made at the stock exchanges has to be under continuous surveillance during the trading day. Many stock exchanges have computer-based systems that search for unusual trading patterns and alert regulatory personnel to possible insider trading abuses or other prohibited trading practices.

Besides curbing insider trading, regulatory activities include the supervision of member firms to enforce compliance with financial and operational requirements, periodic checks on broker's sales practices, and continuous monitoring of specialist operations.

In short, the intensions of regulations can be listed as:

- Promote market transparency
- Maintain a level playing field for all investors
- Protect the integrity of the marketplace
- Monitor and enforce member and issuer compliance with the regulatory framework

The reliability of market information and assurance that the market is being monitored closely means that all constituents can participate in the market with confidence. Regulation establishes and maintains standards for fair, orderly, and efficient markets. Regulation is essential to monitor and assess the market participants including broker-dealers, self-regulatory organisations (such as the clearing agencies), and transfer agents.

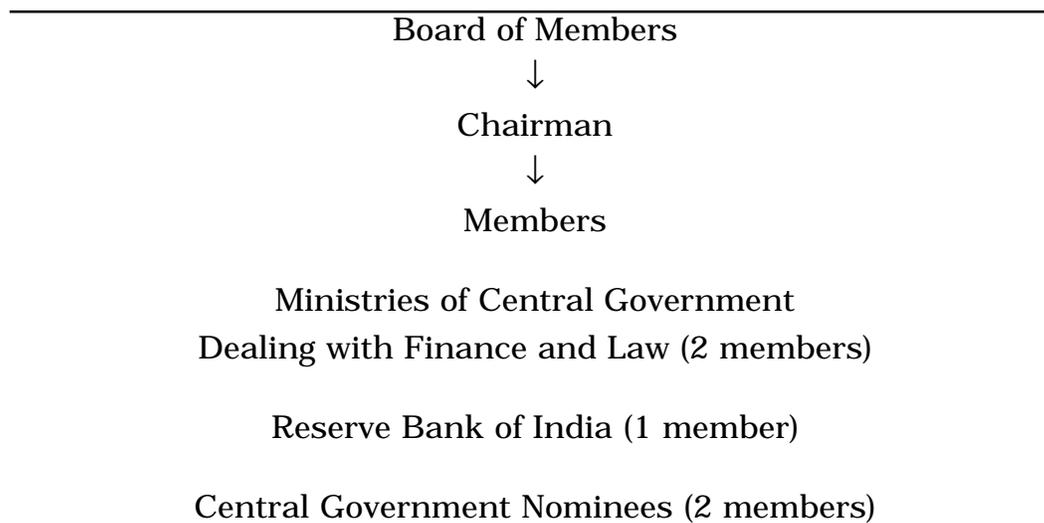
17.2. Securities Exchange Board of India

Transactions worth millions of rupees are circulated through the stock exchanges each day in the Indian capital market. The Securities and Exchange Board of India was established in 1988 to regulate and develop the growth of the Indian capital market. SEBI regulates the working of the stock exchanges and intermediaries such as stock brokers and merchant bankers, accords approval for mutual funds, and registers foreign institutional investors who wish to trade in Indian scrips. The SEBI Act, 1992 states that the duty of the board is to protect the interests of investors in securities and to promote the development of, and to regulate the securities market.

SEBI also promotes the investor's education and training of intermediaries of securities markets. It prohibits fraudulent and unfair trade practices relating to the securities markets and insider trading in securities, with the imposition of monetary penalties on erring market intermediaries. It regulates substantial acquisition of shares and takeover of companies and conducts inquiries and audits of the stock exchanges and intermediaries and self-regulatory organisations in the securities market.

The organisational structure of SEBI is given in Figure 17.1. The Board of Members constitutes the top structure of governance. The board is headed by a chairman and has five members representing the Central Government and Reserve Bank of India.

The Central Government, under Section 17 of SEBI Act, 1992, can supersede SEBI in certain instances such as under a grave emergency, if SEBI is unable to discharge its functions and duties, or if SEBI persistently defaults leading to a deterioration in the financial/administrative position of SEBI, or in public interest.



Source: www.sebi.org.in

Figure 17.1. Organisational structure of SEBI

Powers and functions of SEBI: SEBI, being the surveillance authority of the capital markets in India, is vested with requisite powers. SEBI's activities, to a great extent, centre on ensuring a good governance mechanism of the several players in the market. Specifically, SEBI's powers and functions are for:

- (a) Regulating the business in stock exchanges and any other securities market;
- (b) Registering and regulating the working of stockbrokers, sub-brokers, share transfer agents, bankers to an issue, trustees of trust deeds, registrars to an issue, merchant bankers, underwriters, portfolio managers, investment advisers, and such other intermediaries who may be associated with the securities market in any manner;
- (c) Regulating substantial acquisition of shares and takeover of companies;
- (d) Registering and regulating the working of collective investment schemes, including mutual funds;

- (e) Promoting and regulating self-regulatory organisations;
- (f) Prohibiting fraudulent and unfair trade practices in the securities market;
- (g) Prohibiting insider trading in securities;
- (h) Protecting investors and promoting investors education and training of intermediaries in the securities market;
- (i) Calling for information from, undertaking inspection, conducting enquiry and audits of the stock exchanges, intermediaries, and self-regulatory organisations in the securities market;

SEBI has a Primary Market Department, Secondary Market Department, Mutual Funds Department, and a Derivative Cell, to carry out regulatory services.

Legislation governing SEBI functions: The legislations governing the Primary Market operations are Merchant Banker, 1992; Debenture Trustee, 1993; Portfolio Managers, 1993; Registrars to Issue, 1993; Underwriters Regulations, 1993, Bankers to an Issue, 1994; and Buy-back of Securities Regulations, 1998. The guidelines for capital issues are contained in SEBI (Disclosure and Investor Protection) Guidelines, 2000, Guidelines for offering securities in public issues through the Stock Exchange mechanism.

The Secondary Market Department is guided by the Stock and Sub-Brokers Regulations, 1992; Insider Trading, 1992; Unfair Trade Practices, 1995; Depositories Act, 1996; Depositories and Participants Regulations 1996; and Credit Rating Agencies Regulations, 1999.

Mutual Funds Department is governed by the Mutual Funds Regulations, 1996. The venture capital funds come under the legislation of the Venture Capital Regulations 1996 and SEBI (Foreign Venture Capital Investor) Regulations, 2000.

The Derivatives Cell has the L C Gupta Committee Report 1998 and Verma Committee Report constituted in 1998 for regulating the market activities.

17.3. Regulation in the primary market

Issues of shares: Companies issuing securities to the public through an offer document are expected to file the offer document and make out an application for the listing of those securities. The draft prospectus has to be filed with SEBI through a merchant banker at least 21 days prior to the filing of the prospectus with the Registrar of companies. This time period ensures that the company, through its merchant banker, can change the contents of the document as per the modifications suggested by SEBI. If SEBI prohibits a company from entering the capital market the company cannot make a public issue of its securities.

Equity shares and convertible securities offer for sale can be issued by a company if it has a track record of distributable profits and a pre-issue net worth of not less than Rs. 1 crore in three of the immediately preceding five years. The company must have the minimum net worth requirement met with during the immediately preceding two years.

An unlisted company which does not have a track record or the requisite net worth, can still make a public issue of shares or convertible securities provided a public financial institution or a scheduled commercial bank:

- (a) Has appraised the project to be financed through the proposed offer to the public;
- (b) Not less than 10 per cent of the project cost is financed by the said appraising bank or institution by way of loan/equity participation in the issue of security in the proposed issue or a combination of any of them; and

- (c) The appraising bank or institution brings in the minimum specified contribution at least one day before the opening of the public issue.

A listed company in a stock exchange can make a public issue of convertible securities if as a result of the proposed issue, the net worth of the company becomes more than five times the net worth prior to the issue.

The above requisites of track record and net worth requirement need not be adhered to by a banking company, an infrastructure company, and in case of a rights issue by a listed company when they make public issue of equity shares or convertible securities, subject to certain conditions.

When there are financial instruments that are outstanding such as warrants or any other right that would entitle the existing promoters or shareholders, an option to receive equity share capital after the initial public offering, the company cannot make a public issue.

The company offering shares or rights issue or making an offer for the sale of securities has to enter into an agreement with a depository for the dematerialisation of securities already issued or for those that are proposed to be issued. However, the company has to give an option to subscribers/shareholders/investors to receive the security certificates or hold securities in dematerialised form with a depository.

When there are partly paid-up shares, the company cannot make a public or rights issue of equity share or any convertible security. These companies can make a public issue only after all the shares are fully paid or forfeited.

In the case of issue of a debt instrument (including convertible instruments), irrespective of their maturity or conversion period, the

company has to obtain its instrument credit rated from at least one credit rating agency and disclose this information in the offer document. For a public and rights issue of debt-securities of issue size greater than or equal to Rs. 100 crores, two ratings from two different credit rating agencies have to be obtained.

Pricing securities: The public or rights issue by listed companies and public issue by unlisted companies, infrastructure companies, and initial public issue by banks are eligible to freely price their equity shares or any convertible security.

An eligible company can make a public or rights issue of equity shares in any denomination. The company that has already issued shares in the denomination of Rs. 10 or Rs. 100 may change the standard denomination of the shares by splitting or consolidating the existing shares. While changing the denomination, the company cannot issue in a denomination of a decimal of a rupee and, at any time, there can be only one denomination for the shares of the company.

The issuer company can mention a price band of 20 per cent (cap in the price band should not be more than 20 per cent of the floor price) in the offer documents filed with the board. The actual price can be determined at a later date, before filing of the offer document with the Registrar of companies. The final offer document has to contain only one price and one set of financial projections.

A company can opt for the firm allotment procedure while issuing shares. Firm allotment implies that the company can specifically reserve shares for a certain category of investors subject to conditions laid down by SEBI. Reservation means reservation on a competitive basis where the allotment of shares is made in proportion to the shares applied for by the reserved categories.

A company is free to make reservations and/or firm allotments to

various categories of investors such as Indian mutual funds, foreign institutional investors, banks, permanent employees of the company, and shareholders of the promoting or group company.

In case of a firm allotment, and unlisted or listed company may issue shares to the firm allotment category at a price different from the price at which the net offer to the public is made. In such instances, the price in the firm allotment category should be higher than the price at which securities are offered to the public. The net offer to the public means the offer made to the Indian public and does not include firm allotments or reservations, or promoters' contributions. However, a justification for the price difference has to be given in the offer document. In addition, the company should not have made any payment, direct or indirect, in the nature of a discount, commission, allowance, or in any other form to the investors who have received firm allotment in such a public issue.

The lead merchant banker(s) can be included in the category of investors entitled to firm allotments subject to an aggregate maximum ceiling of 5 per cent of the proposed issue of securities. The aggregate of reservations and firm allotments for employees in an issue cannot exceed 10 per cent of the total proposed issue amount. For shareholders, the reservation cannot exceed 10 per cent of the total proposed issue amount. While presenting the capital structure, the lead merchant banker states the proposed issue amount as (promoters' contribution in the proposed issue) + (firm allotment) + (offer through the offer document).

Successful applicants receive share certificates/instruments for the eligible number of shares in tradable lots. The minimum tradable lot can be fixed on the basis of the offer price as given in the following table.

Offer price per share	Minimum tradable lot
Up to Rs. 100	100 shares
Rs. 101-Rs. 400	50 shares
More than Rs. 400	10 shares

If the subscription money is proposed to be received in calls, the calls have to be structured in such a manner that the entire subscription money is called within 12 months from the date of allotment. If the investor fails to pay the call money within 12 months, the subscription money already paid may be forfeited. The subscription list for public issues has to be kept open for at least three working days and not more than ten working days. A public issue made by an infrastructure company may be kept open for a maximum period of 21 working days. A rights issue may be kept open for at least 30 days and not more than 60 days. The period of operation of the subscription list of public issue has to be disclosed in the prospectus.

The quantum of issue, whether through rights or a public issue, cannot exceed the amount specified in the prospectus/letter of offer. An oversubscription to the extent of 10 per cent of the net offer to the public is permissible for the purpose of rounding off to the nearest multiple of 100 while finalising the allotment.

Another procedure adopted by companies in the issue of shares is the book building process. Book building is the selling of shares to the public at an acceptable price through merchant bankers. A book building process may mention the floor price of the offer. The merchant banker then records the number of offers that have been received and the offer prices along with the name of the investor who is making the offer. The allotment is made on the basis of the best bids received upto the requisite number of shares.

For example, if in the book building process, the following share volume and price quotes have been received, and the offer in terms of the book building process is for 8,000,000 shares, then the cut-off price in terms of the book building offer will be Rs. 710 per share.

Shares	Price quote	Acceptance
500,000	790	Yes
1,200,000	750	Yes
2,800,000	720	Yes
<u>4,800,000</u>	<u>710</u>	<u>Yes</u>
2,00,000	700	No

Promoters' contribution

The extent of the promoters' contribution for the different classes of public offer is as follows:

Nature of offer	Promoters' contribution
Public issue of unlisted companies	\geq 20 per cent of post issue capital
Public issue of listed companies	20 per cent of the proposed issue or post issue capital (rights issue component will not be considered)
Offers for sale	\geq 20 per cent of post issue capital

Source: www.sebi.org.in

The exemptions to the minimum requirement of promoters' contribution are:

- Public issue of securities by a company that has been listed on a stock exchange for at least three years (paid dividend for at least three years);

- Companies where no identifiable promoter/group exists.

For computing the percentage of shares held by the promoters, shares that have been acquired by them earlier for consideration other than cash, revaluation of assets/reserves or capitalisation of intangible assets, and resulting from a bonus issue will not be considered. Private placements also do not constitute promoters' contribution.

In case of a public issue by an unlisted company, securities which have been issued to the promoters during the preceding year, at a price lower than the price at which equity is being offered to the public cannot be included for the computation of the promoter's contribution.

In case of a listed company, participation by promoters in the proposed public issue in excess of the required minimum percentage will attract pricing provisions, if the issue price is lower than the price as determined on the basis of preferential allotment guidelines.

The promoters have to bring in the full amount of the promoters' contribution including the premium at least one day prior to the opening date of the issue. Where the minimum contribution of the promoters exceeds Rs. 100 crores, the promoters can bring in Rs. 100 crores before the opening of the issue and the remaining contribution can be brought in by the promoters in advance on a pro-rata basis before calls are made to the public. Against the receipt of money, the company's board has to pass a resolution allotting the shares or convertible instruments to the promoters. SEBI also has to receive a list of names and addresses of friends, relatives, and associates who have contributed to the promoters' quota along with the amount of subscription made by each of them.

The promoters' contribution is subject to a lock-in period of three years. The lock-in will start from the date of allotment in the proposed

public issue and the last date of the lock-in will be three years from the date of commencement of commercial production or the date of allotment in the public issue, whichever is later.

Other issue requirements

An unlisted company (with a commercial operation of less than two years) proposing to issue securities to the public, resulting in a post-issue capital of Rs. 3 crores and not exceeding Rs. 5 crores, can apply for listing of its securities only on those stock exchange(s) where the trading of securities is screen-based. The company has to appoint market maker(s) in all these stock exchanges. The appointment of market makers will be subject to the following:

- At least one market maker undertakes to make market for a minimum period of 18 months and at least one additional market maker undertakes to make market for a minimum period of 12 months from the date on which the securities are admitted for dealing;
- Market makers undertake to offer buy and sell quotes for a minimum depth of three marketable lots;
- Market makers undertake to ensure that the bid-ask spread (difference between quotations for sale and purchase) for their quotes does not exceed 10 per cent at any time; and
- The inventory of market makers on each of such stock exchanges, as on the date of allotment of securities, has to be at least 5 per cent of the proposed issue of the company.

Unlisted companies whose capital after the proposed issue of securities is less than Rs. 3 crores, are eligible to be listed only on the Over the Counter Exchange of India (OTCEI).

An unlisted infrastructure company making a public issue of pure debt instruments/convertible debt instruments and a municipal

corporation making a public issue of pure debt instruments are eligible to apply for the listing of these instruments on the stock exchanges subject to credit rating and have to be fully secured by creating security in favour of the debenture trustees.

A company cannot make any further issue of capital by way of issue of bonus shares, preferential allotment, rights issue, or public issue, till the securities in the offer document have been listed or application moneys refunded on account of non-listing or under subscription.

When a company has in its books fully convertible debentures (FCDs) or partly convertible debentures (PCDs) that are not yet converted, it cannot issue any shares by way of bonus or rights. If such other issues are made, similar benefit must be extended to the holders of the FCDs or PCDs through reservation of shares in proportion to their holding. The share so reserved may be issued at the time of conversion(s) of such debentures on the same terms on which the bonus or rights issue was made.

An issuer company cannot withdraw a rights issue after the announcement of a record date in relation to such an issue. In cases where the issuer has withdrawn the rights issue after announcing the record date, the company cannot make an application for a listing of any securities for a minimum period of 12 months from the record date.

Pre-issue obligations

The merchant banker concerned with the public issue of shares has to fulfil certain pre-issue obligations. The lead merchant banker has to pay the requisite fee in accordance with SEBI regulations along with the draft offer document filed with the Board. Along with the offer documents the Memorandum of understanding (MOU), the allocation of rights, obligations, and responsibilities (in case of more

than one merchant banker), and Due Diligence Certificate have to be submitted as well. Additional certificates that need to be submitted in case of listed companies making further issues of capital relate to refund orders, dispatch of certificates, and list of previous issues with a stock exchange.

The registrars to issue have to be registered with SEBI. The lead merchant banker has to ensure that the registrar to an issue is not acting as the company's promoter or director. Where the number of applications in a public issue is expected to be large, registrars registered with SEBI can be appointed for the limited purpose of collecting the application forms at different centres. These registrars have to forward the applications to the designated registrar to the issue as mentioned in the offer document. The designated registrar to the issue will be primarily and solely responsible for all the activities of issue management.

The draft offer document filed with SEBI has to be made public for a period of 21 days from the date of filing. Simultaneously, copies of the draft offer document have to be filed with the stock exchanges where the securities are offered.

After a period of 21 days from the date the draft offer document was made public, the lead merchant banker has to file with SEBI the list of complaints received and the proposed amendments to the draft offer document.

The company may appoint any number of collection centres, as it may deem fit. The minimum number of collection centres for an issue of capital will be the four metropolitan centres of Mumbai, Delhi, Kolkata, and Chennai, and the stock exchanges located in the region of the company's registered office.

The company can also appoint authorised collection agents in consultation with the lead merchant banker. The names and addresses of such agents have to be disclosed in the offer document. The collection agents so selected have to be equipped for the purpose in terms of infrastructure and manpower requirements. The collection agents may collect such applications as are accompanied by payment through cheques, drafts, and stockinvest schemes, but not in cash. The application money has to be deposited in the special share application account with a designated scheduled bank either on the same date or latest by the next working day. The collection agent has to forward the application forms along with duly reconciled schedules to the registrar to the issue after the realisation of cheques. This has to be done within two weeks from the date of closure of the public issue.

In case of a rights issue, an advertisement concerning the offer has to be released in daily newspapers at least seven days before the date of opening of the issue. The advertisement indicates centres other than the registered office of the company, where the shareholders or the investors entitled to rights may obtain duplicate copies of application forms in case they do not receive the original application form within a reasonable time even after the opening of the rights issue. The advertisement itself has to contain a format to enable shareholders to make the application on plain paper. The details sought are name, address, ratio of rights issue, issue price, number of shares held, ledger folio numbers, number of shares entitled and applied for, additional shares if any, amount to be paid along with application, particulars of cheque, and so on.

An issuer company has to appoint a compliance officer who directly interacts with SEBI regarding compliance of laws, rules, regulations, and other directives. The lead merchant banker ensures that a copy

of the abridged prospectus accompanies every application form distributed by the company. The abridged prospectus has to be printed at least in 7 point font size with proper spacing. The abridged prospectus contains general information about the company and the issue, risk factors and issue highlights, capital structure of the company, terms of the present issue, authority for the issue, terms of payment and procedure, and time schedule for the allotment and issue of certificates. It also contains information on the availability of forms, prospectus, and mode of payment.

Contents of the prospectus

The offer document (prospectus) contains all material information that are true and adequate so as to enable investors to make an informed decision on investment in the issue. The prospectus has information on the following:

- Availability of application forms, prospectus, and mode of payment.
- Undertaking by the issuer company to fulfil issue obligations.
- Issue details such as issue period, issue size, issue type, face value, tick size, minimum order quantity, IPO market timings, lead managers, and members of issue.
- Particulars of issue such as objects of the issue, project cost, means of financing.
- Project appraisal document.
- Company management stating the personnel and their qualification.
- Location of the project.
- Infrastructure facilities.
- Schedule of project implementation.
- Product details.
- Future prospects in terms of capacity and capacity utilization.
- Stock market data.

- Project financials.
- Financial data (Income statement and balance sheet) of the company and group companies.
- Basis for issue price such as pre-issue earnings per share, pre-issue P/E and comparison with industry P/E, and average return on net worth.
- Outstanding litigation of defaults.
- Risk factors and management perception of the same.
- Method of arrangements made for disclosure on investor grievances.
- Minimum subscription.
- Expenses of issue for issue advisors, registrar to issue, issue manager and trustee for the issue.
- Particulars of underwriting commission and brokerage.
- Details of previous issue.
- Information on directors of the issue company.
- Rights of members in respect of restriction or transfer of shares.
- Material contracts and place of inspection of documents.

Post-issue obligations

Post-issue monitoring reports have to be submitted within three working days from the due date irrespective of the level of subscription. In case of public issues, the following reports are to be submitted: (a) a three-day post-issue monitoring report and (b) a 78-day post-issue monitoring report. In case of a rights issue (a) a 3-day post-issue monitoring report and (b) a 50-day post-issue monitoring report are to be submitted.

The post-issue lead merchant banker actively associates with post-issue activities namely, allotments, refunds, and dispatch, and regularly monitors the redressal of investor grievances arising therefrom.

If the issue is proposed to be closed at the earliest closing date, the lead merchant banker ensures that the issue is fully subscribed before announcing the closure of the issue. In case, there is no definite information about subscription figures, the issue will be kept open for the required number of days to take care of the underwriters' interest and to avoid any dispute, at a later date, by the underwriters in respect of their liability. In case there is an involvement on underwriters, the lead merchant banker ensures that the underwriters honour their commitments within 60 days from the date of the closure of the issue. In case of under-subscribed issues, the lead merchant banker furnishes information in respect of underwriters who have failed to meet their underwriting obligations to SEBI.

The post-issue lead merchant banker ensures that in all issues, an advertisement giving details relating to over-subscription; basis of allotment; number, value, and percentage of applications received along with stock-invest; successful allottees, date of completion of dispatch of refund orders; and the date of dispatch of certificates is released in a daily newspaper within 10 days of the date of completion of the various activities.

The basis of allotment is finalised in a fair and proper manner in accordance with the SEBI guidelines. The allotment is in marketable lots, on a proportionate basis. Applicants are categorised according to the number of shares applied for and the total number of shares to be allotted to each category as a whole is arrived at on a proportionate basis.

The computation to determine proportionate allotment involves finding the total number of shares applied for in a specific category (number of applicants in the category \times number of shares applied for) and multiplying it by the inverse of the over-subscription ratio. This pro-rata allotment method is illustrated using the following example:

Total number of applicants in category of 1,000 = 5,000

Total number of shares applied for in this category $(1,000 \times 5,000) = 50,00,000$

Number of times oversubscribed = 2

Proportionate allotment to category = $50,00,000 \times (1/2) = 25,00,000$

Since each applicant has applied for 1,000 shares, the proportionate allotment to each successful applicant is $[1000 \times (1/2)] = 500$.

In case of applications where the proportionate allotment works out to less than 100 shares per applicant, the successful applicants will be determined by a draw of lots and each successful applicant will be allotted a minimum of 100 securities.

If the proportionate allotment to an applicant works out to a number that is more than 100 but is not a multiple of 100, the number in excess of the multiple of 100 will be rounded off to the higher multiple of 100 if that number is 50 or higher. For example, if the proportionate allotment works out to 380, the applicant would be allotted 400 shares. If that number is lower than 50, it will be rounded off to the lower multiple of 100. As an illustration, if the proportionate allotment works out to 240, the applicant would be allotted 200 shares.

The above proportionate allotments of securities in an issue that is oversubscribed will be subject to reservation for small, individual applicants. A minimum 50 per cent of the net offer of securities to the public will initially be made available for allotment to individual applicants who have applied for allotment equal to or less than 10 marketable lots. The balance net offer of securities to the public will be made available for allotment to:

- (i) individual applicants who have for allotment of more than 10 marketable lots of shares and;
- (ii) other investors including corporate bodies/institutions irrespective of the number of shares applied for.

The un-subscribed portion of the net offer to any one of the categories may be made available for allotment to applicants in other categories.

Regulation on Employee Stock Option Scheme (ESOS)/Employee Stocks Purchase Scheme (ESPS)

Only an employee of a company is eligible for participation in ESOS/ESPS. Specifically, an employee who is a promoter and a director who directly or indirectly holds more than 10 per cent of the outstanding equity shares cannot participate in the ESOS. For administration and superintendence of ESOS, a compensation committee has to be constituted by the company. This committee formulates the detailed terms and conditions of ESOS including the quantum of option to be granted per employee and in aggregate, and the conditions under which the option vested in the employees may lapse in case of termination of employment for misconduct. The right of an employee to exercise all the options at one time or at various points of time and the exercise period within which the employee should exercise the option are to be formulated clearly.

ESOS to be offered to employees has to be approved by passing a special resolution in the general body meeting. Approval of shareholders by way of a separate resolution has to be obtained by the company in case of grant of option to employees of a subsidiary or holding company and to identified employees equal to or exceeding 1 per cent of the issued capital of the company.

Companies granting option to its employees pursuant to ESOS will have the freedom to determine the exercise price subject to conforming

to the accounting policies. There will be a minimum period of one year between the grant of options and the vesting of option. The company will also have the freedom to specify the lock-in period for the shares issued pursuant to the exercise of option. The employee will not have right to receive any dividend or to vote or in any manner enjoy the benefits of a shareholder in respect of option granted till shares are issued on the exercise of option.

In case of listed companies, shares arising pursuant to an ESOS and shares issued under an ESPS, will be eligible for listing on any recognised stock exchange only if such schemes (ESOS or ESPS) are in accordance with SEBI guidelines.

Issue of sweat equity by a listed company

A company whose equity shares are listed on a recognised stock exchange may issue sweat promoter equity shares, to its employees and directors in accordance with the Companies Act, 1956 and SEBI Regulations. In case of issue of sweat equity shares to promoters, approval by a simple majority of the shareholders in a general meeting is required. The promoters to whom such sweat equity shares are to be issued cannot participate in such a meeting.

The price of sweat equity shares cannot be less than the maximum value of the average of the weekly high and low of the closing prices of the related equity shares during the six months preceding the relevant date; or during the two weeks preceding the relevant.

The amount of sweat equity shares issued will be treated as part of managerial remuneration if the shares are issued to any director or manager for non-cash consideration, which does not take the form of an asset that can be shown in the balance sheet of the company.

Sweat equity shares have a lock-in period of three years from the

date of allotment. The sweat equity issued by a listed company will be eligible for listing only if such issues are in accordance with SEBI regulations.

17.4. Regulation in the secondary market

Secondary market regulations protect investors by curbing insider trading and through regulations governing the buyback of shares by the company.

Insider trading: An insider is any person, who is or deemed to be or was connected with the company and who is reasonably expected to have access, by virtue of such a connection, to unpublished, price-sensitive information about the securities of the company. Unpublished, price-sensitive information pertains to any information which is of direct or indirect concern to the company and is not generally known or published, but which, if published or known, might materially affect the price of the securities of that company in the market. The following information is deemed to be price sensitive:

- (a) periodical financial results;
- (b) intended declaration of interim/final dividends;
- (c) issue of securities/buy back;
- (d) major expansion/new projects;
- (e) amalgamation/takeovers;
- (f) disposal of whole/substantial part of the undertaking; and
- (g) any significant change in policies, plans, or operations of the company.

The insiders of a company (directors/promoters/officers/designated employees, and others) are prohibited from trading in shares/securities of the company based on unpublished, price-sensitive information.

SEBI has given a model code of internal procedure and conduct for implementation and compliance by companies and others associated with the securities market. As per the code:

- The compliance officer of the company (a senior level employee) is made responsible for the preservation of price-sensitive information and pre-clearing of trading in securities of designated employees and their dependents. The compliance officer maintains a record of designated employees who will include officers of the top three tiers of the management and all employees of the finance department. Specific employees may also be designated by the company for this purpose.
- The unpublished, price-sensitive information should be disclosed by the company only to those within the company who need the information for the discharge of their duties and in whose possession the information will not give rise to a conflict of interest or misuse.
- The company has to specify a trading period (trading window) during which trading of securities can be done by the directors/officers/designated employees. They cannot trade in the company's securities during the period when the trading window is closed.
- The trading window will be closed, among others, at the time of declaration of financial results/dividends (interim/final), decisions are taken using price sensitive information. The trading window for the insider will be opened 24 hours after the above information is made public. The trading window can be closed during other periods also, at the discretion of the company.
- All directors/officers/designated employees should get a pre-clearance of the transactions in securities that they intend to deal. The company is permitted to fix a minimum threshold limit above which such pre-clearance would be required. An

application has to be made by such a person, giving prescribed particulars to the compliance officer. Once the compliance officer gives his approval, the person concerned has to execute the order within a week. Moreover, if securities are acquired, the same has to be held for a minimum period of 30 days.

- The compliance officer has to place before MD/CEO/a committee all the details of the dealings in securities by employees/ directors/officers. This is to be done on a monthly basis.
- The company has to ensure that adequate and timely disclosure of price-sensitive information is given on continuous and immediate basis to the stock exchanges. The compliance officer has to approve and oversee the disclosures. The company has to lay down the procedure for responding to any queries/ requests for verification of market rumours by stock exchanges. The compliance officer is also responsible for deciding whether a public announcement is necessary for verifying/denying rumours and then make the disclosure. The disclosure has to be done through various media/company web site. Information sent to stock exchanges may be put on the website. While dealing with institutions, only public information has to be provided. At least two company representatives should be present at meetings with institutions and discussions should preferably be recorded.

Buyback of shares: A company may buyback its specified securities by any one of the following methods:

- (a) From the existing securities holders on a proportionate basis through a tender offer;
- (b) From the open market through (i) book-building process and (ii) stock exchange; and
- (c) From odd-lot holders.

A company cannot buyback its specified securities from any person through negotiated deals, whether on or off the stock exchange or through spot transactions or through any private arrangement.

A company, authorised by a resolution passed by the board of directors at its meeting to buyback its securities, may buyback its securities subject to the following conditions:

- (a) Before making a public announcement, a public notice has to be given in at least one English national daily, one Hindi national daily, and a regional language daily, all with a wide circulation at the location of the company's registered office;
- (b) The public notice has to be given within two days of the passing of the resolution by the Board of directors; and
- (c) The public notice has to contain all the requisite disclosures.

The company should disclose the maximum price at which the buyback of specified securities is to be made. It should also state whether the Board of Directors of the company is being authorised at the general body meeting to determine subsequently the specific price at which the buyback may be made at the appropriate time. If the promoter intends to offer the specified securities, the quantum of specified securities proposed to be tendered, and the details of transactions and holdings for the preceding six-months including information on the number of specified securities acquired, and the price and date of acquisition are to be given.

The company cannot issue any specified securities including by way of bonus till the date of closure of the offer. The company cannot withdraw the offer to buyback after the draft letter of the offer is filed with SEBI or a public announcement of the offer to buyback is made. No public announcement of a buyback can be made when any scheme of amalgamation or compromise or any other arrangement is pending.

The company nominates a compliance officer and investor service centre for compliance with the buyback regulations and to redress the grievances of the investors. The company cannot buyback locked-in specified securities and non-transferable specified securities till the lock-in period is over or till the specified securities become transferable. The company can pay the consideration only by way of cash.

Buyback through tender offer/buyback of odd lot specified securities

A company may buyback its specified securities from its existing securities holders on a proportionate basis. The offer for buyback remains open to the members for a period not less than 15 days and not exceeding 30 days. The date of the opening of the offer cannot be earlier than seven days or later than thirty days after the specified date. The letter of offer has to be sent to the securities holders so as to reach them before the opening of the offer. In case the number of specified securities offered by the securities holders is more than the total number of specified securities to be bought back by the company, the acceptances per securities holder will be on a proportionate basis.

The company has to open an escrow account on or before the opening of the buyback offer. The escrow account consists of cash deposited with a scheduled commercial bank, bank guarantee in favour of the merchant banker, or deposit of acceptable securities with the merchant banker, or a combination of above. The escrow account balance will be at the rate of 25 per cent of the consideration payable if the total consideration payable does not exceed Rs. 100 crores. If the consideration payable exceeds Rs. 100 crores, then beyond the base level of 25 per cent, for every additional Rs. 100 crores a 10 per cent additional balance is required.

Buyback from open market

In a buyback from the open market, if there is any safety net scheme or buyback arrangements of the shares proposed in any public issue that has been finalised by the company with the lead merchant banker in advance, this has to be disclosed in the prospectus. Such buyback or safety net arrangements can be made available only to all original resident individual allottees. Such buyback or safety net facility, however, will be limited up to a maximum of 1,000 shares per allottee and the offer will be valid at least for a period of six months from the last date of dispatch of securities. The financial capacity of the person making available the buyback or safety net facility has to be disclosed in the draft prospectus.

The buyback of specified securities from the open market may be by any one of the following methods: (a) stock exchange or (b) book building process.

Buyback through stock exchange

A company can buyback its specified securities through the stock exchange by passing a special resolution and specifying the maximum price at which the buyback is to be made. The buyback cannot be made from the promoters or persons in control of the company. The company has to appoint a merchant banker and make a public announcement of the offer at least seven days prior to the commencement of the buyback. A copy of the public announcement has to be filed with SEBI within two days of such an announcement along with the fees.

The public announcement discloses details of the brokers and stock exchanges through which the buyback of the specified securities would be made. The buyback can be made only on stock exchanges with an electronic trading facility. The buyback of specified securities

has to be made only through the order matching mechanism except the “all or none” order matching system. The identity of the company as a purchaser appears on the electronic screen when the order is placed. Both the company and the merchant banker inform the stock exchange on a daily basis about the specified securities purchased for buyback and the same information is also to be published in a national daily.

The company then should extinguish the certificates as in the buyback through tender/odd-lot methods.

Any other person desirous of making a competitive offer within 21 days of the public announcement of the first offer, has to make a public announcement of a competitive offer for the acquisition of the shares of the same company. Upon the public announcement of a competitive bid(s), the acquirer(s) who had made the public announcement(s) of the earlier offer(s) may have the option to make an announcement revising the offer. Where there is a competitive bid, the date of closure of the original bid and of all the subsequent competitive bids will be the date of closure of the public offer under the last competitive bid.

No public offer, once made, can be withdrawn except when the statutory approval(s) required have been refused, the sole acquirer, being a natural person, has died and other circumstances as SEBI may pronounce. In such a withdrawal of the offer, the merchant banker has to make a public announcement in the same newspapers in which the public announcement of offer was published, indicating reasons for the withdrawal of the offer and simultaneously inform SEBI, all the listed stock exchanges, and the company.

The acquirer has to open an escrow account by way of security for the acquisition. The escrow amount will be calculated as 25 per cent

for a public offer up to and including Rs. 100 crores and 10 per cent thereafter. For offers which are subject to a minimum level of acceptance, and the acquirer does not want to acquire a minimum of 20 per cent, then 50 per cent of the consideration payable under the public offer in cash has to be deposited in the escrow amount. The escrow account is in the form of cash deposited with a bank, or a bank guarantee in favour of the merchant banker, or a deposit of acceptable securities with appropriate margin, with the merchant banker. In respect of consideration payable by way of exchange of securities, the acquirer has to ensure that the securities are actually issued and dispatched to the shareholders.

17.5. Regulation for mutual funds

A mutual fund is a mechanism for pooling resources by issuing units to investors and investing funds in securities in accordance with the objectives as disclosed in the offer document. Investment in securities are spread across a wide cross-section of industries and sectors and thus the risk is reduced. Diversification reduces the risk because all stocks may not move in the same direction in the same proportion at the same time. Mutual fund issues units to investors according to the quantum of money invested by them. Investors of mutual funds are known as unit holders.

The investors share the profits or losses in proportion to their investments. Mutual funds normally launch a number of schemes with different investment objectives from time to time. A mutual fund is required to be registered with the Securities and Exchange Board of India before it can collect funds from the public.

A mutual fund is set up in the form of a trust, with sponsor, trustees, Asset Management Company (AMC), and custodian. The trust is established by a sponsor, or sponsors, who is like the promoter of a

company. The trustees of the mutual fund hold its property for the benefit of the unitholders. An asset management company approved by SEBI manages the funds by making investments in various types of securities. The custodian, who is registered with SEBI, holds the securities of various schemes of the fund in its custody. The trustees are vested with the general power of superintendence and direction over the AMC. They monitor the performance and compliance of SEBI regulations by the mutual fund.

SEBI regulations require that at least two-thirds of the directors of the trustee company or board of trustees must be independent, that is, they should not be associated with the sponsors. Also, 50 per cent of the directors of the AMC must be independent, that is, they should not be associated with the sponsors. Also, 50 per cent of the directors of the AMC must be independent. SEBI also regulates the investments made by the mutual funds.

17.6. Regulations on derivatives trading

The Dr L C Gupta Committee constituted by SEBI in 1998 laid down the regulatory framework for derivative trading in India. SEBI has also framed suggestive by laws for derivative exchanges/segments and their clearing corporation/house, which lay down the provisions for trading and settlement of derivative contracts. The eligibility conditions have been framed to ensure that the derivative exchange/segment and clearing corporation/house provide a transparent trading environment, safety, and integrity, and provide facilities for the redressal or investor grievances.

Some of the important eligibility conditions are the derivative trading has to take place through an online screen-based trading system. It has to have online surveillance capability to monitor positions, prices, and volumes on a real time basis so as to deter market manipulation.

It has to have arrangements for the dissemination of information about trades, quantities, and quotes on a real time basis through at least two information vending networks, which are easily accessible to investors across the country. It should have an arbitration and investor grievances redressal mechanism operative from all the four regions of the country. It should have a satisfactory system of monitoring investor complaints and preventing irregularities in trading.

SEBI has specified that the value of a derivative contract should not be less than Rs. 2 lakhs at the time of introducing the contract in the market. Lot size refers to the number of underlying securities in one contract. Additionally, for stock-specific derivative contracts, SEBI has specified that the lot size of the underlying individual security should be in multiples of 100 and fractions, if any, should be rounded off to the next higher multiple of 100. This requirement of SEBI, coupled with the requirement of a minimum contract size, forms the basis of arriving at the lot size of a contract.

For example, if the shares of XYZ Ltd are quoted at Rs. 2,000 each and the minimum contract size is Rs. 2 lakhs, then the lot size for the particular scrips stands to be $200000/2000 = 100$ shares, that is, one contract in XYZ Ltd. covers 100 shares.

The measures specified by SEBI to protect the rights of the investor in the derivative market include the following:

1. The investor's has to be kept separate at all levels and is permitted to be used only against the liability of the investor and is not available to the trading member or clearing member or any other investor.
2. The trading member is required to provide every investor with a risk disclosure document which will disclose the risks

associated with the derivatives trading so that investors can take a conscious decision to trade in derivatives.

3. An investor would get the contract note duly time stamped for receipt of the order and execution of the order. The order will be executed with the identity of the client. The investor could also demand the trade confirmation slip. This will protect the investor from the risk of price favour extended by the member.

In the event of a default of a member, losses suffered by the investor, if any, on settled/closed out position are compensated from the investor protection fund.

17.7. Summary

Authority enforced regulations are needed in a market to the extent that the concept of “self-regulation” fails. The Indian Stock Markets are regulated by the Securities and Exchange Board of India. SEBI regulations cover the primary market, secondary market, mutual fund administration, and derivatives market.

SEBI's guidelines bring an orderly trading practice among the players in the market and are oriented towards investor protection in the stock market.

17.8. Key Words

Sweat equity shares are shares issued by a listed company to its employees and directors in accordance with the Companies Act, 1956 and SEBI Regulations.

Book building is the selling of shares to the public at an acceptable price through merchant bankers.

Prospectus is the document containing all information about the

company so as to enable investors to make decision on investment in the issue.

ESOS/ESPS provides opportunity to the employees of a company to have shares.

17.9. Self Assessment Questions

1. Discuss SEBI regulations regarding primary market operations.
2. Discuss how secondary markets are regulated by SEBI.
3. What are the regulations relating to pricing of public issue of shares?
4. What are the regulations regarding insider trading?
5. Explain the procedure for the buyback of shares.
6. Explain ESOS/ESOP.

17.10. Suggested readings/References

1. M. Ranganathan and R. Madhumathi: Investment Analysis and Portfolio Management, Pearson Education, New Delhi.
2. Punithavathy Pandian: Security Analysis and Portfolio Management, Vikas Publishing House Pvt. Ltd., New Delhi.
3. Bharti V. Phathak: Indian Financial System, Pearson Education, Delhi.
4. Donald E. Fischer and Ronald J. Jordon: Security Analysis and Portfolio Management, PHI.
5. Prasanna Chandra: Investment Analysis and Portfolio Management, TMH, Delhi.