UNIT I: INTRODUCTION TO INVESTMENT MANAGEMENT

Concept; Real vs. Financial assets; Investment decision process; Sources of investment information; Investment vs. Speculation; Factors -Liquidity, Return, Risk, Maturity, Safety, Tax and Inflation. The concept & measurement of return-realized and expected return. Ex-ante and ex-post returns. Risk: Concept, Sources-types of risk. Measurement of risk-Range, Standard Deviation & Co-Efficient of Variation. Approaches to investment analysis-Fundamental Analysis; Technical Analysis; Efficient Market Hypothesis, Behavioural Finance and heuristic driven biases.

INTRODUCTION TO INVESTMENT MANAGEMENT

Security analysis is a pre-requisite for making investments. In the present day financial markets, investment has become complicated. 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.

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. Economic investments are undertaken with an expectation of increasing the current economy's capital stock that consists of goods and services.

Objectives

The main objective of an investment process is to minimize risk while simultaneously maximizing the expected returns from the investment and assuring safety and liquidity of the invested assets.

REAL VS. FINANCIAL ASSETS

Investment in financial assets differs from investment in physical assets in those important aspects:

- Financial assets are divisible, whereas most physical assets are not. An asset is *divisible* if investor can buy or sell small portion of it. In case of financial assets it means, that investor, for example, can buy or sell a small fraction of the whole company as investment object buying or selling a number of common stocks.

- Marketability (or Liquidity) is a characteristic of financial assets that is not shared by physical assets, which usually have low liquidity. Marketability (or liquidity) reflects the feasibility of converting of the asset into cash quickly and without affecting its price significantly. Most of financial assets are easy to buy or to sell in the financial markets.

- The planned holding period of financial assets can be much shorter than the holding period of most physical assets. The holding period for investments is defined as the time between signing a purchasing order for asset and selling the asset. Investors acquiring physical asset usually plan to hold it for a long period, but investing in financial assets, such as securities, even for some months or a year can be reasonable. Holding period for investing in financial assets vary in very wide interval and depends on the investor's goals and investment strategy.

INVESTMENT DECISION PROCESS

Investment management process is the process of managing money or funds. The investment management process describes how an investor should go about making decisions.

Investment management process can be disclosed by *five-step procedure*, which includes following stages:

1.   Setting of investment policy.
2.   Analysis and evaluation of investment vehicles.
3.   Formation of diversified investment portfolio.
4.   Portfolio revision
5.   Measurement and evaluation of portfolio performance.

Setting of investment policy is the first and very important step in investment management process. *Investment policy* includes setting of investment objectives. The investment policy should have the specific objectives regarding the investment return requirement and risk tolerance of the investor. For example, the investment policy may define that the target of the investment average return should be 15 % and should avoid more than 10 % losses. Identifying investor's tolerance for risk is the most important objective, because it is obvious that every investor would like to earn the highest return possible. But because there is a positive relationship between risk and return, it is not appropriate for an investor to set his/ her investment objectives as just "to make a lot of money". Investment objectives should be stated in terms of both risk and return.

Setting of investment objectives for individual investors is based on the assessment of their current and future financial objectives. The required rate of return for investment depends on what sum today can be invested and how much investor needs to have at the end of the investment horizon. Wishing to earn higher income on his / her investments investor must assess the level of risk he /she should take and to decide if it is relevant for him or not. The investment policy can include the tax status of the investor. This stage of investment management concludes with the identification of the potential categories of financial assets for inclusion in the investment portfolio. The identification of the potential categories is based on the investment objectives, amount of investable funds, investment horizon and tax status of the investor. From the section 1.3.1 we could see that various financial assets by nature may be more or less risky and in general their ability to earn returns differs from one type to the other. As an example, for the investor with low tolerance of risk common stock will be not appropriate type of investment.

Analysis and evaluation of investment vehicles. When the investment policy is set up, investor's objectives defined and the potential categories of financial assets for inclusion in the investment portfolio identified, the available investment types can be analyzed. This step involves examining several relevant types of investment vehicles and the individual vehicles inside these groups. For example, if the common stock was identified as investment
vehicle relevant for investor, the analysis will be concentrated to the common stock as an investment. The one purpose of such analysis and evaluation is to identify those investment vehicles that currently appear to be mispriced. There are many different approaches how to make such analysis. Most frequently two forms of analysis are used: technical analysis and fundamental analysis.

Technical analysis involves the analysis of market prices in an attempt to predict future price movements for the particular financial asset traded on the market.

This analysis examines the trends of historical prices and is based on the assumption that these trends or patterns repeat themselves in the future. Fundamental analysis in its simplest form is focused on the evaluation of intrinsic value of the financial asset. This valuation is based on the assumption that intrinsic value is the present value of future flows from particular investment. By comparison of the intrinsic value and market value of the financial assets those which are under priced or overpriced can be identified. Fundamental analysis will be examined in Chapter 4.

This step involves identifying those specific financial assets in which to invest and determining the proportions of these financial assets in the investment portfolio.

Formation of diversified investment portfolio is the next step in investment management process. Investment portfolio is the set of investment vehicles, formed by the investor seeking to realize its' defined investment objectives. In the stage of portfol io formation the issues of selectivity, timing and diversification need to be addressed by the investor. *Selectivity* refers to micro forecasting and focuses on forecasting price movements of individual assets. *Timing* involves macro forecasting of price movements of particular type of financial asset relative to fixed-income securities in general. *Diversification* involves forming the investor's portfolio for decreasing or limiting risk of investment. 2 techniques of diversification:

1. random diversification, when several available financial assets are put to the portfolio at random;

2. objective diversification when financial assets are selected to the portfolio

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Investment management theory is focused on issues of objective portfolio diversification and professional investors follow settled investment objectives then constructing and managing their portfolios.

Portfolio revision. This step of the investment management process concerns the periodic revision of the three previous stages. This is necessary, because over time investor with long-term investment horizon may change his / her investment objectives and this, in turn means that currently held investor's portfolio may no longer be optimal and even contradict with the new settled investment objectives. Investor should form the new portfolio by selling some assets in his portfolio and buying the others that are not currently held. It could be the other reasons for revising a given portfolio: over time the prices of the assets change, meaning that some assets that were attractive at one time may be no longer be so. Thus investor should sell one asset ant buy the other more attractive in this time according to his/ her evaluation. The decisions to perform changes in revising portfolio depend, upon other things, in the transaction costs incurred in making these changes. For institutional investors portfolio revision is continuing and very important part of their activity. But individual investor managing portfolio must perform portfolio revision periodically as well. Periodic re-evaluation of the investment objectives and portfolios based on them is necessary, because financial markets change, tax laws and security regulations change, and other events alter stated investment goals.

Measurement and evaluation of portfolio performance. This the last step in investment management process involves determining periodically how the portfolio performed, in terms of not only the return earned, but also the risk of the portfolio. For evaluation of portfolio performance appropriate measures of return and risk and benchmarks are needed. *A benchmark* is the performance of predetermined set of assets, obtained for comparison purposes. The benchmark may be a popular index of appropriate assets – stock index, bond index. The benchmarks are widely used by institutional investors evaluating the performance of their portfolios.

SOURCES OF INVESTMENT INFORMATION
Types of Investment Information:

i.World Affairs:
International factors, which influence domestic income, output and employment and for investment in the domestic market by F.F.I.s, O.C.B.s, etc. Also foreign political affairs, wars, and the state of foreign markets affect our markets.

ii.Domestic Economic and Political Factors:
Gross domestic products, agricultural output, monsoon, money supply, inflation, Govt. policies, taxation, etc., affect our markets.

iii.Industry Information:
Market demand, installed capacity, competing units, capacity utilisation, market share of the major units, market leaders, prospects of the industry, international demand for exports, inputs and capital goods abroad, import competing products, labour problems and Govt. policy towards the industry are all relevant factors to be considered in investment decision-making.

iv.Company Information:
Corporate data, annual reports, Stock Exchange publications, Dept. of company affairs and their circulars, press releases on corporate affairs by Govt., industry chambers or associations of industries etc. are also relevant for security price analysis.

v.Security Market Information:
The Credit rating of companies, data on market trends, security market analysis and market reports, equity research reports, trade and settlement data, listing of companies and delisting, record dates and book closures etc., BETA factors, etc. are the needed information for investment management.

vi.Security Price Quotations:
Price indices, price and volume data, breadth, daily volatility, range and rate of changes of these variables are also needed for technical analysis.

vii.Data on Related Markets:
Such as Govt., securities, money market, forex market etc. are useful for deciding on alternative avenues of investment.

viii.Data on Mutual Funds:
Their schemes and their performance, N A V and repurchase prices etc. are needed as they are also

investment avenues.

ix.Data on Primary Markets/New Issues, etc.

Need for Investment Information:
Investors and Market Analysts depend on the timely and correct information for making investment decisions. In the absence of such information, their decisions will depend on hearsay and hunches. In order to enable the correct investment decisions to be made, investors need to know the sources of information. In the fast expansion of the markets, and increasing complexity of economies, the amount of information is also fast growing.

The collection of information and its analysis is time consuming and expensive. Besides analysis of the information also requires expertise which all investors may not have. The available books on the subject deal with the theoretical aspects and not much practical analysis and down to earth operational aspects. As such the investors are left to make decisions by hunches and intuition and not on scientific analysis of the data. Those who have better information use it to make extra mileage on such information.
It is also possible that insiders who have the information before it becomes public take advantage of it called Insider trading. At present the SEBI has acquired powers to control insider trading, malpractices and rigging up of prices in the secondary markets in India, and penalise the offenders.

World Affairs:
The day-to-day developments abroad are published in Financial Journals like Economic Times, Financial Express, Business Line, etc. Some foreign Journals, like London Economist, Far East Economic Review and Indian Journals like, Business India, Fortune India etc., also contain developments of economic and financial nature in India and abroad. IMF News Survey, World Bank and IMF Quarterly Journal (namely, Finance and Development), News Letters of Foreign Banks like those of Grindlays, Standard, etc., contain all the needed information on world developments.

National Economic Affairs:
The daily news papers particularly financial papers referred to above contain all the national information; Besides Journals like Economic and Political Weekly, Business India, Dataline Business, Business Today and Fortune India contain the material on economic developments. RBI's Annual Reports, Reports on currency and finance and monthly reports and CMIE reports all contain a wealth of information on the economy and the country. The Economic Survey of the govt. of India and reports of C.S.O., D.G.T.D. and Dept. of companies, etc. do provide the information on, economy, industry, trade sectors of the country. The reports of the Planning Commission and annual reports of various ministries also contain a lot of information.

Industry Information:
There are various Associations — Chambers of Commerce, Merchants' Chamber and other agencies who publish Industry data. The reports of Planning Commission, govt. of India, publications from Industry and Commerce Ministries also contain a lot of information. The CMIE publishes various volumes and update them from time to time containing data on various sectors of the economy and

industries, and the subscribers get these volumes and reports.

Directory of Information published by the B.S.E. also contains information on industries and companies and this is updated from time to time. Many Daily financial papers bring out regularly studies on various Industries and their prospects. Industry data at micro level is available in Govt., publications, industry wise, but in view of a large time lag involved in their reports, the monthly reports of various Associations of Industries give more up-to-date and timely information.

Company Information:

The information on various Companies listed on Stock Exchanges is readily available in daily financial papers. Besides the Fort- nightly Journals of Capital Market, Dalai Street, Business India contain a lot of information on the industries and companies, listed on stock exchanges. Results of equity and Market Research are also published in these Journals.

The B.S.E. (Mumbai Stock Exchange) publishes Directory of Information on Industries and Companies, which are listed on Stock Exchanges, and the Journals of Capital Market and Dalai Street also publish these data. Computer software on these data are available with a number of software companies. The B.S.E. also publishes weekly Reviews, monthly Reviews giving data on various aspects of listed companies.

The Annual Reports of companies and their half-yearly unaudited results are another source of information on the companies. The financial journalists give write ups on various companies after interviewing their executives and these are published in Economic Times and other financial Dailies, like Business Line and Financial Express.

Security Market Information:

A number of big Broker Firms who have equity research are sending newsletters on Market Information with Fundamental and Technical analysis, combined in those reports. The Capital Market, Dalai Street, Business India and few other Stock Market Journals like Fortune India, Investment Week, etc., contain the information on security markets. The ICFAI also publishes a monthly called Chartered Financial Analyst, which contains economic data, company information, and market information, Security analysis, Beta factors and a host of other items, useful for security analysis.

The data on Trade cycles and settlements, record dates, book closures etc., are contained in financial papers like Economic Times, Business Line, Financial Express etc., after they are released by stock exchanges and companies. While the newsletter of Merchant Bankers, brokers' firms, Investment Analysts, are available to subscribers or their own clients, others are available for all at stipulated prices.

1.   The collection of information is thus costly and time consuming.

2.   Security Price Quotations:

3.   The daily quotations on various Stock Exchanges OTCEI, NSE are published in the daily papers. Each Stock Exchange is publishing its own daily quotations list, giving out opening, high, low and closing quotations of all traded securities. They also publish volume of trade for individual securities and also the total for all securities traded on a daily basis, in terms of shares and value of trades.

4.   The Price indices, for all securities, industry wise, region wise etc., are published by the RBI, B.S.E. and major Stock Exchanges, in the country. Besides each financial Daily has its own Index

published in its paper. All these indices, daily volumes, highs, lows, advances, declines etc., of well traded Companies, Gainers and Losers and such similar information, useful for both technical and fundamental analysis is available from all Stock Exchanges and published in financial Dailies and Journals. The Capital Market and Dalai Street journals also give Company information regarding their fundamentals, P/E, EPS, GPM, etc., along with the price data. Daily highs and lows, can be seen as against yearly highs/lows for each of the securities in financial Dailies.

5. The patterns of shareholding, distribution schedule, floating stock, past price data are available in all software and B.S.E. Directory. B.S.E. publishes all the data useful for technical analysis and these data are compiled by the computer specialists and floppies are available on official Daily quotations and Technical charts of each of the major companies listed on Stock Exchanges. The computer software data are also sold by software companies for those who have computer facility. For others, these data can be collected from daily papers, weekly and fortnightly Journals on Stock Markets, like Dalai Street and Capital Market.

6. Data on Money Market, Govt. Securities Market are available in the publications of RBI and D.F.H.I., Indian Banks Association, Securities Trading Corporation and banks and NSE. These data are published on a daily basis on the financial Dailies and journals. The publications who deal with these markets are however fewer in number compared to those on stock and capital markets.

7. The information on Forex Market is available in RBI publications, Foreign Exchange Dealers Association (FEDAI) and foreign banks. These data are published in the form of exchange rates and cross Currency rates in Financial Dailies regularly. The developments in these markets are reviewed in the Dailies or weekly and fortnightly Journals.

8. The data on Bullion market and rates for gold and silver are available on a Daily basis in the financial press. These data are published in RBI Bulletins and are also available in CMIE reports. Many of these data on Forex Markets in countries abroad can be obtained from London Economist, Far Eastern Economic Review, and Wall Street Journal.

Data on Mutual Funds, UTI etc.:

These are published in the Daily financial papers — at least once in a week in the Investment Weekly or Investors' Guide. They give the Current Schemes, NAV of each scheme if quoted as against the Market price, if traded, repurchase price, redemption rate, etc. in respect of close ended funds and daily purchase and sale prices for open ended funds. Besides, however all the journals, magazines and reports on Stock Markets also contain the relevant information on Mutual funds, as many of their schemes are quoted and traded on the Stock Exchanges. Thus, the Capital Market, Dalai Street and Business India also contain information on Mutual Funds.

Data on Primary Market:

New Issues in the Pipeline are first known to the SEBI as they get the Draft Prospectus for vetting and even before that, they would come to know of them from Merchant bankers' reports. But consolidation and publications of this information is done by a Magazine called "PRIME" publication. Prime publishes all information of new issues in the pipe line — industry wise and size wise analysis and public over subscription and under subscription etc. The performance of companies, Merchant bankers, underwriters and brokers etc., in the New Issue Market are also analysed by them. Geographical and centre-wise collection of new issues and other relevant company information is given by them.

Steps to be followed:

(a) Pattern of ownership of shares

(b) Proportion of public holding

(c) Floating stock for trading

(d) High/Low prices for the year

(e) Daily volatility of prices – Opening, High, Low and Closing

(f) Breadth of the Market

(g) No. of shares traded and their volumes vis-a-vis the total volume for all companies

(h) Declines/Advances among scrips

(i) Chart of Daily price trends, moving average trends — to get signals of buy/sell etc.

(j) Trace out the intrinsic value of the share by Fundamental Analysis —

Adjust for the expectations and sentiment in the Market to take a decision whether the price in the market is fair price or not. Study of the company through financial variables (BV, EPS, P/e, etc.), visit the plant and interview the chief executives of the company for knowing the expectations, as also of the merchant bankers and financial institutions, are the further steps. Scrips chosen on all these counts are properly timed through Technical Analysis for a proper investment decision-making. An analysis of risk in terms of variability of returns (standard deviation) of each company vis-a-vis the Market, use of Beta factor for risk which is systematic and diversification of investments into various industries and companies to reduce the unsystematic risks are the further steps in portfolio management.

Investment Vs Speculation

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 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.

MEASUREMENT OF RISK-RANGE, STANDARD DEVIATION & CO-EFFICIENT OF VARIATION.
Relationship between risk and return

The expected rate of return and the variance or standard deviation provide investor with information about the nature of the probability distribution associated with a single asset. However all these numbers are only the characteristics of return and risk of the particular asset. But how does one asset having some specific trade-off between return and risk influence the other one with the different characteristics of return and risk in the same portfolio? And what could be the influence of this relationship to the investor's portfolio? The answers to these questions are of great importance for the investor when forming his/ her diversified portfolio. The statistics that can provide the investor with the information to answer these questions are covariance and correlation coefficient. Covariance and correlation are related and they generally measure the same phenomenon – the relationship between two variables. Both concepts are best understood by looking at the math behind.

Covariance

Two methods of covariance estimation can be used: the sample covariance and the population covariance.

The sample covariance is estimated than the investor hasn't enough information about the underlying probability distributions for the returns of two assets and then the sample of historical returns is used.

Sample covariance between two assets - A and B is defined in

$$\text{Cov}(\acute{r}A, \acute{r}B) = \frac{\sum [(rA,t - \acute{f}A) \cdot (rB,t - \acute{f}B)] \, t=1}{n-1}, \qquad (2.9)$$

here rA,t , rB,t - consequently, rate of return for assets A and B in the time period t, when t varies from 1 to n;

ŕA, ŕB - sample mean of rate of returns for assets A and B consequently.

As can be understood from the formula, a number of sample covariance can range from "–" to "+" infinity. Though, the covariance number doesn't tell the investor much about the relationship between the returns on the two assets if only this pair of assets in the portfolio is analysed. It is difficult to conclud if the relationship between returns of two assets (A and B) is strong or weak, taking into account the absolute number of the sample variance. However, what is very important using the covariance for measuring relationship between two assets – the identification of the direction of this relationship. Positive number of covariance shows that rates of return of two assets are moving to the same direction: when return on asset A is above its mean of return (positive), the other asset B is tend to be the same (positive) and vice versa: when the rate of return of asset A is negative or bellow its mean of return, the returns of other asset tend to be negative too. Negative number of covariance shows that rates of return of two assets are moving in the contrariwise directions: when return on asset A is above its mean of return (positive), the returns of the other asset - B is tend to be the negative and vice versa. Though, in analyzing relationship between the assets in the same portfolio using covariance for portfolio formation it is important to identify which of the three possible outcomes exists:

positive covariance ("+"),

negative covariance ("-") or zero covariance ("0").

If the positive covariance between two assets is identified the common recommendation for the investor would be not to put both of these assets to the same portfolio, because their returns move in the same direction and the risk in portfolio will be not diversified.

If the negative covariance between the pair of assets is identified the common recommendation for the investor would be to include both of these assets to the
portfolio, because their returns move in the contrariwise directions and the risk in portfolio could be diversified or decreased.

If the zero covariance between two assets is identified it means that there is no relationship between the rates of return of two assets. The assets could be included in the same portfolio, but it is rare case in practice and usually covariance tends to be positive or negative.

For the investors using the sample covariance as one of the initial steps in analyzing potential assets to

put in the portfolio the graphical method instead of analytical one (using formula 2.9) could be a good alternative. In figures 2.1, 2.2 and 2.3 the identification of positive, negative and zero covariances is demonstrated in graphical way. In all these figures the horizontal axis shows the rates of return on asset A and vertical axis shows the rates of return on asset B. When the sample mean of return for both assets is calculated from historical data given, the all area of possible historical rates of return can be divided into four sections (I, II, III and IV) on the basis of the mean returns of two assets (ŕA, ŕB consequently). In I section both asset A and asset B have the positive rates of returns above their means of return; in section II the results are negative for asset A and positive for asset B; in section III the results of both assets are negative – below their meansof return and in section IV the results are positive for asset A and negative for asset B.

When the historical rates of return of two assets known for the investor are marked in the area formed by axes ŕA, ŕB, it is very easy to identify what kind of relationship between two assets exists simply by calculating the number of observations in each:

if the number of observations in sections I and III prevails over the number of observations in sections II and IV, the covariance between two assets is

positive ("+");

if the number of observations in sections II and IV prevails over the number of observations in sections I and III, the covariance between two assets is negative("-");

if the number of observations in sections I and III equals the number of observations in sections II and IV, there is the zero covariance between two assets ("0").

The population covariance is estimated when the investor has enough information about the underlying probability distributions for the returns of two assets and can identify the actual probabilities of various pairs of the returns for two assets at the same time.

Similar to using the sample covariance, in the population covariance case the graphical method can be used for the identification of the direction of the relationship between two assets. But the graphical presentation of data in this case is more complicated because three dimensions must be used (including the probability). Despite of it, if investor observes that more pairs of returns are in the sections I and III than in II and IV, the population covariance will be positive, if the pairs of return in II and IV prevails over I and III, the population covariance is negative.

Correlation and Coefficient of determination.

Correlation is the degree of relationship between two variables.

The correlation coefficient between two assets is closely related to their covariance.

The correlation coefficient between two assets A and B (kAB) can be calculated using the next formula:

$$k_{A,B} = \frac{Cov(r_A, r_B)}{\delta(r_A) \cdot \delta(r_B)},$$

here $\delta(r_A)$ and $\delta(r_B)$ are standard deviation for asset A and B consequently.

Very important, that instead of covariance when the calculated number is unbounded, the correlation coefficient can range only from -1,0 to +1,0. The more close the absolute meaning of the correlation coefficient to 1,0, the stronger the relationship between the returns of two assets. Two variables are perfectly positively correlated if correlation coefficient is +1,0, that means that the returns of two assets have a perfect positive linear

relationship to each other , and perfectly negatively correlated if correlation coefficient is - 1,0, that means the asset returns have a perfect inverse linear relationship to each other . But most often correlation between assets returns is imperfect . When correlation coefficient equals 0, there is no linear relationship between the returns on the two assets .Combining two assets with zero correlation with each other reduces the risk of the portfolio. While a zero correlation between two assets returns is better than positive correlation, it does not provide the risk reduction results of a negative correlation coefficient.

It can be useful to note, that when investor knows correlation coefficient, the covariance between stocks A and B can be estimated, because standard deviations of the assets' rates of return will already are available:

Therefore, as it was pointed out earlier, the covariance primarily provides information to the investor about whether the relationship between asset returns is positive, negative or zero, because simply observing the number itself without any context with which to compare the number, is not very useful. When the covariance is positive, the correlation coefficient will be also positive, when the covariance is negative, the correlation coefficient will be also negative. But using correlation coefficients instead of covariance investor can immediately asses the degree of relationship between assets returns.

The coefficient of determination (**Det.AB**) is calculated as the square of correlation coefficient:

$$\textbf{Det.A, B} = \textbf{k}^2\textbf{A,B} \qquad\qquad\qquad \textbf{(2.13)}$$

The coefficient of determination shows how much variability in the returns of one asset can be associated with variability in the returns of the other. For example, if correlation coefficient between returns of two assets is estimated + 0,80, the coefficient of determination will be 0,64. The interpretation of this number for the investor is that approximately 64 percent of the variability in the returns of one asset can be explained by the returns of the other asset. If the returns on two assets are perfect correlated, the coefficient of determination will be equal to 100 %, and this means that in such a case if investor knows what will be the changes in returns of one asset he / she could predict exactly the return of the other asset.

Relationship between the return on stock and market portfolio

When picking the relevant assets to the investment portfolio on the basis of their risk and return characteristics and the assessment of the relationship of their returns investor must consider to the fact that these assets are traded in the market.

The characteristic line and the Beta factor

Before examining the relationship between a specific asset and the market portfolio the concept of "market portfolio" needs to be defined. Theoretical interpretation of the **market portfolio** is that it involves every single risky asset in the global economic system, and contains each asset in proportion to the total market value of that asset relative to the total value of all other assets (value weighted portfolio). But going from conceptual to practical approach - how to measure the return of the market

portfolio in such a broad its understanding - the market index for this purpose can be used. Investors can think of the market portfolio as the ultimate market index. And if the investor following his/her investment policy makes the decision to invest, for example, only in stocks, the market portfolio practically can be presented by one of the available representative indexes in particular stock exchange.

characteristic line Stock's characteristic line: describes the relationship between the stock and the market; shows the return investor expect the stock to produce, given that a particular rate of return appears for the market; helps to assess the risk characteristics of one stock relative to the market. Stock's characteristic line as a straight line can be described by its slope and by point in which it crosses the vertical axis – intercept.

The slope of the characteristic line is called the *Beta factor.* Beta factor for the stock J and can be calculated using following formula:

$$\beta J = \frac{Cov\ (rJ,rM)}{\delta^2(rM)},$$

here: Cov(rJ,rM) – covariance between returns of stock J and the market portfolio;

δ^2(rM) - variance of returns on market portfolio.

The Beta factor of the stock is an indicator of the degree to which the stock reacts to the changes in the returns of the market portfolio. The Beta gives the answer to the investor how much the stock return will change when the market return will change by 1 percent.

Further in Chapter 3 the use of Beta factor in developing capita asset pricing model will be discussed.

Intercept AJ (the point where characteristic line passes through the vertical axis) can be calculated using following formula:

AJ = rJ - βJ . rM,

here: rJ - rate of return of stock J;

βJ - Beta factor for the stock J; rM - rate of return of the market.

The intercept technically is a convenient point for drawing a characteristic line. The interpretation of the intercept from the investor's point of view is that it shows what would be the rate of return of the stock, if the rate of return in the market is zero.

Residual variance

The characteristic line is a line-of-best-fit through some data points. A characteristic line is what in statistics is called as time-series regression line. But in reality the stock produce returns that deviate from the characteristic line In statistics this propensity is called the **residual variance.**

To calculate residual variance the residual in every period of observations must be identified. *Residual* is the vertical distance between the point which reflect the pair of returns (stock J and market) and the characteristic line of stock J.

It is useful for the interpretation of residual to investor to accentuate two components in formula of residual

-         *Component 1* reflects the return actually generated by the stock J during period t;

-         *Component 2* (in the bracket) represents investor's expectations for the

stock's return, given its characteristic line and market's returns.Note the difference *between the variance and the residual variance:*

The variance describes the deviation of the asset returns from its expected value ; The residual variance describes the deviation of the asset returns from its characteristic line.

The return of any investment has an average, which is also the expected return, but most returns will be different from the average: some will be more, others will be less. The more individual returns deviate from the expected return, the greater the risk and the greater the potential reward. The degree to which all returns for a particular investment or asset deviate from the expected return of the investment is a measure of its risk.

Standard Deviation: Measure of Absolute Risk

If you recorded the returns of a sample population of investors who invested in 5-year Treasury notes (T-notes), you would note that everyone received a constant rate of return that didn't deviate, since, once bought, T-notes pay a constant rate of interest with no credit risk. On the other hand, if you had recorded the returns of a sample of investors who had invested in small stocks at the same time, you would see a much wider variation in their returns — some would have done much better than the T-note investors, while others would have done worse, and each of their returns would vary over time. This variability can be measured with statistical methods, because investment returns generally follow a normal distribution, which shows the probability of each deviation from the mean, which is the average return, or the expected return, for a particular asset.

The sum of the deviations, both positive and negative, forms a normal distribution about the mean. The normal distribution describes the variation of many natural quantities, such as height and weight. It also describes the distribution of investment returns. The normal distribution has the property that small deviations from the mean are more probable than larger deviations. When graphed, it forms a bell-shaped curve.

The mean is subtracted from each deviation, then squared to ensure that all deviations are positive numbers, then divided by the number of returns minus 1, which is the degrees of freedom for a small sample. This is called the variance. The square root of the variance is the standard deviation, which is simply the average deviation from the expected return. Standard deviations can measure the probability that a value will fall within a certain range. For normal distributions, 68% of all values will fall within 1 standard deviation of the mean, 95% of all values will fall within 2 standard deviations, and 99.7% of all values will fall within 3 standard deviations.

A normal distribution can be completely described by its mean and standard deviation. The extent of the deviation of investment returns is the volatility, measured by the standard deviation of the investment returns for a particular asset. Volatility differs according to the type of asset, such as stocks and bonds. Individual assets also differ in volatility, such as the stocks of different companies and bonds by different issuers. Volatility is commensurate with the investment's risk, and this risk can be quantified by calculating the standard deviation for particular investments, which is done by

measuring the historical variation in the investment returns of particular assets or classes of assets. The greater the standard deviation, the greater the volatility, and, therefore, the greater the risk. More volatile assets have a wider bell-shaped curve, reflecting a greater dispersion in their returns. Likewise, 1 standard deviation will cover a wider dispersion of investment returns for a volatile asset than for a nonvolatile asset. Hence, more volatile assets are more likely to outperform or underperform less volatile assets.

Standard Deviation Formula for Investment Returns

$$s = \sqrt{\frac{\sum_{k=1}^{n}(r_k - r_{expected})^2}{n-1}}$$

s = Standard Deviation
rk = Specific Return
rexpected = Expected Return
n = Number of Returns (sample size).

Coefficient of Variation: Measure of Relative Risk

The greater the standard deviation, the greater the risk of an investment. However, the standard deviation cannot be used to compare investments unless they have the same expected return. For instance, consider the following table.

On the left hand side, you have an investment with an expected return of $5 where each specific return deviates by $1 from the expected return. On the right hand side, the specific returns also deviate by $1, but the expected return is $10. Because the difference between the expected returns and the specific returns for each sample is 1, the standard deviation is the same, but, nonetheless, the risk is not the same, because $1 is only 10% of $10, but 20% of $5.

The **coefficient of variation** is a better measure of risk, quantifying the dispersion of an asset's returns in relation to the expected return, and, thus, the relative risk of the investment. Hence, the coefficient of variation allows the comparison of different investments.

Coefficient of Variation = Standard Deviation / Average Return

APPROACHES TO INVESTMENT ANALYSIS

1. Value Investing

The strategy of value investing is to find stocks that are under-priced and good value. Warren Buffet is a fan of this investment strategy. This strategy requires detailed fundamental analysis of the company. Value investors look at stocks which have a market price (stock price) which is lower than the intrinsic value of the company. Intrinsic value is defined as the discounted value of the cash that can be taken out of a business during its remaining life. This value is an estimate which is dependant on interest rate movements or forecasted cash flow. A stock price is more than the intrinsic value when there is strong demand, driving the prices up. This strategy is more suited to the long term investor as these value stocks may take a long time before their stock prices rise. Stocks with lower P/E ratios will be more favourable under value investing. A cheaper stock does not always mean a profitable stock as the business may have serious issues. Hence research on the company is necessary when evaluating a value stock.

2. Income Investing

This strategy involves buying securities that generate income for the investor. Stocks which have a high dividend yield are selected as investors are looking for income producing stocks. Bond proxies have been popular in income investing. Such stocks include real estate trusts (REITs) and listed infrastructure. These are defensive stocks but have a higher dividend yield compared to the bond market. Stocks that have a high dividend rate may not have as much capital growth appreciation as a stock that pays no dividends. The reason is that companies which forgo dividend payouts reinvest those earnings into the business for expansion. The strategy of finding companies that pay high dividends is appropriate for investors who are living off their investment portfolio to fund their living expenses. This strategy is suited to the conservative investor as companies who can pay large dividends tend to be established stable companies.

3. Growth Investing

This strategy involves selecting companies which have potential to grow rapidly in the future. These stocks may be expensive in comparison to what the company is earning currently as the market has already priced in future growth in these companies. Growth companies reinvest their earnings to grow the business further and hence may not pay a dividend at all. This strategy is more suited to the risk seeking investor as these stocks are more volatile than average. Growth stocks have the possibility of large capital growth gains if stocks are selected well. It is suited to the investor who does not need income from their investment portfolio and is willing to sacrifice income for capital growth.

4. Small Cap Investing

Another strategy for the risk seeking investor is small cap investing. This strategy is suited to an investor who does not need access to their capital for a while. A small cap stock is defined as company with a market capitalisation between $300million and $2billion. Small cap stocks have historically performed well when there are interest rate rises and the economy is strong. However large cap stocks perform better during periods of recessions. These stocks are chosen for their potential for future growth, but with a small market cap their volatility is higher. Unlike growth investing, small cap stocks tend to be priced cheaply as the business is still in its infancy. The reason why small cap stocks have a higher propensity for capital growth than stocks in the top 20 is because they are still in the growth phase of the business cycle. It's easier for a company with market cap of 300m to double in size than a stock in the top 20

5. Active Investing

This strategy involves frequent buying and selling of stocks to take advantage of stock volatility and stock mispricing. An active investor typically holds positions within hours, days or months. Technical analysis is more of a focus than fundamental analysis as the investor is not investing in the stock for the long-term frame. Active investors change stocks in the portfolio depending on market, economic and company conditions. These investors will cut stocks that aren't performing or are stagnate rather than hold the stock long term anticipating the stock will appreciate in value. The purpose of active investing is to beat the market and outperform the index.

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6. Passive Investing

Passive investors believe the market is priced efficiently and they hold shares which track an index. The is strategy is to match the returns of the market. These investors buy and hold securities for the long term and there less frequent trading. Stocks are only sold and brought when companies leave and enter the indices. If there are large share price drops, passive investors hold onto the stock in the hope that over time it will recover. The returns with passive investing tend me to be smaller than active investing as it seeks to track the index and not beat it. However, transaction costs are lower due to less trading.

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 semi strong form,

(3)The strong form.

The level of information being considered in the market is the basis for this segregation.

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.

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.

SEMI STRONG FORM OF EMH

The semi strong 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 semi strong 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 semi strong 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 **Strong form of EMH**

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. Semi strong 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 semi strong 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 semi strong 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.

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 over diversification and its attendant problems- two of which are high book-keeping and administrative costs to monitor the investments, and purchases of securities with less favorable risk-return characteristics. Therefore, it would seem that the mutual-fund studies lend some credence to the efficient-market hypothesis.

BEHAVIOURAL FINANCE AND HEURISTIC DRIVEN BIASES.

Behavioral finance, first developed in the late 1970s, demonstrates the pitfalls of economic theory that result from the assumption of rationality

"Irrational" human behavior can be categorized and modeled
By learning about how these behaviors impact investors, financial professionals can help their clients mitigate and prevent errors

The behavioral economist's replacement for expected utility theory is known as prospect theory, which demonstrates cognitive shortcuts and their impact on decision-making

Loss aversion, an aspect of prospect theory, asserts that losses loom larger than gains
Example: Investors are prone to keep losing stocks, hoping they will rebound, and are more likely to sell gaining stocks, afraid of a potential downturn

Individuals tend to make decisions based on how outcomes compare to a reference point, typically the status quo
Example: An investor who sees his portfolio fall to $2 million from $3 million considers himself worse off than an investor who sees his portfolio rise from $1 million to $1.5 million, even though the first investor still has more wealth

Cognitive errors, which cause a person's decisions to deviate from rationality, fall into two subcategories
Belief preservation errors refer to the tendency to cling to one's initial belief even after receiving new information that contradicts it
Information processing errors refer to mental shortcuts
Emotional errors arise as a result of attitudes or feelings that cause one to deviate from rationality

The important heuristic-driven biases and cogniive errors that impair judgement are:

- Representativeness
- Overconfidence
- Anchoring
- Aversion to ambiguity
- Innumeracy

1. **Representativeness**
   Representativeness refers to the tendency to form judgements based on stereotypes.
   For example, you may form an opinion about how a student would perform academically in college on the basis of how he has performed academically in school. While representativeness may be a good rule of thumb, it can also lead people astray.

   For example: **Investors may be too quick to detect patterns in data that are in fact random.**
   Investors may believe that a healthy growth of earnings in the past may be representative of high growth rate in future. They may not realise that there is a lot of randomness in earnings growth

rates.

Investors may be drawn to mutual funds with a good track record because such funds are believed to be representative of well-performing funds. They may forget that even unskilled managers can earn high returns by chance.

Investors may become overly optimistic about past winners and overly pessimistic about past losers.
Investors generally assume that good companies are good stocks, although the opposite holds true most of the time.

2. **Overconfidence**
   People tend to be overconfident and hence overestimate the accuracy of their forecasts. **Overconfidence stems partly from the illusion of knowledge.**
   The human mind is perhaps designed to extract as much information as possible from what is available, but may not be aware that the available information is not adequate to develop an accurate forecast in uncertain situations.
   Overconfidence is particularly seductive when people have special information or experience - no matter how insignificant - that persuades them to think that they have an investment edge. In reality, however, most of the so called sophisticated and knowledgeable investors do not outperform the market consistently.
   Another factor contributing to overconfidence is the illusion of control. People tend to believe that they have influence over future outcomes in an uncertain environment. such an illusion may be fostered by factors like active involvement and positive early outcomes. Active involvement in a task like online investing gives investors a sense of control. Positive early outcomes, although they may be purely fortuitous, create a illusion of control.

   People perhaps remain overconfident, despite failures, because they remember their successes and forget their failures.

   Harvard psychologist Langer describes this phenomenon as **"head I win, tail it's chance". Referred to as self-attribution bias, it means that people tend to ascribe their success to their skill and their failure to bad luck.** Another reason for persistent overconfidence and optimism is the human tendency to focus on future plans rather than on past experience.

   Overconfidence manifests itself in excessive trading in financial markets. It also explains the dominance of active portfolio management, despite the disappointing performance of many actively managed funds.

1. **Anchoring**
   After forming an opinon, people are often unwilling to change it, even though they receive new information that is relevant.
   Suppose that investors have formed an opinion that company A has above-average long-term earnings prospect. Suddenly, A reports much lower earnings than expected. Thanks to anchoring (also referred to as conservatism), investors will persist in the belief that the compny is above-

average and will not react sufficiently to the bad news. So, on the day of earnings announcement the stock price would move very little. **Gradually, however, the stock price would drift downwards over a period of time as investors shed their initial conservatism. Anchoring manifests itself in a phenomenon called the "post-earnings announcement drift,"** which is well-documented empirically.

Companies that report unexpectedly bad (good) earnings news generally produce unusually low (high) returns after the announcement

UNIT – II: FIXED INCOME SECURITIES - ANALYSIS, VALUATION AND MANAGEMENT:

Features and types of debt instruments, Bond indenture, factors affecting bond yield. Bond yield measurement-Current yield, holding period return, YTM, AYTM and YTC. Bond valuation: Capitalization of income method, Bond-price theorems, Valuation of compulsorily / optionally convertible bonds, Valuation of deep discount bonds. Bond duration, Macaulay's duration and modified Macaulay's duration. bond convexity, Considerations in managing a bond portfolio, term structure & risk structure of interest rates. Managing Bond Portfolio: Bond immunization, active and passive bond portfolio management strategies.

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 mobilization 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 mobilized 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.

BOND VALUATION-TERMINOLOGY

A bond or debenture is a debt instrument issued by the government or a government agency or a business enterprise

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 × 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 fo 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:

Future Value = Rs. 100 (1.0 + 6%)

$= 100 \times 1.06 = $ Rs. 106.

If the deposited money is allowed to cumulate for more than one time, the period exponent is added to the previous equation.

Future value = (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.

Future Value = Present value $(1 + \text{interest rate})^2$

$= 100 (1 + 0.06)^2$

$= 100 (1.1236)$

$= 112.36.$

BONDS CLASSIFICATION BY THEIR KEY FEATURES:

By form of payment:

1. Nonintersecting bearing bonds - bonds issued at a discount. Throughout the bond's life its interest is not earned, however the bond is redeemed at maturity for face value.
2. Regular serial bonds - serial bonds in which all periodic installments of principal repayment are equal in amount.
3. Deferred –interest bonds –bonds paying interest at a later date;
4. Income bonds – bonds on which interest is paid when and only when earned by the issuing firm;
5. Indexed bonds - bonds where the values of principal and the payout rise with inflation or the value of the underlying commodity;
6. Optional payment bonds – bonds that give the holder the choice to receive payment on interest or principal or both in the currency of one or more foreign countries, as well as in domestic currency.

Coupon payment:

• Coupon bonds – bonds with interest coupons attached;

• Zero-coupon bonds – bonds sold at a deep discount from its face value and redeemed at maturity for full face value. The difference between the cost of the bond and its value when redeemed is the investor's return. These securities provide no interest payments to holders;

• Full coupon bonds – bonds with a coupon rate near or above current market interest rate;

• Floating-rate bonds – debt instruments issued by large corporations and financial organizations on which the interest rate is pegged to another rate, often the Treasury- bill rate, and adjusted periodically at a specified amount over that rate.

Collateral:

Secured bonds – bonds secured by the pledge of assets (plant or equipment), the title to which is transferred to bondholders in case of foreclosure;

Unsecured bonds – bonds backed up by the faith and credit of the issuer instead of the pledge of assets.

Debenture bonds – bonds for which there is no any specific security set aside or allocated for repayment of principal;

Mortgage bonds (or mortgage-backed securities) – bonds that have as an underlying security a mortgage on all properties of the issuing corporation;

Sinking fund bonds – bonds secured by the deposit of specified amounts. The issuing corporation makes these deposits to secure the principal of the bonds, and it is sometimes required that the funds

be invested in other securities;

Asset-Backed Securities (ABS*)* – similar to mortgage bonds, but they are backed by a pool of bank loans, leases and other assets. The ABS are related with the new market terminology – *securitization* which understood as the process of transforming lending vehicles such as mortgages into marketable securities. The main features of ABS for investor: relatively high yield, shorter maturities (3 -5 years) and monthly, rather than semiannual principal/ interest payments. From their introducing to the market they were ranked as high credit quality instruments. But the recent financial crises showed that these debt instruments could be extremely risky investment when banks loans portfolios as a guarantee of ABS become worthless causing banks' insolvency problems.

- General obligation bonds – bonds, secured by the pledge of the issuer's full faith and credit, usually including unlimited tax-power;

- Guaranteed bonds – bonds which principal or income or both are guaranteed by another corporation or parent company in case of default by the issuing corporation;

- Participating bonds – bonds which, following the receipt of a fixed rate of periodic interest, also receive some of the profit generated by issuing business;

- Revenue bonds – bonds whose principal and interest are to be paid solely from earnings.

1.   BOND ANALYSIS: STRUCTURE AND CONTENTS

Similar to analysis when investing in stocks investor before buying bonds must evaluate a wide range of the factors which could influence his/ her investment results. The key factors are related with the results of the performance and the financial situation of the firm which is issuer of the bonds. Various indicators are used for the evaluation of these factors.

Bond analysis includes: Quantitative analysis. Qualitative analysis.

Quantitative analysis.

Quantitative indicators – the financial ratios which allows assessing the financial situation, debt capacity and credibility of the company –issuer of the bonds.

Since the bonds are debt instruments and the investor in bonds really becomes the creditor the most important during analysis is the assessment of the credibility of the firm – issuer of the bonds. Basically this analysis can be defined as the process of assessment the issuer's ability to undertake the liabilities in time. Similar to the performing of fundamental analysis for common stock, bond analysis (or credit analysis) uses financial ratios. However the analysis of bonds differs from the analysis of stock, because the holder of the regular bonds has not any benefit of the fact that the income of the firm is growing in the future and thus the dividends are growing – these things are important to the share holder. Instead of this investor in bonds is more interested in the credibility of the firm, its financial stability. Estimation of financial ratios based on the main financial statements of the firm (Balance sheet; Profit/ loss statement; Cash flow statement, etc.) is one of the key instruments of quantitative analysis. Some ratios used in bond analysis are the same as in the stock analysis. But most important financial *ratios for the bond analysis are:*

1. Debt / Equity ratio;

2. Debt / Cash flow ratio;

3. Debt coverage ratio;
4. Cash flow / Debt service ratio.

Qualitative analysis

Qualitative indicators are those which measure the factors influencing the credibility of the company and most of which are subjective in their nature and valuation, are not quantifiable.

Although the financial ratios discussed above allows evaluating the credit situation of the firm, but this evaluation is not complete. For the assessment of the credibility of the firm necessary to analyze the factors which are not quantifiable. Unfortunately the nature of the majority of these factors and their assessment are subjective wherefore it is more difficult to manage these factors. However, this part of analysis in bonds based on the qualitative indicators is important and very often is the dividing line between effective and ineffective investment in bonds.

Groups of qualitative indicators/ dimensions

Economic fundamentals (the current economic climate – overall economic and industry-wide factors);

Market position (market dominance and overall firm size: the larger firm

– the stronger is its credit rating);

Management capability (quality of the firm's management team); **Bond market factors** (term of maturity, financial sector, bond

quality, supply and demand for credit);

Bond ratings (relationship between bond yields and bond quality).

Analysis of *Economic fundamentals* is focused on the examining of business cycle, the macroeconomic situation and the situation of particular sectors / industries in the country's economy. The main aim of the economic analysis is to examine how the firm would be able to perform under the favorable and unfavorable conditions, because this is extremely important for the investor, when he/ she is attempting to evaluate his/ her risk buying the bonds of the firm.

Market position is described by the firm's share in the market and by the size of the firm. The other conditions being equal, the firm which share in the market is lager and which is larger itself generally has credit rating higher. The predominance of the firm in the market shows the power of the firm to set the prices for its goods and services. Besides, the large firms are more effective because of the effect of the production scale, their costs are lower and it is easier for such firms overcome the periods of falls in prices. For the smaller firms when the prices are increasing they are performing well but when the markets are slumping – they have the problems. Thus it is important for the creditor to take it in mind.

Management capability reflects the performance of the management team of the firm. It is often very difficult to assess the quality of the management team, but the result of this part of analysis is important for the investor attempting to evaluate the quality of the debt instruments of the firm. The investors seeking to buy only high quality (that means – low risk) bonds most often are choosing only those firms managers of which follow the conservative policy of the borrowing. Contrary, the risk-

taking investors will search for the firms which management uses the aggressive policy of borrowing and are running with the high financial leverage. In general the majority of the holders of the bonds first of all are

want to know how the firm's managers control the costs and what they are doing to control and to strengthen the balance sheet of the firm (for this purpose the investor must analyze the balance sheet for the period of 3-5 years and to examine the tendencies in changes of the balance sheet main elements.

Bond market factors (term of maturity, financial sector, bond quality, supply and demand for credit); The investor must understand which factors and conditions have the influence on the yield and the prices of the bonds. The main factors to be mentioned are:

1. **Term to maturity**. Generally term to maturity and the interest rate (the yield) of the bond are directly related; thus, the bonds with the longer term to maturity have the higher yield than the bonds with shorter terms to maturity.

2. **The sector in the economy** which the issuer of the bonds represents. The yields of the bonds vary in various sectors of the economy; for example, generally the bonds issued by the utility sector firms generate higher yields to the investor than bonds in any other sector or government bonds.

3. **The quality of the bonds**. The higher the quality of the bond, the lower the yield. For the bonds with lower quality the yield is higher.

  The level of inflation; the inflation decreases the purchasing power of the future income. Since the investors do not want to decrease their real yield generated from the bonds cash flows, they require the premium to the interest rate to compensate for their exposure related with the growing inflation. Thus the yield of the bond increases (or decreases) with the changes in the level of inflation.

The supply and the demand for the credit; The interest rate o the price of borrowing money in the market depend on the supply and demand in the credit market; When the economy is growing the demand for the funds is increasing too and the interest rates generally are growing. Contrary, when the demand for the credits is low, in the period of economic crises, the interest rates are relatively low also.

Bond ratings. The ratings of the bonds sum up the majority of the factors which were examined before. A bond rating is the grade given to bonds that indicates their credit quality. Private independent rating services such as Standard & Poor's, Moody's and Fitch

provide these evaluations of a bond issuer's financial strength, or it's the ability to pay a bond's principal and interest in a timely fashion. Thus, the role of the ratings of the bonds as the integrated indicator for the investor is important in the evaluation of yield and prices for the bonds. The rating of the bond and the yield of the bond are inversely related: the higher the rating, the lower the yield of the bond. Bond ratings are expressed as letters ranging from 'AAA', which is the highest grade, to 'C' ("junk"), which is the lowest grade. Different rating services use the same letter grades, but use various combinations of upper- and lower-case letters to differentiate themselves (see more information about the bond ratings in Annex 1 and the relevant websites of credit ratings agencies).

MARKET INTEREST RATES ANALYSIS

It s very important for the investor to the bonds to understand what causes the changes in the interest rates in the market in the different periods of time. We could observe frequent changes in the interest rates and the wide amplitude of it fluctuations during last decade, thus the interest rates became the crucial factor in managing fixed income securities portfolios as well as stock portfolios. The understanding of the macroeconomic processes and the causality of the various economic factors with the interest rates helps the investors to forecast the direction of the changes in interest rates. At the macroeconomic level the relationship between the interest rate and the level of savings and investments, changes in government spending, taxes, foreign trade balance is identified. Macroeconomic factors with positive influence to the interest rates (from the investors in bonds position - increase in interest rates):

- Increase in investments;

- Decrease in savings level;

- Increase in export;

- Decrease in import;

- Increase in government spending;

- Decrease in Taxes.

By observing and examining macroeconomic indicators presented above the investors can assess the situation in the credit securities market and to revise his/ her portfolio

Investment in bonds decision making process:

1. **Selection of bond's** type according to the investor's goals (expected income and risk).

2. Bond analysis (quantitative and qualitative).

3. Bond valuation.

4. Investment decision making.

There are three widely used measures of the yield:

    Current Yield

    Yield-to-Maturity

    Yield- to- Call

Current yield (CY) is the simples measure of bond's return and has a imitated application because it measures only the interest return of the bond. The interpretation of this measure to investor: current yield indicates the amount of current income a bond provides relative to its market price. CY is estimated using formula:

$CY = I / Pm$,

here: I - annual interest of the bond;

Pm - current market price of the bond

Yield- to- Maturity (YTM) is the most important and widely used measure of

the bonds returns and key measure in bond valuation process. YTM is the fully compounded rate of return earned by an investor in bond over the life of the security, including interestincome and price appreciation. YTM is also known as the ***promised-yield-to- maturity.*** Yield-to-maturity can be calculated as an internal rate of return of the bond or the discount rate, which equalizes present value of the future cash flows of the bond to its current market price (value). Then YTM of the bond is calculated from this equation:

$$P = \sum_{t=1}^{n} C_t / (1 + YTM)^t + P_n / (1 + YTM)^n,$$

here: P -   current market price of the bond;

n   -   number of periods until maturity of the bond; Ct -   coupon payment each period;

YTM - yield-to-maturity of the bond; Pn   -   face value of the bond.
As the callable bond gives the issuer the right to retire the bond prematurely,

so the issue may or may not remain outstanding to maturity. Thus the YTM may not always be the appropriate measure of value. Instead, the effect of the bond called away prior to maturity must be estimated. For the callable bonds the ***yield-to-call (YTC)*** is used. YTC measures the yield on the bond if the issue remains outstanding not to maturity, but rather until its specified call date. YTC can be calculated similar to YTM as an internal rate of return of the bond or the discount rate, which equalizes present value of the future cash flows of the bond to its current market price (value). Then ***YTC of the bond*** is calculated from this equation:

$$P = \sum_{t=1}^{n} C_t / (1 + YTC)^t + P_c / (1 + YTC)^m,$$

here: P -   current market price of the callablebond; n   -   number of periods to call of the bond;

Ct -   coupon payment each period before the call of the bond; YTC - yield-to-call of the bond;

Pc   -   call price of the bond.

But the result from the estimation of the yields using the current market price relevant measure for investment decision making only for those investors

who believe that the bond market is efficient (see chapter 3.4). For the others who do not believe that market is efficient, an important question is if the bond in the market is over valuated or under valuated? To answer this question the investor need to estimate the intrinsic value of the bond and then try to compare this value with the current market value. **Intrinsic value of the bond** (**V**) can be calculated from this equation:

$$\sum_{t=1}^{N} C_t / (1 + YTM^*)^t + P_n / (1 + YTM^*)^n,$$

here: YTM* - appropriate yield-to-maturity for the bond, which depends on the

investor's analysis – what yield could be appropriate to him/ her on this

particular bond;

n   number of periods until maturity of the bond;

Ct -   coupon payment each period;

Pn   face value of the bond.

The **decision for investment in bond** can be made on the bases of two alternative approaches: (1) using the comparison of yield-to-maturity and appropriate yield-to-maturity or (2) using the comparison of current market price and intrinsic value of the bond (similar to decisions when investing in stocks). Both approaches are based on the capitalization of income method of valuation.

(1) approach:

If YTM > YTM⁎ - decision to buy or to keep the bond as it is under valuated;   If YTM < YTM * - decision to sell the bond as it is over valuated;

If	YTM = YTM * - bond is valuated at the same range as in the market
	and its current market price shows the intrinsic value.
(2) approach:	
If	P >	- decision to buy	or to keep the bond as it is under valuated;
If	P <	- decision to sell	the bond as it is over valuated;
If	P = V	- bond is valuated at the same range as in the market and its	

current market price shows the intrinsic value.

STRATEGIES FOR INVESTING IN BONDS. IMMUNIZATION

Two types of strategies investing in bonds:

Passive management strategies;

Active management strategies.

Passive bond management strategies are based on the proposition that bond prices are determined rationally, leaving risk as the portfolio variable to control**.**

THE MAIN FEATURES OF THE PASSIVE MANAGEMENT STRATEGIES:

1. They are the expression of the little volatile in the investor's forecasts regarding interest rate and/ or bond price;
2. Have a lower expected return and risk than do active strategies;
3. The small transaction costs.

The passive bond management strategies include following two broad classes of strategies:

Buy and hold strategies; Indexing strategies.

Buy and hold strategy is the most passive from all passive strategies. This is strategy for any investor interested in nonactive investing and trading in the market. An important part of this strategy is to choose the most promising bonds that meet the investor's requirements. Simply because an investor is following a buy-and-hold strategy does not mean that the initial selection is unimportant. An investor forms the diversified portfolio of bonds and does not attempt to trade them in search for the higher return. Following this strategy, the investor has to make the investment decisions only in these cases:

The bonds held by investor lost their rating, it decreases remarkably;

The term to maturity ended;

The bonds were recalled by issuer before term to maturity

Using **Indexing strategy** the investor forms such a bond portfolio which is identical to the well diversified bond market index. While indexing is a passive strategy, assuming that bonds are priced fairly, it is by no means a simply strategy. Each of the broad bond indexes contains thousands of individual bonds. The market indices are continually rebalanced as newly issued bonds are added to the index and existing bonds are dropped

from the index as their maturity falls below the year. Information and transaction costs make it practically impossible to purchase each bond in proportion to the index. Rather than replicating the bond index exactly, indexing typically uses *a stratified sampling approach.* The bond market is stratified into several subcategories based on maturity, industry or credit quality. For every subcategory the percentage of bonds included in the market index that fall in that subcategory is computed. The investor then constructs a bond portfolio with the similar distribution across the subcategories.

There are various indexing methodologies developed to realize this passive strategy. But *for all indexing strategies the specific feature is that the return on bond portfolio formed following this*

strategy is close to the average bond market return.

Active bond management strategies *are based on the assumption that the bonds market is not efficient and, hence, the excess returns can be achieved by forecasting future interest rates and identifying over valuate bonds and under valuated bonds.*

There are many different active bond management (speculative) strategies.

the active reaction to the forecasted changes of interest rate; Bonds swaps; Immunization.

*The essentiality of **the active reaction to the anticipated changes of interest rate** strategy*: if the investor anticipates the decreasing in interest rates, he / she is attempting to prolong the maturity of the bond portfolio or duration, because long-term bonds' prices influenced by decrease in interest rates will increase more than short-term bonds' prices; if the increase in interest rates is anticipated, investor attempts to shorten the maturity of the bond portfolio or duration, by including more bonds with the shorter maturity of the portfolio.

*The essentiality of **bond swaps strategies*** is the replacement of the bond which is in the portfolio by the other bond which was not in the portfolio for the meantime. The aim of such replacement - to increase the return on the bond portfolio based on the assumptions about the tendencies of changes in interest rates. There are various types of swaps, but all are designed to improve the investor's portfolio position. The bond swaps can be:

1   Substitution swap;

2   Interest rate anticipation swap;

3   Swaps when various bond market segments are used.

*The essentiality **of substitution swap:*** one bond in the portfolio is replaced **by** the other bond which fully suits the changing bond by coupon rate, term to maturity, credit rating, but suggests the higher return for the investor. The risk of substitution swap can be determined by the incorrect rating of the bonds and the exchange of the unequal bonds causing the loss of the investor.

Interest rate anticipation swap is based on one of the key features of the bond

–   the inverse relationship between the market price and the interest rate (this means that when the interest rates are growing, the bonds prices are decreasing and vice versa. The investor using this strategy bases on his steady belief about the anticipated changes of interest rates and attempts to change frequently the structure of his/ her bond portfolio seeking to receive the abnormal return from the changes in bonds' prices. This type of swaps is very risky because of the inexact and unsubstantiated forecasts about the changes in the interest rates.

Swaps when various bond market segments are used are based on the assessment of differences of yield for the bonds in the segregated bond market segments.

The differences of the yields in the bond market are called ***yield spreads*** and their existence can be explained by differences between

•   Quality of bonds credit (ratings);

•   Types of issuers of the bonds (government, company, etc.);

•   The terms to maturity of the bonds (2 years, 5 years, etc.).

This strategy is less risky than the other swaps' strategies; however the return for such a portfolio is

lower also.

Duration is the present value weighted average of the number of years over which investors receive cash flow from the bond. It measures the economic life or the effective maturity of a bond (or bond portfolio) rather than simply its time to maturity. Such concept, called duration (or *Macaulay's duration*) was developed by Frederick Macaulay. 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.

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

IMMUNIZATION:

Immunization 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 immunization 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.

UNIT – III: BASIC FEATURES OF COMMON STOCK, APPROACHES TO VALUATION–
Balance sheet model, dividend capitalization models; earnings capitalization models; Price-Earnings multiplier approach and capital asset pricing model, Free Cash flow model, relative valuation using comparables-P/E,P/BV, P/S; Security Market Indexes, their uses; computational procedure of Sensex and Nifty

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 riskreturn characteristics of their own. Portfolios may or may not take
on the aggregate characteristics of their individual parts.

   Factors influence risk: What makes financial assets risky. Traditionally, investors have talked about several factors causing risk such as business failure, market fluctuations, change in the interest rate inflation in the economy, fluctuations in exchange rates changes in the political situation etc. Based on the factors affecting the risk the risk can be understood in following manners-

Interest rate risk: The variability in a security return resulting from changes in the level of interest rates is referred to as interest rate risk. Such changes generally affect securities inversely, that is other things being equal, security price move inversely to interest rate.

Market risk: The variability in returns resulting from fluctuations in overall market that is, the agree get stock market is referred to as market risk. Market risk includes a wide range of factors exogenous to securities themselves, like recession, wars, structural changes in the economy, and changes in consumer preference. The risk of going down with the market movement is known as market risk.

Inflation risk: Inflation in the economy also influences the risk inherent in investment. It may also result in the return from investment not matching the rate of increase in general price level (inflation). The change in the inflation rate also changes the consumption pattern and hence investment return carries an additional risk. This risk is related to interest raterisk, since interest rate generally rises as inflation increases, because lenders demands additional inflation premium to compensate for the loss of purchasing power.

Business risk: The changes that take place in an industry and the environment Causes risk for the company in earning the operational revenue creates business risk. For example the traditional telephone industry faces major changes today in the rapidly changing telecommunication industry and the mobile phones. When a company fails to earn through its operations due to changes in the business situations leading to erosion of capital, there by faces the business risk.

Financial risk: The use of debt financing by the company to finance a larger proportion of assets causes larger variability in returns to the investors in the faces of different business situation. During prosperity the investors get higher return than the average return the company earns, but during distress investors faces possibility of vary low return or in the worst case erosion of capital which causes the financial risk. The larger the proportion of assets finance by debt (as opposed to equity) the larger the variability of returns thus lager the financial risk.

Liquidity risk: An investment that can be bought or sold quickly without significant price concession is considered to be liquid. The more uncertainty about the time element and the price concession the greater the liquidity risk. The liquidity risk is the risk associated with the particular secondary market in which a security trades.

Exchange rate risk: The change in the exchange rate causes a change in the value of foreign holdings, foreign trade, and the profitability of the firms, there by returns to the investors. The exchange rate risk is applicable mainly to the companies who operate oversees. The exchange rate risk is nothing but the variability in the return on security caused by currencies fluctuation.

Political risk: Political risk also referred, as country risk is the risk caused due to change in government policies that affects business prospects there by return to the investors. Policy changes in the tax structure, concession and levy of duty to products, relaxation or
tightening of foreign trade relations etc. carry a risk component that changes the return pattern of the business.
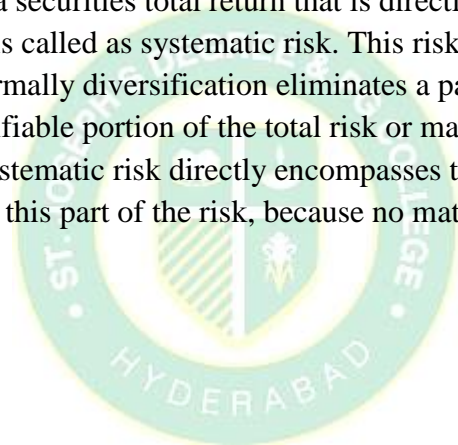
TYPES OF RISK

Thus far, our discussion has concerned the total risk of an asset, which is one important consideration in investment analysis. However modern investment analysis categorizes the traditional sources of risk

identified previously as causing variability in returns into two general types: those that are pervasive in nature, such as market risk or interest rate risk, and those that are specific to a particular security issue, such as business or financial risk. Dividing total risk in to its two components, a general (market) component and a specific (issue) component, we have systematic risk and unsystematic risk which are additive:

Total risk = general risk + specific risk

= market risk + issuer risk

= systematic risk + non systematic risk

Systematic risk: Variability in a securities total return that is directly associated with overall moment in the general market or economy is called as systematic risk. This risk cannot be avoided or eliminated by diversifying the investment. Normally diversification eliminates a part of the total risk the left over after diversification is the non-diversifiable portion of the total risk or market risk. Virtually all securities have some systematic risk because systematic risk directly encompasses the interest rate, market and inflation risk. The investor cannot escape this part of the risk, because no matter how well he or she diversifies, the risk of the overall market cannot be avoided. If the stock market declines sharply, most stock will be adversely affected, if it rises strongly, most stocks will appreciate in value.

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Non-systematic risk: Variability in a security total return not related to overall market variability is called un systematic (non market) risk. This risk is unique to a particular security and is associated with such factors as business, and financial risk, as well as liquidity risk. Although all securities tend to have some nonsystematic risk, it is generally connected with common stocks.

The terms multiplier and price earnings ratio (P/E) are used interchangeably.

Thus:Earnings multiplier = P/E ratio = Current market price/ Estimated earnings per share

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.

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

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

(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.

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

Modern approach:

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

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

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.

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

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.

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

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 overalued. 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.

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:

Forecasted earnings (value) = (1-t)*[ROA + (ROA-I)*(D/E)]*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

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.

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.

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:

$P0 = D/(1 + r) + P/(1 + r)$

Where, P0 = current price of the equity share; D1

= dividend expecteda year hence;

P1 = price of the share expected a year hence; and

r =rate of return required on the equity share.

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

= D1/P0 + 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 per cent

Multi-period valuation Model

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:

P0 =D/(1 + r)1+D/(1 + r)2+ ... +D/(1 + r)n+P/(1 + r)n

= Σn t=D/(1 + r)t+P/(1 + r) n

Zero Growth model

If we assume that the dividend per share remains constant year after year at a value of D P0 =D/r

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,

P0 =D/r - g

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.

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.

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.

UNIT – IV: PORTFOLIO THEORY:

Concept of portfolio. Portfolio return and risk. Harry Markowitz's Portfolio theory, construction of minimum risk portfolio, the single-index model. Capital market theory: Introduction of risk-free asset, Capital Market Line, Separation theorem. Capital asset pricing model (CAPM): Security Market Line. Identifying over-priced and under-priced securities. Arbitrage pricing theory (APT): The Law of one price, two factor arbitrage pricing, Equilibrium risk-return relations. A synthesis of CAPM and APT

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.

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.

Markowitz H.M. (1952) introduced the term 'risk penality' 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:
Risk adjusted return utility) = Expected return – Risk penality Risk penalty is computed as:
Risk Penalty = Risk squared/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.

MARKOWITZ PORTFOLIO THEORY

The author of the modern portfolio theory is Harry Markowitz who introduced the analysis of the portfolios of investments in his article "Portfolio Selection" published in the Journal of Finance in 1952. The new approach presented in this article included portfolio formation by considering the expected rate of return and risk of individual stocks and, crucially, their interrelationship as measured by correlation. Prior to this investors would examine investments individually, build up portfolios of attractive stocks, and not consider how they related to each other. Markowitz showed how it might be possible to better of these simplistic portfolios by taking into account the correlation between the returns on these stocks.

The diversification plays a very important role in the modern portfolio theory. Markowitz approach is viewed as a single period approach: at the beginning of the period the investor must

make a decision in what particular securities to invest and hold these securities until the end of the period. Because a portfolio is a collection of securities, this decision is equivalent to selecting an optimal portfolio from a set of possible portfolios.

Essentiality of the **Markowitz portfolio theory is the problem of optimal portfolio selection.** The method that should be used in selecting the most desirable portfolio involves the use of

indifference curves. Indifference curves represent an investor's preferences for risk and

return. These curves should be drawn, putting the investment return on the vertical axis and the risk on the horizontal axis. Following Markowitz approach,the

measure for investment return is expected rate of return and a measure of risk is standard deviation (these statistic measures we discussed in previous chapter, section 2.1). The exemplified map of indifference curves for the individual risk-averse investor is presented in Fig.3.1. Each indifference curve here (I_1, I_2, I3) represents the most desirable investment or investment portfolio for an individual investor. That means, that any of investments (or portfolios) ploted on the indiference curves (A,B,C or D) are equally desirable to the investor. Features of indifference curves:

- All portfolios that lie on a given indifference curve are equally desirable to the investor. An implication of this feature: indifference curves cannot intersect.

- An investor has an infinitive number of indifference curves.

- Every investor can represent several indifference curves (for different investment tools).

- Every investor has a map of the indifference curves representing his or her preferences for expected returns and risk (standard deviations) for each potential portfolio.

Two important fundamental assumptions than examining indifference curves and applying them to Markowitz portfolio theory:

6. The investors are assumed to prefer higher levels of return to lower levels of return, because the higher levels of return allow the investor to spend more on consumption at the end of theinvestment period. Thus, given two portfolios with the same standard deviation, the investor will choose theportfolio with the higher expected return. This is called an **assumption of** nonsatiation.

7. Investors are risk averse. It means that the investor when given the choise, will choose the investment or investment portfolio with the smaller risk. This is called **assumption of risk aversion.**

8. Efficient set of portfolios involves the portfolios that the investor will find optimal ones. These portfolios are lying on the "northwest boundary" of the feasible set and is called an **efficient frontier.** The efficient frontier can be described by the

9. curve in the risk-return space with the highest expected rates of return for each level of risk.

10. Feasible set is opportunity set, from which the efficient set of portfolio can be identified. The feasibility set represents all portfolios that could be formed from the number of securities and lie either or or within the boundary of the feasible set.

11. feasible and efficient sets of portfolios are presented. Considering the assumptions of nonsiation and risk aversion discussed earlier in this section, only those portfolios lying between points A and B on the boundary of feasibility set investor will find the optimal ones. All the other portfolios in the feasible set are are inefficient portfolios. Furthermore, if a risk-free investment is introduced into the universe of assets, the efficient frontier becomes the tagental line shown in Fig. 3.3 this line is called the **Capital Market Line (CML)** and the portfolio at the point at which it is tangential (point M) is called the *Market Portolio.*

THE EXPECTED RATE OF RETURN AND RISK OF PORTFOLIO

Following Markowitz efficient set portfolios approach an investor should evaluate alternative portfolios inside feasibility set on the basis of their expected returns and standard deviations using indifference curves. Thus, the methods for calculating expected rate of return and standard deviation of the portfolio must be discussed.

The expected rate of return of the portfolio can be calculated in some alternative ways. The Markowitz focus was on the end-of-period wealth (terminal value) and using these expected end-of-period values for each security in the portfolio the expected end-of- period return for the whole portfolio can be calculated. But the portfolio really is the set of the securities thus the expected rate of return of a portfolio should depend on the expected rates of return of each security included in the portfolio (as was presented in Chapter 2, formula 2.4). This alternative method for calculating **the expected rate of return on the portfolio (E(r)p)** is the weighted average of the expected returns on its component securities:

$$E(r)p = \sum_{i=1}^{N} w_i * E_i(r) = E_1(r) + w_2 * E_2(r) + \ldots + w_n * E_n(r),$$

her e	w_i	the proportion of the portfolio's initial value invested in security i;
	E_i (r)	- the expected rate of return of security I;
	n	the number of securities in the portfolio.

Because a portfolio's expected return is a weighted average of the expected

returns of its securities, the contribution of each security to the portfolio's expected rate of return depends on its expected return and its proportional share from the initial portfolio's

market value (weight). Nothing else is relevant. The conclusion here could be that the investor who simply wants the highest posible expected rate of return must keep only one security in his portfolio which has a highest expected rate of return. But why the majority of investors don't do so and keep several different securities in their portfolios? Because they try to diversify their portfolios aiming to reduce the investment portfolio risk.

Risk of the portfolio. As we know from chapter 2, the most often used measure for the risk of investment is standard deviation, which shows the volatility of the securities actual return from their expected return. If a portfolio's expected rate of return is a weighted average of the expected rates of return of its securities, the calculation of standard deviation for the portfolio can't simply use the same approach. The reason is that the relationship between the securities in the same portfolio must be taken into account. As it was discussed in section 2.2, the relationship between the assets can be estimated using the covariance and coefficient of correlation. As covariance can range from "−" to "+" infinity, it is more useful for identification of the direction of relationship (positive or negative), coefficients of correlation always

lies between -1 and +1 and is the convenient measure of intensity and direction of the relationship between the assets.

Risk of the portfolio, which consists of 2 securities (A ir B):

$$\delta p = (w^2A \cdot \delta^2A + w^2B \cdot {}^2B + 2\, wA \cdot wB \cdot kAB \cdot \delta A \cdot B)^{1/2},$$

here: wA ir wB   the proportion of the portfolio's initial value invested in security

and B   (wA + wB = 1);

δA ir δB -   standard deviation of security A and B;

kAB - coefficient of coreliation between the returns of security A   B.

CAPITAL ASSET PRICING MODEL

ARBITRAGE PRICING THEORY (APT)

APT was propsed ed by Stephen S.Rose and presented in his article „The arbitrage theory of Capital Asset Pricing", published in Journal of Economic Theory in

1976. Still there is a potential for it and it may sometimes displace the CAPM. In the CAPM returns on individual assets are related to returns on the market as a whole. The key point behind APT is the rational statement that the market return is determined by a number of different factors. These factors can be fundamental factors or statistical. If these factors are essential, there to be no arbitrage opportunities there must be restrictions on the investment process. Here arbitrage we understand as the earning of riskless profit by taking advantage of differential pricing for the same assets or security. Arbitrage is is widely applied investment tactic.

APT states, that the expected rate of return of security J is the linear function from the complex economic factors common to all securities and can be estimated

relating diversified portfolios, on assumption that the asset unsystematic (specific) risks are negligable compared with the factor risks.

UNIT – V: PORTFOLIO EVALUATION:
Performance measures-Sharpe's reward to variability index, Treynor's reward to volatility index, Jensen's differential index, Fama's decomposition of returns. Mutual funds: genesis, features, types and schemes. NAVs, costs, loads and return of mutual funds, Problems and prospects in India, Regulation of mutual funds and investor's protection in India.

MEASUREMENT AND EVALUATION OF PORTFOLIO PERFORMANCE. This the last step in investment management process involves determining periodically how the portfolio performed, in terms of not only the return earned, but also the risk of the portfolio. For evaluation of portfolio performance appropriate measures of return and risk and benchmarks are needed. *A benchmark* is the performance of predetermined set of assets, obtained for comparison purposes. The benchmark may be a popular index of appropriate assets – stock index, bond index. The benchmarks are widely used by institutional investors evaluating the performance of their portfolios.

It is important to point out that investment management process is continuing process influenced by changes in investment environment and changes in investor's attitudes as well. Market globalization offers investors new possibilities, but at the same time investment management become more and more complicated with growing uncertain

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.

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.

Managers to the issue: Lead managers are appointed by the company to manage the public issue programmers. 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.

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.

Underwriters: Underwriter is a person/organization 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.

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 centers.

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,

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 stockexchange placing,

4.   Issue of bonus shares,

5.   Book-building, and

6.   Stock option.

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., R i- Rf/βi Where

Ri = expected return on security i Rf = return on a riskless security

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 cutoff rate. The cut-off rate is determined such that all securities with higher ratios are included into the portfolio.

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.

Portfolio performance evaluation involves determining periodically how the portfolio performed in terms of not only the return earned, but also the risk experienced by the investor. For portfolio evaluation appropriate measures of return and risk as well as relevant standards (or "benchmarks") are needed.

In general, the market value of a portfolio at a point of time is determined by adding the markets value of all the securities held at that particular time. The *market value of the portfolio at the end of the period* is calculated in the same way, only using end-of- period prices of the securities held in the portfolio.

The return on the portfolio (rp):

$$rp = (Ve - Vb) / Vb,$$

here: Ve   - beginning value of the portfolio;
Vb   - ending value of the portfolio.

The essential idea behind performance evaluation is to compare the returns which were obtained on portfolio with the results that could be obtained if more appropriate alternative portfolios had been chosen for the investment. Such comparison portfolios are often referred to as *benchmark portfolios*. In selecting them investor should be certain that they are relevant, feasible and known in advance. The benchmark should reflect the objectives of the investor.

Types of securities

2. Shares A share is an equity security. Its owner owns one part of the capital of the company which has issued the shares in question. The shares enable the shareholder the right to take part in the decision-making in the company. If the latter operates with profit, the owners of shares may receive dividends. The amount of the dividend is decided upon by the shareholders at a General Meeting of the Shareholders.

3. Bonds A bond is a debt security. When purchasing a bond, you have no right to participate in the company's decision making but are entitled to the reimbursement of the principal and the interest. There are several ways of repayment as the companies may decide that the principal be paid in regular annual installments or on the maturity of bonds. The interest may be refunded in a fixed amount or may be variable (inflation rate or foreign currency). The issuers pay the interest once every year or once every half-year (on the coupon maturity date).

4. Open-end funds An open-end fund stands for a diversified portfolio of securities and similar investments, chosen and professionally managed by a fund management company. Since the fund does not have fixed capital but is rather 'open ended', it grows together with new investors joining and thus funding it. Open-end funds can invest in domestic and international securities, in either shares, bonds or other investment vehicles. Depending on the portfolio, the fund's risk and returns vary accordingly.

5. Trading in open-end funds Open-end funds do normally not trade on exchanges, and there are indeed few exchanges worldwide where open-end fund shares can be bought; but there are exceptions. Usually, open-end funds are bought through fund management

companies. Investors can invest into the fund via a postal or a standing order, being charged with an entry fee upon each new purchase and with an exit fee when they decide to sell their fund units. The other option, however, is to buy through a brokerage firm; trading in open-end fund shares on an exchange involves no entry or exit fees for investors, as they are only bound by broker's fees.

6. Index open-end funds With an index open-end fund, fund management companies allot investors' assets to a basket of securities making up a chosen index that thus tracks the

7. yield of the mentioned index. While the big investors may invest directly into a fund, minor investors can only trade in fund shares on stock exchanges. Due to the possibility of arbitrage, the market price of index open-end fund shares does usually not stray from its NAV for more than 1%.

8. Trading in index open-end fund shares on primary market before purchasing index open-end fund units, a declaration of accession must be signed. After that, assets are transferred to a special fund account, open at a custodian bank. Upon each purchase and sale, the fund charges appropriate entry and exit fees (max 3% from purchase/sale). Fund investors are also charged a management fee (0.5% of the average annual fund NAV) and the costs of custodian services (0.1% of the average annual fund NAV). Each purchase or sale within the fund on the primary market results in a changed number of index open-end fund shares, which in turn affects the changes in the size of fund's assets. Index open-end fund shares are purchased and sold at NAV, as calculated by the management company.

9. Trading in index open-end fund shares on secondary market Minor investors can buy index open-end fund shares on the exchange at the price that forms on the market, without entry or exit fees, being charged solely brokerage fees. Exchange trading of index open-end fund shares does not affect the size of capital; while the owners of index open-end fund shares change, the fund's assets remain unaffected.

10. Close-end funds (ID) ID is a close-end investment fund investing its capital into securities by other issuers. Investment company is managed by a management company (DZU) which decides which securities to include in the fund's portfolio. The DZU is paid a management fee by the investment company; it usually amounts to 1 -2% per year in Slovenia. The value of shares of the close-end funds is closely correlated to the value of the company's

11. Investment certificates Investment certificates are debt securities issued by a bank, and are designed to offer the investor an agreed yield under pre-defined conditions stipulated in the prospectus. Issuers are mainly large banks, and an important criterion in selecting the bank in whose investment certificates you would like to invest is its credit rating. Investment certificates represent an investment directly linked to an index, share price, raw material

12. price, exchange rate, interest, industry, and other publicly available values. The holder of an investment certificate does thereby not become an indirect owner of the assets underlying the certificate. A certificate ensures the investor a guaranteed manner of payment. Investment certificates are predictable and the investor can always anticipate their yield (or loss) in a specific situation, which makes them a successful investment vehicle in times of heavy market losses. There are different types of investment certificates – some guarantee yields no matter what the situation on the market, while

others yield profit only when the prices fall, etc.

13. Warrants Warrants are options issued by a joint-stock company, which give holders the right to purchase a certain quantity of the respective company's shares at a pre-determined price. After a certain period, the right to purchase shares terminates.