LECTURE NOTES

ON

SECURITY ANALYSIS AND PORTFOLIO MANAGEMENT

MBA III semester R 16 syllabus

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SYLLABUS

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Investment environment in India, overview of Indian financial system securities trading in stock markets, investment alternatives, the investment management process, Security analysis: fundamental analysis, technical analysis, efficient market hypothesis.

UNIT-II PORTFOLIO ANALYSIS

The returns and risks from investing Markowitz portfolio theory, mean variance approach, portfolio selection-efficient portfolios, the single index model capital asset pricing model, arbitrage pricing theory.

UNIT-III BOND ANALYSIS & VALUATION & MANAGEMENT

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UNIT-IV EQUITY VALUATION & DERIVATIVES

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UNIT-V MUTUAL FUNDS

Types of mutual funds schemes, structure, net asset value, risk and return, performance evaluation models Sharpe model, trey nor model, Jensen model, fame's decomposition. Trends in Indian mutual funds.

Text Books:

1. William. F.Sharpe, Gordon j Alexander & Jeffery V Bailey, "Fundamentals of Investments", Prentice Hall
2. Reilly, Brown, "Analysis of Investment and Management of Portfolios", 10th Edition, Cengage,

Unit-I

INVESTMENTS AND SECURITY ANALYSIS

Introduction:

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.

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.

Investment Vs Gambling

Investment can also to be distinguished from gambling. Examples of gambling are horse race, card games, lotteries, and so on. Gambling involves high risk not only for high returns but also for the associated excitement. Gambling is unplanned and unscientific, without the

knowledge of the nature of the risk involved. It is surrounded by uncertainty and a gambling decision is taken on unfounded market tips and rumors. In gambling, artificial and unnecessary risks are

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

Investment environment

Investment environment can be defined as the existing investment vehicles in the market available for investor and the places for transactions with these investment vehicles. Thus further in this subchapter the main types of investment vehicles and the types of financial markets will be presented and described.

Investment vehicles

As it was presented in 1.1, in this course we are focused to the financial investments that mean the object will be financial assets and the marketable securities in particular. But even if further in this course only the investments in financial assets are discussed, for deeper understanding the specifics of financial assets comparison of some important characteristics of investment in this type of assets with the investment in physical assets is presented.

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.

The ***main types of financial investment vehicles*** are:
• Short term investment vehicles;
1. Fixed-income securities;
2. Common stock;
• Speculative investment vehicles;
• Other investment tools.

Short - term investment vehicles are all those which have a maturity of one year or less. Short term investment vehicles often are defined as money-market instruments, because they are traded in the money market which presents the financial market for short term (up to one year of maturity) marketable financial assets. The risk as well as the return on investments of short-term investment vehicles usually is lower than for other types of investments. The main *short term investment vehicles* are:
• Certificates of deposit;
• Treasury bills;
• Commercial paper;
• Bankers' acceptances;
• Repurchase agreements.

Certificate of deposit is debt instrument issued by bank that indicates a specified sum of money has been deposited at the issuing depository institution. Certificate of deposit bears a maturity date and specified interest rate and can be issued in any denomination. Most certificates of deposit cannot be traded and they incur penalties for early withdrawal. For large money-market investors financial institutions allow their large-denomination certificates of deposits to be traded as negotiable certificates of deposits.

Treasury bills (also called T-bills) are securities representing financial obligations of

the government. Treasury bills have maturities of less than one year. They have the unique feature of being issued at a discount from their nominal value and the difference between nominal value and discount price is the only sum which is paid at the maturity for these short term securities because the interest is not paid in cash, only accrued. The other important feature of T-bills is that they are treated as risk-free securities ignoring inflation and default of a government, which was rare in developed countries, the T-bill will pay the fixed stated yield with certainty. But, of course, the yield on T-bills changes over time influenced by changes in overall macroeconomic situation. T-bills are issued on an auction basis. The issuer accepts competitive bids and allocates bills to those offering the highest prices. Non-competitive bid is an offer to purchase the bills at a price that equals the average of the

competitive bids. Bills can be traded before the maturity, while their market price is subject to change with changes in the rate of interest. But because of the early maturity dates of T-bills large interest changes are needed to move T-bills prices very far. Bills are thus regarded as high liquid assets.

Commercial paper is a name for short-term unsecured promissory notes issued by corporation. Commercial paper is a means of short-term borrowing by large corporations. Large, well-established corporations have found that borrowing directly from investors through commercial paper is cheaper than relying solely on bank loans. Commercial paper is issued either directly from the firm to the investor or through an intermediary. Commercial paper, like T-bills is issued at a discount. The most common maturity range of commercial paper is 30 to 60 days or less. Commercial paper is riskier than T-bills, because there is a larger risk that a corporation will default. Also, commercial paper is not easily bought and sold after it is issued, because the issues are relatively small compared with T-bills and hence their market is not liquid.

Banker's acceptances are the vehicles created to facilitate commercial trade transactions. These vehicles are called bankers acceptances because a bank accepts the responsibility to repay a loan to the holder of the vehicle in case the debtor fails to perform. Banker's acceptances are short-term fixed-income securities that are created by non-

financial firm whose payment is guaranteed by a bank. This short-term loan contract typically has a higher interest rate than similar short –term securities to compensate for the default risk. Since bankers' acceptances are not standardized, there is no active trading of these securities.

Repurchase agreement (often referred to as a repo) is the sale of security with a commitment by the seller to buy the security back from the purchaser at a specified price at a designated future date. Basically, a repo is a collectivized short-term loan, where collateral is a security. The collateral in a repo may be a Treasury security, other money-market security. The difference between the purchase price and the sale price is the interest cost of the loan, from which repo rate can be calculated. Because of concern about default risk, the length of maturity of repo is usually very short. If the agreement is for a loan of funds for one day, it is called overnight repo; if the term of the agreement is for more than one day, it is called a term repo. A reverse repo is the opposite of a repo. In this transaction a corporation buys the securities with an

agreement to sell them at a specified price and time. Using repos helps to increase the liquidity in the money market.

Our focus in this course further will be not investment in short-term vehicles but it is useful for investor to know that short term investment vehicles provide the possibility for temporary investing of money/ funds and investors use these instruments managing their investment portfolio.

Fixed-income securities are those which return is fixed, up to some redemption date or indefinitely. The fixed amounts may be stated in money terms or indexed to some measure of the price level. This type of financial investments is presented by two different groups of securities:

- Long-term debt securities
- Preferred stocks.

Long-term debt securities can be described as long-term debt instruments representing the issuer's contractual obligation. Long term securities have maturity longer

than 1 year. The buyer (investor) of these securities is landing money to the issuer, who undertake obligation periodically to pay interest on this loan and repay the principal at a stated maturity date. Long-term debt securities are traded in the capital markets. From the investor's point of view these securities can be treated as a "safe" asset. But in reality the safety of investment in fixed –income securities is strongly related with the default risk of an issuer. The major representatives of long-term debt securities are *bonds*, but today there are a big variety of different kinds of bonds, which differ not only by the different issuers (governments, municipals, companies, agencies, etc.), but by different schemes of interest payments which is a result of bringing financial innovations to the long-term debt securities market. As demand for borrowing the funds from the capital markets is growing the long-term debt securities today are prevailing in the global markets. And it is really become the challenge for investor to pick long-term debt securities relevant to his/ her investment expectations, including the safety of investment. We examine the different kinds of long-term debt securities and their features important to understand for the investor in Chapter 5, together with the other aspects in decision making investing in bonds.

Preferred stocks are equity security, which has infinitive life and pay dividends. But preferred stock is attributed to the type of fixed-income securities, because the dividend for preferred stock is fixed in amount and known in advance.

Though, this security provides for the investor the flow of income very similar to that of the bond. The main difference between preferred stocks and bonds is that for preferred stock the flows are for ever, if the stock is not callable. The preferred stockholders are paid after the debt securities holders but before the common stock holders in terms of priorities in payments of income and in case of liquidation of the company. If the issuer fails to pay the dividend in any year, the unpaid dividends will have to be paid if the issue is cumulative. If preferred stock is issued as noncumulative, dividends for the years with losses do not have to be paid. Usually same rights to vote in general meetings for preferred stockholders are suspended. Because of having the features attributed for both equity and fixed-income securities preferred stocks is known as hybrid security. A most preferred stock is issued as noncumulative and callable. In recent years the preferred stocks with option of convertibility to common stock are proliferating.

The common stock is the other type of investment vehicles which is one of most popular

among investors with long-term horizon of their investments. Common stock represents the ownership interest of corporations or the equity of the stock holders. Holders of common stock are entitled to attend and vote at a general meeting of shareholders, to receive declared dividends and to receive their share of the residual assets, if any, if the corporation is bankrupt. The issuers of the common stock are the companies which seek to receive funds in the market and though are "going public". The issuing common stocks and selling them in the market enables the company to raise additional equity capital more easily when using other alternative sources. Thus many companies are issuing their common stocks which are traded in financial markets and investors have wide possibilities for choosing this type of securities for the investment.

Speculative investment vehicles following the term "speculation" (see p.8) could be defined as investments with a high risk and high investment return. Using these investment vehicles speculators try to buy low and to sell high, their primary concern is with anticipating and profiting from the expected market fluctuations. The only gain from such investments is the positive difference between selling and purchasing prices. Of course, using short-term investment strategies investors can use for speculations other investment vehicles, such as common stock, but here we try to

accentuate the specific types of investments which are more risky than other investment vehicles because of their nature related with more uncertainty about the changes influencing the their price in the future.

Speculative investment vehicles could be presented by these different vehicles:
- Options;
- Futures;
- Commodities, traded on the exchange (coffee, grain metals, other commodities);

Options are the *derivative financial instruments*. An options contract gives the owner of the contract the right, but not the obligation, to buy or to sell a financial asset at a specified price from or to another party. The buyer of the contract must pay a fee (option price) for the seller. There is a big uncertainty about if the buyer of the option will take the advantage of it and what option price would be relevant, as it depends not only on demand and supply in the options market, but on the changes in the other market where the financial

asset included in the option contract are traded. Though, the option is a risky financial instrument for those investors who use it for speculations instead of hedging.

Futures are the other type of derivatives. A future contract is an agreement between two parties than they agree tom transact with the respect to some financial asset at a predetermined price at a specified future date. One party agree to buy the financial asset, the other agrees to sell the financial asset. It is very important, that in futures contract case both parties are obligated to perform and neither party charges the fee.

There are two types of people who deal with options (and futures) contracts: speculators and hedgers. Speculators buy and sell futures for the sole purpose of making a profit by closing out their positions at a price that is better than the initial price. Such people neither produce nor use the asset in the ordinary course of business. In contrary, hedgers buy and sell futures to offset an otherwise risky position in the market.

Transactions using derivatives instruments are not limited to financial assets. There are derivatives, involving different commodities (coffee, grain, precious metals,

and other commodities). But in this course the target is on derivatives where underlying asset is a financial asset.

Other investment tools:

☐ Various types of investment funds;
☐ Investment life insurance;
☐ Pension funds;
☐ Hedge funds.

Investment companies/ investment funds. They receive money from investors with the common objective of pooling the funds and then investing them in securities according to a stated set of investment objectives. Two types of funds:

1. open-end funds (mutual funds) ,
2. closed-end funds (trusts).

Open-end funds have no pre-determined amount of stocks outstanding and they can buy back or issue new shares at any point. Price of the share is not determined by demand, but by an estimate of the current market value of the fund's net assets per share (NAV) and a commission.

Closed-end funds are publicly traded investment companies that have issued a

specified number of shares and can only issue additional shares through a new public issue. Pricing of closed-end funds is different from the pricing of open-end funds: the market price can differ from the NAV.

Insurance Companies are in the business of assuming the risks of adverse events (such as fires, accidents, etc.) in exchange for a flow of insurance premiums. Insurance companies are investing the accumulated funds in securities (treasury bonds, corporate stocks and bonds), real estate. Three types of Insurance Companies: life insurance; non-life insurance (also known as property-casualty insurance) and re-insurance. During recent years *investment life insurance* became very popular investment alternative for individual investors, because this hybrid investment product allows to buy the life insurance policy together with possibility to invest accumulated life insurance payments or lump sum for a long time selecting investment program relevant to investor's future expectations.

Pension Funds are an asset pools that accumulates over an employee's working years and pays retirement benefits during the employee's nonworking years. Pension

funds are investing the funds according to a stated set of investment objectives in securities (treasury bonds, corporate stocks and bonds), real estate.

Hedge funds are unregulated private investment partnerships, limited to institutions and high-net-worth individuals, which seek to exploit various market opportunities and thereby to earn larger returns than are ordinarily available. They require a substantial initial investment from investors and usually have some restrictions on how quickly investor can withdraw their funds. Hedge funds take concentrated speculative positions and can be very risky. It could be noted that originally, the term "hedge" made some sense when applied to these funds. They would by combining different types of investments, including derivatives, try to hedge risk while seeking higher return. But today the word "hedge' is misapplied to these funds because they generally take an aggressive strategies investing in stock, bond and other financial markets around the world and their level of risk is high

Financial markets

Financial markets are the other important component of investment environment.

Financial markets are designed to allow corporations and governments to raise new funds

and to allow investors to execute their buying and selling orders. In financial markets funds are channeled from those with the surplus, who buy securities, to those, with shortage, who issue new securities or sell existing securities. A financial market can be seen as a set of arrangements that allows trading among its participants.

Financial market provides three important economic functions (Frank J. Fabozzi, 1999):

1. Financial market determines the prices of assets traded through the interactions between buyers and sellers;

2. Financial market provides a liquidity of the financial assets;

3. Financial market reduces the cost of transactions by reducing explicit costs, such as money spent to advertise the desire to buy or to sell a financial asset.

Financial markets could be classified on the bases of those characteristics:

- Sequence of transactions for selling and buying securities;

- Term of circulation of financial assets traded in the market;

Economic nature of securities, traded in the market;
- From the perspective of a given country.

By sequence of transactions for selling and buying securities:

Primary market
Secondary market

All securities are first traded in the primary market, and the secondary market provides liquidity for these securities.

Primary market is where corporate and government entities can raise capital and where the first transactions with the new issued securities are performed. If a company's share is traded in the primary market for the first time this is referred to as an initial public offering (IPO).

Investment banks play an important role in the primary market:

- Usually handle issues in the primary market;

- Among other things, act as underwriter of a new issue, guaranteeing the proceeds to the issuer.

Secondary market - where previously issued securities are traded among investors.

Generally, individual investors do not have access to secondary markets. They use security brokers to act as intermediaries for them. The broker delivers an orders received form investors in securities to a market place, where these orders are executed. Finally, clearing and settlement processes ensure that both sides to these transactions honor their commitment. Types of brokers:

- Discount broker, who executes only trades in the secondary market;

- Full service broker, who provides a wide range of additional services to clients (ex., advice to buy or sell);

- Online broker is a brokerage firm that allows investors to execute trades electronically using Internet.

Types of secondary market places:

1. Organized security exchanges;
2. Over-the-counter markets;
3. Alternative trading system.

An organized security exchange provides the facility for the members to trade securities, and only exchange members may trade there. The members include brokerage firms, which offer their services to individual investors, charging commissions for executing trades on their behalf. Other exchange members by or sell

for their own account, functioning as dealers or market makers who set prices at which they are willing to buy and sell for their own account. Exchanges play very important role in the modern economies by performing the following tasks:

a. Supervision of trading to ensure fairness and efficiency;

b. The authorization and regulation of market participants such as brokers and market makers;

c. Creation of an environment in which securities' prices are formed efficiently and without distortion. This requires not only regulation of an orders and transaction costs but also a liquid market in which there are many buyers and sellers, allowing investors to buy or to sell their securities quickly;

d. Organization of the clearing and settlement of transactions;

e. The regulation of he admission of companies to be listed on the exchange and the regulation of companies who are listed on the exchange;

f. The dissemination of information (trading data, prices and announcements of companies listed on the exchange). Investors are more willing to trade if

prompt and complete information about trades and prices in the market is available.

The over-the-counter (OTC) market is not a formal exchange. It is organized network of brokers and dealers who negotiate sales of securities. There are no membership requirements and many brokers register as dealers on the OTC. At the same time there are no listing requirements and thousands of securities are traded in the OTC market. OTC stocks are usually considered as very risky because they are the stocks that are not considered large or stable enough to trade on the major exchange.

An alternative trading system (ATS) is an electronic trading mechanism developed independently from the established market places – security exchanges – and designed to match buyers and sellers of securities on an agency basis. The brokers who use ATS are acting on behalf of their clients and do not trade on their own account. The distinct advantages of ATS in comparison with traditional markets are cost savings of transactions, the short time of execution of transactions for liquid securities, extended hours for trading and anonymity, often important for investors, trading large amounts.

Investment management 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.

The investment policy should also state other important constrains which could influence the investment management. Constrains can include any liquidity needs for the investor, projected investment horizon, as well as other unique needs and preferences of investor. The *investment horizon* is the period of time for investments. Projected time horizon may be short, long or even indefinite.

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 portfolio 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:

- *random diversification,* when several available financial assets are put to the portfolio at random;
- *objective diversification* when financial assets are selected to the portfolio following investment objectives and using appropriate techniques for analysis and evaluation of each financial asset.

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.

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 uncertainty.

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.

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

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

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

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

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

Issue mechanism

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

1. Public issue through prospectus,

2. Through offer for sale,

3. Through placement of securities— private placement and stock

exchange placing,

4. Issue of bonus shares,

5. Book-building, and

6. Stock option.

Margin Trading

Buying on margin is borrowing money from a broker to purchase stock. You can think of it as a loan from your brokerage. Margin trading allows you to buy more stock than you'd be able to normally. To trade on margin, you need a margin account. This is different from a regular cash account, in which you trade using the money in the account. By law, your broker is required to obtain your signature to open a margin account. The margin account may be part of your standard account opening agreement or may be a completely separate agreement. An initial investment of at least $2,000 is required for a margin account, though some brokerages require more. This deposit is known as the minimum margin. Once the account is opened and operational, you can borrow up to 50% of the purchase price of a stock. This portion of the purchase price that you deposit is known as the initial margin. It's essential to know that you don't have to margin all the way up to 50%.

SECURITY ANALYSIS

Security analysis is the analysis of tradable financial instruments called securities. These are usually classified into debt securities, equities, or some hybrid of the two. Tradable credit derivatives are also securities. Commodities or futures contracts are not securities. They are distinguished from securities by the fact that their performance is not dependent on the management or activities of an outside or third party. Options on these contracts are however considered securities, since performance is now dependent on the activities of a third party. The definition of what is and what is not a security comes directly from the language of a United States Supreme Court decision in the case of SEC v. W. J. Howey Co.. Security analysis is typically divided into fundamental analysis, which relies

upon the examination of fundamental business factors such as financial statements, and technical analysis, which focuses upon price trends and momentum. Quantitative analysis may use indicators from both areas.

Types of securities

1. 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.

2. 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).

3. 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.

 3.1. 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.

4. 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

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%.

4.1. 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.

4.2. 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.

5. 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

6. 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

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.

7. 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.

Fundamental Analysis:

Fundamental analysis is primarily concerned with determining the intrinsic value or the true value of a security. For determining the security's intrinsic value the details of all major factors (GNP, industry sales, firm sales and expense etc) is collected or an estimates of earnings per share may be multiplied by a justified or normal prices earnings ratio. After making this determination, the intrinsic value is compared with the security's current market price. If the market price is substantially greater than the intrinsic value the security is said to be overpriced. If the market price is substantially less than the intrinsic value, the security is said to be under priced. However, fundamental analysis comprises:

1. Economic Analysis
2. Industry Analysis
3. Company Analysis

 ECONOMIC ANALYSIS

For the security analyst or investor, the anticipated economic environment, and therefore the economic forecast, is important for making decisions concerning both the timings of an investment and the relative investment desirability among the various industries in the economy. The key for the analyst is that overall economic activities manifest itself in the behavior of the stocks in general. That is, the success of the economy will ultimately include the success of the overall market.

INDUSTRY ANALYSIS

The mediocre firm in the growth industry usually out performs the best stocks in a stagnant industry. Therefore, it is worthwhile for a security analyst to pinpoint growth industry, which has good investment prospects. The past performance of an industry is not a good predictor of the future- if one look very far into the future. Therefore, it is important to study industry analysis. For an industry analyst- industry life cycle analysis, characteristics and classification of industry is important.

INDUSTRY LIFE CYCLE ANALYSIS

Many industrial economists believe that the development of almost every industry may be analyzed in terms of following stages

1. Pioneering stage: During this stage, the technology and product is relatively new. The prospective demand for the product is promising in this industry. The demand for the product attracts many producers to produce the particular product. This lead to severe competition and only fittest companies survive in this stage. The producers try to develop brand name, differentiate the product and create a product image. This would lead to non-price competition too. The severe competition often leads to change of position of the firms in terms of market share and profit.

2. Rapid growth stage: This stage starts with the appearance of surviving firms from the pioneering stage. The companies that beat the competition grow strongly in sales, market share and financial performance. The improved technology of production leads to low cost and good quality of products. Companies with rapid growth in this stage, declare dividends during this stage. It is always adisable to invest in these companies.

3. Maturity and stabilization stage: After enjoying above-average growth, the industry now enters in maturity and stabilization stage. The symptoms of technology obsolescence may appear. To keep going, technological innovation in the production process should be introduced. A close monitoring at industries events are necessary at this stage.

4. Decline stage: The industry enters the growth stage with satiation of demand, encroachment of new products, and change in consumer preferences. At this stage the earnings of the industry are started declining. In this stage the growth of industry is low even

in boom period and decline at a higher rate during recession. It is always advisable not to invest in the share of low growth industry.

CLASSIFICATION OF INDUSTRY

Industry means a group of productive or profit making enterprises or organizations that have a similar technically substitute goods, services or source of income. Besides Standard Industry Classification (SIC), industries can be classified on the basis of products and business cycle i.e. classified according to their reactions to the different phases of the business cycle.

These are classified as follows:

1. *Growth Industries:* These industries have special features of high rate of earnings and growth in expansion, independent of the business cycle. The expansion of the industry mainly depends on the technological change or an innovative way of doing or selling something. For example-in present scenario the information technology sector have higher growth rate. There is some growth in electronics, computers, cellular phones, engineering, petro-chemicals, telecommunication, energy etc.

2. *Cyclical Industries:* The growth and profitability of the industry move along with the business cycle. These are those industries which are most likely to benefit from a period of economic prosperity and most likely to suffer from a period of economic recession. These especially include consumer goods and durables whose purchase can be postponed until persona; financial or general business conditions improve. For example- Fast Moving Consumer Goods (FMCG) commands a good market in the boom period and demand for them slackens during the recession.

3. *Defensive Industries:* Defensive industries are those, such as the food processing industry, which hurt least in the period of economic downswing. For example- the industries selling necessities of consumers withstands recession and depression. The stock of defensive industries can be held by the investor for income earning purpose. Consumer nondurable and services, which in large part are the items necessary for existence, such as food and shelter, are products of defensive industry.

4. *Cyclical-growth Industries:* These possess characteristics of both a cyclical industry and a growth industry. For example, the automobile industry experiences period of stagnation, decline but they grow tremendously. The change in technology and introduction of new models help the automobile industry to resume their growing path.

CHARACTERISTICS OF AN INDUSTRY ANALYSIS

In an industry analysis, the following key characteristics should be considered by the analyst. These are explained as below:

1. ***Post sales and Earnings performance:*** The two important factors which play an important role in the success of the security investment are sales and earnings. The historical performance of sales and earnings should be given due consideration, to know how the industry have reacted in the past. With the knowledge and understanding of the reasons of the past behavior, the investor can assess the relative magnitude of performance in future. The cost structure of an industry is also an important factor to look into. The higher the cost component, the higher the sales volume necessary to achieve the firm's break-even point, and vice-versa.

2. *Nature of Competition:* The numbers of the firms in the industry and the market share of the top firms in the industry should be analyzed. One way to determine competitive conditions is to observe whether any barriers to entry exist. The demand of particular product, its profitability and price of concerned company scrip's also determine the nature of competition. The investor before investing in the scrip of a company should analyze the market share of the particular company's product and should compare it with other companies. If too many firms are present in the organized sector, the competition would be severe. This will lead to a decline in price of the product.

3. *Raw Material and Inputs:* Here, we have to look into the industries, which are dependent upon imports of scarce raw material, competition from other companies and industries, barriers to entry of a new company, protection from foreign competition, import and export restriction etc. An industry which has a limited supply of materials domestically and where imports are restricted will have dim

growth prospects. Labour is also an input and industries with labour problems may have difficulties of growth.

4. *Attitude of Government towards Industry:* It is important for the analyst or prospective investor to consider the probable role government will play in industry. Will it provide financial support or otherwise? Or it will restrain the industry's development through restrictive legislation and legal enforcement? The government policy with regard to granting of clearance, installed capacity and reservation of the products for small industry etc. are also factors to be considered for industry analysis.

5. *Management:* An industry with many problems may be well managed, if the promoters and the management are efficient. The management likes Tatas, Birlas, Ambanies etc. who have a reputation, built up their companies on strong foundations. The management has to be assessed in terms of their capabilities, popularity, honesty and integrity. In case of new industries no track record is available and thus, investors have to carefully assess the project reports and the assessment of financial institutions in this regard. A good management also ensures that the future expansion plans are put on sound basis.

6. *Labour Conditions and Other Industrial Problems*: The labour scenario in a particular industry is of great importance. If we are dealing with a labour intensive production process or a very mechanized capital intensive process where labour performs crucial operations, the possibility of strike looms as an important factor to be reckoned with. Certain industries with problems of marketing like high storage costs, high transport costs etc leads to poor growth potential and investors have to careful in investing in such companies.

7. *Nature of Product Line:* The position of the industry in the life cycle of its growth-initial stage, high growth stage and maturing stage are to be noted. It is also necessary to know the industries with a high growth potential like computers, electronics, chemicals, diamonds etc., and whether the industry is in the priority sector of the key industry group or capital goods or consumer goods groups. The importance attached by the government in their policy and of the Planning Commission in their assessment of these industries is to be studied.

8. *Capacity Installed and Utilized*: The demand for industrial products in the economy is estimated by the Planning Commission and the Government and the units are given licensed capacity on the basis of these estimates. If the demand is rising as expected and market is good for the products, the utilization of capacity will be higher, leading to bright prospects and higher profitability. If the quality of the product is poor, competition is high and there are other constraints to the availability of inputs and there are labour problems, then the capacity utilization will be low and profitability will be poor.

9. *Industry Share Price Relative to Industry Earnings*: While making investment the current price of securities in the industry, their risk and returns they promise is considered. If the price is very high relative to future earnings growth, the investment in these securities is not wise. Conversely, if future prospects are dim but prices are low relative to fairly level future patterns of earnings, the stocks in this industry might be an attractive investment.

10. *Research and Development:* For any industry to survive in the national and international markets, product and production process have to be technically competitive. This depends upon the research and development in the particular industry. Proper research and development activities help in obtaining economic of scale and new market for product. While making investment in any industry the percentage of expenditure made on research and development should also be considered.

11. *Pollution Standards*: These are very high and restricted in the industrial sector. These differ from industry to industry, for example, in leather, chemical and pharmaceutical industries the industrial effluents are more.

COMPANY ANALYSIS:

THE STUDY OF FINANCIALS STATEMENTS

Financial statement means a statement or document which explains necessary financial information. Financial statements express the financial position of a business at the end of accounting period (Balance Sheet) and result of its operations performed during the year (Profit and Loss Account). In order to determine whether the financial or operational

performance of company is satisfactory or not, the financial data are analyzed. Different methods are used for this purpose. The main techniques of financial analysis are:

1. Comparative Financial Statements

2. Trend Analysis

3. Common Size Statement

4. Fund Flow Statement

5. Cash Flow Statement

6. Ratio Analysis

1) Comparative Financial Statements: In comparative financial statement, the financial statements of two periods are kept by side so that they can be compared. By preparing comparative statement the nature and quantum of change in different items can be calculated and it also helps in future estimates. By comparing with the data of the previous years it can be ascertained what type of changes in the different items of current year have taken place and future trends of business can be estimated.

2) Trend Analysis: In order to compare the financial statements of various years trend percentages are significant. Trend analysis helps in future forecast of various items on the basis of the data of previous years. Under this method one year is taken as base year and on its basis the ratios in percentage for other years are calculated. From the study of these ratios the changes in that item are examined and trend is estimated. Sometimes sales may be increasing continuously and the inventories may also be rising. This would indicate the loss of market share of a particular company's product. Likewise sales may have an increasing trend but profit may remain the same. Here the investor has to look into the cost and management efficiency of the company.

3) Common Size Statement: Common size financial statements are such statements in which items of the financial statements are converted in percentage on the basis of common base. In common size Income Statement, net sales may be considered as 100 percent. Other items are converted as its proportion. Similarly, for the Balance sheet items total assets or total liabilities may be taken as 100 percent and proportion of other items to this total can be calculated in percentage.

4) Fund Flow Statement: Income Statement or Profit or Loss Account helps in ascertainment of profit or loss for a fixed period. Balance Sheet shows the financial position of business on

a particular date at the close of year. Income statement does not fully explain funds from operations of business because various non-fund items are shown in Profit or Loss Account. Balance Sheet shows only static financial position of business and financial changes occurred during a year can't be known from the financial statement of a particular date. Thus, Fund Flow Statement is prepared to find out financial changes between two dates. It is a technique of analyzing financial statements. With the help of this statement, the amount of change in the funds of a business between two dates and reasons thereof can be ascertained. The investor could see clearly the amount of funds generated or lost in operations. These reveal the real picture of the financial position of the company.

5) Cash Flow Statement: The investor is interested in knowing the cash inflow and outflow of the enterprise. The cash flow statement expresses the reasons of change in cash balances of company between two dates. It provides a summary of stocks of cash and uses of cash in the organization. It shows the cash inflows and outflows. Inflows (sources) of cash result from cash profit earned by the organization, issue of shares and debentures for cash, borrowings, sale of assets or investments, etc. The outflows (uses) of cash results from purchase of assets, investment redemption of debentures or preferences shares, repayment of loans, payment of tax, dividend, interest etc. With the help of cash flow statement the investor can review the cash movement over an operating cycle. The factors responsible for the reduction of cash balances in spite of increase in profits or vice versa can be found out.

6) Ratio Analysis: Ratio is a relationship between two figures expressed mathematically. It is quantitative relationship between two items for the purpose of comparison. Ratio analysis is a technique of analyzing financial statements. It helps in estimating financial soundness or weakness. Ratios present the relationships between items presented in profit and loss account and balance sheet. It summaries the data for easy understanding, comparison and interpretation.

Meaning of Technical Analysis

Technical analysis involves a study of market-generated data like prices and volumes to determine the future direction of price movement. It is a process of identifying trend reversal at an earlier stage to formulate the buying and selling strategy. With the help of several indicators, the relationship between price –volume and supply-demand is analyzed for the

overall market and individual stocks. The basic premises, on which technical analysis is formulated, are as follows:

1. The market value of the scrip is determined by the interaction of demand and supply.

2. Supply and demand is governed by numerous factors, both rational and irrational. These factors include economic variables relied by the fundamental analysis as well as opinions, moods and guesses.

3. The market discounts everything. The price of the security quoted represents the hope, fears and inside information received by the market players. Insider information regarding the issuance of bonus shares and right issues may support the prices. The loss of earnings and information regarding the forthcoming labor problem may result in fall in price. These factors may cause a shift in demand and supply, changing the direction of trends.

4. The market always moves in the trends except for minor deviations.

5. It is known fact that history repeats itself. It is true to stock market also. In the rising market, investors' psychology has upbeats and they purchase the shares in great volumes driving the prices higher. At the same time in the down trend, they may be very eager to get out of the market by selling them and thus plunging the share price further. The market technicians assume that past prices predict the future.

Tools of Technical Analysis

Generally used technical tools to analyze the market data are as follows:

Dow theory

Originally proposed in the late nineteenth century by Charles H Dow, the editor of Wall Street Journal, the Dow theory is perhaps the oldest and best-known theory of technical analysis. Dow developed this theory on the basis of certain hypothesis, which are as follows:

a. No single individual or buyer or buyer can influence the major trends in the market. However, an individual investor can affect the daily price movement by buying or selling huge quantum of particular scrip.

b. The market discounts everything. Even natural calamities such as earth quake, plague and fire also get quickly discounted in the market. The world trade center blast affected the share

market for a short while and then the market returned back to normalcy.

c. The theory is not infallible and it is not a tool to beat the market but provides a way to understand the market. Explanation of the Theory Dow described stock prices as moving in trends analogous to the movement of water.

He postulated three types of price movements over time:

(1) major trends that are like tide in ocean,

(2) intermediate trends that resemble waves,

(3) short run movements that are like ripples.

Followers of the Dow theory hope to detect the direction of the major price trend (tide) known as primary trend, recognizing the intermediate movements (waves) or secondary trends that may occasionally move in the opposite direction. They recognize that a primary trend does not go straight up, but rather includes small price declines as some investors decide to take profits. It means share prices don't rise or fall in a straight t manner. Every rise or fall in price experiences a counter move. If a share price is increasing, the counter move will be a fall in price and vice-versa. The share prices move in a zigzag manner. The trend lines are straight lines drawn connecting either the top or bottoms of the share price movement. To draw a trend line, the analyst should have at least two tops or bottoms.

Primary Trend

The price trend may be either increasing or decreasing. When the market exhibits the increasing trend, it is called bull market. The bull market shows three clear-cut peaks. Each peak is higher than the previous peak and this price rise is accompanied by heavy trading volume. Here, each profit taking reversal that is followed by an increased new peak has a trough above the prior trough, with relatively light trading volume during the reversals, indicating that there is limited interest in profit taking at these levels. And the phases leading to the three peaks are revival, improvement in corporate profit and speculation. The revival period encourages more and more investors to buy scrips, their expectations about the future being high. In the second phase, increased profits of corporate would result in further price rise. In the third phase, prices advance due to inflation and speculation.

Secondary Trend

The secondary trend moves against the main trends and leads to the correction. In the bull market, the secondary trend would result in the fall of about 33-66 percent of the earlier rise.

In the bear market, the secondary trend carries the price upward and corrects the main trend. Compared to the time taken for the primary trend, secondary trend is swift and quicker.

Minor Trends

Minor trends are just like the ripples in the market. They are simply the daily price fluctuations. Minor trend tries to correct the secondary price movement. It is better for the investor to concentrate on the primary or secondary trends than on the minor trends

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.

Unit-II

PORTFOLIO ANALYSIS

Introduction

Portfolio is a combination of securities such as stocks, bonds and money market instruments. The process of blending together the broad asset classes so as to obtain optimum return with minimum risk is called portfolio construction. Individual securities have riskreturn characteristics of their own. Portfolios may or may not take

on the aggregate characteristics of their individual parts.

Diversification of investment helps to spread risk over many assets. A diversification of securities gives the assurance of obtaining the anticipated return on the portfolio. In a diversified portfolio, some securities may not perform as expected, but others may exceed the expectation and making the actual return of the portfolio reasonably close to the anticipated one.

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

Steps in traditional approach

(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

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.

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

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:

1. 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 the investment period. Thus, given two portfolios with the same standard deviation, the investor will choose the

    portfolio with the higher expected return. This is called an *assumption of*

    nonsatiation.

2. 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.*

3. *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

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

5.

6. **_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.

7.

8. In Fig.3.3 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._**

9. **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:

$$n$$

$$E(r)p = \Sigma \ wi * Ei \ (r) = E1(r) + w2 * E2(r) + \ldots + wn * En(r),$$

here   wi - the proportion of the portfolio's initial value invested in security i;

            Ei(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):

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

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

                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 and B.

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., $R_i - R_f/\beta_i$

Where

R_i = expected return on security i

R_f = return on a riskless security

$\Box I$ = 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 measures

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.

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

them.

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

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

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;

$\acute{r}A$, $\acute{r}B$ - 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 ($\acute{r}A$, $\acute{r}B$ 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 $\acute{r}A$, $\acute{r}B$, 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.

2.2.2. 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:

$$kA,B = \frac{Cov(rA,rB)}{\delta(rA) . \delta(rB)} \, ,$$

here   δ (rA) and δ(rB) 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:

$$\textbf{Det.A, B } = \textbf{k}^2\textbf{A,B} \tag{2.13}$$

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 returns 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.

The most often the relationship between the asset return and market portfolio return is demonstrated and examined using the common stocks as assets, but the same concept can be used analyzing bonds, or any other assets. With the given historical data about the returns on the particular common stock (rJ) and market index return (rM) in the same periods of time investor can draw the stock's *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 (point A in Fig. 2.8.).

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

$$\beta J = \frac{Cov\ (rJ, rM)}{\text{------------------}}\ , \qquad\qquad (2.14)$$

$$\delta^2(rM)$$

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

δ²(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 capital asset pricing model will be discussed.

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

$$\text{AJ} = \text{rJ} - \beta\text{J} \cdot \text{rM,} \qquad\qquad\qquad (2.15)$$

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.

2.3.2. 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 (see Fig. 2.8). 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.

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-III

BOND ANALYSIS AND VALUATION AND MANAGEMENT

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%)

$$= 100 \times 1.06 = \text{Rs. } 106.$$

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:

9. *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.

7.   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.

Macroeconomic factors with negative influence to the interest rates (from the investors in bonds position - decrease in interest rates):

- Decrease in investments;

- Increase in savings level;

- Decrease in export;

- Increase in import;

- Decrease in government spending;

- Increase 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 interest

income 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:

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

here: P -   current market price of the callable bond;

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

could be a   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:

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

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 > V - decision to buy or to keep the bond as it is under valuated;

If   P < V - 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:*

2. They are the expression of the little volatile in the investor's forecasts regarding interest rate and/ or bond price;
3. Have a lower expected return and risk than do active strategies;
4. 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 *main classes of active bond management strategies* are:

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-IV

EQUITY VALUATION AND DERIVATIVES

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:

$$R = 5/50 + 0.06 = 16 \text{ per cent}$$

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:

$$P0 = D/(1 + r)1 + D/(1 + r)2 + \dots + D/(1 + r)n + P/(1 + r)n$$

$$= \Sigma n \; t=D/(1 + r)t+P/(1 + r) \; n$$

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.

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 rate

risk, 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

DERIVATIVES:
The term 'Derivative' stands for a contract whose price is derived from or is dependent upon an underlying asset. The underlying asset could be a financial asset such as currency, stock and market index, an interest bearing security or a physical commodity.   As Derivatives are merely contracts between two or more parties, anything like weather data or amount of rain can be used as underlying assets
Participants in Derivative markets

- **Hedgers** use futures or options markets to reduce or eliminate the risk associated with price of an asset.
- **Speculators** use futures and options contracts to get extra leverage in betting on future movements in the price of an asset
- **Arbitrageurs** are in business to take advantage of a discrepancy between prices in two different markets

  BASIC TERMINOLOGIES,
- **Spot Contract:** An agreement to buy or sell an asset today.
- **Spot Price:** The price at which the asset changes hands on the spot date.
- **Spot date:** The normal settlement day for a transaction done today.
- **Long position:** The party agreeing to buy the underlying asset in the future assumes a long position.
- **Short position:** The party agreeing to sell the asset in the future assumes a short position

  Delivery Price: The price agreed upon at the time the contract is entered into

FORWARD CONTRACT:

- **Forward** is a non-standardized contract between two parties to buy or sell an asset at a specified future time at a price agreed today.

For Example: If **A** has to buy a share 6 months from now. and **B** has to sell a share worth Rs.100. So they both agree to enter in a forward contract of Rs. 104. **A** is at "Long Position" and **B** is at "Short Position" Suppose after 6 months the price of share is Rs.110. so, **A** overall gained Rs. 4 but lost Rs. 6 while **B** made an overall profit of Rs. 6

FUTURES CONTRACT:

- **Futures contract** is a standardized contract between two parties to exchange a specified asset of standardized quantity and quality for a price agreed today (the *futures price* or the *strike price*) with delivery occurring at a specified future date, the *delivery date*.
- Since such contract is traded through exchange, the purpose of the futures exchange institution is to act as intermediary and minimize the risk of default by either party.

Thus the exchange requires both parties to put up an initial amount of cash, the margin.

OPTIONS

- An **option** is a derivative financial instrument that specifies a contract between two parties for a future transaction on an asset at a reference price.

- The buyer of the option gains the right, but not the obligation, to engage in that transaction, while the seller incurs the corresponding obligation to fulfill the transaction.

- **Call Option:** Right but not the obligation to buy

- **Put Option:** Right but not the obligation to sell

- **Option Price:** The amount per share that an option buyer pays to the seller

- **Expiration Date:** The day on which an *option* is no longer valid

- **Strike Price:** The reference price at which the underlying may be traded

- **Long Position:** Buyer of an option assumes long position

- **Short Position:** Seller of an option assumes short position

SWAP CONTRACT

The derivative in which counterparties exchange certain benefits of one party's financial instrument for those of the other party's financial instrument. The benefits in question depend on the type of financial instruments involved. The types of Swaps are:

- Interest rate swaps
- Currency swaps
- Commodity swaps
- Equity Swap
- Credit default swaps

Unit-V

MUTUAL FUNDS

Meaning of Portfolio Revision:

A portfolio is a mix of securities selected from a vast universe of securities. Two variables determine the composition of a portfolio; the first is the securities included in the portfolio and the second is the proportion of total funds invested in each security.

Portfolio revision involves changing the existing mix of securities. This may be effected either by changing the securities currently included in the portfolio or by altering the proportion of funds invested in the securities. New securities may be added to the portfolio or some of the existing securities may be removed from the portfolio. Portfolio revision thus leads to purchases and sales of securities. The objective of portfolio revision is the same as the objective of portfolio selection, i.e. maximising the return for a given level of risk or minimising the risk for a given level of return. The ultimate aim of portfolio revision is maximisation of returns and minimisation of risk.

Constraints in portfolio revision:

Portfolio revision is the process of adjusting the existing portfolio in accordance with the changes in financial markets and the investor's position so as to ensure maximum return from the portfolio with the minimum of risk. Portfolio revision or adjustment necessitates purchase and sale of securities. The practice of portfolio adjustment involving purchase and sale of securities gives rise to certain problems which act as constraints in portfolio revision. Some of these are as under:

Transaction cost:

Buying and selling of securities involve transaction costs such as commission and brokerage. Frequent buying and selling of securities for portfolio revision may push up transaction costs thereby reducing the gains from portfolio revision. Hence, the transaction costs involved in portfolio revision may act as a constraint to timely revision of portfolio

Taxes:

Tax is payable on the capital gains arising from sale of securities. Usually,

long-term capital gains are taxed at a lower rate than short-term capital gains. To qualify as long-term capital gain, a security must be held by an investor for a period of not less than 12 months before sale. Frequent sales of securities in the course of periodic portfolio revision or adjustment will result in short-term capital gains which would be taxed at a higher rate compared to long-term capital gains. The higher tax on short-term capital gains may act as a constraint to frequent portfolio revision.

Statutory stipulations:

The largest portfolios in every country are managed by investment companies and mutual funds. These institutional investors are normally governed by certain statutory stipulations regarding their investment activity. These stipulations often act as constraints in timely portfolio revision.

Intrinsic difficulty:

Portfolio revision is a difficult and time consuming exercise. The methodology to be followed for portfolio revision is also not clearly established. Different approaches may be adopted for the purpose. The difficulty of carrying out portfolio revision itself may act as a constraint to portfolio revision.

Portfolio revision strategies:

Two different strategies may be adopted for portfolio revision, namely an active revision strategy and a passive revision strategy. The choice of the strategy would depend on the investor's objectives, skill, resources and time.

Active revision strategy involves frequent and sometimes substantial adjustments to the portfolio. Investors who undertake active revision strategy believe that security markets are not continuously efficient. They believe that securities can be mispriced at times giving an opportunity for earning excess returns through trading in them. Moreover, they believe that different investors have divergent or heterogeneous expectations regarding the risk and return of securities in the market. The practitioners of active revision strategy are confident of developing better

Formula plans:

In the market, the prices of securities fluctuate. Ideally, investors should buy

when prices are low and sell when prices are high. If portfolio revision is done according to this principle, investors would be able to benefit from the price fluctuations in the securities market. But investors are hesitant to buy when prices are low either expecting that prices will fall further lower or fearing that prices would not move upwards again. Similarly, when prices are high, investors hesitate to sell because they feel that prices may rise further and they may be able to realize larger profits.

Constant Rupee value plan:

This is one of the most popular or commonly used formula plans. In this plan, the investor constructs two portfolios, one aggressive, consisting of equity shares and the other, defensive, consisting of bonds and debentures. The purpose of this plan is to keep the value of the aggressive portfolio constant, i.e. at the original amount invested in the aggressive portfolio.

As share prices fluctuate, the value of the aggressive portfolio keeps changing. When share prices are increasing, the total value of the aggressive portfolio increases. The investor has to sell some of the shares from his portfolio to bring down the total value of the aggressive portfolio to the level of his original

Constant Ratio plan:

This is a variation of the constant rupee value plan. Here again the investor would construct two portfolios, one aggressive and the other defensive with his investment funds. The ratio between the investments in aggressive portfolio and the defensive portfolio would be predetermined such as 1:1 or 1.5:1 etc. The purpose of this plan is to keep this ratio constant by readjusting the two portfolios when share prices fluctuate from time to time. For this purpose, a revision point will also have to be predetermined.

Dollar cost averaging:

This is another method of passive portfolio revision. All formula plans assume that stock prices fluctuate up and down in cycles. Dollar cost averaging utilizes this cyclic movement in share prices to construct a portfolio at low cost.

PORTFOLIO EVALUATION:

Portfolio evaluation is the last step in the process of portfolio management. It is the stage when we examine to what extent the objective has been achieved. It is basically the study of the impact of investment decisions. Without portfolio evaluation, portfolio management would be incomplete. It has evolved as an important aspect of portfolio management over the last two decades.

Evaluation of mutual funds:

In India, at present, there are many mutual funds as also investment companies operating both in the public sector as well as in the private sector. These compete with each other for mobilising the investment funds with individual investors and other organisations by offering attractive returns, minimum risk, high safety and prompt liquidity. Investors and organisations desirous of placing their funds with these mutual funds would like to know the comparative performance of each so as to select the best mutual fund or investment company. For this, evaluation of the performance of mutual funds and their portfolios becomes necessary.

Evaluation Perspective:

A portfolio comprises several individual securities. In the building up of the portfolio several transactions of purchase and sale of securities take place. Thus, several transactions in several securities are needed to create and revise a portfolio of securities. Hence, the evaluation may be carried out from different perspectives or viewpoints such a transactions view, security view or portfolio view.

Transaction view:

An investor may attempt to evaluate every transaction of purchase and sale of securities. Whenever a security is bought or sold, the transaction is evaluated as regards its correctness and profitability.

Security view:

Each security included in the portfolio has been purchased at a particular

price. At the end of the holding period, the market price of the security may be higher or lower than its cost price or purchase price. Further, during the holding period, interest or dividend might have been received in respect of the security. Thus, it may be possible to evaluate the profitability of holding each security separately. This is evaluation from the security viewpoint.

Portfolio view:

A portfolio is not a simple aggregation of a random group of securities. It is a combination of carefully selected securities, combined in a specific way so as to reduce the risk of investment to the minimum. An investor may attempt to evaluate the performance of the portfolio as a whole without examining the performance of individual securities within the portfolio. This is evaluation from the portfolio view.

Measuring Portfolio Return:

The first step in portfolio evaluation is calculation of the rate of return earned over the holding period. Return may be defined to include changes in the value of the portfolio over the holding period plus any income earned over the period. However, in the case of mutual funds, during the holding period, cash inflows into the fund and cash withdrawals from the fund may occur. The unit-value method may be used to calculate return in this case.

Net Asset Value (NAV) $Rp = (NAVt - NAVt-1) + Dt + Ct / NAVt-1$

$D_t =$ Cash disbursements per unit during the holding period.

$C_t =$ Capital gains disbursements per unit during the holding period.

NAVt = NAV per unit at the end of the holding period.

NAVt-1 = NAV per unit at the beginning of the holding period

Risk adjusted Returns:

One obvious method of adjusting for risk is to look at the reward per unit of risk. We know that investment in shares is risky. Risk free rate of interest is the return that an investor can earn on a riskless security, i.e. without bearing any risk. The return earned over and above the risk free rate is the risk premium that is the

reward for bearing risk. If this risk premium is divided by a measure of risk, we get the risk premium per unit of risk. Thus, the reward per unit of risk for different portfolios or mutual funds may be calculated and the funds may be ranked in descending order of the ratio. A higher ratio indicates better performance.

Portfolio Beta can be used as an indication of the amount of market risk that the portfolio had during the time interval. It can be compared directly with the betas of other portfolios.

You cannot compare the ex post or the expected and the expected return of two portfolios without adjusting for risk. To adjust the return for risk before comparison of performance risk adjusted measures of performance can be used:

- Sharpe's ratio;
- Treynor's ratio;
- Jensen's Alpha.

Sharpe's ratio shows an excess a return over risk free rate, or risk premium, by unit of total risk, measured by standard deviation:

$$\text{Sharpe's ratio} = (\check{r}p - \check{r}f) / \sigma p,$$

here: řp -   the average return for portfolio p during some period of time;

řf - the average risk-free rate of return during the period;

σp - standard deviation of returns for portfolio p during the period.

Treynor's ratio shows an excess actual return over risk free rate, or risk premium, by unit of systematic risk, measured by Beta:

$$\text{Treynor's ratio} = (\check{r}p - \check{r}f) / \beta p,$$

here: βp – Beta, measure of systematic risk for the portfolio p.

Jensen's Alpha shows excess actual return over required return and excess of actual risk premium over required risk premium. This measure of the portfolio manager's performance is based on the CAPM

$$\text{Jensen's Alpha} = (\check{r}p - \check{r}f) - \beta p\,(\check{r}m - \check{r}f),$$

here: řm - the average return on the market in period t;

          (řm –řf) - the market risk premium during period t.

It is important to note, that if a portfolio is completely diversified, all of these measures (Sharpe, Treynor's ratios and Jensen's alfa) will agree on the ranking of the portfolios. The reason for this is that with the complete diversification total variance is equal to systematic variance. When portfolios are not completely diversified, the Treynor's and Jensen's measures can rank relatively undiversified portfolios much higher than the Sharpe measure does. Since the Sharpe ratio uses total risk, both systematic and unsystematic components are included.

Decomposition of Performance:

The performance measures access the overall performance of a portfolio or fund. Eugene Fama has provided an analytical framework that allows a detailed breakdown of a fund's performance into the source or components of performance. This is known as the Fama decomposition of total return.

The total return on a portfolio can be firstly divided into two components, namely risk free return and the excess return. Thus,

$$Total\ risk = Risk\ free\ return + Excess\ return$$

TRENDS IN INDIAN MUTUAL FUNDS

- Mutual funds in India began in 1964
- Unit Trust of India (UTI) was the first MF company
- Remains the market leader even today, Having about 68% of the market share
- Lost monopoly in 1987 With entry of public sector mutual funds Promoted by public sector banks and insurance companies
- Industry was open to foreign institutions in 1993
- In 1963, finance minister Shri T. Krishnaswami gave the idea of mutual funds.
- The origin of mutual fund industry in India is with the introduction of the concept of mutual fund by UTI in the year 1963.
- The first scheme launched by UTI was Unit Scheme in 1964.

At the end of 1988 UTI had Rs.6,700 crores of assets under management

- Though the growth was slow, but it accelerated from the year 1987 when non-UTI players entered the industry.
- SBI Mutual Fund was the first non- UTI Mutual Fund established in June 1987
  - followed by:-

    Punjab National Bank Mutual Fund (Aug 89),

    Indian Bank Mutual Fund (Nov 89),

    Bank of India (Jun 90),

    Bank of Baroda Mutual Fund (Oct 92)
- The private sector entry to the MF rose the AUM to Rs. 470 bn in March 1993.
- The 1993 SEBI (Mutual Fund) Regulations were substituted by a more comprehensive and revised Mutual Fund Regulations in 1996.
- The industry now functions under the SEBI (Mutual Fund) Regulations 1996.
- The number of mutual fund houses went on increasing, with many foreign mutual funds setting up funds in India.
- The industry has also witnessed several mergers and acquisitions.
- At the end of January 2003, there were 33 mutual funds with total assets of Rs. 1,21,805 crores.
- The Unit Trust of India was having highest Rs.44,541 crores of assets under management in year 2003.
- SEBI Removed Entry Load in MF on 1 August, 2009
- Introduction of Purchase/Sale facility through Stock Exchanges November, 2009
- National Stock Exchange (NSE) launched India's first Mutual Fund Service System (MFSS) on November 30, 2009 through which an investor can subscribe or redeem units of a mutual fund scheme

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Active revision strategy involves frequent and sometimes substantial adjustments to the portfolio. Investors who undertake active revision strategy believe that security markets are not continuously efficient

Passive revision strategy, in contrast, involves only minor and infrequent adjustment to the portfolio over time. The practitioners of passive revision strategy believe in market efficiency and homogeneity of expectation among investors. They find little incentive for actively trading and revising portfolios periodically. Under passive revision strategy, adjustment to the portfolio is carried out according to certain predetermined rules and procedures designated as formula plans. These formula plans help the investor to adjust his portfolio according to changes in the securities market.

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