KARPAGAM ACADEMY OF HIGHER EDUCATION
(Deemed to be University)
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Coimbatore-641021
Department of Management

Name: **P. SATHIYA BAMA**

Department: **Management**

Subject Code: **16BAU501A** Semester: **V** Year: **2016-19 Batch**

Subject: **Investment Analysis and Portfolio Management - Lesson Plan**

UNIT 1			
S. No	**Lecture Duration (Hrs)**	**Topics to be covered**	**Support Materials**
1	1	Investment - Meaning	R1- 1-10
2	1	Importance	T1 -Pg – 11 R1- 1-10
3	1	Investment Vs. Speculation	T1 - Pg 6 - 8
4	1	Investment Alternatives - Tutorial	T1 - Pg 8-10
5	1	Basics of risk and return	T1 - Pg 15 -20
6	1	Concept of returns	T1 - Pg 15 -20
7	1	Application of standard deviation	T1 - Pg 15 -20
8	1	Coefficient of variation - Tutorial	T1 - Pg 905 - 920
9	1	Beta - Alpha	T1 - Pg 905 - 920
10	1	Bonds	R3-163
11	1	Bonds - Present value of a bond	R3- 163-166
12	1	Yield to maturity - Yield to call - Yield to put - Tutorial	R3- 172 -175
13	1	Systematic risk, Price risk	R3- 142 -143
14	1	Interest rate risk, Default risk	R3 -140 - 142
15	1	Yield curve and theories regarding shape of yield curve	R3- 172 -175
16	1	Unsystematic and non-risk factors that influence yields - Tutorial	R3 142 -143
17	1	Duration and modified duration	R3 -174- 176
18	1	Immunization of a bond portfolio.	R3- 177-178
19	1	Recapitulation and discussion on important questions	-
Total no. of Hours planned for Unit 1			19

UNIT 2			
1	1	Fundamental analysis Introduction- tutorial	R3 -215
2	1	EIC framework Economic, Industry, Company	R3 -215-219
3	1	Economic Analysis – Macro environmental factors	R3- 215-217
4	1	Leading, lagging, coincident – Economic indicators	T1 - 284-285
5	1	GDP, taxation,	R3- 215
6	1	Macro-economic indicators – Economic model building	T1- 287 -288
7	1	Expected direction of movement of stock prices	W2
8	1	Macroeconomic variables in the Indian context	R3- 215-217
9	1	Industry analysis	R3- 219-224
10	1	Stages of life cycle	T1- 288-289
11	1	Porter's five forces model	T1 -288-292
12	1	SWOT analysis	R3 -223-224
13	1	Financial analysis of an industry - Tutorial	R3 -230-233
14	1	Financial analysis of an industry	R3 -230-233
15	1	Trend analysis, fund flow analysis	R3 -231-232
16	1	Company analysis factors on share value	R3 -225-228
17	1	Present and future Price values -Tutorial	W2
18	1	Competitive edge of the earnings of the company	R3 -225- 227
19	1	Recapitulation and discussion on important questions	-
Total Number of hours planned for Unit 2			**19**
UNIT 3			
1	1	Technical analysis - Meaning - Assumptions	T1 – 343-344
2	1	Difference between technical and fundamental analysis	T1 – 344
3	1	Price indicators - Dow theory - Advances and declines	T1 – 344-347
4	1	New highs and lows	T1 – 344-345
5	1	Circuit filters - Volume indicators	T1 – 343-344
6	1	Dow Theory - Small investor volumes	T1 – 345-348
7	1	Other indicators - Futures	T1 – 349-350

8	1	Institutional activity - Trends - Resistance - Support	R3- 261-262
9	1	Consolidation - Momentum	W3
10	1	Charts - Line chart - Bar chart - Candle chart, point and figure chart	T1 – 348-350
11	1	Patterns - Head and shoulders, Triangle – Rectangle – Flag - Cup and Saucer - Double topped - Double bottomed	T1 – 350-352
12	1	Indicators - Moving averages - Efficient market hypothesis - Concept of efficiency	T1 – 360-363
13	1	Random walk - Three forms of EMH and implications for investment decisions. (No numerical in EMH and technical analysis)	T1 – 360-362
14	1	Share Valuation	W3
15	1	Dividend discount models	W3
16	1	No growth - Constant growth	R3 – 197 - 199
17	1	Two stage growth model	R3 – 195 - 197
18	1	Multiple stages - Relative valuation models using P/E ratio	W3
19	1	Book value to market value	W3
20	1	Recapitulation and discussion on important questions	-
Total Number of hours planned for Unit 3			**20**
UNIT 4			
1	1	Portfolio Analysis - Portfolio risk and return	R3- 334 - 335
2	1	Markowitz portfolio model	R3-331 - 335
3	1	Risk and return for 2 and 3 asset portfolios	R3 -339 -340
4	1	Concept of efficient frontier and optimum portfolio	R3-336 - 340
5	1	Market Model	R3 -291 - 292
6	1	Concept of beta systematic and unsystematic risk	T1- 415-416
7	1	Investor risk and return preferences	T1- 419
8	1	Indifference curves and the efficient frontier	R3- 38 9
9	1	Traditional portfolio management for individuals	R3 – 320 - 322
10	1	Objectives - Constraints	R3 – 320 - 321
11	1	Time horizon - Current wealth	R3 – 321 - 322
12	1	Tax considerations	R3 – 322

13	1	Liquidity requirements and anticipated inflation	T1- 418
14	1	Asset allocation, Asset allocation pyramid	W4
15	1	Investor life cycle approach	T1- 418-419
16	1	Portfolio management services, Passive - Index funds	R3 -433
17	1	Systematic investment plans	W4
18	1	Active, Market timing, Style investing.	R3 -433- 435
19	1	Recapitulation and discussion on important questions	
Total Number of hours planned for Unit 4			**19**
UNIT 5			
1	1	Capital Asset Pricing Model (CAPM)	R3 – 379 - 380
2	1	Efficient frontier with a combination of risky and risk free assets	R3- 336 - 340
3	1	Assumptions of single period classical CAPM model	R3 – 379
4	1	Expected return	R3 -336-337
5	1	Required return	R3 -337-338
6	1	Characteristic line	R3 -339-310
7	1	Capital Market Line	R3 – 382 - 383
8	1	Security market Line	R3 – 382 - 383
9	1	Overvalued and undervalued assets	W5
10	1	Mutual Funds - Introduction	R3 – 411
11	1	Calculation of Net Asset Value (NAV) of a Fund	R3 – 412 - 413
12	1	Classification of mutual fund schemes by structure and objective	R3 – 411 - 412
13	1	Advantages and disadvantages of investing through mutual funds	R3 – 412
14	1	Performance Evaluation using Sharpe's Treynor's	R3 – 412 - 413
15	1	Performance Evaluation using Jensen's Measures	R3 – 416 - 419
16	1	Revision of Previous year ESE questions	-
17	1	Revision of Previous year ESE questions	-
18	1	Revision of Previous year ESE questions	-
19	1	Discussion of previous year ESE Question papers	-
Total No. of hours planned for Unit 5 and discussion of previous year ESE Q. papers			**19**

Total Number of hours allotted for all five units	96

SUGGESTED READINGS:

TEXT BOOKS

1. Preethi Singh. (2015).*Investment Management*. Mumbai: Himalaya Publications.

REFERENCES

1. Singh, R. (2009). *Security Analysis and Portfolio Management* (1st ed.). New Delhi:Excel Books.
2. Nagarajan, K.,& Jayabal, G. (2011).*Security Analysis and Portfolio Management*Edition (1st ed.). Kochi: New Age International Publisher.
3. Punithavathi Pandian (2010) *Security Analysis and Portfolio Management* (10th ed.). New Delhi: Vikas Publishing House Pvt. Ltd.
4. Avadhani. (2014). *Investment Management*. Mumbai: Himalaya Publications.
5. Jack Clark Francis. (2001).*Investments Analysis and Management*. Singapore: Mc Graw Hill International Edition.
6. Srivatsava,R.M. (2010).*Management of Indian Financial Institution*. Mumbai: Himalaya Publishing House.
7. Bhalla, V.K. (2010). *Investment Management*. New Delhi: Sultan Chand and Sons.

Websites:

1. W1 - https://en.wikipedia.org/wiki/Financial_services
2. W2-https://www.investopedia.com/terms/c/capitalbudgeting.asp
3. W_3: www.investors forum.com
4. W4: http://WWW. dummies .com
5. W5: http://your business.azceniral.com

UNIT-I-Introduction to Investment Management

SYLLABUS

Investment - Meaning - Importance - Investment Vs. Speculation – Investment Alternatives - Basics of risk and return - Concept of returns - Application of standard deviation - Coefficient of variation - Beta - Alpha - Bonds - Present value of a bond - Yield to maturity - Yield to call - Yield to put - Systematic risk - Price risk - Interest rate risk - Default risk - Yield curve and theories regarding shape of yield curve - Unsystematic risk and non-risk factors that influence yields - Duration and modified duration - Immunization of a bond portfolio.

Investment

Investment In finance, the purchase of a financial product or other item of value with an expectation of favourable future returns. In general terms, investment means the use money in the hope of making more money.

Investment can be defined in different aspects. These are: Generally, investment is the application of money for earning more money. Investment also means savings or savings made through delayed consumption. In Finance, the purchase of a financial product or other item of value with an expectation of favourable future returns. the practice of investment refers to the buying of a financial product or any valued item with an anticipation that positive returns will be received in the future. In Business, the purchase by a producer of a physical good, such as durable equipment or inventory, in the hope of improving future business.

Investment is defined as a sacrifice made now to obtain a return later. It is current consumption that is sacrificed. Two forms of investment can be defined} ◦ Real investment is the purchase of land, machinery, etc. ◦ Financial investment is the purchase of a "paper" contract

Nature and Scope of Investment

 It helps in making investment decisions. Higher the risk, higher the expected return. One can take decision only after analyzing entire process of investment that starts with fund contribution and

ends with getting expectations fulfilled. Higher the time period of investment, lesser the uncertainties of investment.

 Cash has an investment opportunity when you decide to invest it you are deprived of this opportunity to earn a return on that cash. When the general price level rises the purchasing power of cash declines- larger the increase in inflation, the greater the depletion in the buying power of cash. Some investors buy government securities or deposit their money in bank accounts that are adequately secured. In contrast, some others prefer to buy, hold and sell equity shares even when they know that they get exposed to risk.

 Risk is the probability that the actual return on an investment will be different from its expected return. Using this definition of risk, you may} classify various investments into risk categories. Government securities would be seen as} risk free investments because the probability of actual return diverging from expected return is zero.

Factors Influencing Investment Decision

There are many factors which directly or indirectly, influence capital investment decisions, beside the availability of funds to invest, profitability of the investment, market for the product, etc. they are as below:

1. Technological Changes: Technological development changes at present is much more faster than that at past. The new technology increases the productivity of labour and capital. The selection of new technology depends on the net benefit over the cost of having the technology. Benefits from and cost of new technology also influences the investment decision.

2.Competitors' Strategy: If the competitors are installing the new equipment to expand output or to improve of their products, the firm under consideration will have no alternative but to follow suit, else it will be loss. It is therefore, often found that the competitor's strategy regarding capital investment plays a very significant role in forcing capital decision of the firm.

3.Demand Forecast: The long term demand forecast is one of the determinants of investment decision. If the firm finds market potentials for the product in the long run, the firm will have to take decision for investment.

4.Outlook Of Management: Investment decision depends on the management outlook. If the management is progressive in its outlook, the innovations will be encouraged.

5.Fiscal Policy: Various tax policies of the government relating the tax concession on prioritized investment, rebate on new investment, methods allowing depreciation deduction allowance etc. Also have influence on the capital investment.

6.Cash Flow: Every firm makes a cash flow budget. Its analysis influences capital investment decision. On the basis of each cash flow budget the firm plans the funds for acquiring the capital assets. The budget also shows the timing of availibility of cash flows for alternative investment proposals.

7.Expected Return From The Investment: Investment decisions are mostly done anticipation of increased return future. So, it is necessary to estimate future net returns from the investment proposals while evaluating the investment proposals.

8.Non-Economic Factors: The factors which cannot be evaluated in money terms is called non-economic terms or factors. Sometime the non-economic factors also influence investment decisions. Working environment in the firm, safety measures in the operation of machines, brotherhood and good relation among employer and employees, etc. influences the firm's output and also the investment decision

INVESTMENT AND SPECULATION

• Investment involves making a sacrifice of in the present with the hope of deriving future benefits.

• Postponed consumption

• The two important features are : – Current Sacrifice. – Future Benefits.

It also involves putting money into an asset which is not necessarily marketable in the short run in order to enjoy the series of returns the investment is expected to yield.

• People who make fortunes in stock market and they are called investors.

• Decision making is a well thought process.• Key determinant of investment process: – Risk – Expected Return.

Speculation

• Speculation is a financial action that does not promise safety of the initial investment along with the return on the principal sum.

• Its is usually short run phenomenon.

• Speculator the person tend to buy the assets with the expectation that a profit cane earned from subsequent price change and sale.

The main difference between speculating and investing is the amount of of risk undertaken in the trade. Typically, high-risk trades that are almost akin to gambling fall under the umbrella of speculation, whereas lower-risk investments based on fundamentals and analysis fall into the category of investing. Investors seek to generate a satisfactory return on their capital by taking on an average or below-average amount of risk. On the other hand, speculators are seeking to make abnormally high returns from bets that can go one way or the other. It should be noted that speculation is not exactly like gambling because speculators do try to make an educated decision on the direction of the trade, but the risk inherent in the trade tends to be significantly above average.

As an example of a speculative trade, consider a volatile junior gold mining company that has an equal chance over the near term of skyrocketing from a new gold mine discovery or going bankrupt. With no news from the company, investors would tend to shy away from such a risky trade, but some speculators may believe that the junior gold mining company is going to strike gold and may buy its stock on a hunch. This would be speculation.

As an example of investing, consider a large stable multinational company. The company may pay a consistent dividend that increases annually, and its business risk is low. An investor may choose to invest in this company over the long-term to make a satisfactory return on his or her capital while taking on relatively low risk. Additionally, the investor may add several similar companies across different industries to his or her portfolio to diversify and further lower their risk.

The Investment Process

As investors, we would all like to beat the market handily, and we would all like to pick "great" investments on instinct. However, while intuition is undoubtedly a part of the process of investing, it is just part of the process. As investors, it is not surprising that we focus so much of our energy and efforts on investment philosophies and strategies, and so little on the investment process. It is far

more interesting to read about how Peter Lynch picks stocks and what makes Warren Buffett a valuable investor, than it is to talk about the steps involved in creating a portfolio or in executing trades. Though it does not get sufficient attention, understanding the investment process is critical for every investor for several reasons:

1. The investment process outlines the steps in creating a portfolio, and emphasizes the sequence of actions involved from understanding the investor?s risk preferences to asset allocation and selection to performance evaluation. By emphasizing the sequence, it provides for an orderly way in which an investor can create his or her own portfolio or a portfolio for someone else.

1. The investment process provides a structure that allows investors to see the source of different investment strategies and philosophies. By so doing, it allows investors to take the hundreds of strategies that they see described in the common press and in investment newsletters and to trace them to their common roots.

1. The investment process emphasizes the different components that are needed for an investment strategy to by successful, and by so doing explain why so many strategies that look good on paper never work for those who use them.

The best way of describing this book is by noting what it does not do. It does not emphasize individual investors or push an investment philosophy. It does not focus heavily on coming up with strategies that beat the market, though there is reference to some of them in the course of the book. Instead, it talks about the process of investing and how this process is the same no matter what investment philosophy one might have.

The book is built around the investment process. The process always starts with the investor and understanding his or her needs and preferences. For a portfolio manager, the investor is a client, and the first and often most significant part of the investment process is understanding the client?s needs, the clients tax status and most importantly, his or her risk preferences. For an individual investor

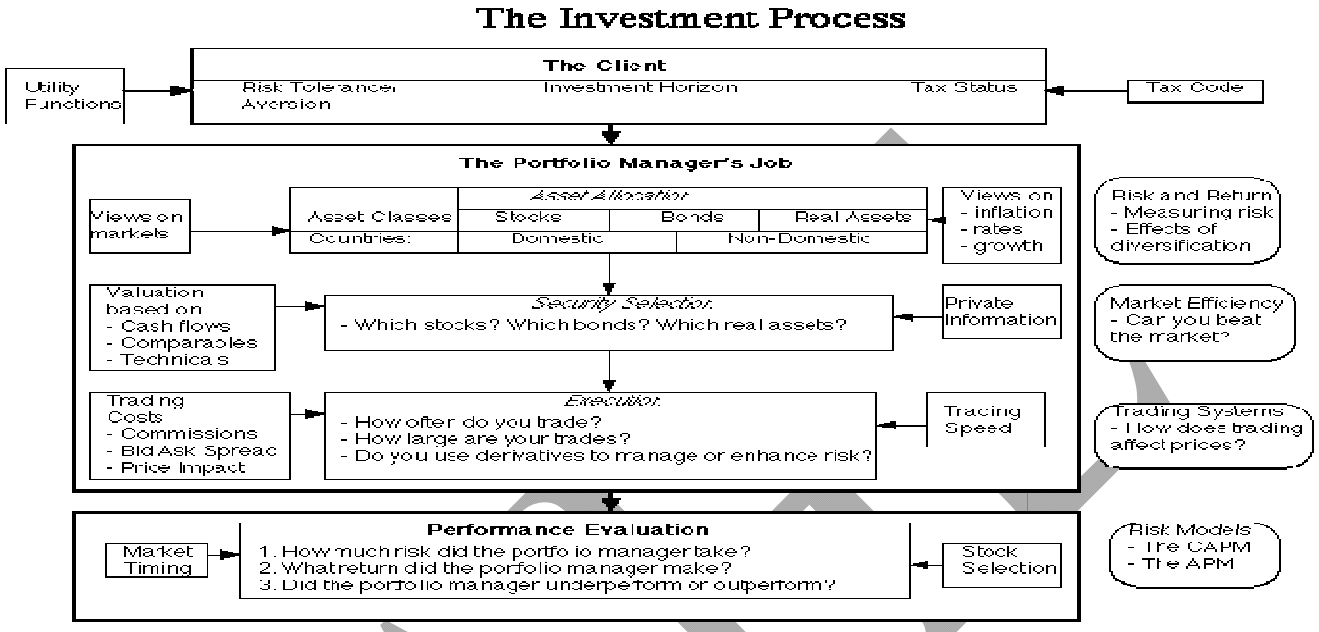
constructing his or her own portfolio, this may seem simpler, but understanding one?s own needs and preferences is just as important a first step as it is for the portfolio manager.

The next part of the process is the actual construction of the portfolio, which we divide into three sub-parts. The first of these is the decision on how to allocate the portfolio across different asset classes defined broadly as equities, fixed income securities and real assets (such as real estate, commodities and other assets). This asset allocation decision can also be framed in terms of investments in domestic assets versus foreign assets, and the factors driving this decision. The second component is the asset selection decision, where individual assets are picked within each asset class to make up the portfolio. In practical terms, this is the step where the stocks that make up the equity component, the bonds that make up the fixed income component and the real assets that make up the real asset component are picked. The final component is execution, where the portfolio is actually put together, where investors have to trade off transactions cost against transactions speed. While the importance of execution will vary across investment strategies, there are many investors who have failed at this stage in the process.

The final part of the process, and often the most painful one for professional money managers, is the performance evaluation. Investing is after all focused on one objective and one objective alone, which is to make the most money you can, given the risk constraints you operate under. Investors are not forgiving of failure and unwilling to accept even the best of excuses, and loyalty to money managers is not a commonly found trait. By the same token, performance evaluation is just as important to the individual investor who constructs his or her own portfolio, since the feedback from it should largely determine how that investor approaches investing in the future.

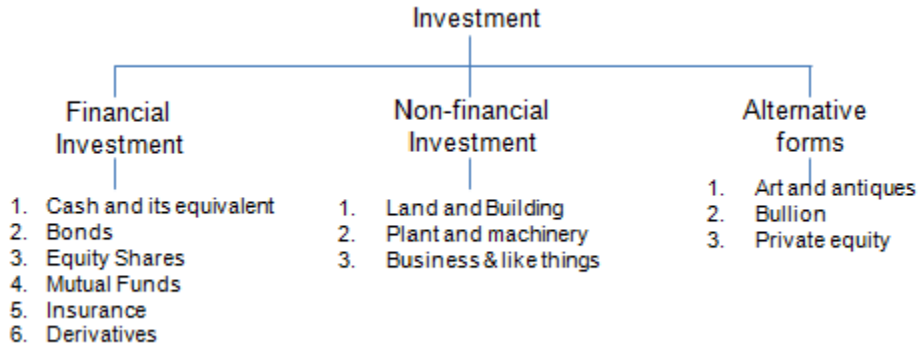
These parts of the process are summarized in Figure 1, and we will return to this figure to emphasize the steps in the process as we move through the book. The book is built around the same structure. It begins with a chapter that provides an overview of investment management as a business. The first major section is on understanding client needs and preferences, where we look at not only how to think about risk in investing but also at how to measure an investor?s willingness to take risk. The second section looks at the asset allocation decision, while the third section examines different

approaches to selecting assets. The fourth section takes a brief look at the execution decision, and the fifth section develops different approaches to evaluating performance.



Alternative forms of Investment

Investment alternative refer to those options/instruments that help investor save and invest. These are issued by various banks, financial institutions, stock brokerages, insurance providers, credit card agencies and government sponsored entities. These instruments are categorized in terms of their volatility, risk, liquidity and return.



The various investment options available to an investor are -

1. Shares

These represent ownership of a company. While shares are initially issued by corporations to finance their business needs, they are subsequently bought and sold by individuals in the share market. They are associated with high risk and high returns. Returns on shares can be in the form of dividend payouts by the company or profits on the sale of shares on the stock market (capital appreciation), Shares, stocks, equities and securities are words that are generally used interchangeably.

There are two types of shares - Equity and preference shares. Preference are those shares which have first preference for payment of dividend and refund of capital in case of winding up. Equity shares are those shares which are not preference shares. Preference shares aren't popular in india. These shares may be cumulative, participating and convertible.

Shares of known and financially sound companies are called Blue chip shares and such companies are blue chip companies because of their market reputation and goodwill that they carry. Investors usually prefer investing in blue chip companies due to the safety and attractive returns.

2. Debentures and Government Bonds

These are issued by companies to finance their business operations and by governments to fund expenses like infrastructure and social programs. A debenture is a document issued by a company as an evidence of debt. Bonds are issued by the government and debentures are issued by the private sector companies. Bonds have a fixed interest rate, making the risk associated with them lower than shares. The face value of bonds is recovered at the time of maturity. Debentures may be convertible or non-convertible. If a debenture is convertible into shares at maturity, it is called convertible. Convertible Debentures may be partly or fully convertible.

However the method of raising long term funds through debentures is not very popular in India.

3. Treasury Bills

These are instruments issued by the government for financing short term needs. They are issued at a discount and redeemed at face value. The profit earned is the difference between face value and the price at which the T-bill was issued. It is highly liquid because of the repayment guaranteed by the Government. There are two types of t-bills i.e. regular and ad-hoc (ad- hoc are issued in favour of RBI only). T-bills have maturity period of 91 days or 182 days or 364 days. State Governments do not issue T-bills.

4. Bank Deposits

These are low risk and low-medium return investments. In India, people trust the banking system more than the stock markets with their money. There are various types of deposits: *Savings , Recurring , Current and Fixed*. Savings a/c's give a return from 3-6% pre-tax. Current a/c's are for businessmen and generate no returns. Fixed deposits generate a return from 7-12% pre-tax.

5. Mutual Fund

These are professionally managed financial instruments that involve the diversification of investment into a number of financial products such as shares, bonds and government securities. This helps to reduce an investor's risk exposure, while increasing the profit potential. There are open-ended and close- ended funds.

6. Certificate of Deposit

Certificates of deposit (CDs) are issued by banks, thrift institutions and credit unions. They usually have a fixed term and fixed interest rate.

7. Annuities

These are contracts between investors and insurance companies, wherein the latter makes periodic payments in exchange for financial protection in the event of an unfortunate incident.

8. Derivatives

This includes futures, options, swaps, etc. It is a contract or agreement between two entities to buy or sell the underlying asset at a future date, at today's pre-agreed price.

Futures

A futures contract is an agreement between two parties to buy or sell the underlying asset at a future date at today's future price. Futures contracts differ from forward contracts in the sense that they are standardised and exchange traded. They are exchange-traded. They are standardised. The parties have to deposit certain initial margin (small percentage of the trade amount). They are highly regulated and are liquid. As a result, eliminate the counter-party risk.

Options

An option gives the holder of the option the right to do something. The holder does not have to exercise this right. However for this right the holder pays a price, known as the option premium. The writer of the option receives this premium. There are two types of options - *Call* and *Put*.

9. Real Estate

Investment in real estate include properties like buildings, lands, farm houses, flats or houses. Such properties attract the attention of affluent investors. As the demand increases but the supply of land is limited, the prices tend to increase. Therefore, it is an attractive form of investment but is the most illiquid asset. It is a long term investment, requires payment of stamp duty and a lot of legal formalities along with registration. SEBI has recently come out with guidelines for introduction and functioning of Real Estate Investment Trust (REIT) in the Indian real estate market. Once introduced these REITs will benefit retail investors the most. REIT is a trust which issues real estate in the form

of units as a result even a small investors can benefit from capital appreciation, these are liquid and exchange traded.

10. Insurance

When talking about insurance, Life insurance is a kind of investment because it provides family protection to the investor as well as return on investment in he form of yearly bonus on the policy. The return is as low as 6% because of the risk coverage and tax incentives. The amount of premium paid on a life insurance policy is exempt u/s 80C of Income-Tax Act. There are different policies such as whole life policy, endowment policy, money back policy, etc.

11. Gold and silver

They are also called as precious metals or objects. Everybody likes gold and hence requires gold or silver. These two precious metals are used for making ornaments and they hold an emotional value in India. In India, investment in gold is more psychological than calculated, many individuals think that gold is an investment which can never give negative returns. They act as a store of wealth. Gold bars are highly liquid and can be easily sold anytime. The pricing depends on the purity of the objects. The risk faced is of theft and fraud. India is the largest consumers of gold in the world followed by china at the second position. India accounts for about 20 percent of global demand. Recently in India, Gold Exchange Traded Funds (ETF's) were launched which made it easier for individuals to own gold in electronic format. It is less costly, high liquidity and guarantees purity to the investors.

12. Alternative investments

They include investments made in arts, antiques, etc. These investments are not in the form of traditional investments i.e. not availed by the masses. They were availed only by the High Net Worth

clients in the past are now availed by retail investors. They are in the form of paintings or their equivalent holding some historic value or just as a hobby. They may fetch good returns if one finds a buyer who is either a huge fan of the artists' work, or is an archaeologist. These works are usually kept in museums or halls.

Features of investment Programme

Some of the Important Features of an Investment Programme are as follows:

In choosing specific investments, investors will need definite ideas regarding features which their portfolios should possess. These features should be consistent with the investors' general objectives and, in addition, should afford them all the incidental conveniences and advantages which are possible under the circumstances. The following are the suggested features as the ingredients from which many successful investors compound their selection policies.

Safety of Principal :

The safety sought in investment is not absolute or complete; it rather implies protection against loss under reasonably likely conditions or variations. It calls for careful review of economic and industry trends before deciding types and/or timing of investments. Thus, it recognizes that errors are unavoidable for which extensive diversification is suggested as an antidote.

Adequate diversification means assortment of investment commitments in different ways. Those who are not familiar with the aggressive-defensive approach nevertheless often carry out the theory of hedging against inflation-deflation. Diversification may be geographical, wherever possible, because regional or local storms, floods, droughts, etc. can cause extensive real estate damage.

Vertical and horizontal diversification can also be opted for the same. Vertical diversification occurs when securities of various companies engaged in different phases of production from raw material to finished goods are held in the portfolio. On the other hand, horizontal diversification is the holding by an investor in various companies all of which carry on activity in the same stage of production.

Another way to diversify securities is to classify them according to bonds and shares and reclassify according to types of bonds and types of shares. Again, they can also be classified according to the issuers, according to the dividend or interest income dates, according to the products which are made by the firms represented by the securities. But over diversification is undesirable.

By limiting investments to a few issues, the investor has an excellent opportunity to maintain knowledge of the circumstances surrounding each issue. Probably the simplest and most effective diversification is accomplished by holding different media at the same time having reasonable concentration in each.

Adequate Liquidity and Collateral Value :

An investment is a liquid asset if it can be converted into cash without delay at full market value in any quantity. For an investment to be liquid it must be (1) reversible or (2) marketable. The difference between reversibility and marketability is that reversibility is the process whereby the transaction is reversed or terminated while marketability involves the sale of the investment in the market for cash.

To meet emergencies, every investor must have a sound portfolio to be sure of the additional funds which may be needed for the business opportunities. Whether money rising is to be done by sale or by borrowing it will be easier if the portfolio contains a planned proportion of high- grade and readily saleable investment.

Stability of Income :

Stability of income must be looked at in different ways just as was security of principal. An investor must consider stability of monetary income and stability of purchasing power of income. However, emphasis upon income stability may not always be consistent with other investment principles. If monetary income stability is stressed, capital growth and diversification will be limited.

Capital Growth:

Capital appreciation has today become an important principle. Recognising the connection between corporation and industry growth and very large capital appreciation, investors and their advisers constantly are seeking “growth stocks”. It is exceedingly difficult to make a successful choice. The ideal “growth stock” is the right issue in the right industry, bought at the right time.

Tax Benefits:

To plan an investment programme without regard to one's tax status may be costly to the investor. There are really two problems involved here, one concerned with the amount of income paid by the investment and the other with the burden of income taxes upon that income.

When investors' incomes are small, they are anxious to have maximum cash returns on their investments, and are prone to take excessive risks. On the other hand, investors who are not pressed for cash income often find that income taxes deplete certain types of investment incomes less than others, thus affecting their choices.

Purchasing Power Stability:

Since an investment nearly always involves the commitment of current funds with the objective of receiving greater amounts of future funds, the purchasing power o[f] the future fund should be considered by the investor.

For maintaining purchasing power stability, investors should carefully study (1) the degree of price level inflation they expect, (2) the possibilities of gain and loss in the investment available to them, and (3) the limitations imposed by personal and family considerations.

Concealability:

To be safe from social disorders, government confiscation, or unacceptable levels of taxation, property must be concealable and leave no record of income received from its use or sale. Gold and precious stones have long been esteemed for these purposes because they combine high value with small bulk and are readily transferable.

Mutual Fund

An open-ended fund operated by an investment company which raises money from shareholders and invests in a group of assets, in accordance with a stated set of objectives.

Mutual funds raise money by selling shares of the fund to the public, much like any other type of company can sell stock in itself to the public. Mutual funds then take the money they receive from the sale of their shares (along with any money made from previous investments) and use it to purchase various investment vehicles, such as stocks, bonds and money market instruments. In

return for the money they give to the fund when purchasing shares, shareholders receive an equity position in the fund and, in effect, in each of its underlying securities. For most mutual funds, shareholders are free to sell their shares at any time, although the price of a share in a mutual fund will fluctuate daily, depending upon the performance of the securities held by the fund.

Benefits of mutual funds include diversification and professional money management. Mutual funds offer choice, liquidity, and convenience, but charge fees and often require a minimum investment.

A closed-end fund is often incorrectly referred to as a mutual fund, but is actually an investment trust. There are many types of mutual funds, including aggressive growth fund, asset allocation fund, balanced fund, blend fund, bond fund, capital appreciation fund, clone fund, closed fund, crossover fund, equity fund, fund of funds, global fund, growth fund, growth and income fund, hedge fund, income fund, index fund, international fund, money market fund, municipal bond fund, prime rate fund, regional fund, sector fund, specialty fund, stock fund, and tax-free bond fund.

A mutual fund is a professionally-managed trust that pools the savings of many investors and invests them in securities like stocks, bonds, short-term money market instruments and commodities such as precious metals. Investors in a mutual fund have a common financial goal and their money is invested in different asset classes in accordance with the fund's investment objective. Investments in mutual funds entail comparatively small amounts, giving retail investors the advantage of having finance professionals control their money even if it is a few thousand rupees.

Mutual funds are pooled investment vehicles actively managed either by professional fund managers or passively tracked by an index or industry. The funds are generally well diversified to offset potential losses. They offer an attractive way for savings to be managed in a passive manner without paying high fees or requiring constant attention from individual investors. Mutual funds present an option for investors who lack the time or knowledge to make traditional and complex investment decisions. By putting your money in a mutual fund, you permit the portfolio manager to make those essential decisions for you.

Mutual Fund Set Up

A mutual fund is set up in the form of a trust that has a Sponsor, Trustees, Asset Management Company (AMC). The trust is established by a sponsor(s) who is like a promoter of a company and the said Trust is registered with Securities and Exchange Board of India (SEBI) as a Mutual Fund. The Trustees of the mutual fund hold its property for the benefit of unit holders. An Asset Management Company (AMC) approved by SEBI manages the fund by making investments in various types of securities.

The trustees are vested with the power of superintendence and direction over the AMC. They monitor the performance and compliance of SEBI regulations by the mutual fund. The trustees are vested with the general power of superintendence and direction over AMC. They manage the performance and compliance of SEBI Regulations by the mutual fund.

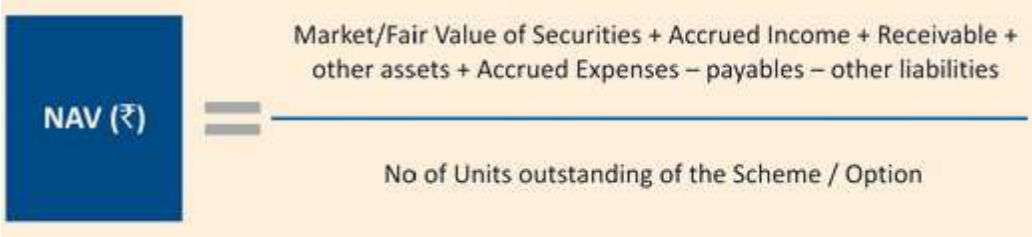
Operation of Mutual Fund

A mutual fund company collects money from several investors, and invests it in various options like stocks, bonds, etc. This fund is managed by professionals who understand the market well, and try to accomplish growth by making strategic investments. Investors get units of the mutual fund according to the amount they have invested. The Asset Management Company is responsible for managing the investments for the various schemes operated by the mutual fund. It also undertakes activities such

like advisory services, financial consulting, customer services, accounting, marketing and sales functions for the schemes of the mutual fund

Net Asset Value

Net Asset Value (NAV) is the total asset value (net of expenses) per unit of the fund and is calculated by the AMC at the end of every business day. In order to calculate the NAV of a mutual fund, you need to take the current market value of the fund's assets minus the liabilities, if any and divide it by the number of shares outstanding. NAV is calculated as follows:



For example, if the market value of securities of a Mutual Fund scheme is ₹500 lakh and the Mutual Fund has issued 10 lakh units of ₹10 each to investors, then the NAV per unit of the fund is ₹50.

Types of Mutual Fund

Based on the maturity period

Open-ended Fund

An open-ended fund is a fund that is available for subscription and can be redeemed on a continuous basis. It is available for subscription throughout the year and investors can buy and sell units at NAV related prices. These funds do not have a fixed maturity date. The key feature of an open-ended fund is liquidity.

Close-ended Fund

A close-ended fund is a fund that has a defined maturity period, e.g. 3-6 years. These funds are open

for subscription for a specified period at the time of initial launch. These funds are listed on a recognized stock exchange.

Interval Funds

Interval funds combine the features of open-ended and close-ended funds. These funds may trade on stock exchanges and are open for sale or redemption at predetermined intervals on the prevailing NAV.

Based on investment objectives

Equity/Growth Funds

Equity/Growth funds invest a major part of its corpus in stocks and the investment objective of these funds is long-term capital growth. When you buy shares of an equity mutual fund, you effectively become a part owner of each of the securities in your fund's portfolio. Equity funds invest minimum 65% of its corpus in equity and equity related securities. These funds may invest in a wide range of industries or focus on one or more industry sectors. These types of funds are suitable for investors with a long-term outlook and higher risk appetite.

Debt/Income Funds

Debt/ Income funds generally invest in securities such as bonds, corporate debentures, government securities (gilts) and money market instruments. These funds invest minimum 65% of its corpus in fixed income securities. By investing in debt instruments, these funds provide low risk and stable income to investors with preservation of capital. These funds tend to be less volatile than equity funds and produce regular income. These funds are suitable for investors whose main objective is safety of capital with moderate growth.

Balanced Funds

Balanced funds invest in both equities and fixed income instruments in line with the pre-determined investment objective of the scheme. These funds provide both stability of returns and capital appreciation to investors. These funds with equal allocation to equities and fixed income securities

are ideal for investors looking for a combination of income and moderate growth. They generally have an investment pattern of investing around 60% in Equity and 40% in Debt instruments.

Money Market/ Liquid Funds

Money market/ Liquid funds invest in safer short-term instruments such as Treasury Bills, Certificates of Deposit and Commercial Paper for a period of less than 91 days. The aim of Money Market /Liquid Funds is to provide easy liquidity, preservation of capital and moderate income. These funds are ideal for corporate and individual investors looking for moderate returns on their surplus funds.

Gilt Funds

Gilt funds invest exclusively in government securities. Although these funds carry no credit risk, they are associated with interest rate risk. These funds are safer as they invest in government securities.

Some of the common types of mutual funds and what they typically invest in:

Type of Fund	**Typical Investment**
Equity or Growth Fund	Equities like stocks
Fixed Income Fund	Fixed income securities like government and corporate bonds
Money Market Fund	Short-term fixed income securities like treasury bills
Balanced Fund	A mix of equities and fixed income securities
Sector-specific Fund	Sectors like IT, Pharma, Auto etc.
Index Fund	Equities or Fixed income securities chosen to replicate a specific Index for example S&P CNX Nifty
Fund of funds	Other mutual funds

Other Schemes

Tax-Saving (Equity linked Savings Schemes) Funds

Tax-saving schemes offer tax rebates to investors under specific provisions of the Income Tax Act, 1961. These are growth-oriented schemes and invest primarily in equities. Like an equity scheme, they largely suit investors having a higher risk appetite and aim to generate capital appreciation over medium to long term.

Index Funds

Index schemes replicate the performance of a particular index such as the BSE Sensex or the S&P CNX Nifty. The portfolio of these schemes consist of only those stocks that represent the index and the weightage assigned to each stock is aligned to the stock's weightage in the index. Hence, the returns from these funds are more or less similar to those generated by the Index.

Sector-specific Funds

Sector-specific funds invest in the securities of only those sectors or industries as specified in the Scheme Information Document. The returns in these funds are dependent on the performance of the respective sector/industries for example FMCG, Pharma, IT, etc. The funds enable investors to diversify holdings among many companies within an industry. Sector funds are riskier as their performance is dependent on particular sectors although this also results in higher returns generated by these funds. Benefits of Investing in Mutual Funds

Benefits of investing in mutual funds:

Professional Management

When you invest in a mutual fund, your money is managed by finance professionals. Investors who do not have the time or skill to manage their own portfolio can invest in mutual funds. By investing in mutual funds, you can gain the services of professional fund managers, which would otherwise be costly for an individual investor.

Diversification

Mutual funds provide the benefit of diversification across different sectors and companies. Mutual funds widen investments across various industries and asset classes. Thus, by investing in a mutual fund, you can gain from the benefits of diversification and asset allocation, without investing a large amount of money that would be required to build an individual portfolio.

Liquidity

Mutual funds are usually very liquid investments. Unless they have a pre-specified lock-in period, your money is available to you anytime you want subject to exit load, if any. Normally funds take a couple of days for returning your money to you. Since they are well integrated with the banking system, most funds can transfer the money directly to your bank account.

Flexibility

Investors can benefit from the convenience and flexibility offered by mutual funds to invest in a wide range of schemes. The option of systematic (at regular intervals) investment and withdrawal is also offered to investors in most open-ended schemes. Depending on one's inclinations and convenience one can invest or withdraw funds.

Low transaction cost

Due to economies of scale, mutual funds pay lower transaction costs. The benefits are passed on to mutual fund investors, which may not be enjoyed by an individual who enters the market directly.

Transparency

Funds provide investors with updated information pertaining to the markets and schemes through factsheets, offer documents, annual reports etc.

Well regulated

Mutual funds in India are regulated and monitored by the Securities and Exchange Board of India (SEBI), which endeavors to protect the interests of investors. All funds are registered with SEBI and complete transparency is enforced. Mutual funds are required to provide investors with standard information about their investments, in addition to other disclosures like specific investments made by the scheme and the quantity of investment in each asset class.

Risk involved in Mutual Fund

Mutual funds invest in different securities like stocks or fixed income securities, depending upon the fund's objectives. As a result, different schemes have different risks depending on the underlying portfolio. The value of an investment may decline over a period of time because of economic alterations or other events that affect the overall market. Also, the government may come up with new regulations, which may affect a particular industry or class of industries. All these factors influence the performance of Mutual Funds.

Risk and Reward: The diversification that mutual funds provide can help ease risk by offsetting losses from some securities with gains in other securities. On the other hand, this could limit the upside potential that is provided by holding a single security.

Lack of Control: Investors cannot determine the exact composition of a fund's portfolio at any given time, nor can they directly influence which securities the fund manager buys.

5 Good Reasons to Invest

"Save for a rainy day" goes a wise old saying. While saving worked in the past, today, you need to invest. If you believe that saving and investing imply the same thing, think again.

While saving is a part of your income that you put away regularly, it does not necessarily provide returns and it can only meet your short-term needs. Investing on the other hand, provides returns and helps you grow your capital, which in turn, will help you fulfil your financial goals.

Now that you are convinced that investing is a 'must', getting started is the next challenge. Everyone needs some motivation to get started. It is more tempting to spend what you have today than put it away for the future. Our needs for today seem far more pressing than tomorrow's. Here are five reasons that will change the way you think and make you more determined to invest:

Be prepared for emergencies: A sudden medical emergency or unemployment can cause a financial crisis. For instance, do you have the means to provide for your family if you were hit by unforeseen circumstances such as an illness that makes you unable to work, or an accident that immobilizes you? Investing helps you create a financial cushion for your family. Ideally you should have investments to the extent of at least six months' income at all times. Debt-oriented Unit Linked Insurance Plans (ULIPs) will help you accumulate the funds you need for this purpose.

Financial security: Your financial security depends on how much you invest and how efficiently you do so. Investments can help you build a corpus so that you can generate a large cash reserve. A large cash reserve means no anxiety about your financial security and more empowerment. Investing regularly in equity-oriented ULIPs over the long term has the potential to help you build a sizeable corpus to fulfil this purpose.

Fulfilling financial goals: Buying your own home, or a bigger home, buying a new car, your children's education and their marriage are some goals that are important to you. To fulfil these goals, you need the right type of investment plans. Depending on when the financial goal will come up for fulfilment, you can select investment-oriented insurance plans. For goals that will arise in the near future (say 5-7 years hence) debt-oriented or balanced ULIPs would be suitable. You could also choose investment-oriented traditional plans such as endowment plans which mature at around the time the goal comes up for fulfilment or money back plans which provide funds at fixed intervals of time (these are usually suitable for children's education needs). For goals that will arise in the distant future (beyond 7 years), equity-oriented ULIPs would be more suitable since these ULIPs have the potential to provide you higher returns over a longer period of time.

Wealth creation: In order to create wealth you need investment options that add an element of growth to your money. Equity-oriented ULIPs have the potential to help you build your wealth kitty over an investment horizon of 7-10 years and beyond.

Fighting inflation: Inflation eats away at your savings. With each passing year, prices keep rising. Investments help you protect your capital against price rise. A good way to beat inflation is to park your money in investments that offer returns that are higher than the rate of inflation. Equity-oriented and balanced ULIPs come to the rescue here. Historically, equity investments have given returns that are higher than the inflation rate thereby providing investors real returns (real returns = investment returns *minus* inflation rate).

Importance of investment

Be prepared for emergencies: A sudden medical emergency or unemployment can cause a financial crisis. For instance, do you have the means to provide for your family if you were hit by unforeseen circumstances such as an illness that makes you unable to work, or an accident that immobilizes you? Investing helps you create a financial cushion for your family. **Financial security:** Your financial security depends on how much you invest and how efficiently you do so. Investments can help you build a corpus so that you can generate a large cash reserve. A large cash reserve means no anxiety about your financial security and more empowerment.

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Risk and Types of Risk

Risk is the possibility you'll lose money if an investment you make provides a disappointing return. All investments carry a certain level of risk, since investment return is not guaranteed.

According to modern investment theory, the greater the risk you take in making an investment, the greater your return has the potential to be if the investment succeeds.

For example, investing in a startup company carries substantial risk, since there is no guarantee that it will be profitable. But if it is, you're in a position to realize a greater gain than if you had invested a similar amount in an already established company.

As a rule of thumb, if you are unwilling to take at least some investment risk, you are likely to limit your investment return.

In finance, different types of risk can be classified under two main groups, viz.,

1. Systematic risk.
2. Unsystematic risk.

The meaning of systematic and unsystematic risk in finance:

1. Systematic risk is uncontrollable by an organization and macro in nature.
2. Unsystematic risk is controllable by an organization and micro in nature.

A. Systematic Risk

Systematic risk is due to the influence of external factors on an organization. Such factors are normally uncontrollable from an organization's point of view.

It is a macro in nature as it affects a large number of organizations operating under a similar stream or same domain. It cannot be planned by the organization.

The types of systematic risk are depicted and listed below.

* **Note:** In context of types of risk in finance, purchasing power risk and inflationary risk are same.

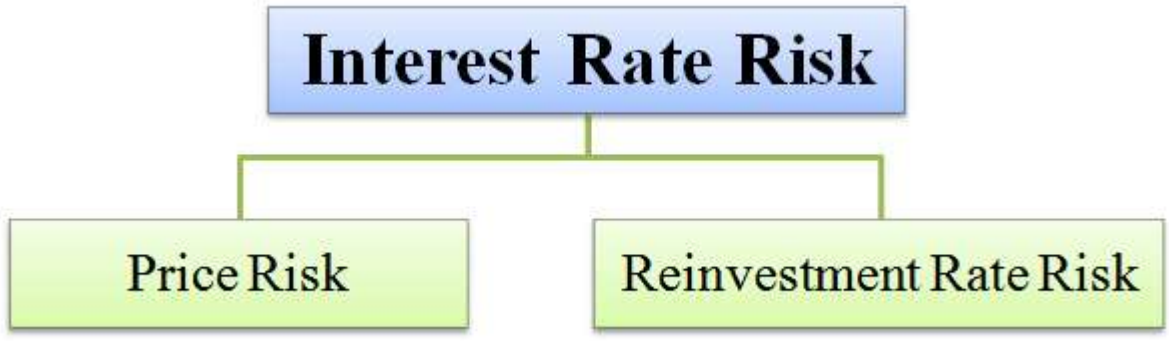
1. Interest rate risk,
2. Market risk and
3. Purchasing power or inflationary risk.

Now let's discuss each risk classified under this group.

1. Interest rate risk

Interest-rate risk arises due to variability in the interest rates from time to time. It particularly affects debt securities as they carry the fixed rate of interest.

The types of interest-rate risk are depicted and listed below.



1. Price risk and
2. Reinvestment rate risk.

The meaning of price and reinvestment rate risk is as follows:

1. Price risk arises due to the possibility that the price of the shares, commodity, investment, etc. may decline or fall in the future.
2. Reinvestment rate risk results from fact that the interest or dividend earned from an investment can't be reinvested with the same rate of return as it was acquiring earlier.

2. Market risk

Market risk is associated with consistent fluctuations seen in the trading price of any particular shares or securities. That is, it arises due to rise or fall in the trading price of listed shares or securities in the stock market.

The types of market risk are depicted and listed below.

1. Absolute risk,
2. Relative risk,
3. Directional risk,
4. Non-directional risk,
5. Basis risk and

6. Volatility risk.

The meaning of different types of market risk is as follows:

1. Absolute risk is without any content. For e.g., if a coin is tossed, there is fifty percentage chance of getting a head and vice-versa.
2. Relative risk is the assessment or evaluation of risk at different levels of business functions. For e.g. a relative-risk from a foreign exchange fluctuation may be higher if the maximum sales accounted by an organization are of export sales.
3. Directional risks are those risks where the loss arises from an exposure to the particular assets of a market. For e.g. an investor holding some shares experience a loss when the market price of those shares falls down.
4. Non-Directional risk arises where the method of trading is not consistently followed by the trader. For e.g. the dealer will buy and sell the share simultaneously to mitigate the risk
5. Basis risk is due to the possibility of loss arising from imperfectly matched risks. For e.g. the risks which are in offsetting positions in two related but non-identical markets.
6. Volatility risk is of a change in the price of securities as a result of changes in the volatility of a risk-factor. For e.g. it applies to the portfolios of derivative instruments, where the volatility of its underlying is a major influence of prices.

3. Purchasing power or inflationary risk

Purchasing power risk is also known as inflation risk. It is so, since it emanates (originates) from the fact that it affects a purchasing power adversely. It is not desirable to invest in securities during an inflationary period.

The types of power or inflationary risk are depicted and listed below.

1. Demand inflation risk and
2. Cost inflation risk.

The meaning of demand and cost inflation risk is as follows:

1. Demand inflation risk arises due to increase in price, which result from an excess of demand over supply. It occurs when supply fails to cope with the demand and hence cannot expand anymore. In other words, demand inflation occurs when production factors are under maximum utilization.
2. Cost inflation risk arises due to sustained increase in the prices of goods and services. It is actually caused by higher production cost. A high cost of production inflates the final price of finished goods consumed by people.

B. Unsystematic Risk

Unsystematic risk is due to the influence of internal factors prevailing within an organization. Such factors are normally controllable from an organization's point of view.

It is a micro in nature as it affects only a particular organization. It can be planned, so that necessary actions can be taken by the organization to mitigate (reduce the effect of) the risk.

The types of unsystematic risk are depicted and listed below.

* **Note:** In context of types of risk in finance, business risk and liquidity risk are same.
** **Note:** In context of types of risk in finance, financial risk and credit risk are same.

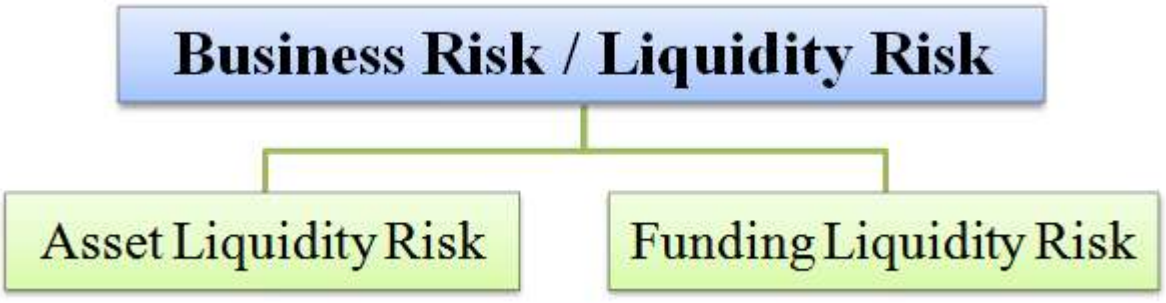
1. Business or liquidity risk,
2. Financial or credit risk and
3. Operational risk.

Now let's discuss each risk classified under this group.

1. Business or liquidity risk

Business risk is also known as liquidity risk. It is so, since it emanates (originates) from the sale and purchase of securities affected by business cycles, technological changes, etc.

The types of business or liquidity risk are depicted and listed below.



1. Asset liquidity risk and
2. Funding liquidity risk.

The meaning of asset and funding liquidity risk is as follows:

1. Asset liquidity risk is due to losses arising from an inability to sell or pledge assets at, or near, their carrying value when needed. For e.g. assets sold at a lesser value than their book value.
2. Funding liquidity risk exists for not having an access to the sufficient-funds to make a payment on time. For e.g. when commitments made to customers are not fulfilled as discussed in the SLA (service level agreements).

2. Financial or credit risk

Financial risk is also known as credit risk. It arises due to change in the capital structure of the organization. The capital structure mainly comprises of three ways by which funds are sourced for the projects. These are as follows:

1. Owned funds. For e.g. share capital.
2. Borrowed funds. For e.g. loan funds.
3. Retained earnings. For e.g. reserve and surplus.

The types of financial or credit risk are depicted and listed below.

1. Exchange rate risk,

2. Recovery rate risk,
3. Credit event risk,
4. Non-Directional risk,
5. Sovereign risk and
6. Settlement risk.

The meaning of types of financial or credit risk is as follows:

1. Exchange rate risk is also called as exposure rate risk. It is a form of financial risk that arises from a potential change seen in the exchange rate of one country's currency in relation to another country's currency and vice-versa. For e.g. investors or businesses face it either when they have assets or operations across national borders, or if they have loans or borrowings in a foreign currency.
2. Recovery rate risk is an often neglected aspect of a credit-risk analysis. The recovery rate is normally needed to be evaluated. For e.g. the expected recovery rate of the funds tendered (given) as a loan to the customers by banks, non-banking financial companies (NBFC), etc.
3. Sovereign risk is associated with the government. Here, a government is unable to meet its loan obligations, reneging (to break a promise) on loans it guarantees, etc.
4. Settlement risk exists when counterparty does not deliver a security or its value in cash as per the agreement of trade or business.

3. Operational risk

Operational risks are the business process risks failing due to human errors. This risk will change from industry to industry. It occurs due to breakdowns in the internal procedures, people, policies and systems.

The types of operational risk are depicted and listed below.

1. Model risk,
2. People risk,
3. Legal risk and
4. Political risk.

The meaning of types of operational risk is as follows:

1. Model risk is involved in using various models to value financial securities. It is due to probability of loss resulting from the weaknesses in the financial-model used in assessing and managing a risk.
2. People risk arises when people do not follow the organization's procedures, practices and/or rules. That is, they deviate from their expected behaviour.
3. Legal risk arises when parties are not lawfully competent to enter an agreement among themselves. Furthermore, this relates to the regulatory-risk, where a transaction could conflict with a government policy or particular legislation (law) might be amended in the future with retrospective effect.
4. Political risk occurs due to changes in government policies. Such changes may have an unfavourable impact on an investor. It is especially prevalent in the third-world countries.

Investment Media

The most common terms that are related to different types of investments:

Bond: A debt instrument, a bond is essentially a loan that you are giving to the government or an institution in exchange for a pre-set interest rate paid regularly for a specified term. The bond pays interest (a coupon payment) while it's active and expires on a specific date, at which point the total face value of the bond is paid to the investor. If you buy the bond when it is first issued, the face or par value you receive when the bond matures will be the amount of money you paid for it when you made the purchase. In this case, the return you receive from the bond is the coupon, or interest payment. If you purchase or sell a bond between the time it is issued and the time it matures, you may experience losses or gains on the price of the bond itself.

Stock: A type of investment that gives you partial ownership of a publicly traded company.

Mutual fund: An investment vehicle that allows you to invest your money in a professionally-managed portfolio of assets that, depending on the specific fund, could contain a variety of stocks, bonds, market-related indexes, and other investment opportunities.

Money market account: A type of savings account that offers a competitive rate of interest (real rate) in exchange for larger-than-normal deposits.

Exchange-Traded Fund (ETF): ETFs are funds – sometimes referred to as baskets or portfolios of securities – that trade like stocks on an exchange. When you purchase an ETF, you are purchasing shares of the overall fund rather than actual shares of the individual underlying investments.

MEASURING RISK: Risk is often associated with the dispersion in the likely outcomes. Dispersion refers to variability. It is assumed to arise out of variability, which is consistent with our definition of risk as the chance that the actual outcome of an investment will differ from the expected outcome. If an assets' return has no variability, in effect it has no risk. Thus a one-year treasury bill purchased to yield 10 percent and held to maturity will, in fact, yield (a nominal) 10 percent. No other outcome is possible, barring default by the government, which is not considered a reasonable possibility.

STANDARD DEVIATION: The risk can be measured with an absolute measure of dispersion, or variability. The most commonly used measure of dispersion over some period of years is the standard deviation, which measures the deviation of each observation from the arithmetic mean of the observations and is a reliable measure of variability, because all the information in a sample is used. The standard deviation is a measure of the total risk of an asset or a portfolio. It captures the

total variability in the assets or portfolio's return, whatever the source(s) of that variability. The standard deviation is the square root of variance, which can be calculated as follows:

VALUATION OF BONDS

Introduction:

Unsecured Debt of the issuer, either in the Government Sector or Private Sector special features of Zero interest are also issued in India.

Valuation of Bonds

The present value of the security's future cash flows. Buy and Sell decision depends on the estimated value or the Bond as also other features. This is also called as Intrinsic Value of the Bond.

Models of Bond Valuation

There are 5 models of Bond Valuation.

- Present Value Model
- Accrued Interest Model
- Discrete Model
- Risk premium in Bonds
- Yield curves

Present Value Model

$$PV = \frac{\text{Coupon 1}}{(1+IR)} + \frac{\text{Coupon2}}{(1+IR)\,\hat{}\,2} + \ldots\ldots\ldots + \frac{\text{Coupon2+Facev Value}}{(1+IR2)\,\hat{}\,T}$$

$$Po = \frac{K1}{(1+r)} + \frac{K2}{(1+r)\,\hat{}\,2} + \ldots\ldots\ldots\ldots\ldots\ldots + \frac{KT+RT}{(1+r)\,\hat{}\,T}$$

BOND INTRINSIC VALUES

As a final step in bond analysis, investors should examine the market position of bonds. They must investigate whether the market price of a bond is out of line with the similarly rated bonds by performing an evaluation calculating intrinsic values. Astute investors feel that value of bonds stems from the income stream these securities throw off. Thus, they feel that the value of a bond depends upon the present value of the aggregate interest payments plus the present value of the final maturity payment. Generally, an Indian bond investor is aiming at a return of 15-18 percent per annum.

In addition, investors often average the yields supplied by investment services for various bonds retiring. This technique might be termed as the "quick method". Finally, the appraisal value is compared with the market price to indicate the degree of fairness present.

Bond valuation is the determination of the fair price of a bond. As with any security or capital investment, the theoretical fair value of a bond is the present value of the stream of cash flows it is expected to generate. Hence, the value of a bond is obtained by discounting the bond's expected cash flows to the present using an appropriate discount rate. In practice, this discount rate is often determined by reference to similar instruments, provided that such instruments exist. Various related yield-measures are then calculated for the given price.

If the bond includes embedded options, the valuation is more difficult and combines option pricing with discounting. Depending on the type of option, the option price as calculated is either added to or subtracted from the price of the "straight" portion. See further under Bond option. This total is then the value of the bond.

Present value approach

This is used for calculating a bond's price, which uses the basic present value (PV) for a given discount rate.

Relative Price Approach

Under this approach - an extension of the above - the bond will be priced relative to a benchmark, usually a government security; see Relative valuation. Here, the yield to maturity on the bond is determined based on the bond's Credit rating relative to a government security with similar

maturity or duration; see Credit spread (bond). The better the quality of the bond, the smaller the spread between its required return and the YTM of the benchmark. This required return is then used to discount the bond cash flows, replacing i in the formula above, to obtain the price.

What is the yield curve?

The yield curve is a line graph that plots the relationship between yields to maturity and time to maturity for bonds of the same asset class and credit quality. The plotted line begins with the spot interest rate, which is the rate for the shortest maturity, and extends out in time, typically to 30 years. Figure 1 below is the yield curve for U.S. Treasuries on December 31, 2002. It shows that the yield at that time for the two-year Treasury bond was about 1.6%. Figure 1 Source: Salomon Yieldbook A yield curve can be created for any specific segment of the bond market, from triple-A rated mortgage-backed securities to single-B rated corporate bonds. The Treasury bond yield curve is the most widely used, however, because Treasury bonds have no perceived credit risk, which would influence yield levels, and because the Treasury bond market includes securities of virtually every maturity, from 3 months to 30 years. A yield curve depicts yield differences, or yield spreads, that are due solely to differences in maturity. It therefore conveys the overall relationship that prevails at a given time in the marketplace between bond interest rates and maturities

What determines the shape of the yield curve?

Most economists agree that two major factors affect the slope of the yield curve: investors' expectations for future interest rates and certain "risk premiums" that investors require to hold long-term bonds. Three widely followed theories have evolved that attempt to explain these factors in detail: • The Pure Expectations Theory holds that the slope of the yield curve reflects only investors' expectations for future short-term interest rates. Much of the time, investors expect interest rates to rise in the future, which accounts for the usual upward slope of the yield curve. • The Liquidity Preference Theory, an offshoot of the Pure Expectations Theory, asserts that long-term interest rates not only reflect investors' assumptions about future interest rates but also include a premium for holding long-term bonds, called the term premium or the liquidity premium. This premium compensates investors for the added risk of having their money tied up for a longer period, including the greater price uncertainty. Because of the term premium, long-term bond yields tend to be higher than short-term yields, and the yield curve slopes upward. • Another variation on the Pure Expectations Theory, the Preferred Habitat Theory states that in addition to interest rate

expectations, investors have distinct investment horizons and require a meaningful premium to buy bonds with maturities outside their "preferred" maturity, or habitat. Proponents of this theory believe that short-term investors are more prevalent in the fixed-income market and therefore, longer-term rates tend to be higher than short-term rates. Because the yield curve can reflect both investors' expectations for interest rates and the impact of risk premiums for longer-term bonds, interpreting the yield curve can be complicated. Economists and fixed-income portfolio managers put great effort into trying to understand exactly what forces are driving yields at any given time and at any given point on the yield curve.

Macaulay duration and modified duration are mainly used to calculate the durations of bonds. The Macaulay duration calculates the weighted average time before a bondholder would receive the bond's cash flows. Conversely, modified duration measures the price sensitivity of a bond when there is a change in the yield to maturity.

The Macaulay Duration

The Macaulay duration is calculated by multiplying the time period by the periodic coupon payment and dividing the resulting value by 1 plus the periodic yield raised to the time to maturity. Next, the value is calculated for each period and added together. Then, the resulting value is added to the total number of periods multiplied by the par value, divided by 1, plus the periodic yield raised to the total number of periods. Then the value is divided by the current bond price.

Bond immunization is an investment strategy used to minimize the interest rate risk of bond investments by adjusting the portfolio duration to match the investor's investment time horizon. It does this by locking in a fixed rate of return during the amount of time an investor plans to keep the investment without cashing it in.

Immunization locks in a fixed rate of return during the amount of time an investor plans to keep the bond without cashing it in.

Normally, interest rates affect bond prices inversely. When interest rates go up, bond prices go down. But when a bond portfolio is immunized, the investor receives a specific rate of return over a given time period regardless of what happens to interest rates during that time. In other words, the bond is "immune" to fluctuating interest rates.

Part A (ONE Mark)

Multiple Choice Questions

Online Examination

Part B

(2 Marks)

1. What do you mean by Investment?
2. List out the difference between Investment and speculation.
3. What are all the investment alternatives?
4. Define Bond
5. What is risk? List out its types.
6. What is yield to maturity
7. Enumerate the concept of expectation theory of yield curve.
8. What is meant by duration and modified duration?
9. What is market risk?
10. What do you mean by unsystematic risk?

Part C (8 Marks)

1. What is investment? Is investment different from speculation
2. What are the various forms of investment alternatives? Give detailed account of any five.
3. "Mutual funds offer best from of investment" – Discuss.
4. Define risk. Explain its two components.
5. Elucidate the risk measurement tools.
6. Explain the theories of yield curve.
7. What is meant by duration? Explain the relationship between duration and price change.
8. How would you immunize the bond portfolio using the immunization technique.

Part D (11 Marks)

1. Explain the process of Investment programme?
2. Enumerate the Investment Media with suitable examples?

3. Consider the following Bonds and calculate Present Value of the Bonds.

Particulars	Bond A	Bond B
Face Value	1000	1000
Coupon Rate	12%	10%
YTM	15%	15%
Maturity Period	2years	3years

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Department of Management

Investment Analysis and Portfolio Management – 16BAU501A

Unit I Multiple Choice Questions

S. No	QUESTION	OPTION 1	OPTION 2	OPTION 3	OPTION 4	OPT 5	OPT 6	ANSWER
1	A ---------- is the allocation of funds to assets and securites after considering their return and risk features	gambling	Investment	Speculation	Bonds			Investment
2	Investment in gold and silver is considered ---------- investment	real investment	risk free	risk	certain			real investment
3	The stock that higher rate of growth than the industrial growth rate in profitability are referred to as ----------	growth shares	equity	preference	debenture			growth shares
4	Gambling is a	very long term investment	very short term investment	medium investment	average investment			very short term investment
5	The securities issued by the central , state and quasi-governement are known as ----------	face value	real investment	government securities	intrinsic securities			govt securities
6	A ---------- is an activity that is engaged in by people who have savings	gambling	Investment	Speculation	Bonds			investment
7	An example of money market	bond	debenture	stock certificate	certificate of deposit			certificate of deposit

	instrument is							
8	Government bond is a	Long-term security	short-term security	medium-term securities	neither long-term or short-term			Long-term security
9	Investing money in a private business is known as ----------	financial investment	economic investment	business investment	social investment			business investment
10	LIC is primarily a	broker	money market intermediary	secondary market intermediary	lenders			money market intermediary
11	Financial systems includes	financial market	share market	financial and share market	capital market			financial market
12	The differences between the sale price and the purchase price is called ----------	depreciation	capital appreciation	investment	gambling			capital appreciation
13	Money market is a market for purely	long term funds	medium term funds	short term funds	certain period			short term funds
14	The term structure is also known as	yield curve	profit curve	term curve	sales curve			yield curve
15	The shape of the yield curve can be explained by the expectations of the investor about the future interest rates	liquidity preference theory	segmentation theory	expectation theory	motivational theory			expectation theory
16	Investment is the	net addition made to the nation's capital stock	person's commitment to buy a flat	employment of funds on assets to earn return	monetary system			employment of funds on assets to earn return
17	Supply and demand for fund are segmented in sub markets because of the	liquidity preference theory	segmentation theory	expectation theory	motivational theory			segmentation theory

	preferred habitats of the individuals.							
18	If the investment is properly undertaken, then	the return will commensurate with the risk	the return will be certain	it will be liquid	not commensurate			the return will commensurate with the risk
19	Investors buy	high grade securities	low grade securities	securities for short-term purposes	cost of purchase			high grade securities
20	The negotiable financial investment differs from non-negotiable financial investment in terms of	face value	transferability	maturity period	interest rate			transferability
21	Investors would prefer to hold short term bonds to minimize the possible variation in their portfolio	liquidity preference theory	segmentation theory	expectation theory	motivational theory			liquidity preference theory
22	Which one of the following is not a fixed income bearing security ?	debentures	bonds	fixed deposits	equity shares			equity shares
23	Which one the following scheme helps in reducing tax liability ?	investment in real estate	national saving certificate	eqity shares	savings bank account			national saving certificate
24	Which one of the following is a contingent investment?	recurring deposit	bonds	equity shares	life insurance policy			life insurance policy
25	A current account is a	liquid period	running account	mutual	temporary			running account
26	The component of a capital market is	treasury bill market	govt. securities market	commercial bill market	RBI			govt. securities market
27	Government securities are issued in the	risky securities	not risky securities	expected securities	mutual securities			not risky securities

	form							
28	Long term loan market is	capital market	money market	primary market	secondary market			capital market
29	Government securities are issued in the form	pledge	new method	promissory note	prepaid			promissory note
30	_____includes the financial markets and the financial institutions	financial system	fiscal policy	economy rates	nature of the firm			financial system
31	_____Includes call money market, treasury bills market, commercial bills, and short term loan market	Insurance company	LIC	RBI	the imperial bank of India			the imperial bank of India
32	_____risks are non-divertible and arise out of the market, nature of the industry, state of the economy.	unsystematic risk	systematic risk	market risk	economic risk			systematic risk
33	_____ Risk is that portion of total risks that is unique, or peculiar to a firm or an industry	unsystematic risk	systematic risk	market risk	economic risk			unsystematic risk
34	_____is arrived at by dividing the annual coupon price by purchase price	price earning ratio	purchasing power	current yield	interest rate			current yield
35	_____is arrived at by dividing market price per share by earnings per	price earnings ratio	current yield	interest rate	dividend			price earnings ratio

	share							
36	_____The risk affects the market as a whole	unsystematic risk	market risk	current yield	systematic			systematic
37	_____risk is the variation in return caused by the changes in the market interest rate	interest rate	intrinsic value	dividend policy	mutual value			interest rate
38	_____ _ Risk is caused by inflation	purchasing power	current yield	price earning ratio	mutual value			purchasing power
39	_____Risk is unique to the particular industry or company	unsystematic risk	market risk	current yield	systematic			unsystematic risk
40	Which of the following risks emerges from the debt component of the capital structure	financial risk	business risk	purchasing power risk	market risk			financial risk
41	Interest rate risk is a ----------	systematic risk	unsystematic risk	internal risk	market risk			systematic risk
42	A ---------- is a pessimistic speculator	bull	bear	stag	lame duck			bear
43	Indentify the uncontrollable risk of a company	technological obsolescence	cut in subsidy	labour problem	increase in loan services charges			cut in subsidy
44	In the weak form of market stock prices reflect	the past prices and traded volumes	the demand for the scrip	the country economic conditions	the past price of the scrip			the past prices and traded volumes
45	Risk is influenced by the	internal or external risk	internal	external	market risk			internal or external risk
46	Risk is	certainty	uncertainty	appreciable	not appreciable			uncertainty

47	Market risk arises out of the changes in the pattern of	demand and supply	supply	demand	profit			demand and supply
48	Internal business risk is associated with the	external environment	internal environment	organization	management			internal environment
49	External Risk is associated with the	external environment	internal environment	organization	management			external environment
50	Risk is also arise due to changes in the	company policy	market rules	dividend policy	government policies			government policies
51	Principal amount and terminal value are known with certainty	Fixed principal investments	Variable investments	Indirect alternatives	Direct alternatives			Fixed principal investments
52	The price of preference shares is determined by ____	Demand	Supply	Demand and Supply	Return			Demand and Supply
53	The terminal value of real estate is	Certain	Uncertain	Risk	Return			Uncertain
54	_____ are the integral part of an investment decision	Risk	Uncertainty	Risk & Uncertain	Return			Risk & Uncertain
55	_____ risk is also called as operating risk	Financial risk	Business risk	Management risk	Political risk			Business risk
56	The objectives of any investments made by an investor	Maximization of return		Minimization of return	Minimization of risk			Maximization of return and Maximum of risk
57	A voluntary provident fund scheme called Public Provident Fund is operated by	Post office	Certain authorized Banks	Employee Provident fund organization	Post office and Certain authorized Banks			Post office and Certain authorized Banks
58	Fixed income securities are subject to _____ risk	Interest rate	Performance	Capital	Dividends			Interest rate

59	_____ is operated by Post office and Certain authorized Banks	Public Provident Fund	LIC Scheme	Employee Provident fund	Equity capital fund			Public Provident Fund
60	building , machinery & land are considered as	Tangible properties	Intangible properties	Tangible and Intangible properties	Visible properties			Tangible properties

UNIT-I-Introduction to Fundamental analysis

SYLLABUS

Fundamental analysis - EIC framework - Economic Analysis - Leading lagging and coincident macro-economic indicators - Expected direction of movement of stock prices with macroeconomic variables in the Indian context - Industry analysis - Stages of life cycle - Porter's five forces model - SWOT analysis - Financial analysis of an industry - Company analysis.

Fundamental Analysis

" The crux of Fundamental Analysis lies in its attempt to determine the economic value of a security (a generic term for stocks and shares)"

Fundamental Analysis covers the area of research that studies economics, industry and company information for the purpose of making an informed judgement on a stock's value and its growth potential. The crux of Fundamental Analysis lies in its attempt to determine the economic value of a security (a generic term for stocks and shares).

The Focus of Fundamental Analysis

Economic Analysis covers the study of the country's economic indicators such as new orders, money supply, stock price indices, stocks of unfinished goods, new business formations, consumer price index and unit labour costs. Important economic considerations would include interest rates and inflation and its impact on the stock market, the level of government debt, the level of corporate debts, monetary and fiscal policy.

Industry Analysis covers the structure and state of competition in the industry, nature and prospects of demand for products and services of the industry, cost conditions and profitability, technology and research requirements, the immediate and long term outlook for sales and profit.

Types of Fundamental Analysis

Although it is generally accepted that the aim Fundamental Analysis is to determine the economic value of a security, it is the practice of Fundamental Analysis that gives rise to two sub types namely Macro-Fundamental Analysis and Micro-Fundamental Analysis.

Macro-Fundamental Analysis: The Top Down Approach

Macro-Fundamental Analysis focuses on broad economic factors that affect the stock market as a whole or industry groups of securities. This approach is known as the Top Down approach of Macro-Fundamental Analysis. The practice of Macro-Fundamental Analysis starts at the overall performance of the economy, its impact on industry groups
It is noteworthy that Macro-Fundamental Analysis has a more formal and structured approach and as such this approach is much favoured by research departments of investment management companies and brokerage houses.

Micro- Fundamental Analysis: The Bottom Up Approach

Micro-Fundamental Analysis starts by considering the current price of a stock and compares it to measures of value. Hence the current price of a stock is compared to its dividend, its earnings, and to its assets resulting in valuation ratios such as its dividend yield, price to earnings ratio and its price to asset ratio. The resultant valuations enable comparisons to be made amongst stocks in the same industry groups and undervalued and overvalued stocks are identified by comparisons to the industrial norm. after this phase of analysis, the Micro-Fundamental Analysis attempts to predict industry and economic developments that may positively or negatively impact the stocks current price.

It is pertinent to note that investment icons such as Benjamin Graham, his prodigies Warren Buffet, Charles Munger and William Ruane tend toward Micro-Fundamental Analysis.

Economic Analysis

Economic analysis is a process whereby the strengths and weaknesses of an economy are analyzed. Economic analysis is important in order to understand the exact condition of an economy.

Macroeconomics and Economic Analysis

Macroeconomic issues are important aspects of the economic analysis process. However, economic analysis can also be done at a microeconomic level.

Macroeconomic analysis gives insight into the fundamentals of an economy - and the strengths and weaknesses of economies. Macroeconomic analysis takes into account growth achieved by par economy, or rather a sector of that economy. It tries to reveal reasons behind a particular economic phenomenon like growth or reversal of the economy.

Inflation and Economic Analysis

Many countries in the world are plagued by rising inflation. Economic analysis tells us why inflation has taken place. It also suggests ways in which the rate of inflation could be reduced, so that economic development could continue.

Economic Analysis and Government Policies

Government policies and plans that affect the economy have always been an important part of economic analysis. Since policies and plans adopted by a particular government are responsible for shaping an economy, they are always closely scrutinized by various processes of economic analysis.

Economic Ratings and Economic Analysis

Economic ratings are another important aspect of economic analysis, as it provides an accurate picture of how an economy is faring compared to others.

Economic Analysis and Comparison of Economic Policies

It is a good way to analyze an economy by comparing its policies with those of other economies. This is all more applicable in the case of economies that are of similar types, for example developing economies.

Economic Forecasting

Economic forecasting, the prediction of any of the elements of economic activity. Such forecasts may be made in great detail or may be very general. In any case, they describe the expected future behaviour of all or part of the economy and help form the basis of planning.

Formal economic forecasting is usually based on a specific theory as to how the economy works. Some theories are complicated, and their application requires an elaborate tracing of cause and effect. Others are relatively simple, ascribing most developments in the economy to one or two basic factors. Many economists, for example, believe that changes in the supply of money determine the rate of growth of general business activity. Others assign a central role to investment in new facilities—housing, industrial plants, highways, and so forth. In the United States, where consumers account for such a large share of economic activity, some economists believe that consumer decisions to invest or save provide the principal clues to the future course of the entire economy. Obviously the theory that a forecaster applies is of critical importance to the forecasting process; it dictates his line of investigation, the statistics he will regard as most important, and many of the techniques he will apply.

Although economic theory may determine the general outline of a forecast, judgment also often plays an important role. A forecaster may decide that the circumstances of the moment are unique and that a forecast produced by the usual statistical methods should be modified to take account of special current circumstances. This is particularly necessary when some event outside the usual run of economic activity inevitably has an economic effect. For example, forecasts of 1987 economic activity in the United States were more accurate when the analyst correctly foresaw that the exchange value of the dollar would fall sharply during the year, that consumer spending would slacken, and that interest rates would rise only moderately. None of these conclusions followed from purely economic analysis; they all required judgment as to future decisions. Similarly, an economist may decide to adjust an economic forecast that was made by traditional methods to take account of other unique conditions; he may, for example, decide that consumers will alter their spending patterns because of special circumstances such as rising prices of imports or fear of threatened shortages.

Although judgment may be based on experience and understanding, it may also be no more than unconscious bias. Forecasts based on judgment cannot be subjected to the kind of rigorous checks applied to forecasts developed by the use of more objective techniques. Consequently, the most accurate and useful forecasts are likely to be those founded on essentially economic considerations and standard statistical techniques. Though they can then be modified by the application of

judgment, the resulting changes should be stated explicitly enough so that anyone wishing to use a forecast will know where, and how, it has been affected by the forecaster's own judgment, or bias.

Economic forecasting is probably as old as organized economic activity, but modern forecasting got its impetus from the Great Depression of the 1930s. The effort to understand and correct the worldwide economic disaster led to the development of a vastly greater supply of statistics and also of the techniques needed to analyze them. After World War II, many governments committed themselves to maintaining a high level of employment. Most governments of the industrialized Western countries were prepared to intervene more often and more directly in economic affairs than previously. Business organizations manifested more concern with anticipating the future. Many trade associations now provide forecasts of future trends for their members, and a number of highly successful consulting firms have been formed to provide additional forecasting help for governments and businesses.

Forecasting Techniques

Forecasting the GNP and its elements

Perhaps the forecasts most familiar to the public are those of gross national product and its elements. Gross national product, or GNP, is the total value of the goods and services produced in a nation. It is, therefore, a convenient and comprehensive measure for assessing changes in general economic welfare. A forecast of the GNP also provides a useful framework for more detailed forecasts of specific industries. Almost all developed nations maintain sets of national income accounts and make forecasts as well.

Forecasting for an industry or firm

General economic conditions set the tone for all parts of the economy. Good forecasting for an industry or firm begins, therefore, with a good analysis of the overall economy. Within this framework, the analyst must then take account of the particular factors that are most important to his own industry. In some cases, the sales of an industry may correlate fairly directly with one or more of the elements of the national income and product accounts—lumber sales with home construction,

for example, or sales of nondurable consumer goods with consumer income and total consumer spending. Forecasting for industries that produce basic materials usually requires a series of projections for specific markets. A steel forecast might be based on the outlook for such major steel markets as automobiles, construction, and metal containers. The basic forecast would then be adjusted for expected shifts in exports and imports of steel and for changes in inventories of steel or steel-using products.

Long-term forecasting

In recent years, increasing effort has been devoted to long-range forecasting for periods extending five, 10, or more years past the normal "short-term" forecast period of one or two years. Business has come to recognize the usefulness of such forecasts in developing plans for future expansion and financing.

Long-range forecasts usually are based on the assumption that activity toward the end of the period will reflect normal "full" employment. Given this assumption, the overall rate of growth depends on two principal factors: the number of people in the labour force and the rate at which productivity (output per worker) increases. The number of people of working age is known, barring some natural disaster (and excluding immigration), far into the future; they have already been born. Forecasters usually assume that productivity will continue to grow at the typical rates of recent decades. Expected technological developments, however, may alter the projected rate of change. The combination of changes in the labour force and productivity produces an estimate of the total growth rate for the economy.

Industry analysis

An industry analysis is a business function completed by business owners and other individuals to assess the current business environment. This analysis helps businesses understand various economic pieces of the marketplace and how these various pieces may be used to gain a competitive advantage. Although business owners may conduct an industry analysis according to their specific needs, a few basic standards exist for conducting this important business function.

Features

Industry analysis features include a review of the economic and political underpinnings of the business environment. Economic reviews often include an examination of the industry's business cycle. The business cycle helps individuals understand if the industry is growing, reaching a plateau or in decline. A political review helps individuals understand the amount of government regulation and taxation present in the business industry. Industries with heavy government involvement may have fewer profits for companies operating in these environments.

Facts

Business owners often conduct industry analysis before starting their business. This analysis is included in the entrepreneur's business plan that outlines specific elements of the economic marketplace. Elements may include the number of competitors, availability of substitute goods, target markets and demographic groups or various other pieces of essential business information. This information is commonly used to secure external financing from banks or lenders for starting a new business venture.

Industry Classification

On the basis of the number of labour employed. On this basis the industries are classified into three classes :

- Large scale industries: Large scale industries include cotton and jute textile industries. Number of labourers working in this industry is large.
- Medium scale industries: Medium scale industries include electric fan, sewing machine, cycle, radio, television industries etc.
- Small scale industries: Small scale industries include soap, basket, match-box, bidi industries etc.

On the basis of the nature of the product manufactured. On this basis industries are classified into three classes :

- Primary industry is one which is concerned with collecting or making available materials produced by nature. For example— food gathering, hunting, fisheries, forestry, agriculture and mining.
- Secondary industry is one which is connected with the transformation of material provided by primary industry. For example—Iron and steel industry, textile industry, cement industry, chemical, drug industry etc.
- Tertiary industries are those which render help and services to all other industries. For example—Management, Banking, Transportation, etc.

On the basis of raw material and finished products. On this basis the industries fall into three categories :

- Heavy industries
- Medium industries
- Light industries.

On the basis of ownership. On the basis of ownership, industries are divided into four categories :

- Public sector industries
- Private sector industries
- Joint sector industries
- Co-operative sector industries.

On the basis of origin of their raw material. This basis divides the industries into two main classes :

- Agro-based industries. Agro-based industries are those industries which are based on agricultural products. These industries occupy an important place in our economy, both in

respect of their output and the employment opportunities. Textiles, sugar, vegetable oil, tobacco, rubber, paper and dairying are the important ones in this category.

- Mineral-based industries. The industries, which are based on mineral products are known as mineral-based industries. Unlike the traditional industries, most of the modem industries in India are mineral-based. The iron and steel and chemical industries are the important ones in this category.

Importance of Industry Analysis

Industry analysis, as a form of market assessment, is crucial because it helps a business understand market conditions. It helps them forecast demand and supply and consequently, financial returns from the business. It indicates the competitiveness of the industry and costs associated with entering and exiting the industry. It is very important when planning a small business. Analysis helps to identify which stage an industry is currently in; whether it is still growing and there is scope to reap benefits, or has it reached its saturation point.

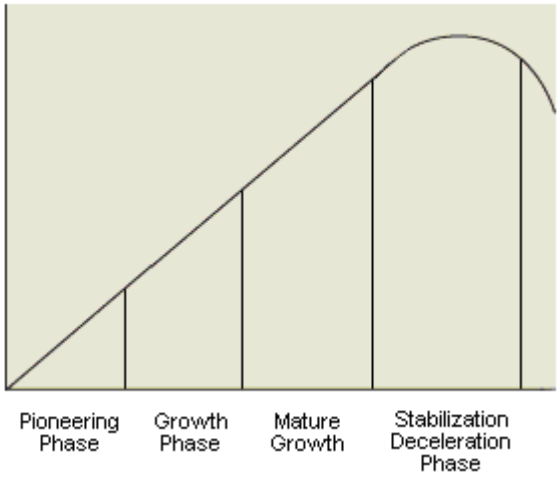
With a very detailed study of the industry, entrepreneurs can get a stronghold on the operations of the industry and may discover untapped opportunities. It is also important to understand that industry analysis is a very subjective method and does not always guarantee success. It may happen that incorrect interpretation of data leads entrepreneurs to a wrong path or into making wrong decisions. Hence, it becomes important to understand one's motive and collect data accordingly.

Industry Life Cycle

The industry life cycle is made up of the following stages:

1. Pioneering Phase
2. Growth Phase
3. Mature Growth Phase
4. Stabilization/Maturity Phase
5. Deceleration/Decline Phase

Chart 2: Life Cycle Diagram



1) Pioneering Phase

This phase is characterized by low demand for the industry's product and large upstart costs. Industries in this phase are typically start-up firms, with large upfront costs and few sales.

2) Growth Phase

After the pioneering phase, an industry can transfer into the growth phase. The growth phase is characterized by little competition and accelerated sales. Industries in this phase have typically survived the pioneering phase and are beginning to recognize sales growth.

3) Mature Growth Phase

After the growth phase, an industry will reach the mature growth phase. The mature growth phase is characterized above average growth, but no longer accelerating growth. Industries in this phase now face increasing competition and, as a result, profit margins begin to erode.

4) Stabilization/Maturity Phase

After the growth phases, an industry will enter in the stabilization/maturity phase. The stabilization/maturity phase is characterized by growth that is now average. Industries in this phase

have significant competition and the return on equity is now more normalized. This is typically the longest phase an industry will go through.

5) Deceleration/Decline Phase

The deceleration follows the growth and maturity phases. The deceleration/decline phase is characterized by declining growth as demand shifts to other substitute (new) products.

Types of industry analysis
There are three commonly used and important methods of performing industry analysis. The three methods are:

1. Competitive Forces Model (Porter's 5 Forces)
2. Broad Factors Analysis (PEST Analysis)
3. SWOT Analysis

#1 Competitive Forces Model (Porter's 5 Forces)

One of the most famous models ever developed for industry analysis, famously known as Porter's 5 Forces, was introduced by Michael Porter in his 1980 book "Competitive Strategy: Techniques for Analyzing Industries and Competitors."

According to Porter, analysis of the five forces gives an accurate impression of the industry and makes analysis easier. In our Corporate & Business Strategy course, we cover these five forces and an additional force — power of complementary good/service providers.

The above image comes from a section of CFI's Corporate & Business Strategy Course.

1. Intensity of industry rivalry

The number of participants in the industry and their respective market shares are a direct representation of the competitiveness of the industry. These are directly affected by all the factors mentioned above. Lack of differentiation in products tends to add to the intensity of competition. High exit costs like high fixed assets, government restrictions, labor unions, etc. also make the competitors fight the battle a little harder.

2. Threat of potential entrants

This indicates the ease with which new firms can enter the market of a particular industry. If it is easy to enter an industry, companies face the constant risk of new competitors. If the entry is difficult, whichever company enjoys little competitive advantage reaps the benefits for a longer period. Also, under difficult entry circumstances, companies face a constant set of competitors.

3. Bargaining power of suppliers

This refers to the bargaining power of suppliers. If the industry relies on a small number of suppliers, they enjoy a considerable amount of bargaining power. This can affect small businesses because it directly influences the quality and the price of the final product.

4. Bargaining power of buyers

The complete opposite happens when the bargaining power lies with the customers. If consumers/buyers enjoy market power, they are in a position to negotiate lower prices, better quality or additional services and discounts. This is the case in an industry with more competitors but a single buyer constituting a large share of the industry's sales.

5. Threat of substitute goods/services

The industry is always competing with another industry in producing a similar substitute product. Hence, all firms in an industry have potential competitors from other industries. This takes a toll on their profitability because they are unable to charge exorbitant prices. Substitutes can take two forms – products with the same function/quality but lesser price or products of the same price but of better quality or providing more utility.

Defining Company Analysis

A company analysis is a thorough study done to ascertain a company's health in any number of areas. When complete, the analysis should be available in a written report. There are a variety of ways to complete company analyses, depending on the areas in question, but the focus is typically on feasibility, productivity and an overall view of the corporate financial health.

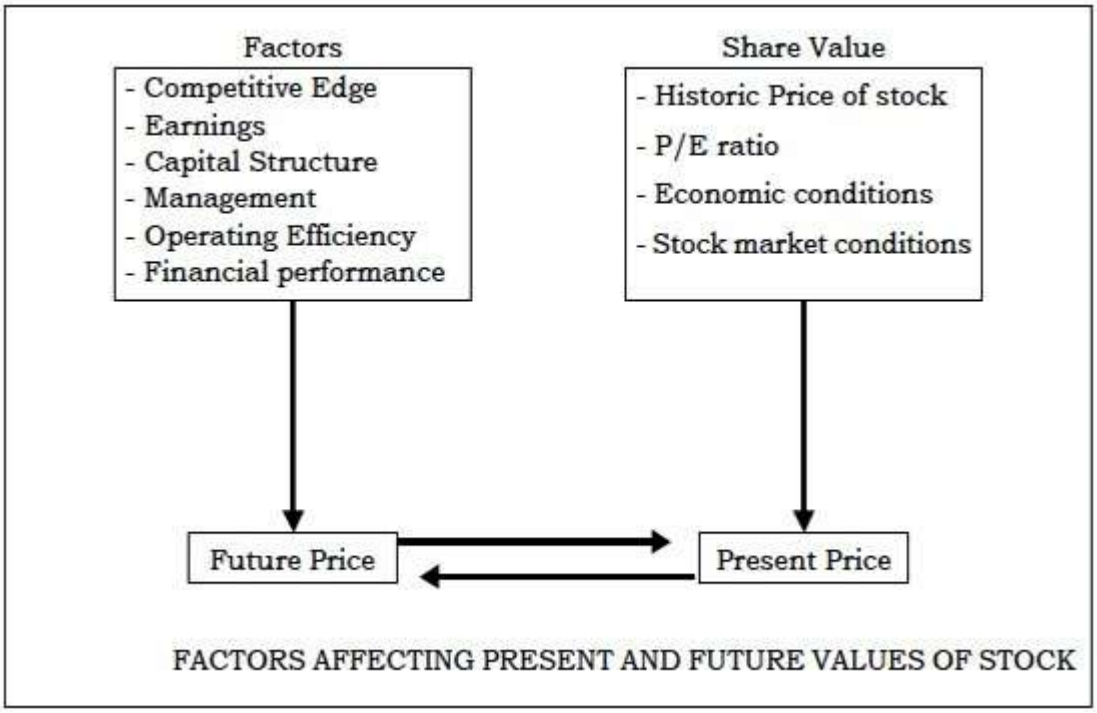
Ultimately, a company analysis can be used as a snapshot of the company's strengths, weaknesses and where it's headed.

Fundamental analysis is the method of analyzing companies based on factors that affect their intrinsic value. There are two sides to this method: the quantitative and the qualitative. The *quantitative side*involves looking at factors that can be measured numerically, such as the company's assets, liabilities, cash flow, revenue and price to- earnings ratio. The limitation of quantitative analysis, however, is that it does not capture the company's aspects or risks immeasurable by a number - things like the value of an executive or the risks a company faces with legal issues. The analysis of these things is the other side of fundamental analysis: the *qualitative side or non number side*. Although relatively more difficult to analyze, the qualitative factors are an important part of a company. Since they are not measured by a number, they more represent an either negative or positive force affecting the company.

Fundamental analysis is not as simple as looking at numbers and computing ratios; it is also important to look at influences and qualities that do not have a number value. The present and future values are affected by the following factors:

1. **Competitive Edge:** Another business consideration for investors is competitive advantage. A company's long-term success is driven largely by its ability to maintain a competitive advantage - and keep it. Powerful competitive advantages, such as Coca Cola's brand name and Microsoft's domination of the personal computer operating system, create a moat around a business allowing it to keep competitors at bay and enjoy growth and profits. When a company can achieve competitive advantage, its shareholders can be well rewarded for decades.
   a. Market share: The market share of the company helps to determine a company's relative position within the industry. If the market share is high, the company would be able to meet the competition successfully. The size of the company should also be considered while analyzing the market share, because the smaller companies may find it difficult to survive in the future.
   b. Growth of annual sales: Investor generally prefers to study the growth in sales because the larger size companies may be able to withstand the business cycle rather than the company of smaller size. The rapid growth keeps the investor in better position as growth in sales is followed by growth in profit. The growth in sales of the company is analyzed both in rupee terms and in physical terms.
   c. Stability of annual sales: If a firm has stable sales revenue, other things being remaining constant, will have more stable earnings. Wide variation in sales leads to variation in capacity utilization, financial planning and dividends. This affects the Company's position and investor's decision to invest.
2. **Earnings:** The earning of the company should also be analyzed along with the sales level. The income of the company is generated through the operating (in service industry like banks- interest on loans and investment) and non-operating income (ant company, rentals from lease, dividends from securities). The investor should analyze the sources of income properly. The investor should be well aware with the fact that the earnings of the company may vary due to following reasons:
   - Change in sales.
   - Change in costs.

- Depreciation method adopted.
- Inventory accounting method.
- Wages, salaries and fringe benefits.
- Income tax and other taxes.



FACTORS AFFECTING PRESENT AND FUTURE VALUES OF STOCK

3. **Capital Structure:** Capital structure is combination of owned capital and debt capital which enables to maximize the value of the firm. Under this, we determine the proportion in which the capital should be raised from the different securities. The capital structure decisions are related with the mutual proportion of the long term sources of capital. The owned capital includes share capital

a. *Preference shares*: Preference shares are those shares which have preferential rights regarding the payment of dividend and repayment of capital over the equity shareholders. At present many companies resort preference shares.

b. *Debt*: It is an important source of finance as it has the specific benefit of low cost of capital because interest is tax deductible. The leverage effect of debt is highly advantageous to the equity shareholders. The limits of debt depend upon the firm's earning capacity and its fixed assets.

c. **Management:** Just as an army needs a general to lead it to victory, a company relies upon management to steer it towards financial success. Some believe that management is *the*most

important aspect for investing in a company. It makes sense - even the best business model is doomed if the leaders of the company fail to properly execute the plan.

So how does an average investor go about evaluating the management of a company? This is one of the areas in which individuals are truly at a disadvantage compared to professional investors. You can't set up a meeting with management if you want to invest a few thousand dollars. On the other hand, if you are a fund manager interested in investing millions of dollars, there is a good chance you can schedule a face-to-face meeting with the upper brass of the firm.

Every public company has a corporate information section on its website. Usually there will be a quick biography on each executive with their employment history, educational background and any applicable achievements. Don't expect to find anything useful here. Let's be honest: We're looking for dirt, and no company is going to put negative information on its corporate website.

Instead, here are a few ways for you to get a feel for management:

1. *Conference Calls*

   The chief executive officer (CEO) and chief financial officer (CFO) host quarterly conference calls. (Sometimes you'll get other executives as well.) The first portion of the call is management basically reading off the financial results. What is really interesting is the question-and-answer portion of the call. This is when the line is open for analysts to call in and ask management direct questions. Answers here can be revealing about the company, but more importantly, listen for candor. Do they avoid questions, like politicians, or do they provide forthright answers?

2. *Management Discussion and Analysis (MD&A)*

   The management discussion and analysis is found at the beginning of the annual report (discussed in more detail later in this tutorial). In theory, the MD&A is supposed to be frank commentary on the management's outlook. Sometimes the content is worthwhile, other times its boilerplate. One tip is to compare what management said in past years with what they are saying now. Is it the same material rehashed? Have strategies actually been implemented? If possible, sit down and read the last five years of MD&A's; it can be illuminating.

3. *Ownership and Insider Sales*

Just about any large company will compensate executives with a combination of cash, restricted stock and options. While there are problems with stock options, it is a positive sign that members of management are also shareholders. The ideal situation is when the founder of the company is still in charge. Examples include Bill Gates (in the '80s and '90s), Michael Dell and Warren Buffett. When you know that a majority of management's wealth is in the stock, you can have confidence that they will do the right thing. As well, it's worth checking out if management has been selling its stock. This has to be filed with the Securities and Exchange Commission (SEC), so it's publicly available information. Talk is cheap - think twice if you see management unloading all of its shares while saying something else in the media.

4. *Past Performance*

Another good way to get a feel for management capability is to check and see how executives have done at other companies in the past. You can normally find biographies of top executives on company web sites. Identify the companies they worked at in the past and do a search on those companies and their performance.

5. **Operating Efficiency:**

Corporate governance describes the policies in place within an organization denoting the relationships and responsibilities between management, directors and stakeholders. These policies are defined and determined in the company charter and its bylaws, along with corporate laws and regulations. The purpose of corporate governance policies is to ensure that proper checks and balances are in place, making it more difficult for anyone to conduct unethical and illegal activities.

Good corporate governance is a situation in which a company complies with all of its governance policies and applicable government regulations in order to look out for the interests of the company's investors and other stakeholders.

Although, there are companies and organizations that attempt to quantitatively assess companies on how well their corporate governance policies serve stakeholders, most of these reports are quite expensive for the average investor to purchase.

Fortunately, corporate governance policies typically cover a few general areas: structure of the board of directors, stakeholder rights and financial and information transparency. With a little research and the right questions in mind, investors can get a good idea about a company's corporate governance.

Financial and Information Transparency

This aspect of governance relates to the quality and timeliness of a company's financial disclosures and operational happenings. Sufficient transparency implies that a company's financial releases are written in a manner that stakeholders can follow what management is doing and therefore have a clear understanding of the company's current financial situation.

Stakeholder Rights

This aspect of corporate governance examines the extent that a company's policies are benefiting stakeholder interests, notably shareholder interests. Ultimately, as owners of the company, shareholders should have some access to the board of directors if they have concerns or want something addressed. Therefore companies with good governance give shareholders a certain amount of ownership voting rights to call meetings to discuss pressing issues with the board.

Another relevant area for good governance, in terms of ownership rights, is whether or not a company possesses large amounts of takeover defenses (such as the Macaroni Defense or the Poison Pill) or other measures that make it difficult for changes in management, directors and ownership to occur. (To read more on takeover strategies, see The Wacky World of M&As.)

Structure of the Board of Directors

The board of directors is composed of representatives from the company and representatives from outside of the company. The combination of inside and outside directors attempts to provide an

independent assessment of management's performance, making sure that the interests of shareholders are represented.

The key word when looking at the board of directors is independence. The board of directors is responsible for protecting shareholder interests and ensuring that the upper management of the company is doing the same. The board possesses the right to hire and fire members of the board on behalf of the shareholders. A board filled with insiders will often not serve as objective critics of management and will defend their actions as good and beneficial, regardless of the circumstances.

Information on the board of directors of a publicly traded company (such as biographies of individual board members and compensation-related info) can be found in the DEF 14A proxy statement.

We've now gone over the business model, management and corporate governance. These three areas are all important to consider when analyzing any company. We will now move on to looking at qualitative factors in the environment in which the company operates.

6. **Financial Performance:**

a. *Balance Sheet*: The level, trends, and stability of earnings are powerful forces in the determination of security prices. Balance sheet shows the assets, liabilities and owner's equity in a company. It is the analyst's primary source of information on the financial strength of a company. Accounting principles dictate the basis for assigning values to assets. Liability values are set by contracts. When assets are reduced by liabilities, the book value of share holder's equity can be ascertained. The book value differs from current value in the market place, since market value is dependent upon the earnings power of assets and not their cost of values in the accounts.

b. *Profit and Loss account*: It is also called as income statement. It expresses the results of financial operations during an accounting year i.e. with the help of this statement we can find out how much profit or loss has taken place from the operation of the business during a period of time. It also helps to ascertain how the changes in the owner's interest in a given period have taken place due to business operations. Last of all, for analyzing the financial position of any company following factors need to be considered for evaluating present situation and prospects of company.

Company Analysis in Fundamental Analysis

COMPANY ANALYSIS: THE STUDY OF FINANCIALS STATEMENTS

The massive amount of numbers in a company's financial statements can be bewildering and intimidating to many investors. On the other hand, if you know how to analyze them, the financial statements are a gold mine of information.

Financial statements are the medium by which a company discloses information concerning its financial performance.

Followers of fundamental analysis use the quantitative information gleaned from financial statements to make investment decisions. Before we jump into the specifics of the three most important financial statements – income statements, balance sheets and cash flow statements - we will briefly introduce each financial statement's specific function, along with where they can be found.

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:*** Financial statements of two or more firms may be compared for drawing inferences. This is known as inter-firm comparison. Similarly, there may be inter-period comparison, i.e., comparison of the financial statements of the same firm over a period of years known as trend analysis. This is also known as horizontal analysis, since each accounting variable for two or more years is analyzed horizontally. Inter-firm or inter-period comparisons are very much facilitated by the preparation of comparative statements. In preparing these statements, the items are placed in the rows and the firms of years are shown in the columns. Such arrangement facilitates highlighting the difference and brings out the significance of such differences. The statement also provides for columns to indicate the change form one year to another in absolute terms and also in percentage form. In calculating percentages, there is one difficulty, namely, if the figure is negative, percentages cannot be calculated. Likewise, if the change is from or to a zero balance in account, it is not possible to calculate the percentage.

Advantages

- These statements indicate trends in sales, cost of production, profits, etc., helping the analyst to evaluate the performance, efficiency and financial condition of the undertaking. For example, if the sales are increasing coupled with the same or better profit margins, it indicates healthy growth.
- Comparative statements can also be used to compare the position of the firm with the average performance of the industry or with other firms. Such a comparison facilitates the identification or weaknesses and remedying the situation.

Disadvantages

3. Inter-firm comparison may be misleading if the firms are not of the same age and size, follow different accounting policies in relation to depreciation, valuation of stock, etc., and do not cater to the same market. Inter-period comparison will also be misleading if the period has witnessed frequent changes in accounting policies.

4. *Trend Analysis*: For analyzing the trend of data shown in the financial statements it is necessary to have statements for a number of years. This method involves the calculation of percentage relationship that each statement item bears to the same item in the "bas year". Trend percentages disclose changes in the financial and operating data between specific periods and make possible for the analyst to form an opinion as to whether favorable or unfavorable tendencies are reflected by the data.

5. *Common Size Statement*:
Financial statements when read with absolute figures are not easily understandable, sometimes they are even misleading. It is, therefore, necessary that figures reported in these statements, should be converted into percentage to some common base. In profit and loss account sales figure is assumed to be equal to 100 and all other figures are expressed as percentage of sales. Similarly, in balance sheet the total of assets or liabilities is taken as 100 and all the figures are expressed as percentage of the total. This type of analysis is called vertical analysis. This is a static relationship because it is a study of relationship existing at a particular date. The statements so prepared are called common-size statements

6. *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.

7. *Cash Flow Statement*: The cash flow statement shows how much cash comes in and goes out of the company over the quarter or the year. At first glance, that sounds a lot like the income statement in that it records financial performance over a specified period. But there is a big difference between the two.

   What distinguishes the two is accrual accounting, which is found on the income statement. Accrual accounting requires companies to record revenues and expenses when transactions occur, not when cash is exchanged. At the same time, the income statement, on the other hand, often includes non-cash revenues or expenses, which the statement of cash flows does not include.

   Just because the income statement shows net income of $10 does not means that cash on the balance sheet will increase by $10. Whereas when the bottom of the cash flow statement reads $10 net cash inflow, that's exactly what it means. The company has $10 more in cash than at the end of the last financial period. You may want to think of net cash from operations as the company's "true" cash profit. Because it shows how much actual cash a company has generated, the statement of cash flows is critical to understanding a company's fundamentals. It shows how the company is able to pay for its operations and future growth.

   Indeed, one of the most important features you should look for in a potential investment is the company's ability to produce cash. Just because a company shows a profit on the income statement doesn't mean it cannot get into trouble later because of insufficient cash flows. A close examination of the cash flow statement can give investors a better sense of how the company will fare.

8. *Ratio Analysis*: Ratio is a relationship between two figures expressed mathematically. It is quantitative relationship between two items for the purpose of comparison. Ratio analysis is a

technique of analyzing financial statements. It helps in estimating financial soundness or weakness. Ratios present the relationships between items presented in profit and loss account and balance sheet. It summaries the data for easy understanding, comparison and interpretation. The ratios are divided in the following group:

Liquidity Ratios

Liquidity ratios provide information about a firm's ability to meet its short-term financial obligations. They are of particular interest to those extending short-term credit to the firm. Two frequently-used liquidity ratios are the *current ratio* (or *working capital ratio*) and the *quick ratio*.

The current ratio is the ratio of current assets to current liabilities:

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Libilities}}$$

Short-term creditors prefer a high current ratio since it reduces their risk. Shareholders may prefer a lower current ratio so that more of the firm's assets are working to grow the business. Typical values for the current ratio vary by firm and industry. For example, firms in cyclical industries may maintain a higher current ratio in order to remain solvent during downturns.

One drawback of the current ratio is that inventory may include many items that are difficult to liquidate quickly and that have uncertain liquidation values. The quick ratio is an alternative measure of liquidity that does not include inventory in the current assets. The quick ratio is defined as follows:

$$\text{Quick Ratio} = \frac{\text{Current Assets - Inventory}}{\text{Current Liabiliites}}$$

The current assets used in the quick ratio are cash, accounts receivable, and notes receivable. These assets essentially are current assets less inventory. The quick ratio often is referred to as the *acid test*. Finally, the *cash ratio* is the most conservative liquidity ratio. It excludes all current assets except the most liquid: cash and cash equivalents. The cash ratio is defined as follows:

$$\text{Cash Ratio} = \frac{\text{Cash + Marketable Securites}}{\text{Current Libilities}}$$

The cash ratio is an indication of the firm's ability to pay off its current liabilities if for some reason immediate payment were demanded.

2. **Asset Turnover Ratios:** Asset turnover ratios indicate of how efficiently the firm utilizes its assets. They sometimes are referred to as efficiency ratios, asset utilization ratios, or asset management ratios. Two commonly used asset turnover ratios are *receivables turnover* and *inventory turnover*.

Receivables turnover is an indication of how quickly the firm collects its accounts receivables and is defined as follows:

$$\text{Receivables Tunover} = \frac{\text{Annual Credit Sales}}{\text{Accounts Receivable}}$$

The receivables turnover often is reported in terms of the number of days that credit sales remain in accounts receivable before they are collected. This number is known as the *collection period*. It is the accounts receivable balance divided by the average daily credit sales, calculated as follows:

$$\text{Average Collection Period} = \frac{\text{Accounts Receivable}}{\text{Annual Credit Sale /365}}$$

The collection period also can be written as:

$$\text{Average Collection Period} = \frac{365}{\text{Receivable Turnover}}$$

Another major asset turnover ratio is *inventory turnover*. It is the cost of goods sold in a time period divided by the average inventory level during that period:

$$\text{Inventory Turnover} = \frac{\text{Cost of Goods Sold}}{\text{Average Inventory}}$$

The inventory turnover often is reported as the *inventory period*, which is the number of days worth of inventory on hand, calculated by dividing the inventory by the average daily cost of goods sold:

$$\text{Inventory Period} = \frac{\text{Average Inventory}}{\text{Annual Cost Goods Sold/365}}$$

The inventory period also can be written as:

$$\text{Inventory Period} = \frac{365}{\text{Inventory Tunover}}$$

Other asset turnover ratios include fixed asset turnover and total asset turnover.

- **Profitability ratios**

Profitability ratios offer several different measures of the success of the firm at generating profits.

The *gross profit margin* is a measure of the gross profit earned on sales. The gross profit margin considers the firm's cost of goods sold, but does not include other costs. It is defined as follows:

$$\text{Gross Profit Margin} = \frac{\text{Sales - Cost of Goods Sold}}{\text{Sales}}$$

Return on assets is a measure of how effectively the firm's assets are being used to generate profits. It is defined as:

$$\text{Return on Assets} = \frac{\text{Net Income}}{\text{Total Assets}}$$

Return on equity is the bottom line measure for the shareholders, measuring the profits earned for each dollar invested in the firm's stock. Return on equity is defined as follows:

$$\text{Return on Equity} = \frac{\text{Net Income}}{\text{Shareholder Equity}}$$

FORECASTING EARNINGS

There is strong evidence that earnings have a direct and powerful effect upon dividends and share prices. So the importance of forecasting earnings cannot be overstated. These ratios are generally known as 'Return on Investment Ratios'. These ratio help in evaluating whether the business is earning adequate return on the capital invested or not. With the help of the following ratios the performance of the business can be measured. The earnings forecasting ratios are:

- **Return on Total Assets:** A ratio that measures a company's earnings before interest and taxes (EBIT) against its total net assets. The ratio is considered an indicator of how effectively a

company is using its assets to generate earnings before contractual obligations must be paid.

To calculate ROTA:

```
    EBIT
= ------------
TotalNet Assets
```

Where EBIT = Net Income + Intrest Expense + taxes

- The greater a company's earnings in proportion to its assets (and the greater the coefficient from this calculation), the more effectively that company is said to be using its assets.

  To calculate ROTA, you must obtain the net income figure from a company's income statement, and then add back interest and/or taxes that were paid during the year. The resulting number will reveal the company's EBIT. The EBIT number should then be divided by the company's total net assets
- **Return on Equity:** The amount of net income returned as a percentage of shareholders equity. Return on equity measures a corporation's profitability by revealing how much profit a company generates with the money shareholders have invested.

ROE is expressed as a percentage and calculated as:

Return on Equity = Net Income/Shareholder's Equity

Net income is for the full fiscal year (before dividends paid to common stock holders but after dividends to preferred stock.) Shareholder's equity does not include preferred shares.

Also known as "return on net worth" (RONW). The ROE is useful for comparing the profitability of a company to that of other firms in the same industry.

There are several variations on the formula that investors may use:

1. Investors wishing to see the return on common equity may modify the formula above by subtracting preferred dividends from net income and subtracting preferred equity from shareholders' equity, giving the following: return on common equity (ROCE) = net income - preferred dividends / common equity.
2. Return on equity may also be calculated by dividing net income by *average* shareholders' equity. Average shareholders' equity is calculated by adding the shareholders' equity at the beginning of a period to the shareholders' equity at period's end and dividing the result by two.
3. Investors may also calculate the change in ROE for a period by first using the shareholders' equity figure from the beginning of a period as a denominator to determine the beginning ROE. Then, the end-of-period shareholders' equity can be used as the denominator to determine the

ending ROE. Calculating both beginning and ending ROEs allows an investor to determine the change in profitability over the period.

Earnings and Role of Financing

Borrowing of money at a fixed cost and the use of these funds to earn return on assets is known as employing leverage. If one can earn more on borrowed money than you have to pay for it, the leverage is to firm's advantage. However, leverage should be used within reasonable limits because excessive use of debt relative to equity increases borrowing costs and also the cost of equity funds. The volatility of share holders returns increases with the expansion of the degree of financial leverage. The greater volatility of earnings owing to increased leverage can, at certain levels of debt financing, cause the market to pay less per rupee of earnings. Further with the use of more debts it may become progressively difficult to maintain (or improve) the rate of return on assets. One of the best ways of measuring the proportions of debt and equity financing is:

a. Debt to asset ratio = Total Debt / Total Assets
b. Debt to equity ratio = Total Debt / Net Worth
c. Long term debt to equity = Long Term Debt/ Net Worth

- **Valuation Ratios: Earnings and Dividend Level**
- **Book value per share:**

A measure used by owners of common shares in a firm to determine the level of safety associated with each individual share after all debts are paid accordingly.

$$\text{Book Value Share} = \frac{\text{Total Shareholder Equity - Preferred Equity}}{\text{Total Out Standing Shares}}$$

Earnings per share (EPS):

The portion of a company's profit allocated to each outstanding share of common stock. Earnings per share serve as an indicator of a company's profitability.

Calculated as:

$$= \frac{\text{Net Income - Dividends on preferred Stock}}{\text{Average Outstanding Shares}}$$

When calculating, it is more accurate to use a weighted average number of shares outstanding over the reporting term, because the number of shares outstanding can change over time. However, data sources sometimes simplify the calculation by using the number of shares outstanding at the end of the period.

Diluted EPS expands on basic EPS by including the shares of convertibles or warrants outstanding in the outstanding shares number

Dividend per Share (DPS):

The sum of declared dividends for every ordinary share issued. Dividend per share (DPS) is the total dividends paid out over an entire year (including interim dividends but not including special dividends) divided by the number of outstanding ordinary shares issued.

DPS can be calculated by using the following formula:

$$DPS = \frac{D - SD}{S}$$

D - Sum of dividends over a period (usually 1 year)

SD - Special, one time dividends

S - Shares outstanding for the period

Dividend Payout Ratio (D/P ratio):

The percentage of earnings paid to shareholders in dividends.

Calculated as:

$$= \frac{\text{Yearly Dividend per Share}}{\text{Earnings per Share}}$$ or equivalently: $$= \frac{\text{Dividends}}{\text{Net Incomes}}$$

Dividend and Earnings Yield:

These ratios are used to evaluate the profitability from the stand point of ordinary shareholders. Earning per share (EPS) and Dividend per Share (DPS) are calculated on the basis of book value of shre but yield is always calculated on the basis of market value of shares. This ratio is called as Earnings Price ratio.

Dividend Yield = Dividend per share/ Market value per share

Earnings Yield = Earnings per share/ Market value per share

Price to Earnings Ratio:

A valuation ratio of a company's current share price compared to its per-share earnings.

Calculated as:

$$\frac{\text{Market Value per Share}}{\text{Earnings per Share(EPS)}}$$

Practical Example

Competitive Benchmarking Reports RocSearch Competitive Benchmarking Report provides information that enables a company to analyze and compare its financial performance, business segments, geographical presence, products and services and business strategies vis-à-vis its competitors.

- **GOLD Analysis** The Gold Profiles provide very comprehensive information about the company. These reports include price history and charting, an extended business summary, the five year financial history and information on management, insiders and institutions. The Gold Profiles also successfully outline the strategic position of the company within the market and provide detailed information on the functioning of the company under various constraints.
- **Silver Analysis** The Silver Profiles are a scaled down version of the Gold Profiles that provide detailed information about the company. These include information on performance of the company, its strategy, joint ventures, key executives, new products, M&A etc. Timely, precise and up-to-date information presented in these reports allows decision makers to make successful strategic decisions.
- **Porter Analysis** In the globalised market scenario, companies need to understand and challenge the competitive markets they operate in. RocSearch analysts use Porter's Five Forces Framework developed by marketing guru Michael Porter to analyze various industries and enable companies to identify and develop appropriate strategies.
- **PEST Analysis** PEST refers to all Political, Economic, Social and Technological factors affecting any industry. RocSearch's acclaimed team of industry analysts religiously follow industry trends and monitor any changes that occur in the business scenario. All reported information including insider tit bits is examined and analyzed to produce an original document that effectively mirrors the external business environment.

- **SWOT Analysis** Our industry analysts put into perspective all political, economic, social and technological factors affecting any industry to identify the emerging opportunities for any company operating in that industry. Strengths and weaknesses of the company are analyzed to establish whether it can take advantage of the emergent opportunities. Various threats that can hamper its progress are also examined and listed. The findings can be used to take advantage of opportunities and to make contingency plans for threats.

Part A (ONE Mark)

Multiple Choice Questions

Online Examination

PART – B (2 MARKS)

1. What is meant by fundamental analysis?
2. Define GDP.
3. List out the macro economic factors for economic analysis
4. Why Industry analysis is important?
5. List out stages of industry life cycle
6. What is SWOT analysis?
7. What do meant by earnings per share of the company?
8. List out the methods adapted to analyses financial statement of the company.
9. What is meant by price earnings ratio?
10. What do you mean by financial analysis?

Part C (8 Marks)

1. Explain the factors affecting Fundamental Analysis?
2. Enumerate the forecasting techniques used in Economic Analysis?
3. Explain the Factors Affecting Industry Analysis?
4 Describe the various steps involved in fundamental analysis briefly?
5. Explain the factors affecting Economic Analysis with example.
6. Elucidate the concept Industry Analysis with suitable example.
7. Explain the factors affecting Industrial Analysis in detail?

8. What is company analysis? Explain how financial ratios can be used to determine the strengths and weaknesses of a company.
9. Elucidate the difference between Fundamental Analysis and Technical Analysis?
10. Enumerate the Characteristics and types of Industries with suitable examples

Part D (11 Marks)

1. Assume that you know for certain that the market is heading towards the boom period. Should you buy a common stock based upon this information?
2. "Industry life cycle exhibits the status of the industry and gives the clue to entry and exit for investors" Elucidate.
3. Discuss any four factors considered to be most important in appraising companies in different industries.

KARPAGAM Academy of Higher Education
Department of Management
Investment Analysis and Portfolio Management – 16BAU501A

Unit II Multiple Choice Questions Part A – (20*1=20 Marks)

S. NO	QUESTION	OPTION 1	OPTION 2	OPTION 3	OPTION 4	OPTION 5	OPTION 6	ANSWER
1	Which of the following is used in economic analysis?	gross domestic product	surveys	labour cost	diffusion indexes			gross domestic product
2	A growth industry is	an industry with 10% growth per annum	an industry where demand for its product is exceeding supply	a capital intensive industry	an industry whose average growth is higher than the growth of economy			an industry whose average growth is higher than the growth of economy
3	The investor wants to study those fundamental factors	that affect profit and dividend of a company	that influence the interest and dividend characteristics of a company	that affect the risk and return characteristics of a security	affect profitability			that affect the risk and return characteristics of a security
4	An analysis of the whole market of securities are termed as ----------	macro analysis	micro analysis	general analysis	particular analysis			macro analysis
5	Analysis of only scrip is called as ----------	macro analysis	micro analysis	particular analysis	general analysis			micro analysis
6	Dividing profit after tax by the number of equity shares is equal to ----------	preference share	earnings per share	equity share	differed share			earnings per share
7	An investors focus on a company's	upward	bottom up	forward	downward			bottom up

	basics is called ---------- approach							
8	---------- consists of personal consumption expenditure, gross private domestic investment and government expenditure on goods and services and net export of goods and services	NAV	GDP	EIC	GNP			GDP
9	GDP reflects the overall performance of the ----------	economy	industry	company	fundamental			economy
10	A _____is a method of finding out the future price of a stock which an investor to buy	fundamental analysis	technical analysis	economic analysis	industrial analysis			fundamental analysis
11	_____is really a logical and systematic approach for estimating the future dividends and share price	fundamental analysis	secondary analysis	stock analysis	bond analysis			fundamental analysis
12	The _____has been defined as a homogeneou	economy	business	industry	office			industry

	s group of people doing a similar kind of activity							
13	The investor should verify whether a company follows a stable ---------- policy	dividend	interest	appreciation	depreciation			dividend
14	mobilising funds through issue of equity shares is known as	debt financing	financial institution	funds	equity financing			equity financing
15	Return on equity is helpful in acertaining the ---------- value	market value	intrinsic value	extrinsic value	depreciable value			intrinsic value
16	Earning per share represents the profit earned by ----------	dividend	each share	interest	market price			each share
17	Profitability ratio measures ----------	liquidity	interest	profitability	all the above			profitability
18	Expenses ratio establish the relationship between ----------	expenses and sales	expenses and cost	liquidity position	financial position			expenses and sales
19	Profitability ratio based on ----------	assists or investment	assets or revenue	liability or loan	all the above			assists or investment
20	The development of the industry mostly	government	communication	productivity of labour	transportation			productivity of labour

	depends upon the ---- ----------							
21	------ indicates what is going to happen in the economy	lagging indicators	leading indicators	coincidental indicators	sensex indicators			leading indicators
22	The first and foremost stage in the industrial life cycle is the ----------	growth stage	decline stage	introduction stage	all the above			introduction stage
23	_____ Stage stabilise their prices, develop a market of their own strategies	expansion stage	decline stage	introduction stage	all the above			expansion stage
24	The factors which have to be carefully analysed are regarding the _____ of the project	stability	soundness	functions	defunct ion			stability
25	There are lot of financial and non-financial aspects in _____and the investor should familiarize with themselves	economy	company	industry	technical			economy
26	the financial statements of a company provide the best possible	profitability	stability	employee	policy of the company			profitability

	information about the							
27	Financial ratios provide a standardised measure of a firm's	dividend	liquidity	stability	financial position			financial position
28	Financial ratios are helpful in ----------	soundness	identify the weakest area	identify the accounts department				identify the weakest area
29	Fundamentalists have developed certain valuation models for calculating	dividend	share price	future price	market price			share price
30	Ratio analysis can be used to analyse the ----------	market value	financial position	liquidity	solvency			financial position
31	Economic forecasting is usually based on a ----------	scientific theory	modern theory	specific theory	mm theory			specific theory
32	If the market share is _____the company would be able to meet the competition successfully	Low	high	medium	decline			high
33	A study of _____ ___ ratios will be helpful in understanding the relationship between sales and earnings	profitability	current	liquidity	solvency			profitability

34	The _____ affects return on equity shareholders investment	working capital	capital structure	short term profit	long term profit			capital structure
35	Equity shareholders return can be increased by using more debts than	bonds	share price	equity	preference			equity
36	A company must make adequate _____ for payment of tax on its earnings	profit	provision	working capital	share			provision
37	Under this method, the inventory is priced at cost price or market price, whichever is lower	FIFO	LIFO	Cost or market value method	straight line method			Cost or market value method
38	FIFO method will shows the inventory at a ---------	lower cost	higher cost	average cost	medium cost			higher cost
39	LIFO method will shows the inventory at a ----------	lower cost	higher cost	average cost	medium cost			lower cost
40	under _____ method a fixed percentage of original cost is charged as depreciation throughout the life of	straight line method	diminishing balance method	depreciation fund method	insurance policy method			straight line method

	asset							
41	In _____ method , the amount of depreciation will reduce from year to year	straight line method	diminishing balance method	depreciation fund method	insurance policy method			diminishing balance method
42	In _____method, the amount of depreciation is calculated with reference to sinking fund tables.	straight line method	diminishing balance method	depreciation fund method	insurance policy method			depreciation fund method
43	Stability of sales ensures _____ to the company	variation	fixed	difficult	stable earning			stable earning
44	Debentures used for ----------	long term	short term	very short term	medium term			long term
45	An efficient management of a company will ensure _____ investment	change	fixed	failure	successful			successful
46	Planning, organising, directing, co-ordinating and controlling are the important functions of the ----------	management	administration	firm	industry			management
47	The company should strive to increase	appropriation	appreciation	profitability	stable earning			appreciation

	the return on investments and their							
48	Ability to maintain _____ of the company within the industry, shows efficient investment decision	Director	dividend	interest	competitiveness			competitiveness
49	Ability to maintain _____ role in the market for growth for the industry	manager	director	competitiveness	leadership			leadership
50	Financial statement of the company include ----------	profit and loss account	shareholders document	debenture holders documents	employees records			profit and loss account
51	The outsider's liabilities other than current liabilities are known as ----------	long term liabilities	short term liabilities	outsider's liabilities	medium term liabilities			long term liabilities
52	The profit and loss account is called ----------	income statement	expenditure statement	operation statement	cost statement			income statement
53	Weak form of efficient market based on ---------- prices	historical	present	future	convention			historical
54	The preparation of financial statement is based on	accounting	product	purchase	sales			accounting

	certain _____ concept							
55	Annual reports of companies provide ----------	financial information	economic information	market information	sales information			financial information
56	Daily security prices are quoted in ----------	stock exchange	leading dailies	investment week	government report			stock exchange
57	The primary market for securities is ----------	stock exchanges	new issue market	national market	OTCEI			new issue market
58	The ____analysis is based on security price quotation	technical	economic	industry	company			technical
59	The _____ _ of share means the value of net asset available per equity share of the company	intrinsic value	standard value	national market value	real value			intrinsic value
60	The ----------analysis refers to an evaluation of the relative strengths and weakness of particular industry	company	economic	industry	political			industry

UNIT-III-Introduction to Share Valuation

SYLLABUS

Share Valuation - Dividend discount models - No growth - Constant growth - Two stage growth model - Multiple stages - Relative valuation models using P/E ratio - Book value to market value- Technical analysis - Meaning - Assumptions - Difference between technical and fundamental analysis - Price indicators - Dow theory - Advances and declines - New highs and lows - Circuit filters - Volume indicators - Dow Theory - Small investor volumes - Other indicators - Futures, Institutional activity - Trends - Resistance - Support - Consolidation - Momentum - Charts - Line chart - Bar chart - Candle chart, point and figure chart. Patterns - Head and shoulders, Triangle – Rectangle – Flag - Cup and Saucer - Double topped - Double bottomed – Indicators - Moving averages - Efficient market hypothesis - Concept of efficiency - Random walk - Three forms of EMH and implications for investment decisions. (No numerical in EMH and technical analysis)

INTRODUCTION:

Share valuation Share valuation is defined as the technique for calculating the estimated value of companies and their stock, with a specific end goal to foresee moves in the market and resulting share costs. The benefit to you is to help you to settle on better investment choices.

Stock classification There are two fundamental classifications of stock: normal and preferred. 'Normal stock' is that which is held by your shareholders. This is one of the main places that valuers look. They must calculate the amount of your organisation that is claimed by other entities, and what the estimation of those shares are. If you are an organisation which is hoping to purchase another, you should look at the estimation of its regular stock. Organisations with poor (or worse) share costs ought to be avoided. 'Preferred stocks' are otherwise known as 'value' or 'equity'. This refers to any organisation operation which yields cash. Where an organisation has a great deal of good value, it is likely to be an extremely profitable association and consist of a worthwhile venture. When requesting a valuation on another organisation, the preferred stocks will undergo exacting investigation. Stock valuations At the point when stocks are valued, they are valued both for the measure of cash gain that they make the organisation and the measure of cash gain that they bring the shareholders. If they are income-generating stocks, they are considered 'resources'. If not, they are 'liabilities'. Where the liabilities exceed the advantages, the valuation will not demonstrate positive development, thereby implying a concern for the organisation in question.

Valuation of ordinary shares

The act of deciding the most fitting strategy will rely upon the quantity of shares changing hands, and the aim of the business. When an organisation is unlisted, there is no distributed market price for shares. The value of the normal shares should, therefore, be calculated with other accessible data using formulae, appraisals and discernment. Accordingly, the qualities calculated may be subjective and, practically speaking, are subject to transaction before a final price is agreed.

Method

Dividend yield method Calculates the share price based on the ordinary dividend paid and an adjusted dividend yield. Most appropriate when there is a minority shareholding (less than 40% of the ordinary share capital) changing hands.

Earnings method Calculates the share price based on future maintainable earnings (FME) and an adjusted price earnings (PE) ratio. Most appropriate when more than 50% of the ordinary share capital is changing hands.

Net asset method Calculates the share price value based on the net asset value on the statement of financial position. Most appropriate when the value of the company is derived from the assets, e.g. a property investment company. Also useful as a minimum benchmark.

Discounted cash flow method Calculates the share price based on cash flows discounted at the purchaser's cost of equity. Most appropriate when cash flows are crucial to the success of a business and can be reliably estimated.

1. Dividend yield method

The calculation is: Price of share = Ordinary dividend per share / Adjusted dividend yield Unlisted organisations don't have distributed dividend yields. We, therefore, take the dividend yield of a recorded organisation that is in a similar and then modify it. Keep in mind that a dividend yield is the yield (restore) that shareholders gain as profit. We generally modify the dividend yield for the way that an unlisted standard share is less attractive than a recorded organisation share. We can likewise alter the dividend yield for different factors e.g. hazard, size and conceivable transferability confinements in the Articles of Association. The net impact of the alterations is that the adjusted dividend yield should be higher than the original dividend yield of the listed company.

2. Earnings method

The calculation is: Cost of share = Earnings per share (based on FME) x Adjusted price earnings ratio Unlisted organisations do not have distributed value income (PE) proportions. Similarly to the dividend yield

strategy, we must modify the PE proportion of a recorded organisation in a similar industry. Remember that a PE ratio is the number of times that the share price exceeds the earnings per share (EPS). The income should also be investigated to check whether these are viable.

3. Net asset method

This is the easiest calculation as it is derived from the value of the net assets in the statement of financial position. Net assets = Total assets – Total liabilities = Total equity and reserves Price of share = Net assets / Number of ordinary shares in issue

4. Discounted cash flow method This method requires an estimation of future money streams. The money streams utilised are those after obligatory back-instalments, but before dividends are paid. The money streams are normally assessed for a specific number of years, after which a terminal multiplier is connected to the last evaluated year. This relates to money streams which will be acquired in the future, which cannot be assessed with as much certainty. All these cash flows are then discounted at a cost of equity. The cost of equity used is often that of the purchaser of the shares, calculated using the Capital Asset Pricing Model (CAPM) formula. CAPM = Risk free rate + Beta (Return on the market – risk-free rate) Price of a share = Total discounted cash flows / Number of ordinary shares in issue

Dividend Discount Model (DDM Model) – It is a way of valuing a company based on the theory that a stock is worth the discounted sum of all of its future dividend payments. In other words, it is used to evaluate stocks based on the net present value of the future dividends.

Financial theory states that the value of a stock is the worth all of the future cash flows expected to be generated by the firm discounted by an appropriate risk-adjusted rate. We can use dividends as a measure of the cash flows returned to the shareholder.

Some examples of regular dividend paying companies are McDonalds, Procter & Gamble, Kimberly Clark, PepsiCo, 3M, CocaCola, Johnson & Johnson, AT&T, Walmart etc. We can use Dividend Discount Model to value these companies.

Dividend Discount Model formula = Intrinsic Value = Sum of Present Value of Dividends + Present Value of Stock Sale Price

This Dividend Discount Model or DDM Model price is the **intrinsic value** of the stock.

If the stock pays no dividend, then the expected future cash flow will be the sale price of the stock

TYPES OF DIVIDEND DISCOUNT MODELS

Now that we have understood the very foundation of Dividend Discount Model, let us move forward and learn about three types of Dividend Discount Models.

1. **Zero Growth Dividend Discount Model –** This model assumes that all the dividends that are paid by the stock remain one and same forever until infinite.
2. **Constant Growth Dividend Discount Model –** This dividend discount model assumes that dividends grow at a fixed percentage annually. They are not variable and are constant throughout.

3. **Variable Growth Dividend Discount Model or Non Constant Growth –** This model may divide the growth into two or three phases. The first one will be a fast initial phase, then a slower transition phase an then ultimately ends with a lower rate for the infinite period.

TWO STAGE DIVIDEND DISCOUNT MODEL

The two-stage model can be used to value companies where the first stage has an unstable initial growth rate and there is a stable growth in the second stage which lasts forever. The first stage may have a positive, negative, or a volatile growth rate and will last for a finite period while the second stage is assumed to have a stable growth rate for the rest of the life of the company. In this model, it is assumed that the dividend paid by a company also grows in the exact way i.e. in two such stages. Let us look at the example below for a better understanding of the concept of two-stage dividend discount model.

BREAKING DOWN 'Earnings Per Share - EPS'

Earnings per share is generally considered to be the single most important variable in determining a share's price. It is also a major component used to calculate the price-to-earnings valuation ratio.

For example, assume that a company has a net income of Rupees 25 million. If the company pays out Rupees 1 million in preferred dividends and has 10 million shares for half of the year and 15 million shares for the other half, the EPS would be Rupees 1.92 (24/12.5). First, the Rupees1 million is deducted from the net income to get $24 million, then a weighted average is taken to find the number of shares outstanding (0.5 x 10M+ 0.5 x 15M = 12.5M).

An important aspect of EPS that's often ignored is the capital that is required to generate the earnings (net income) in the calculation. Two companies could generate the same EPS number, but one could do so with less equity (investment) - that company would be more efficient at using its capital to generate income and, all other things being equal, would be a "better" company. Investors also need to be aware of earnings manipulation that will affect the quality of the earnings number. It is important not to rely on any one financial measure, but to use it in conjunction with statement analysis and other measures.

Forecasting Earnings

Many investors rely on earnings performance to make their investment decisions. Stocks are assessed according to their ability to increase earnings as well as to meet or beat analysts' consensus estimates. (For more on this, see *Why would my stock's value decline despite good news being released?*)

The basic measurement of earnings is earnings per share. This metric is calculated as the company's net earnings - or net income found on its income statement - less dividends on preferred stock, divided by the number of outstanding shares. For example, if a company (with no preferred stock) produces a net income of $12 million in the third quarter and has eight million shares outstanding, its EPS would be $1.50 ($12 million /8 million). (To read more, see *Types Of EPS*, *How To Evaluate The Quality Of EPS* and *Getting The Real Earnings*.)

So, why does the investment community focus on earnings, rather than other metrics such as sales or cash flow? Any finance professor will tell you that the only proper way to value a stock is to predict the long-term free cash flows of a company, discount those free cash flows to the present day and then divide by the number of shares. But this is much easier said than done, so investors often shortcut the process by using accounting earnings as a "good enough" substitute for free cash flow. Accounting earnings certainly are a much better proxy for free cash flow than sales. Besides, accounting earnings are fairly well defined and public companies' earnings statements must go through rigorous accounting audits before they are released. As a result, the investment community views earnings as a fairly reliable - not to mention convenient - measure.

Technical Analysis

The methods used to analyze securities and make investment decisions fall into two very broad categories: fundamental analysis and technical analysis. Fundamental analysis involves analyzing the characteristics of a company in order to estimate its value. Technical analysis takes a completely different approach; it doesn't care one bit about the "value" of a company or a commodity. Technicians (sometimes called chartists) are only interested in the price movements in the market.

Despite all the fancy and exotic tools it employs, technical analysis really just studies supply and demand in a market in an attempt to determine what direction, or trend, will continue in the future. In other words, technical analysis attempts to understand the emotions in the market by studying the market itself, as opposed to its components.

If you understand the benefits and limitations of technical analysis, it can give you a new set of tools or skills that will enable you to be a better trader or investor.

In this tutorial, we'll introduce you to the subject of technical analysis. It's a broad topic, so we'll just cover the basics, providing you with the foundation you'll need to understand more advanced concepts down the road.

The Basic Assumptions

Technical analysis is a method of evaluating securities by analyzing the statistics generated by market activity, such as past prices and volume. Technical analysts do not attempt to measure a security's intrinsic value, but instead use charts and other tools to identify patterns that can suggest future activity.

Just as there are many investment styles on the fundamental side, there are also many different types of technical traders. Some rely on chart patterns, others use technical indicators and oscillators, and most use some combination of the two. In any case, technical analysts' exclusive use of historical price and volume data is what separates them from their fundamental counterparts. Unlike fundamental analysts, technical analysts don't care whether a stock is undervalued - the only thing that matters is a security's past trading data and what information this data can provide about where the security might move in the future.

The field of technical analysis is based on three assumptions:

1. The market discounts everything.
2. Price moves in trends.
3. History tends to repeat itself.

1. The Market Discounts Everything

A major criticism of technical analysis is that it only considers price movement, ignoring the fundamental factors of the company. However, technical analysis assumes that, at any given time, a stock's price reflects everything that has or could affect the company - including fundamental factors. Technical analysts believe that the company's fundamentals, along with broader economic factors and market psychology, are all priced into the stock, removing the need to actually consider these factors separately.

This only leaves the analysis of price movement, which technical theory views as a product of the supply and demand for a particular stock in the market.

2. Price Moves in Trends

In technical analysis, price movements are believed to follow trends. This means that after a trend has been established, the future price movement is more likely to be in the same direction as the trend than to be against it. Most technical trading strategies are based on this assumption.

3. History Tends To Repeat Itself

Another important idea in technical analysis is that history tends to repeat itself, mainly in terms of price movement. The repetitive nature of price movements is attributed to market psychology; in other words, market participants tend to provide a consistent reaction to similar market stimuli over time. Technical analysis uses chart patterns to analyze market movements and understand trends. Although many of these charts have been used for more than 100 years, they are still believed to be relevant because they illustrate patterns in price movements that often repeat themselves.

Technical analysis can be used on any security with historical trading data. This includes stocks, **futures** and **commodities**, fixed-income securities, **forex**, etc. In this tutorial, we'll usually analyze stocks in our examples, but keep in mind that these concepts can be applied to any type of security. In fact, technical analysis is more frequently associated with commodities and forex, where the participants are predominantly **traders**.

Now that you understand the philosophy behind technical analysis, we'll get into explaining how it really works. One of the best ways to understand what technical analysis is (and is not) is to compare it to fundamental analysis. We'll do this in the next section.

Types of Trend

There are three types of trend:

- Uptrends
- Downtrends

Sideways/Horizontal Trends As the names imply, when each successive peak and trough is higher, it's referred to as an upward trend. If the peaks and troughs are getting lower, it's a downtrend. When there is little movement up or down in the peaks and troughs, it's a sideways or horizontal trend. If you want to get really technical, you might even say that a sideways trend is actually not a trend on its own, but a lack of a well-defined trend in either direction. In any case, the market can really only trend in these three ways: up, down or nowhere.

The Importance of Trend

It is important to be able to understand and identify trends so that you can trade with rather than against them. Two important sayings in technical analysis are "the trend is your friend" and "don't buck the trend," illustrating how important trend analysis is for technical traders.

The Purpose of Technical Analysis

The purpose of technical analysis is to carry out price forecasts. By processing historical market data of any instrument, you can try to anticipate how it should be traded. There are several premises in favor of the reliability of technical analysis that are based on the experience and prolonged observation. These premises are the following:

1. A market trend in motion is more likely to persist than to reverse.

This is obvious by simply looking at any price chart. Of course the aim of any trader is to be aware of the overall market direction, to lock into the prevailing trend and trade it for profit.

2. Markets are discounting mechanisms.

In other words, technical analysts assume that market fundamentals are already represented in the price so what you perceive in the charts is a reflection on any fundamental variable impacting the market. Nowadays, with instant communications this is truer than ever.

Either the unidirectional price move during a trend or the rapid reaction to any new fundamental data throws evidence that markets show up human behavior. From the above premises we can derive that human psychology is always at work in the markets and that technical analysis aims to visualize and quantify it.

3. What has happened in the past will happen again.

This third premise is based on the assumption that human behavior as well as human psychology never change, and that price will reflect it through the repeated emergence of certain price action patterns and trends.

Price action, as a result of human decision making, can be thus considered as being purposeful. Although some people believe that price movement is completely random and unpredictable, technical analysts are always prone to identify and quantify those behavior patterns by examining past markets. While markets are unpredictable in essence, market participants are typically considered to adhere to certain habits, which are rarely broken. As a trader, your goal is to make use of this information in order to gain a slight advantage over the eventual unpredictability of the market.

Drawbacks of technical analysis

Despite the fact it represents a true edge for the trader, technical analysis presents some disadvantages. Those who oppose technical analysis point out several problems related to the application of its methods.

1. The failure to know the underlying fundamentals.

A common argument is that technical analysis is aimed at predicting a certain outcome for a chartpattern, ignoring the reasons of the movements which are due to fundamental factors. This is an obvious limitation of technical analysis and any trader feeling uncomfortable with this handicap should find support in the next chapter dedicated to fundamental analysis.

2. The lack of scientific objectivity.

Although some theories offer a certain objectivity to the analysis, other studies may not necessarily lead to an objective interpretation. That is why technical analysis is sometimes referred to as being more an art than a science. It is also where individual and mass biases come into play.

In Chapter A4, we wrotte about the self-fulfilling prophecy referring to the fact that the more people approaching markets with technical analytical methods, the more likely the expected move in price occurs. This is a common argument that points out the lack of a proven thesis. The fact that traders operate with

different time horizons, different expectations and risk profiles makes it difficult to find a common approach to the self-fulfilling prophecy.

3. The uniqueness of the pattern occurrences.

Another legitimate argument in favor of the unreliability of technical analysis is based on the true observation that past price action upon which technical methods are based does not often repeat exactly the same way. This can lead to incongruities in the analysis and to inconsistency in the methods.

At this point, however, you should ask yourself whether these arguments can be dealt with in order to make money in the markets. Of course they can, and we are going to show you how!

It's true that traders will never be 100% correct when using any strategy based on technicals. However, more often than not technical studies do create a positive expectancy.

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Market Indicators

Market Indicators are datasets that contain meta data about the health of various markets or groups of related stocks. Examples include “Advancers,” “Decliners,” and the “McClellan Summation Index”. A list of our important market indicators can be found below:

Primary Indicators

Most investors rely on a few favorite stock market indicators, and new ones seem to pop up all the time, but the two most reliable ones for determining the strength of the market are price and volume. Most other stock market indicators are derived from price and volume data. So it stands to reason that if you follow the price and volume action on the major market indices each day, you will always be in sync with the current trend.

Using price and volume to analyze stock market trends, while incorporating historical stock market data, should be all you need to discern the current market's strength and direction. That said, secondary indicators can also help clarify the picture.

Secondary Indicators

1.Advance/Decline Line

Plots the number of advancing shares versus the number of declining shares. At times, a small number of larger weighted stocks may experience significant moves, up or down, that skew the price action on the index.

This line, and its accompanying data, reveals whether a majority of stocks followed the direction of the major indexes on that day.

2.Short Term Overbought — Oversold Oscillator

A 10-day moving average of the number of stocks moving up in price less the number of stocks moving down in price (for a specific exchange). Stocks with prices that did not change from the previous close are not included in this calculation. Some investors may use this indicator to take a contrarian position when the market has moved too in far in one direction over a short period of time.

3.10 Day Moving Average Up & Down Volume

Two 10-day moving average lines are presented to illustrate the volume of all stocks on an exchange (AMEX, NASDAQ, NYSE) that are moving up or down in price. Blue line: A 10-day moving average of the total volume of all stocks on an exchange moving up in price. Pink line: A 10-day moving average of the total volume of all stocks on an exchange moving down in price. When the two lines cross, this may indicate a trend change in favor of whichever line is moving up.

4. 10 Day Moving Average New Highs & New Lows

Two 10-day moving average lines are presented to illustrate stocks reaching new highs and new lows, corresponding to their specific exchange (AMEX, NASDAQ, and NYSE). Blue line: a 10-day moving average of the number of stocks making new price highs. Pink line: a 10-day moving average of the number of stocks reaching new price lows (based on prices at market close). When the two lines cross, this may indicate a trend change in favor of whichever line is moving up.

Trend

Bar chart signals often conflict and it is difficult to separate the trend from the surrounding 'noise'. Trend indicators attempt to provide an objective measure of the direction of the trend. Price data is smoothed and the trend is represented by a single line, as in the case of a moving average. Because of the smoothing process the indicators tend to lag price changes and are often called *trend following indicators.*

Moving Average

Moving averages smooth the price data to form a trend following indicator. They do not predict price direction, but rather define the current direction with a lag. Moving averages lag because they are based on past prices. Despite this lag, moving averages help smooth price action and filter out the noise. They also form the building blocks for many other technical indicators and overlays, such as Bollinger Bands, MACD and the McClellan Oscillator. The two most popular types of moving averages are the **Simple Moving Average (SMA)** and the **Exponential Moving Average (EMA)**. These moving averages can be used to identify the direction of the trend or define potential support and resistance levels.

Here's a chart with both an SMA and an EMA on it:

Fundamental Vs Technical Analysis

Investors use techniques of **fundamental analysis** or **technical analysis** (or often both) to make stock trading decisions. Fundamental analysis attempts to calculate the intrinsic value of a stock using data such as revenue, expenses, growth prospects and the competitive landscape, while technical analysis uses past market activity and stock price trends to predict activity in the future.

Comparison chart

Fundamental Analysis	**Technical Analysis**

	Fundamental Analysis	Technical Analysis
Definition	Calculates stock value using economic factors, known as fundamentals.	Uses price movement of security to predict future price movements
Data gathered from	Financial statements	Charts
Stock bought	When price falls below intrinsic value	When trader believes they can sell it on for a higher price
Time horizon	Long-term approach	Short-term approach
Function	Investing	Trade
Concepts used	Return on Equity (ROE) and Return on Assets (ROA)	Dow Theory, Price Data
Vision	looks backward as well as forward	looks backward

Dow theory

The **Dow theory** on stock price movement is a form of technical analysis that includes some aspects of sector rotation. The theory was derived from 255 Wall Street Journal editorials written by Charles H. Dow (1851–1902), journalist, founder and first editor of *The Wall Street Journal* and co-founder of Dow Jones and Company. Following Dow's death, William Peter Hamilton, Robert Rhea and E. George Schaefer organized and collectively represented Dow theory, based on Dow's editorials. Dow himself never used the term *Dow theory* nor presented it as a trading system.

Six basic tenets of **Dow Theory**

The market has three movements

(*1*) The "main movement", primary movement or major trend may last from less than a year to several years. It can be bullish or bearish. (*2*) The "medium swing", secondary reaction or intermediate reaction may last from ten days to three months and generally retraces from 33% to 66% of the primary price change since the previous medium swing or start of the main movement. (*3*) The "short swing" or minor movement varies with opinion from hours to a month or more. The three movements may be simultaneous, for instance, a daily minor movement in a bearish secondary reaction in a bullish primary movement.

1. Market trends have three phases

Dow theory asserts that major market trends are composed of three phases: an accumulation phase, a public participation (or absorption) phase, and a distribution phase. The accumulation phase (*phase 1*) is a period when investors "in the know" are actively buying (selling) stock against the general opinion of the market. During this phase, the stock price does not change much because these investors are in the minority demanding (absorbing) stock that the market at large is supplying (releasing). Eventually, the market catches on to these astute investors and a rapid price change occurs (*phase 2*). This occurs when trend followers and other technically oriented investors participate. This phase continues until rampant speculation occurs. At this point, the astute investors begin to distribute their holdings to the market (*phase 3*).

2. The stock market discounts all news

   Stock prices quickly incorporate new information as soon as it becomes available. Once news is released, stock prices will change to reflect this new information. On this point, Dow theory agrees with one of the premises of the efficient-market hypothesis.

3. Stock market averages must confirm each other

   In Dow's time, the US was a growing industrial power. The US had population centers but factories were scattered throughout the country. Factories had to ship their goods to market, usually by rail. Dow's first stock averages were an index of industrial (manufacturing) companies and rail companies. To Dow, a bull market in industrials could not occur unless the railway average rallied as well, usually first. According to this logic, if manufacturers' profits are rising, it follows that they are producing more. If they produce more, then they have to ship more goods to consumers. Hence, if an investor is looking for signs of health in manufacturers, he or she should look at the performance of the companies that ship their output to market, the railroads. The two averages should be moving in the same direction. When the performance of the averages diverge, it is a warning that change is in the air.

   Both Barron's Magazine and the Wall Street Journal still publish the daily performance of the Dow Jones Transportation Average in chart form. The index contains major railroads, shipping companies, and air freight carriers in the US.

4. Trends are confirmed by volume

   Dow believed that volume confirmed price trends. When prices move on low volume, there could be many different explanations. An overly aggressive seller could be present for example. But when price movements are accompanied by high volume, Dow believed this represented the "true" market view. If many participants are active in a particular security, and the price moves significantly in one

direction, Dow maintained that this was the direction in which the market anticipated continued movement. To him, it was a signal that a trend is developing.

5. Trends exist until definitive signals prove that they have ended

   Dow believed that trends existed despite "market noise". Markets might temporarily move in the direction opposite to the trend, but they will soon resume the prior move. The trend should be given the benefit of the doubt during these reversals. Determining whether a reversal is the start of a new trend or a temporary movement in the current trend is not easy. Dow Theorists often disagree in this determination. Technical analysis tools attempt to clarify this but they can be interpreted differently by different investors.

Part A (ONE Mark)

Multiple Choice Questions

Online Examination

Part B

(2 Marks)

1. Define share valuation
2. List out the Dividend discount models
3. Explain book value to market value.
4. What do you mean by technical analysis
5. List out any two difference between fundamental and technical analysis.
6. Define Dow Theory.
7. List out the charts used for technical analysis.
8. How to construct the chats
9. Define Line charts.
10. Define candle charts.

Part C (8 Marks)

1. How technical analysis different from fundamental analysis in investment management?
2. Discuss the dividend discount models
3. Technical analysis is based on Dow Jones Theory. Elucidate.
4. What are charts? How are they interpreted in technical analysis?
5. Discuss the Odd – lot Theory and its importance in technical analysis.
6. Explain the three forms of investment decisions.

Part D (11 Marks)

1. Identify the ways to analyze the Line, Bar, point and Figure charts.

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Department of Management
Investment Analysis and Portfolio Management – 16BAU501A

Unit III Multiple Choice Questions Part A – (20*1=20 Marks)

S. No	QUESTION	OPTION 1	OPTION 2	OPTION 3	OPTION 4	OPTION 5	OPTION 6	ANSWER
1	--------- is to study of price behaviour	fundamental analysis	technical analysis	random walk analysis	value analysis			technical analysis
2	Technical analysis reflects the idea that stock prices	move upward over time.	move inversely over time.	move in trends.	move randomly.			move in trends.
3	The stock price may intersect the	moving average price	exponential moving average	stock price average	methods			moving average price
4	When the oscillator reaches the extreme lower end, its is suggested to buy the ----------	scrip's	symmetrical	ascending	descending			scrip's
5	Technical analysts gives importance to total ---------	equity	bonds	shares	return			return
6	The technician believes that there is no _____ value to any stock	face value	standard value	real value	market value			real value
7	The primary trend which is used for analysis is	short term trend	long term trend	very short term trend	medium term trend			long term trend
8	The secondary trend which is used for analysis is ---------	short term trend	long term trend	very short term trend	medium term trend			short term trend
9	Minor trends are also called --------	random wriggles	primary trend	secondary trend	bullish trend			random wriggles
10	---------- chats are drawn to predict the future price of stocks	bar	line	candle	Point and figure			line
11	Bullish market said when large	rise price	fall price	stability	constant			rise price

	volume of trade follows the _____ price							
12	Share sold in small lots are called ----------	odd lots	buyer	seller	broker			odd lots
13	An Decrease in the index shows more --------	selling	buying	sell and buy	investigate			selling
14	---------- charts are prepared in verticla lines and made to show the closing price of each day and the closing price movements.	bar	line	candle	Point and figure			bar
15	In the weak form of market stock prices reflect ----------	the past prices and traded volumes	the demand for the scrip	the country's economic conditions	the past price of the scrip			the past prices and traded volumes
16	A run in the stock price is ----------	an interrupted sequence of either fall or rise in stock prices	an alternative sequence of stock price movement	an interrupted sequence of either fall or rise in stock prices	a residual analysis			an interrupted sequence of either fall or rise in stock prices
17	Moving average method used for ----------	survey	chart	records	others			chart
18	Moving average are known as ----------	running average	record cal average	mode average	samples			running average
19	The prices of securities are determined by the ----------	government policy	company movements	demand and supply	price of stock			demand and supply
20	Which factors affect the supply and demand of a security?	rational	irrational	rational and irrational	profits			rational and irrational
21	Shifts in demand and supply can be detected with	chart	Email	Letters	records			chart

	the help of ----------							
22	The technical analysis attempts to forecast changes in the prices of securities by studying the ----------	company data	industry data	economic data	market data			market data
23	The word moving means that the body of the data moves ahead to include the recent ----------	assumptions	observation	survey	graphic records			observation
24	The technical analysis only helps us improve the knowledge of the probabilities of ----------	price behaviour	future price behaviour	past price behaviour	current price behaviour			price behaviour
25	The technical analyst uses the price chart as a basic tool to study the ----------	share price movement	market price movement	company price movements	industry price movements			share price movement
26	The _____theory is one of the oldest technical methods of security valuation	Dow theory	Markowitz theory	Japanese candle stick charts	Random walk theory			Dow theory
27	When the market is moving upwards continuously, of short duration is referred as	bull run	Bear phase	correction	movements			Bull run
28	The Dow theory makes certain assumptions. The second hypothesis is	correction are manipulated	secondary reactions are manipulated	the average discount everything	primary trend can be manipulated			correction are manipulated
29	When there is a bull in the trading market followed	low purchase	high purchase	medium purchase	average purchase			high purchase

	by ----------							
30	The market indices do not rise or fall in ----------	straight-line	upward	downward	upward and downward			straight-line
31	When the short-term average moves below the long-term average, it is indicative of ----------	fall price	decrease price	very low price	very high price			fall price
32	Rate of change measures the rate of change between	current price and price	future price and the price	past price behaviour	forecast price and price			current price and price
33	Oscillators indicate the ----------	price momentum	positive momentum	negative momentum	market momentum			market momentum
34	Short -selling is a technical indication which is also known as ----------	medium interest	short interest	high interest	short and high interest			short interest
35	Odd-lot trading helps to ----------	small investor	medium investor	big investors	financial investor			small investor
36	In short-selling when the ratio is less than 1, the market is considered	good	satisfy	highly satisfy	weak			weak
37	Investors sells their shares when market value is ----------	high price	low price	medium price	average price			high price
38	Investors buys their shares when market value is ----------	high price	average price	medium price	low price			low price
39	Technical analysis works on the basis of ----------	assumption	accurate value	outline value	future value			assumption
40	Technical analysis believes ----------	stock price	price trend	past trend	market price			past trend

41	Technical analysis _____are used to compare various price movement	charts and tools	communication	industry analysis	company analysis			charts and tools
42	Market data includes all of the following except ----------	number of shares traded.	earnings.	level of market indices.	stock price.			earnings.
43	The two primary tools of a technical analyst are ----------	level of the market index and volume.	economic indicators and level of the market index.	price and volume.	price and technical indicators.			price and volume.
44	When market shows an increasing trend it is known as----------	bull and bear	bear market	lam duck	bull market			bull market
45	APT stands	arbitrage pricing theory	asset product term	asset price terms	assumption pricing theory			arbitrage pricing theory
46	DOW theory formulated hypothesis that the stock market does not perform on a	assumption basis	consist basis	random basis	parallel basis			random basis
47	The secondary trend also known as ---------- in technical analysis	evaluation trend	correction trend	biased trend	relates trend			correction trend
48	The technical analysis only helps us improve the knowledge of the probabilities of	price behaviour	future price behaviour	past price behaviour	current price behaviour			price behaviour
49	The technical analyst uses the price chart as a basic tool to study the ----------	share price movement	market price movement	company price movements	industry price movements			share price movement
50	The _____theory is one of the oldest	Dow theory	Markowitz theory	Japanese Candle stick Charts	Random walk theory			Dow theory

	technical methods of security valuation							
51	When the market is moving upwards continuously, of short duration. His is referred as	Bull run	Bear phase	correction	movements			Bull run
52	The Dow theory makes certain assumptions. The second hypothesis is ----------	correction are manipulated	secondary reactions are manipulated	the average discount everything	primary trend can be manipulated			correction are manipulated
53	Charts helps technical analysis ----------	difficult	complicated	different	effectively			effectively
54	When there is a bull in the trading market followed by ----------	low purchase	high purchase	medium purchase	average purchase			high purchase
55	The market indices do not rise or fall in ----------	straight-line	upward	downward	upward and downward			straight-line
56	When the short-term average moves below the long-term average, it is indicative of ----------	fall price	decrease price	very low price	very high price			fall price
57	Rate of change measures the rate of change between ----------	current price and price	future price and the price	past price behavior	forecast price and price			current price and price
58	Oscillators indicate the ----------	price momentum	positive momentum	negative momentum	market momentum			market momentum
59	Short -selling is a technical indication which is also known as	medium interest	short interest	high interest	short and high interest			short interest
60	Odd-lot trading helps to ----------	small investor	medium investor	big investors	financial investor			small investor

UNIT-IV- PORTFOLIO ANALYSIS

SYLLABUS

Portfolio Analysis - Portfolio risk and return - Markowitz portfolio model - Risk and return for 2 and 3 asset portfolios - Concept of efficient frontier and optimum portfolio - Market Model - Concept of beta systematic and unsystematic risk - Investor risk and return preferences - Indifference curves and the efficient frontier - Traditional portfolio management for individuals - Objectives - Constraints - Time horizon - Current wealth - Tax considerations - Liquidity requirements and anticipated inflation - Asset allocation - Asset allocation pyramid - Investor life cycle approach - Portfolio management services - Passive - Index funds - Systematic investment plans - Active - Market timing - Style investing.

UNIT IV

Meaning

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

Diversification of investment helps to spread risk over many assets. A diversification of securities gives the assurance of obtaining the anticipated return on the portfolio. In a diversified portfolio, some securities may not perform as expected, but others may exceed the expectation and making the actual return of the portfolio reasonably close to the anticipated one. Keeping a portfolio of single security may lead to a greater likelihood of the actual return somewhat different from that of the expected return. Hence, it is a common practice to diversify securities in the portfolio.

Benefits of portfolios

Expected return from individual securities carrying some degree of risk. Risk was defined as the standard deviation around the expected return. In effect we equated a security's risk with the variability of its return. More dispersion or variability about a security's expected return meant the security was riskier than one with less dispersion. The simple fact that securities carrying differing

degrees of expected risk lead most investors to the notion of holding more than one security at a time is an attempt to spread risks by not putting all their eggs into one basket. Diversification of one's holdings is intended to reduce risk in an economy in which every asset's returns are subject to some degree of uncertainty. Even the value of cash suffers from the inroads of inflation. Most investors hope that if they hold several assets, even if one goes bad, the others will provide some protection from an extreme loss.

Approaches in portfolio construction

Commonly, there are two approaches in the construction of the portfolio of securities viz.

- Traditional approach and
- Markowitz efficient frontier approach.

In the traditional approach, investor's needs in terms of income and capital appreciation are evaluated and appropriate securities are selected to meet the needs of the investor. The common practice in the traditional approach is to evaluate the entire financial plan of the individual. In the modern approach, portfolios are constructed to maximise the expected return for a given level of risk. It views portfolio construction in terms of the expected return and the risk associated with obtaining the expected return.

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.

Analysis of constraints

The constraints normally discussed are: income needs, liquidity, time horizon, safety, tax considerations and the temperament. Income needs- The income needs depend on the need for income in constant rupees and current rupees. The need for income in current rupees arises from the investor's need to meet all or part of the living expenses. At the same time inflation may erode the purchasing power, the investor may like to offset the effect of the inflation and so, needs income in constant rupees.

- **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.
- **Need for constant income:** Inflation reduces the purchasing power of the money. Hence, the investor estimates the impact of inflation on his estimated stream of income and tries to build a portfolio which could offset the effect of inflation. Funds should be invested in such securities where income from them might increase at a rate that would offset the effect of inflation. The inflation or purchasing power risk must be recognised but this does not pose a serious constraint on portfolio if growth stocks are selected.
- **Liquidity:** Liquidity need of the investment is highly individualistic of the investor. If the investor prefers to have high liquidity, then funds should be invested in high quality short term debt maturity issues such as money market funds, commercial papers and shares that are widely traded. Keeping the funds in shares that are poorly traded or stocks in closely held business and real estate lack liquidity. The investor should plan his cash drain and the need for net cash inflows during the investment period.
- **Safety of the principal:** Another serious constraint to be considered by the investor is the safety of the principal value at the time of liquidation, investing in bonds and debentures is safer than investing in the stocks. Even among the stocks, the money should be invested in regularly traded companies of longstanding. Investing money in the unregistered finance companies may not provide adequate safety.

- **Time horizon:** Time horizon is the investment-planning period of the individuals. This varies from individual to individual. Individual's risk and return preferences are often described in terms of his 'life cycle'. The states of the life cycle determine the nature of investment. The first stage is the early career situation. At the career starting point assets are lesser than their liabilities. More goods are purchased on credit. His house might have been built with the help of housing loan scheme. His major asset may be the house he owns. His priority towards investments may be in the form of savings for liquidity purposes. He takes life insurance for protecting him from unforeseen events like death and accidents and then he thinks of the investments. The investor is young at this stage and has long horizon of life expectancy with possibilities of growth in income, he can invest in high-risk and growth oriented investments.

The other stage of the time horizon is the mid-career individual. At this stage, his assets are larger than his liabilities. Potential pension benefits are available to him. By this time he establishes his investment program. The time horizon before him is not as long as the earlier stage and he wants to protect his capital investment. He may wish to reduce the overall risk exposure of the portfolio but, he may continue to invest in high risk and high return securities.

The final stage is the late career or the retirement stage. Here, the time horizon of the investment is very much limited. He needs stable income and once he retires, the size of income he needs from investment also increases. In this stage, most of his loans are repaid by him and his assets far exceed the liabilities. His pension and life insurance programmes are completed by him. He shifts his investment to low return and low risk category investments, because safety of the principal is given priority. Mostly he likes to have lower risk with high interest or dividend paying component to be included in his portfolio. Thus, the time horizon puts restrictions on the investment decisions.

Tax consideration: Investors in the income tax paying group consider the tax concessions they could get from their investments. For all practical purpose, they would like to reduce the taxes. For income tax purpose, interests and dividends are taxed under the head "income from other sources". The capital appreciation is taxed under the head"capital gains" only when the investor sells the securities and realizes the gain. The tax is then at a concessioanl rate depending on the period for which the asset has been held before being sold. From the tax point of view, the form in which the

income is received i.e. interest, dividend, short term capital gains and long term capital gains are important. If the investor cannot avoid taxes, he can delay the taxes. Investing in government bonds and NSC can avoid taxation. This constraint makes the investor to include the items which will reduce the tax.

Temperament: The temperament of the investor himself poses a constraint on framing his investment objectives. Some investors are risk lovers or takers who would like to take up higher risk even for low return. While some investors are risk averse, who may not be willing to undertake higher level of risk even for higher level of return. The risk neutral investors match the return and the risk.

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.

Selection of portfolio

The selection of portfolio depends on the various objectives of the investor. The selection of portfolio under different objectives are dealt subsequently.

Objectives and asset mix

If the main objective is getting adequate amount of current income, sixty per cent of the investment is made on debts and 40 per cent on equities. The proportions of investments on debt and equity differ according to the individual's preferences.

Money is invested in short term debt and fixed income securities. Here the growth of income becomes the secondary objective and stability of principal amount may become the third. Even within the debt portfolio, the funds invested in short term bonds depends on the need for stability of principal amount in comparison with the stability of income. If the appreciation of capital is given third priority, instead of short term debt the investor opts for long term debt. The period may not be a constraint. Growth of income and asset mix- Here the investor requires a certain percentage of growth in the income received from his investment. The investor's portfolio may consist of 60 to 100 per cent equities and 0 to 40 per cent debt instrument. The debt portion of the portfolio may consist of concession regarding tax exemption. Appreciation of principal amount is given third priority.

Software, hardware and non-conventional energy producing company shares provide good possibility of growth in dividend. Capital appreciation and asset mix- Capital appreciation means that the value of the original investment increases over the years. Investment in real estates like land and house may provide a faster rate of capital appreciation but they lack liquidity. In the capital market, the values of the shares are much higher than their original issue prices.

Safety of principal and asset mix

Usually, the risk averse investors are very particular about the stability of principal. According to the life cycle theory, people in the third stage of life also give more importance to the safety of the principal. All the investors have this objective in their mind. No one like to lose his money invested in different assets. But, the degree may differ. The investor's portfolio may consist more of debt instruments and within the debt portfolio more would be on short term debts.

Risk and return analysis: The traditional approach to portfolio building has some basic assumptions. First, the individual prefers larger to smaller returns from securities. To achieve this goal, the investor has to take more risk. The ability to achieve higher returns is dependent upon his ability to judge risk and his ability to take specific risks. The risks are namely interest rate risk, purchasing power risk, financial risk and market risk. The investor analyses the varying degrees of risk and constructs his portfolio. At first, he establishes the minimum income that he must have to avoid hardships under most adverse economic condition and then he decides risk of loss of income that can be tolerated. The investor makes a series of compromises on risk and non-risk factors like

taxation and marketability after he has assessed the major risk categories, which he is trying to minimise. The methods of calculating risk and return of a portfolio is classified in following pages of this chapter.

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.

As investor, we have to select the industries appropriate to our investment objectives. Each industry corresponds to specific goals of the investors. The sales of some industries like two wheelers and steel tend to move in tandem with the business cycle, the housing industry sales move counter cyclically. If regular income is the criterion then industries, which resist the trade cycle should be selected. Likewise, the investor has to select one or two companies from each industry.

The selection of the company depends upon its growth, yield, expected earnings, past earnings, expected price earning ratio, dividend and the amount spent on research and development. Selecting the best company is widely followed by all the investors but this depends upon the investors' knowledge and perceptions regarding the company. The final step in this process is to determine the number of shares of each stock to be purchased. This involves determining the number of different stocks that is required to give adequate diversification. Depending upon the size of the portfolio, equal amount is allocated to each stock. The investor has to purchase round lots to avoid transaction costs.

Modern Approach

We have seen that the traditional approach is a comprehensive financial plan for the individual. It takes into account the individual needs such as housing, life insurance and pension plans. But these types of financial planning approaches are not done in the Markowitz approach. Markowitz gives more attention to the process of selecting the portfolio. His planning can be applied

more in the selection of common stocks portfolio than the bond portfolio. The stocks are not selected on the basis of need for income or appreciation. But the selection is based on the risk and return analysis. Return includes the market return and dividend. The investor needs return and it may be either in the form of market return or dividend. They are assumed to be indifferent towards the form of return. Among the list of stocks quoted at the Bombay Stock Exchange or at any other regional stock exchange, the investor selects roughly some group of shares say of 10 or 15 stocks.

For these stocks' expected return and risk would be calculated. The investor is assumed to have the objective of maximizing the expected return and minimizing the risk. Further, it is assumed that investors would take up risk in a situation when adequately rewarded for it. This implies that individuals would prefer the portfolio of highest expected return for a given level of risk.

In the modern approach, the final step is asset allocation process that is to choose the portfolio that meets the requirement of the investor. The risk taker i.e. who are willing to accept a higher probability of risk for getting the expected return would choose high risk portfolio. Investor with lower tolerance for risk would choose low level risk portfolio. The risk neutral investor would choose the medium level risk portfolio.

Portfolio risk/return

As mentioned earlier, an investment decision involves selection of a combination or group of securities for investment. This group of securities is referred to as a portfolio. The portfolio can be a combination of securities irrespective of their nature, maturity, profitability, or risk characteristics. Investors, rather than looking at individual securities, focus more on the performance of all securities together. While portfolio returns are the weighted returns of all securities constituting the portfolio, the portfolio risk is not the simple weighted average risk of all securities in the portfolio. Portfolio risk considers the standard deviation together with the covariance between securities. Co-variance measures the movement of assets together.

The portfolio risk and return using historical data is computed using Portfolio risk is thus the summation of the individual security variance and the co-movement with other securities in the portfolio. The above formula can be split into a spreadsheet showing all the co-movement measures of the securities. The total variance is the summation of all cells in the following table.

The diagonal summation represents the first part. This is the variance of each security individually. The weights of the securities in the portfolio are represented by the variables

The second part of the variance computation equation is the summation of all other cells except the diagonal cells. These are the co-variance of one security with another security in the portfolio. The total covariance is computed by considering the weight of each security in the portfolio. When the weight of each security is different Co-variance can also be measured in terms of the correlation coefficient. The correlation coefficient is a measure of the relationship between two assets.

The correlation coefficient ranges between the value +1 and –1. A correlation coefficient of +1 indicates that two securities returns move perfectly in tandem with each other. A negative correlation coefficient of -1 implies that when one securities' returns increase, the other securities' return reduces by the same quantum.

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 maximizes than return maximizes 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. 16.6. Sharpe's Single Index Portfolio Selection Method Sharpe W.E. (1964) justified that portfolio risk is to be identified with respect to their return co-movement with the market and not necessarily with respect to within the security co-movement in a portfolio. He therefore concluded that the desirability of a security for its inclusion is directly related to its excess return to beta ratio.

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.

Concept

The fundamental concept behind MPT is that the assets in an investment portfolio should not be selected individually, each on its own merits. Rather, it is important to consider how each asset changes in price relative to how every other asset in the portfolio changes in price.

Investing is a tradeoff between risk and expected return. In general, assets with higher expected returns are riskier. For a given amount of risk, MPT describes how to select a portfolio with the highest possible expected return. Or, for a given expected return, MPT explains how to select a portfolio with the lowest possible.

Therefore, MPT is a form of diversification. Under certain assumptions and for specific quantitative definitions of risk and return, MPT explains how to find the best possible diversification strategy.

Assumptions

The framework of MPT makes many assumptions about investors and markets. Some are explicit in the equations, such as the use of Normal distributions to model returns. Others are implicit, such as the neglect of taxes and transaction fees. None of these assumptions are entirely true, and each of them compromises MPT to some degree.

Investors are interested in the optimization problem described above (maximizing the mean for a given variance). In reality, investors have utility functions that may be sensitive to higher moments of the distribution of the returns. For the investors to use the mean-variance optimization, one must suppose that the combination of utility and returns make the optimization of utility problem similar to the mean-variance optimization problem. A quadratic utility without any

assumption about returns is sufficient. Another assumption is to use exponential utility and normal distribution, as discussed below.

Asset returns are (jointly) normally distributed random variables. In fact, it is frequently observed that returns in equity and other markets are not normally distributed. Large swings occur in the market far more frequently than the normal distribution assumption would predict. While the model can also be justified by assuming any return distribution that is jointly elliptical, all the joint elliptical distributions are symmetrical whereas asset returns empirically are not.

Bouchaud and Chicheportiche (2012) empirically reject the elliptical hypothesis, writing "intuitively, the failure of elliptical models can be traced to the inadequacy of the assumption of a single volatility mode for all stocks. "

Correlations between assets are fixed and constant forever. Correlations depend on systemic relationships between the underlying assets, and change when these relationships change. Examples include one country declaring war on another, or a general market crash. During times of financial crisis all assets tend to become positively correlated, because they all move (down) together. In other words, MPT breaks down precisely when investors are most in need of protection from risk.

All investors aim to maximize economic utility. This is a key assumption of the efficient market hypothesis, upon which MPT relies.

All investors are rational and risk-averse. This is another assumption of the efficient market hypothesis. In reality, as proven by behavioral economics, market participants are not always rational or consistently rational. The assumption does not account for emotional decisions, stale market information, "herd behavior", or investors who may seek risk for the sake of risk. Casino gamblers clearly pay for risk, and it is possible that some stock traders will pay for risk as well.

All investors have access to the same information at the same time. In fact, real markets contain information asymmetry, insider trading, and those who are simply better informed than others. Moreover, estimating the mean and the covariance matrix of the returns are difficult statistical tasks.

Investors have an accurate conception of possible returns, i.e., the probability beliefs of investors match the true distribution of returns. A different possibility is that investors' expectations are biased, causing market prices to be informational inefficient. This possibility is studied in the

field of behavioral finance, which uses psychological assumptions to provide alternatives to the CAPM such as the overconfidence-based asset pricing model of Kent Daniel, David Hirshleifer, and Avanidhar Subrahmanyam (2001).

There are no taxes or transaction costs. Real financial products are subject both to taxes and transaction costs (such as broker fees), and taking these into account will alter the composition of the optimum portfolio. These assumptions can be relaxed with more complicated versions of the model.

All investors are price takers, i.e., their actions do not influence prices. In reality, sufficiently large sales or purchases of individual assets can shift market prices for that asset and others (via cross elasticity of demand.) An investor may not even be able to assemble the theoretically optimal portfolio if the market moves too much while they are buying the required securities.

Any investor can lend and borrow an unlimited amount at the risk free rate of interest. In reality, every investor has a credit limit.

All securities can be divided into parcels of any size. In reality, fractional shares usually cannot be bought or sold, and some assets have minimum orders sizes.

Risk/Volatility of an asset is known in advance/is constant. In fact, markets often misprice risk (e.g. the US mortgage bubble or the European debt crisis) and volatility changes rapidly.

More complex versions of MPT can take into account a more sophisticated model of the world (such as one with non-normal distributions and taxes) but all mathematical models of finance still rely on many unrealistic premises.

Assumptions to Markowitz Portfolio Theory

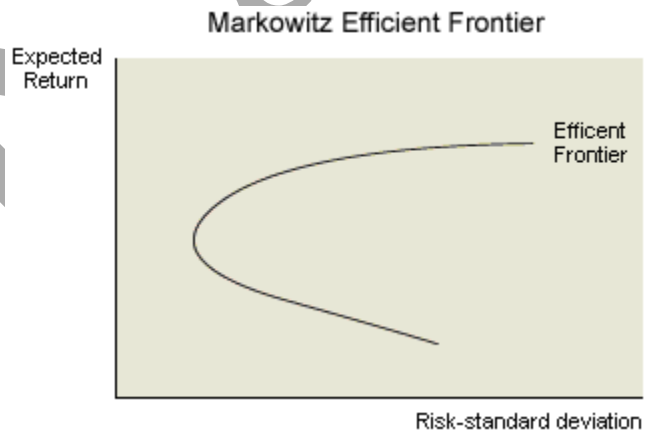
- Investors consider each investment alternative as being represented by a probability distribution of expected returns over some holding period.
- Investors maximize one-period expected utility and their utility curves demonstrate diminishing marginal utility of wealth.
- Investors estimate risk on basis of variability of expected returns.
- Investors base decisions solely on expected return and risk.
- Investors prefer higher returns to lower risk and lower risk for the same level of return.
- Markowitz Portfolio Theory

- Harry Markowitz developed the portfolio model. This model includes not only expected return, but also includes the level of risk for a particular return. Markowitz assumed the following about an individual's investment behavior:
- Given the same level of expected return, an investor will choose the investment with the lowest amount of risk.
- Investors measure risk in terms of an investment's variance or standard deviation.
- For each investment, the investor can quantify the investment's expected return and the probability of those returns over a specified time horizon.
- Investors seek to maximize their utility.
- Investors make decision based on an investment's risk and return, therefore, an investor's utility curve is based on risk and return.

The Efficient Frontier

Markowitz' work on an individual's investment behavior is important not only when looking at individual investment, but also in the context of a portfolio. The risk of a portfolio takes into account each investment's risk and return as well as the investment's correlation with the other investments in the portfolio.

A portfolio is considered efficient if it gives the investor a higher expected return with the same or lower level of risk as compared to another investment. The frontiers simply a plot of those efficient portfolios, as illustrated below.



While an efficient frontier illustrates each of the efficient portfolios relative to risk and return levels, each of the efficient portfolios may not be appropriate for every investor. Recall that when creating an investment policy, return and risk were the key objectives. An investor's risk profile is illustrated with indifference curves. The optimal portfolio, then, is the point on the efficient frontier that is tangential to the investor's highest indifference curve. See our article: A Guide to Portfolio Construction, for some essential steps when taking a systematic approach to constructing a portfolio.

Sharpe index model

Casual observation of stock prices over a period of time reveals that most of stock prices move with the market index. When the Sensex increases the price increases and vice versa. Stock prices are related to the market index and this relationship could be used to estimate return on stock. Towards this purpose following equation can be used.

$$Ri = \alpha i + \beta i Rm + ej$$

Where,

Ri= expected return of security I

αi= alpha coefficient

βi= beta coefficient

Rm = the rate of return of market index

ej = error term

According to the equation, the return of stock can be divided into two components, the return due to the market and the return independent of the market. βi indicates the sensitivity of stock return to the changes In market return. For example βi of 1.5 means the stock return is expected to increase by 1.5% if market increases by 1% and vice versa. The estimate of βi and αi can be obtained using regression analysis.

The single index model is based on the assumption that stocks vary together because of common movement in the stock market and there are no effects beyond the market (i.e. any fundamental factor effects) that accounts the stock co-movement. The expected return, standard deviation, and co-variance of single index model represent the joint movement of securities. The mean return is$Ri = \alpha i + \beta i Rm + ej$

The variance of security's return is $\sigma^2=\beta i^2\sigma^2 m + \sigma ei^2$. The covariance of returns between securities i and j is$\sigma ij = \beta i\beta j\sigma^2 m$

The variance of security has two components namely, systematic risk or market risk and unsystematic risk or unique risk. The variance explained by index is called systematic risk and the unexplained variance is called unsystematic risk. Systematic risk= βi^2 x variance of market index = $\beta i^2\sigma^2 m$Unsystematic risk= total variance – systematic risk $ei^2 = \sigma^2 i$ – systematic risk Thus total risk= $\beta i^2\ \sigma^2 + ei^2$

From this the portfolio variance can be derived $\sigma^2 p = [(\Sigma xi\beta i)^2\sigma^2 m] + [\ \Sigma xi^2\ ei^2]\sigma^2 p$ = variance of portfolio$\sigma^2 m$ = expected variance of indexei^2= variation in security return not related to the market index xi = the portion of stock i in the portfolio

Assumptions Made

The Sharpe's Single Index Model is based on the following assumptions:

All investors have homogeneous expectations.

1. A uniform holding period is used in estimating risk and return for each security.

2. The price movements of a security in relation to another do not depend primarily upon the nature of those two securities alone. They could reflect a greater influence that might have cropped up as a result of general business and economic conditions.

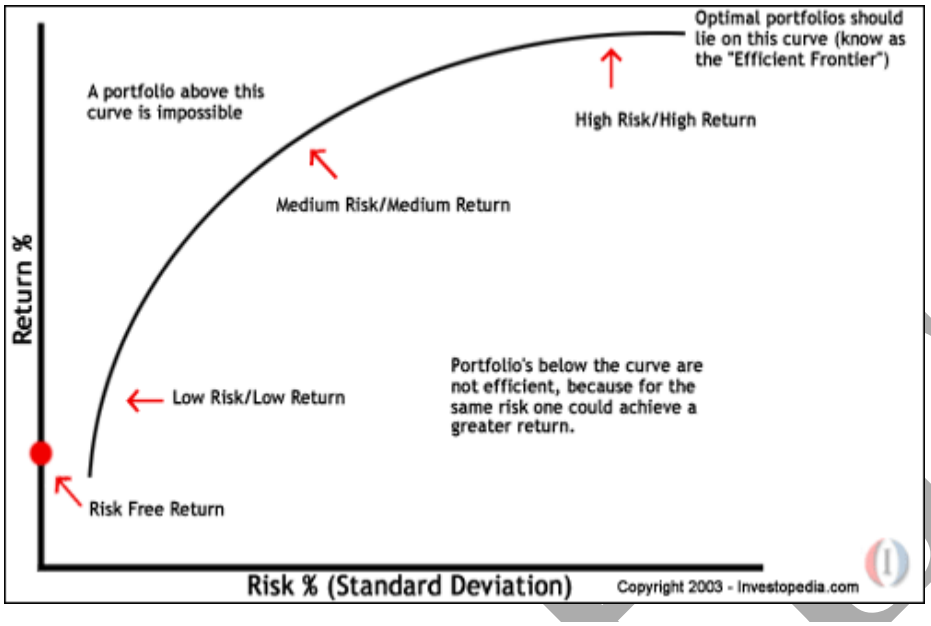
3. The relation between securities occurs only through their individual influences along with some indices of business and economic activities. The indices, to which the returns of each security are correlated, are likely to be some securities' market proxy.

4) It has an expected value zero (0) and a finite variance. It is not correlated with the return on market portfolio (Rm) as well as with the error term (ei) for any other securities.

The optimal portfolio concept falls under the modern portfolio theory. The theory assumes (among other things) that investors fanatically try to minimize risk while striving for the highest return possible. The theory states that investors will act rationally, always making decisions aimed at maximizing their return for their acceptable level of risk. The chart below illustrates how the optimal portfolio works.

The optimal-risk portfolio is usually determined to be somewhere in the middle of the curve because as you go higher up the curve, you take on proportionately more risk for a lower incremental

return. On the other end, low risk/low return portfolios are pointless because you can achieve a similar return by investing in risk-free assets, like government securities.



Choose how much volatility you are willing to bear in your portfolio by picking any other point that falls on the efficient frontier. This will give you the maximum return for the amount of risk you wish to accept. Optimizing your portfolio is not something you can calculate in your head. There are computer programs that are dedicated to determining optimal portfolios by estimating hundreds (and sometimes thousands) of different expected returns for each given amount of risk.

Creating an Optimized Portfolio

Prior to the era of Markowitz, investors knew that there is a relationship between risk and return but they don't know how to quantify it. To reduce risk they just diversify their portfolio by including many securities into their portfolio. However in Markowitz's model both risk and the expected return are quantifiable.

Risk can be measured by using the standard deviation which in turn is the square root of the variance. The larger the standard deviation then the larger will be the risk.

Return in Markowitz's model can be defined by the following equation.

$R = (P1 – P0 + D) / P0$

Where,

R = Return on the security

P1 = Current Price

P0 = Previous Price (months before Current Price)

D = Dividend

Or put it in simpler terms,

Return = (capital gain or losses) + dividend

Divided by Previous Price

It is very difficult to predict the future price of a security due to its random variable in nature. Ceteris paribus when a firm increases its Dividend then its Share Price will be increased due to higher demand. However the performance of a company is affected by the following risks during a company's operation.

1. **Internal Risk:** This part of the risk is diversifiable which include business risk such as labour strike, poor response to new products, power outage, losing talented staff and etc. Another is the interest rate risk which is due to its high debt load and it will affect the bottom line of a firm. If a firm cannot manage its internal risk well then its operating income will be unstable and hence will affects its share price.

2. **External Risk:** This is also refers as Market Risk which is out of control by the firm. A good example is the increase in the interest rate by the banks which cannot be diversifiable by the firm. An increase in the interest means increase costs and hence will affect its bottom line. Another Market risk is the Global Systemic Financial Crisis. During a financial crisis like what is happening in the Western economies now will surely affects the demand of manufactured goods and raw materials from the rest of the world. Hence the performance of manufacturers from exporting countries will surely be affected and hence their bottom lines and also share prices.

Security Selection for Portfolio

Since now we are now able to quantify both risk and return then we can proceed to select securities based on Markowitz's assumption to build our Portfolio. Based on Markowitz's model a rational investor will do the following.

1. If two securities have the same expected return then the investor will choose the one with the lower standard deviation (risk)

1. If two securities have the same standard deviation (risk) then the investor will choose the one with the higher return.

In the following we shall build a model to illustrate the above point

Table 1 – Same Risk but different Expected Return

Security	Expected Return	Standard Deviation
1	0.11	0.12
2	0.12	0.12
3	0.13	0.12
4	0.14	0.12
5	0.15	0.12

As can be seen from the above the standard deviations for the 5 securities are the same but expected returns are different. Needless to say as a rational investor he will choose security 5 because with the same risk it offers the highest expected return (0.15)

Table 2 – Same Expected Return but different Risk

Security	Expected Return	Standard Deviation
1	0.12	0.11
2	0.12	0.12
3	0.12	0.13
4	0.12	0.14
5	0.12	0.15

As can be seen from the above the Expected Returns for the 5 securities are the same but the level of Risk is different. Needless to say as a rational investor he will choose security 1 because with the same Expected Return it offers the lowest Risk (0.1)

Table 3 – Different Expected Return and Risk

Security	Expected Return	Standard Deviation
1	0.13	0.11
2	0.14	0.12
3	0.15	0.13
4	0.15	0.14
5	0.17	0.15

From the above the Expected Returns for the 5 securities are different from the level of Risk. In this case the higher the risk the higher will be the Expected Return. Which security the investor will choose? It will depend on the risk appetite of the investor. If his risk appetite is high then probably he will prefer security 5 because it offers the highest expected return. If he is risk adverse then he will prefer security 1.

Portfolio Construction is all about investing in a range of funds that work together to create an investment solution for investors. Building a portfolio involves understanding the way various types of investments work, and combining them to address your personal investment objectives and factors such as attitude to risk the investment and the expected life of the investment.

- When building an investment portfolio there are two very important considerations.
- The first is asset allocation, which is concerned with how an investment is spread across different asset types and regions.
- The second is fund selection, which is concerned with the choice of fund managers and funds to represent each of the chosen asset classes and sectors.
- Both of these considerations are important, although academic studies have consistently shown that in the medium to long term, asset allocation usually has a much larger impact on the variability of a portfolio's return.

To help in choosing a suitable asset allocation we have created a Risk Profiler that helps identify your attitude to risk and therefore better identify a combination of investments to build a portfolio.

With such a vast number of investment funds to choose from, spanning the full range of asset classes and world markets it is easy to become confused when choosing which investments to make.

It is even more difficult to choose the right combination of investment to potentially meet your investment goals.

Create your risk profile – Measure your perceived level of risk for an investment

Asset Allocation – Determining the right combination of assets – the most important part of the portfolio construction process.

Fine tune your portfolio – Choose to invest in and/or review your existing portfolio to fit in with the asset allocation most suitable to you, potentially reducing your risk and increasing your returns.

Review your portfolio regularly – Once you have constructed your portfolio, it is important to continue to review your asset allocation on a regular basis. Investors failing to do this, may find they become overweight in a particular asset class, potentially increasing the overall risk of their portfolio.

Many investors have built collections of funds over their investing lifetime. As markets have developed and investing styles come in and out of fashion, it is likely that the total portfolio may be too heavily invested in a particular asset class, region, sector or even a particular share which is present in every fund but to varying degrees. In other words, your combined portfolio may no longer meet your needs or aspirations.

Step 1: Determining the Appropriate Asset Allocation

Ascertaining your individual financial situation and investment goals is the first task in constructing a portfolio. Important items to consider are age, how much time you have to grow your investments, as well as amount of capital to invest and future capital needs. A single college graduate just beginning his or her career and a 55-year-old married person expecting to help pay for a child's college education and plans to retire soon will have very different investment strategies.

A second factor to take into account is your personality and risk tolerance. Are you the kind of person who is willing to risk some money for the possibility of greater returns? Everyone would like to reap high returns year after year, but if you are unable to sleep at night when your investments take a short-term drop, chances are the high returns from those kinds of assets are not worth the stress.

As you can see, clarifying your current situation and your future needs for capital, as well as your risk tolerance, will determine how your investments should be allocated among different asset classes. The possibility of greater returns comes at the expense of greater risk of losses.Investors don't want to eliminate risk so much as optimize it for your unique condition and style. For example, the young person who won't have to depend on his or her investments for income can afford to take greater risks in the quest for high returns. On the other hand, the person nearing retirement needs to focus on protecting his or her assets and drawing income from these assets in a tax-efficient manner.

Conservative Vs Aggressive Investors

Generally, the more risk you can bear, the more aggressive your portfolio will be, devoting a larger portion to equities and less to bonds and other fixed-income securities. Conversely, the less risk that's appropriate, the more conservative your portfolio will be. Here are two examples: one suitable for a conservative investor and another for the moderately aggressive investor.

Conservative portfolio

The main goal of a conservative portfolio is to protect its value. The allocation shown above would yield current income from the bonds, and would also provide some long-term capital growth potential from the investment in high-quality equities.

Moderately aggressive portfolio

A moderately aggressive portfolio satisfies an average risk tolerance, attracting those willing to accept more risk in their portfolios in order to achieve a balance of capital growth and income.

Step 2: Achieving the Portfolio Designed in Step 1

Once determined the right asset allocation, you simply need to divide your capital between the appropriate asset classes. On a basic level, this is not difficult: equities are equities, and bonds are bonds.

But you can further break down the different asset classes into subclasses, which also have different risks and potential returns. For example, an investor might divide the equity portion between different sectors and market caps, and between domestic and foreign stock. The bond portion might be allocated between those that are short term and long term, government versus corporate debt and so forth.

There are several ways you can go about choosing the assets and securities to fulfill your asset allocation strategy.

Stock Picking - Choose stocks that satisfy the level of risk you want to carry in the equity portion of your portfolio - sector, market cap and stock type are factors to consider. Analyze the companies using stock screeners to shortlist potential picks, than carry out more in-depth analyses on each potential purchase to determine its opportunities and risks going forward. This is the most work-intensive means of adding securities to your portfolio, and requires you to regularly monitor price changes in your holdings and stay current on company and industry news.

Bond Picking - When choosing bonds, there are several factors to consider including the coupon, maturity, the bond type and rating, as well as the general interest rate environment.

Mutual Funds - Mutual funds are available for a wide range of asset classes and allow you to hold stocks and bonds that are professionally researched and picked by fund managers. Of course, fund managers charge a fee for their services, which will detract from your returns. Index funds present another choice; they tend to have lower fees because they mirror an established index and are thus passively managed.

Exchange-Traded Funds (ETFs) - If you prefer not to invest with mutual funds, ETFs can be a viable alternative. You can basically think of ETFs as mutual funds that trade like stocks. ETFs are similar to mutual funds in that they represent a large basket of stocks - usually grouped by sector, capitalization, country and the like - except that they are not actively managed, but instead track a chosen index or other basket of stocks. Because they are passively managed, ETFs offer cost savings over mutual funds while providing diversification. ETFs also cover a wide range of asset classes and can be a useful tool for rounding out your portfolio.

Step 3: Reassessing Portfolio Weightings

Once established portfolio, you need to analyze and rebalance it periodically because market movements may cause your initial weightings to change. To assess your portfolio's actual asset allocation, quantitatively categorize the investments and determine their values' proportion to the whole.

The other factors that are likely to change over time are your current financial situation, future needs and risk tolerance. If these things change, you may need to adjust your portfolio

accordingly. If your risk tolerance has dropped, you may need to reduce the amount of equities held. Or perhaps you're now ready to take on greater risk and your asset allocation requires that a small proportion of your assets be held in riskier small-cap stocks.

Essentially, to rebalance, you need to determine which of your positions are overweighted and underweighted. For example, say you are holding 30% of your current assets in small-cap equities, while your asset allocation suggests you should only have 15% of your assets in that class. Rebalancing involves determining how much of this position you need to reduce and allocate to other classes.

Step 4: Rebalancing Strategically

Once determined which securities you need to reduce and by how much, decide which underweighted securities you will buy with the proceeds from selling the over weighted securities. To choose your securities, use the approaches discussed in Step 2.

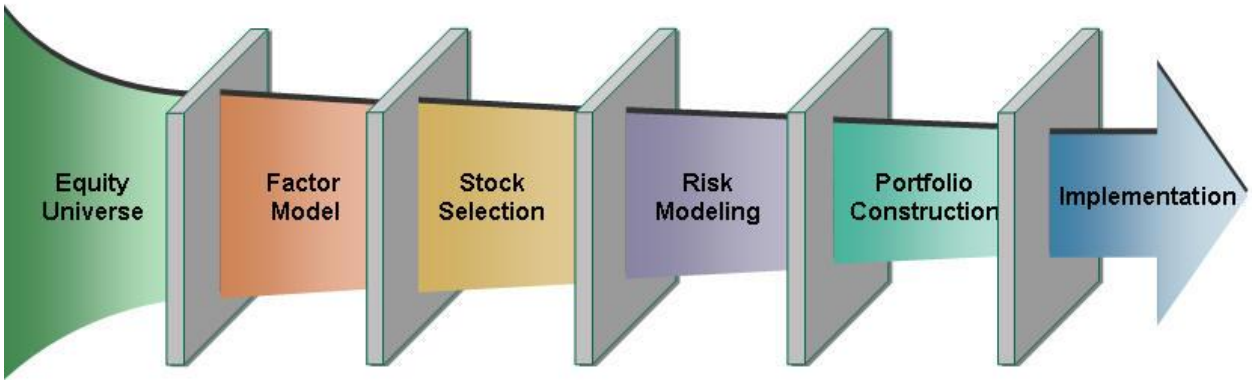
When selling assets to rebalance your portfolio, take a moment to consider the tax implications of readjusting your portfolio. Perhaps your investment in growth stocks has appreciated strongly over the past year, but if you were to sell all of your equity positions to rebalance your portfolio, you may incur significant capital gains taxes. In this case, it might be more beneficial to simply not contribute any new funds to that asset class in the future while continuing to contribute to other asset classes. This will reduce your growth stocks' weighting in your portfolio over time without incurring capital gains taxes.

At the same time, always consider the outlook of your securities. If you suspect that those same over weighted growth stocks are ominously ready to fall, you may want to sell in spite of the tax implications. Analyst opinions and research reports can be useful tools to help gauge the outlook for your holdings. And tax-loss selling is a strategy you can apply to reduce tax implications.

Remember the Importance of Diversification.

Throughout the entire portfolio construction process, it is vital that you remember to maintain your diversification above all else. It is not enough simply to own securities from each asset class; you must also diversify within each class. Ensure that your holdings within a given asset class are spread across an array of subclasses and industry sectors.

Portfolio Management Framework



OPTIMAL PORTFOLIO

Introduction

One of the factors to consider when selecting the optimal portfolio for a particular investor is degree of risk aversion. This level of aversion to risk can be characterized by defining the investor's indifference curve. This curve consists of the family of risk/return pairs defining the trade-off between the expected return and the risk. It establishes the increment in return that a particular investor will require in order to make an increment in risk worthwhile. Typical risk aversion coefficients range between 2.0 and 4.0, with the higher number representing lesser tolerance to risk. The equation used to represent risk aversion in Financial Toolbox™ software is

U = E(r) - 0.005*A*sig^2
where:
U is the utility value.
E(r) is the expected return.
A is the index of investor's aversion.
sig is the standard deviation.
What is a Portfolio ?

A combination of various investment products like bonds, shares, securities, mutual funds and so on is called a portfolio.

In the current scenario, individuals hire well trained and experienced portfolio managers who as per the client's risk taking capability combine various investment products and create a customized portfolio for guaranteed returns in the long run.

It is essential for every individual to save some part of his/her income and put into something which would benefit him in the future. A combination of various financial products where an individual invests his money is called a portfolio.

What is Portfolio Revision:

The art of changing the mix of securities in a portfolio is called as portfolio revision.

The process of addition of more assets in an existing portfolio or changing the ratio of funds invested is called as portfolio revision.

The sale and purchase of assets in an existing portfolio over a certain period of time to maximize returns and minimize risk is called as Portfolio revision.

Need for Portfolio Revision

An individual at certain point of time might feel the need to invest more. The need for portfolio revision arises when an individual has some additional money to invest.

Change in investment goal also gives rise to revision in portfolio. Depending on the cash flow, an individual can modify his financial goal, eventually giving rise to changes in the portfolio i.e. portfolio revision.

Financial market is subject to risks and uncertainty. An individual might sell off some of his assets owing to fluctuations in the financial market.

Portfolio Revision Strategies

There are two types of Portfolio Revision Strategies.

- Active Revision Strategy

Active Revision Strategy involves frequent changes in an existing portfolio over a certain period of time for maximum returns and minimum risks.Active Revision Strategy helps a portfolio manager to sell and purchase securities on a regular basis for portfolio revision.

- Passive Revision Strategy

Passive Revision Strategy involves rare changes in portfolio only under certain predetermined rules. These predefined rules are known as formula plans.According to passive revision strategy a portfolio manager can bring changes in the portfolio as per the formula plans only.

What are Formula Plans:

Formula Plans are certain predefined rules and regulations deciding when and how much assets an individual can purchase or sell for portfolio revision. Securities can be purchased and sold only when there are changes or fluctuations in the financial market.

Formula plans help an investor to make the best possible use of fluctuations in the financial market. One can purchase shares when the prices are less and sell off when market prices are higher. With the help of Formula plans an investor can divide his funds into aggressive and defensive portfolio and easily transfer funds from one portfolio to other.

Aggressive Portfolio

Aggressive Portfolio consists of funds that appreciate quickly and guarantee maximum returns to the investor.

Defensive Portfolio

Defensive portfolio consists of securities that do not fluctuate much and remain constant over a period of time. Formula plans facilitate an investor to transfer funds from aggressive to defensive portfolio and vice a versa.

Samples to include in a portfolio

- Activities that demonstrate the completion of a topic of study, such as a report
- Projects (or photographs of the projects) on topics of study
- Graphs of reading or math drill rates
- Audio cassettes of oral reading
- Video cassettes of oral presentations
- Worksheets or workbook pages
- Teacher-made tests
- Written compositions and/or journals
- Reading lists
- Parent/teacher observations and anecdotal records
- Choosing an Evaluator

The evaluation is to be done by a certified teacher and the certification number is to be submitted along with the narrative. The evaluator will ultimately determine what specifically he/she will want to look at in order to make an evaluation of the progression of skills. Therefore, it would be prudent to make contact with your evaluator early in the school term and work together in preparation of the portfolio.

Submitting the Narrative

The West Virginia Code specifies that a narrative is to be provided to the county superintendent indicating that a portfolio of samples of the child's work has been reviewed and that the child's academic progress is in accordance with the child's abilities. The narrative should incorporate an accounting of the child's academic progress in relation to his ability level. While one portion of the portfolio may be evaluated at a particular ability level, other subject areas may require evaluation at other levels. West Virginia law does not require evaluation of social experiences. Your evaluator should focus solely on academic progress.

The narrative is to include a statement about the child's progress in the areas of reading, language, mathematics, science and social studies and is to note any areas which, in the professional opinion of the reviewer, show need for improvement or remediation.

Under any of the four assessment options identified in the state law, if a child does not make acceptable progress for the year, the next step is that the home schooling family "shall initiate a remedial program to foster acceptable progress." So the use of the term "remediation" in the evaluator's directive to note any of the subjects needing "improvement or remediation" raises the question of whether the evaluator, by so doing, is identifying the child as having made unacceptable progress for the year. In order to avoid confusion with county superintendents on this issue, we recommend the following approach.

If the evaluator believes that the student has successfully met the standard of "academic progress in accordance with the child's abilities" for all five subject areas, a clear statement to that effect should be included in the portfolio narrative. This should clearly establish that the evaluator considers the child to have made acceptable progress for the year according to the standard in the law. If the evaluator then goes on to discuss areas needing improvement, we recommend not using the terms "remedial" or "remediation", so as not to confuse the issue of the evaluator's overall

assessment of acceptable progress. Conversely, if the evaluator determined that, in his or her professional opinion, the child did not meet the standard of achievement in accordance with ability, a clear statement to that effect would be included, along with identification of the subject areas needing remediation.

Whether you choose achievement testing or portfolio evaluation, the main concern should be how much worthwhile information each will give you in regard to your child's academic progress. Results from your choice should help you evaluate how to move your child along a continuum of skills toward a higher degree of proficiency. Choosing a method simply to meet the requirements of the law in the easiest way possible would be cheating ourselves and our children of some valuable feedback. While parents do know their children better than a portfolio evaluator or a testing instrument, it is natural to be biased and subjective in our evaluations. We invest far too much time, effort and resources into our children's education to overlook an opportunity for evaluating not only our children's progress, but also our teaching methods.

Our intent is to broaden your knowledge of the assessment methods available to us by West Virginia law. The law is very vague in many areas, and it is not CHEWV's intent to regulate these areas or to give you specifics that you must adhere to. Please consider them as recommendations as you seek an appropriate assessment tool.

Portfolio Limitations

Managing portfolios is more involved and complex than testing. They require much effort, thought, and detailed work in their preparation. Portfolio assessments entail human judgments. The progress of your child's academic skills is at the discretion of your evaluator. Weaknesses and learning gaps are more difficult to ascertain because of the nature of the portfolio.

Portfolio Benefits

Portfolios provide an opportunity to give a broad picture of your child's learning and academic progress. Portfolio evaluation enables those who have difficulty with testing to give evidence of academic learning. Portfolio assembly affords you the opportunity to examine results of your instruction, both in detail and in retrospect. Portfolio development assures a built-in audience (the evaluator) for your child, and can be very motivating for him.

Part A (ONE Mark)

Multiple Choice Questions

Online Examination

Part B

(2 Marks)

1. Define Portfolio
2. What is market concept of beta
3. List out the three asset portfolio.
4. Explain the difference between systematic and unsystematic risk
5. Define current wealth
6. What do you mean by Index funds?
7. List out the objectives of traditional portfolio management.
8. Elucidate asset allocation
9. Explain Investor cycle approach
10. Define inflation.

Part C (8 Marks)

1. Explain the Markowitz Theory in detail?
2. What is portfolio revision? List out the constraints in portfolio revision
3. Explain the process of Portfolio Construction?
4. Enumerate the Efficient Market Hypothesis.
5. Elucidate Treyner's Performance Measurement in Portfolio Analysis.
6. Enumerate the Techniques used in Portfolio Evaluation.
7. Explain the difference between Traditional and Modern Portfolio Analysis?
8. Explain the concept and process of portfolio analysis.
9. Explain the Techniques used in Portfolio Revision?
10. Write short note on:
    i. Capital Market Line
    ii. Security Market Line

KARPAGAM Academy of Higher Education
Department of Management
Investment Analysis and Portfolio Management – 16BAU501A

Unit IV Multiple Choice Questions Part A – (20*1=20 Marks)

S. No	QUESTION	OPTION 1	OPTION 2	OPTION 3	OPTION 4	OPTION 5	OPTION 6	ANSWER
1	The risk in average individual stock can be reduced by placing the individual stock in ---------	Unsystematic Risk	diversified portfolio	undiversified portfolio	high risk portfolio			diversified portfolio
2	The expected returns weighted average on assets in the portfolio is considered as	weighted portfolio	expected return on portfolio	coefficient of portfolio	expected assets			expected return on portfolio
3	_____means combination of financial assets and physical assets	portfolio	evaluation	portfolio construction	diversification			portfolio
4	_____ deals with the selection of optimal portfolios by rational risk averse investors	risk management	portfolio management	portfolio construction	debt instrument			portfolio management
5	_____involves a shift from one stock to another or from stock to bond and vice versa in portfolio composition	risk management	portfolio management	portfolio construction	portfolio revision			portfolio revision
6	The policy which lays emphasis on safety of principal invested in securities is	defensive policy	aggressive policy	aggressive defensive policy	growth policy			defensive policy

7	Growth policy in portfolio gives priority to	current income of the portfolio	capital appreciation of the portfolio	derivatives	tax savings			capital appreciation of the portfolio
8	The single index model is widely employed to allocate investments in the portfolio among	equity shares	debt instruments	derivatives	revision			equity shares
9	portfolio diversification management diversification is the technique of reducing ____in a portfolio	stability	evaluation	risk	return			risk
10	Bonds issued by the _____ _ are highly safe as they are supported by the tax paying capacity of the whole nation	central government	state government	public	industry			central government
11	A security is regarded_____ ____ when it can be disposed off at short notice and without any monetary loss	portfolio	liquid	scrip's	industry data			liquid
12	The first and foremost step in the portfolio management process is the _____	identification of objectives and constraints	selection of the asset mix	portfolio execution	portfolio revision			identification of objectives and constraints
13	Portfolio management is the process of selecting a bunch of	current assets	long term asset	securities	debt instrument			securities

14	Portfolio means a combination of	financial assets and physical assets	short term assets	long term assets	very short term assets			financial assets and physical assets
15	The financial assets are ----------	shares	silver	real estate	gold			shares
16	The physical assets are ----------	debentures	shares	other securities	gold			gold
17	Asset mix means the ----------	proportion of stock	proportion current asset	proportion of liability	proportion of profits			proportion of stock
18	A proper mix means ----------	assets	asset and liability	stock and bonds	liability			stock and bonds
19	the first and foremost factor contributing to portfolio management is	timing of investment	planning	performance appraisal	close monitoring of shares			planning
20	Timing of investment is an important factor in	portfolio management	economic forecast	industry analysis	company analysis			portfolio management
21	Diversification reduces ----------	inflation risk	market risk	interest rate risk	unique risk			unique risk
22	Which one of the following is not an efficient portfolio?	portfolio which gives the highest return at a particular level of risk	portfolio which gives minimum risk for given levels of return	portfolio which gives a higher return at the same risk or lower risk	portfolio which gives lower return at the lower risk			portfolio which gives lower return at the lower risk
23	Corner portfolio is one with ----------	lowest return and risk combination	nil return	excess return	unexplained variance			lowest return and risk combination
24	Shares having betas less than 1 can be said to be	defensive	aggressive	neutral	appropriation			aggressive

25	Capital Market Line is firstly initiated by	Mohsin	Linter	Markowitz	William Sharpe			William Sharpe
26	The most favorable portfolio is the proficient portfolio with the	lowest risk	highest risk	highest utility	least investment			highest utility
27	A main difference among real and nominal interest proceeds is that	real returns adjust for inflation and nominal returns do not	real returns use actual cash flows and nominal use expected cash flows	real interest adjusts for commissions and nominal returns do not	real returns show the highest possible return and nominal returns show the lowest possible returns			real returns adjust for inflation and nominal returns do not
28	_____ includes portfolio which gives more return for the same level of risk or same return with lesser level of risk	efficient frontier	Baumel's model	sharpe's model	portfolio selection			efficient frontier
29	In a two-stock portfolio, the minimum attainable risk and the lower return would be _____ portfolio	investment portfolio	Sharpe's portfolio	corner	efficient portfolio			corner
30	_____ model is based on security's return relationship with the index return	Sharpe	Baumel's model	portfolio selection	efficient frontier			portfolio selection
31	A number of portfolio models have been developed for choosing an	Sharpe's model	optimal portfolio	capital asset pricing model	possible portfolio			optimal portfolio

32	Sharpe's portfolio model is a	single index model	double index model		past index model			single index model
33	Markowitz approach has roots in	Good portfolio managem ent	proper entry and exit in the market	estimation of stock return	Analyzing the risk and return related to stocks			Analyzing the risk and return related to stocks
34	An aggressive policy is one which places more emphasis on the	yield of securities	principal of securities	loss of securities	types of securities			yield of securities
35	Defensive policy lays much emphasis on	growth of securities	yield of securities	types of securities	safety of invested securities			safety of invested securities
36	aggressive defensive policy lays emphasis on a balances portfolio constructed with varied	growth of securities	yield of securities	types of securities	safety of invested securities			types of securities
37	Income vs. growth policy resolves the conflicting issues between	fixed income and fixed capital	current income or capital gains	bonds and debentures	shares and public deposits			current income or capital gains
38	A sound portfolio management should ensure	selection of securities	liquidity of securities	transferabi lity of securities	marketabili ty of securities			marketabi lity of securities
39	The marketability of a security depends upon the _____ of the market for it	risk and return	price and size	investors	under price			price and size
40	The size of the market is further affected by the fact whether the security is ____	over-priced	average priced	medium priced	average or medium priced			over-priced

41	A good investment portfolio consists of securities whose prices remain reasonably	diversify	stable	not stable	over valued			stable
42	Liquidity is another important principle that governs the _____ for the investor	transfer securities	yield securities	invested securities	selection of securities			selection of securities
43	The value of shares fluctuates more than that of	debentures	bonds	gold	real estate			bonds
44	Institutional investors are	commercial bank	central government	state government	semi governmen t			commercial bank
45	Portfolio managers should continuously evaluate the	management	liquidity	portfolio performance	industry performance			portfolio performance
46	A proper decision on _____ _ of investment would always fetch maximum gains from investment	planning	timing of investment	portfolio revision	performance appraisal			timing of investmen t
47	Portfolio management deals with the selection of optimal portfolio by	rational risk averse	irrational risk averse	rational and irrational	various assets			rational risk averse
48	Portfolio revision generally involves a shift from	stock to bond	assets or revenue	assets to liability	stock to risk			stock to bond
49	Security analysis depends on the	sources of information	price	average return	equity			sources of information

50	Financial hazard is most related with	the use of equity financing by corporations	the use of the debt financing by corporations	equity investments held by corporations	debt investment held by the corporations			the use of the debt financing by corporations
51	In order to settle on the compound growth rate of an investment over period, an investor determine the	geometric mean	calculus mean	arithmetic mean	arithmetic median			geometric mean
52	Investors should be agreeing to invest in riskier investments merely	if the return is short	if there are no safe alternatives except for holding cash	if the expected return is adequate for the risk level	if there are true speculators			if the expected return is adequate for the risk level
53	Hold two securities as an alternative of will not decrease the hazard occupied by an investor if the two securities are	perfectively positive correlated	perfectively negative correlated	no correlation	all of the answer correct			perfectively positive correlated
54	---------- describes the relationship between the stock's return and the index returns.	alpha	beta	regression line	standard deviation			beta
55	In Capital Market Line every investment is	infinitely divisible	finitely divisible	a & b	all of the answer correct			infinitely divisible
56	Superior portfolio is not basically a collection of individually	good portfolio	good investments	negative securities	all of the answer correct			good investments

57	Investments would grade the uppermost with regard to protection is	governme nt bonds	common stock	preferred stock	real estate			governme nt bonds
58	Tracking error is defined as	the difference between the returns on the overall risky portfolio versus the benchmar k return.	the variance of the return of the benchmar k portfolio	the variance of the return difference between the portfolio and the benchmark	the variance of the return of the actively-managed portfolio			the difference between the returns on the overall risky portfolio versus the benchmar k return.
59	If a portfolio manager consistently obtains a high Sharpe measure, the manager's forecasting ability _____.	is above average	is average	is below average	does not exist			is above average
60	Active portfolio management consists of _____.	market timing	security analysis	indexing	market timing and security analysis			market analysis and security analysis
61	Perfect timing ability is equivalent to having _____ on the market portfolio.	a call option	a futures contract	a put option	a commoditi es contract			a call option

UNIT-V -Introduction Capital Asset Pricing Model (CAPM)

SYLLABUS

Capital Asset Pricing Model (CAPM) - Efficient frontier with a combination of risky and risk free assets - Assumptions of single period classical CAPM model - Characteristic line - Capital Market Line - Security market Line - Expected return - Required return - Overvalued and undervalued assets - Mutual Funds - Introduction - Calculation of Net Asset Value (NAV) of a Fund - Classification of mutual fund schemes by structure and objective - Advantages and disadvantages of investing through mutual funds - Performance Evaluation using Sharpe's Treynor's and Jensen's Measures.

Capital Asset Pricing Model (CAPM)

CAPM was developed by W. F. Sharpe. CAPM simplified Markowitz 's Modern Portfolio theory, made it more practical. Markowitz showed that for a given level of expected return and for a given feasible set of securities, finding the optimal portfolio with the lowest total risk, measured as variance or standard deviation of portfolio returns, requires knowledge of the covariance or correlation between all possible security combinations When forming the diversified portfolios consisting large number of securities investors found the calculation of the portfolio risk using standard deviation technically complicated.

Measuring Risk in CAPM is based on the identification of two key components of total risk (as measured by variance or standard deviation of return):

Systematic risk

Unsystematic risk

Systematic risk is that associated with the market (purchasing power risk, interest rate risk, liquidity risk, etc.) Investment Analysis and Portfolio Management 57 Unsystematic risk is unique to an individual asset (business risk, financial risk, other risks, related to investment into particular asset).

Unsystematic risk can be diversified away by holding many different assets in the portfolio, however systematic risk can't be diversified

In CAPM investors are compensated for taking only systematic risk. Though, CAPM only links investments via the market as a whole. Portfolio Risk 0 1 2 3 4 5 6 7 8 9 10 Number of securities in portfolio Fig.3.4. Portfolio risk and the level of diversification The essence of the CAPM: the more systematic risk the investor carry, the greater is his / her expected return.

The CAPM being theoretical model is based on some important **assumptions**:

• All investors look only one-period expectations about the future;

• Investors are price takers and they can't influence the market individually;

• There is risk free rate at which an investor may either lend (invest) or borrow money.

• Investors are risk-averse,

• Taxes and transaction costs are irrelevant.

• Information is freely and instantly available to all investors.

Following these **assumptions,**

the CAPM predicts what an expected rate of return for the investor should be, given other statistics about the expected rate of return in the market and market risk (systematic risk): Systematic risk Unsystematic risk

Total risk Investment Analysis and Portfolio Management $E(r_j) = Rf + \beta(j) * (E(rM) - Rf)$,

here: $E(r_j)$ - expected return on stock j;

Rf - risk free rate of return;

E(rM) - expected rate of return on the market $\beta(j)$ - coefficient Beta,

measuring undiversified risk of security j.

Several of the assumptions of CAPM seem unrealistic. Investors really are concerned about taxes and are paying the commisions to the broker when bying or selling their securities. And the investors usually do look ahead more than one period. Large institutional investors managing their portfolios sometimes can influence market by bying or selling big ammounts of the securities.

All things considered, the assumptions of the CAPM constitute only a modest gap between the thory and reality. But the empirical studies and especially wide use of the CAPM by practitioners show that it is useful instrument for investment analysis and decision making in reality.

Equation in formula represents the straight line having an intercept of Rf and slope of $\beta(j) * (E(rM) - Rf)$.

This relationship between the expected return and Beta is known as Security Market Line (SML).

Each security can be described by its specific security market line, they differ because their Betas are different and reflect different levels of market risk for these securities.

One very important feature of Beta to the investor is that the Beta of portfolio is simply a weighted average of the Betas of its component securities, where the proportions invested in the securities are the respective weights.

Thus, Portfolio Beta can be calculated using formula: n βp= w1β1+ w2β2 + ...+ wnβn = ∑ wi * βi , i=1 here wi - the proportion of the portfolio's initial value invested in security i; βi - coefficient Beta for security i.

Earlier it was shown that the expected return on the portfolio is a weighted average of the expected returns of its components securities, where the proportions invested in the securities are the weights. This meas that because every security plots o the SML, so will every portfolio. That means, that not only every security, but also every portfolio must plot on an upward sloping straight line in a diagram with the expected return on the vertical axis and Beta on the horizontal axis.

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 Investment Analysis and Portfolio Management 60 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 using

formula: E(rJ) = E(ŕJ) + β1J I1J + β2J I2J + ... + βnJ InJ + εJ , (3.6) here:

E(rJ) - expected return on stock J;

E(ŕJ) - expected rate of return for security J,

if the influence of all factors is 0; IiJ - the change in the rate of return for security J,

influenced by economic factor i (i = 1, ..., n);

βiJ - coefficient Beta, showing sensitivity of security's J rate of return upon the factor i (this influence could be both positive or negative);

εJ - error of rounding for the security J (expected value – 0). It is important to note that the arbitrage in the APT is only approximate, relating diversified portfolios, on assumption that the asset unsystematic (specific) risks are negligible compared with the factor risks.

There could presumably be an infinitive number of factors, although the empirical research done by S.Ross together with R. Roll (1984) identified four factors – economic variables, to which assets having even the same CAPM Beta, are differently sensitive:

- inflation
- industrial production;
- risk premiums;
- slope of the term structure in interest rates.

Investment Analysis and Portfolio Management In practice an investor can choose the macroeconomic factors which seems important and related with the expected returns of the particular asset.

The examples of possible macroeconomic factors which could be included in using APT model:

- GDP growth;
- an interest rate;
- an exchange rate;
- a default spread on corporate bonds, etc.

Including more factors in APT model seems logical. The institutional investors and analysts closely watch macroeconomic statistics such as the money supply, inflation, interest rates, unemployment, changes in GDP, political events and many others.

Reason for this might be their belief that new information about the changes in these macroeconomic indicators will influence future asset price movements.

But it is important to point out that not all investors or analysts are concerned with the same set of economic information and they differently assess the importance of various macroeconomic factors to the assets they have invested already or are going to invest.

At the same time the large number of the factors in the APT model would be impractical, because the models seldom are 100 percent accurate and the asset prices are function of both macroeconomic factors and noise.

The noise is coming from minor factors, with a little influence to the result – expected rate of return.

The APT does not require identification of the market portfolio, but it does reguire the specification of the relevant macroeconomic factors.

Much of the current empirical APT research are focused on identification of these factors and the determination of the factors' Betas. And this problem is still unsolved. Although more than two decades have passed since S. Ross introduced APT model, it has yet to reach the practical application stage. The CAPM and APT are not really essentially different, because they are developed for determing an expected rate of return based on one factor (market portfolio – CAPM) or a number of macroeconomic factors (APT). But both models predict how the return on asset will result from factor sensitivities and this is of great importance to the investor.

Market efficiency theory

The concept of market efficiency was proposed by Eugene Fama in 1965, when his article "**Random Walks in Stock Prices**" was published in Financial Analyst Journal. Market efficiency means that the price which investor is paying for financial asset (stock, bond, other security) fully reflects fair or true information about the intrinsic value of this specific asset or fairly describe the value of the company – the issuer of this security. The key term in the concept of the market efficiency is the information available for investors trading in the market. It is stated that the market price of stock reflects:

1. All known information, including: Past information, e.g., last year's or last quarter's, month's earnings; Current information as well as events, that have been announced but are still forthcoming, e.g. shareholders' meeting.

2. Information that can reasonably be inferred,

for example, if many investors believe that ECB will increase interest rate in the nearest future or the government deficit increases, prices will reflect this belief before the actual event occurs.

Capital market is efficient, if the prices of securities which are traded in the market, react to the changes of situation immediately, fully and credibly reflect all the important information about the security's future income and risk related with generating this income. What is the important information for the investor?

From economic point of view the important information is defined as such information which has direct influence to the investor's decisions seeking for his defined financial goals. Example, the essential events in the joint stock company, published in the newspaper, etc.

Market efficiency requires thet the adjustment to new information occurs very quikly as the information becomes known. Obvious, that Internet has made the markets more efficient in the sense of how widely and quickly information is disseminated.

There are 3 forms of market efficiency under efficient market hypothesis:

- Weak form of efficiency;
- Semi- strong form of efficiency;
- Strong form of the efficiency.

Under the weak form of efficiency stock prices are assumed to reflect any information that may be contained in the past history of the stock prices. So, if the market is characterized by weak form of efficiency, no one investor or any group of investors should be able to earn over the defined period of time abnormal rates of return by using information about historical prices available for them and by using technical analysis. Prices will respond to news, but if this news is random then price changes will also be random.

Under the semi-strong form of efficiency all publicly available information is presumed to be reflected in stocks' prices. This information includes information in the stock price series as well as information in the firm's financial reports, the reports of competing firms, announced information relating to the state of the economy and any other publicly available information, relevant to the valuation of the firm. Note that the market with a semi strong form of efficiency encompasses the weak form of the hypothesis because the historical market data are part of the larger set of all publicly available information. If the market is characterized by semi-strong form of efficiency, no one investor or any group of investors should be able to earn over the defined period of time abnormal rates of return by using information about historical prices and publicly available fundamental information (such as financial statements) and fundamental analysis.

The strong form of efficiency which asserts that stock prices fully reflect all information, including private or inside information, as well as that which is publicly available. This form takes the notion of market efficiency to the ultimate extreme. Under this form of market efficiency securities' prices quickly adjust to reflect both the inside and public information. If the market is characterized by strong form of efficiency, no one investor or any group of investors should be able to earn over the defined period of time abnormal rates of return by using all information available for them.

The validity of the market efficiency hypothesis whichever form is of great importance to the investors because it determines whether anyone can outperform the market, or whether the successful investing is all about luck. Efficient market hypothesis does not require to behave rationally, only that in response to information there will be a sufficiently large random reaction that an excess profit cannot be made.

The concept of the market efficiency now is criticized by some market analysts and participants by stating that no one market can be fully efficient as some irrational behavior of investors in the market occurs which is more based on their emotions and other psychological factors than on the information available.

But, at the same time, it can be shown that the efficient market can exist, if in the real markets following events occur

A large number of rational, profit maximizing investors exist who are actively and continuously analyzing valuing and trading securities

Information is widely available to market participants at the same time and without or very small cost

Information is generated in a random walk manner and can be treated as independent

Investors react to the new information quickly and fully, though causing market prices to adjust accordingly.

EFFICIENT PORTFOLIO

Efficient portfolios may contain any number of asset combinations. We examine efficient asset allocation by using two risky assets for example. After we understand the properties of portfolios formed by mixing two risky assets, it will be easy to see how portfolio of many risky assets might best be constructed.

Two-risky-assets portfolio

Because we now envision forming a -portfolio from two risky assets, we need to understand how the uncertainties of asset returns interact. It turns out that the key determinant of portfolio risk id the extent to which the returns on the two assets tend to vary rather in tandem or in opposition. The degree

to which a two-risky-assets portfolio reduces variance of returns depends on the degree of correlation between the returns of the securities.

Suppose a proportion denoted by w_A is invested in asset A, and the remainder $1-w_A$, denoted by w_B, is invested in asset B. The expected rate of return on the portfolio is a weighted average of the expected returns on the component assets, with the same portfolio proportions as weights.

$$E(r_P) = w_A E(r_A) + w_B E(r_B) \qquad \text{(X.5)}$$

The variance of the rate of return on the two-asset portfolio is

$$\sigma_P^2 = (w_A\sigma_A + w_B\sigma_B)^2 = w_A{}^2\sigma_A{}^2 + w_B{}^2\sigma_B{}^2 + 2w_A w_B \rho_{AB}\sigma_A\sigma_B \qquad \text{(X.6)}$$

where ρ_{AB} is the correlation coefficient between the returns on asset A and asset B. If the correlation between the component assets is small or negative, this will reduce portfolio risk.

First, assume that $\rho_{AB} = 1.0$, which would mean that Asset A and B are perfectly positively correlated, the right-hand side of **equation X.6** is a perfect square and simplifies to

$$\sigma_p{}^2 = w_A{}^2\sigma_A{}^2 + w_B{}^2\sigma_B{}^2 + 2w_A w_B\sigma_A\sigma_B$$
$$= (w_A\sigma_A + w_B\sigma_B)^2$$

or

$$\sigma_p = w_A\sigma_A + w_B\sigma_B$$

Therefore, the portfolio standard deviation is a weighted average of the component security standard deviations only in the special case of perfect positive correlation. In this circumstance, there are no gains to be had form diversification. Whatever the proportions of asset A and asset B, both the portfolio mean and the standard deviation are simple weighted averages. Figure X.1 shows the opportunity set with perfect positive correlation - a straight line through the component assets. No portfolio can be discarded as inefficient in this case, and the choice among portfolios depends only on risk preference. Diversification in the case of perfect positive correlation is not effective.

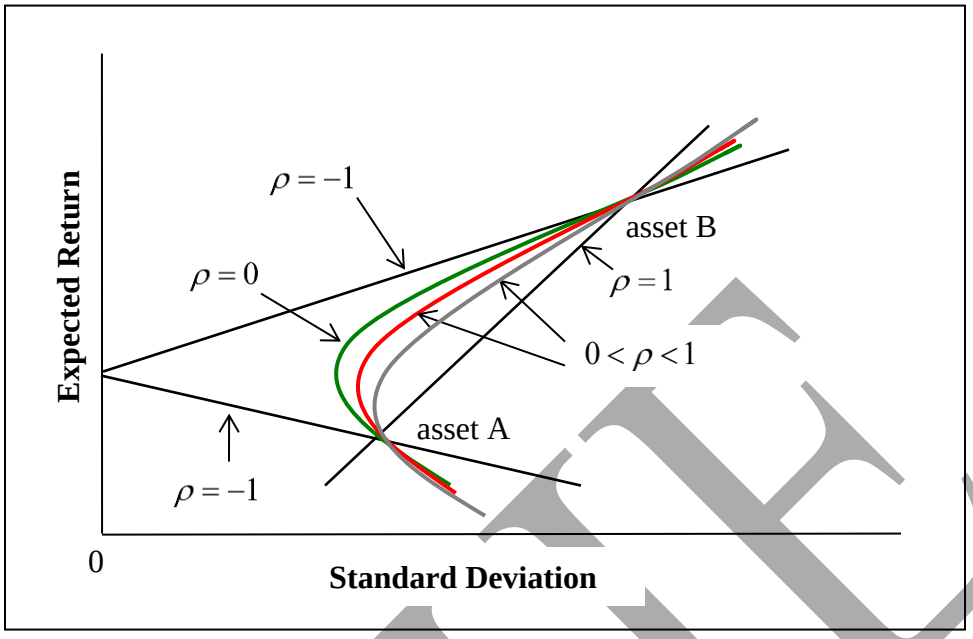


Figure X.1 Investment opportunity sets for asset A and asset B with various correlation coefficients[1]

Perfect positive correlation is the only case in which there is no benefit from diversification. With any correlation coefficient less than 1.0($\rho < 1$), there will be a diversification effect, the portfolio standard deviation is less than the weighted average of the standard deviations of the component securities. Therefore, there are benefits to diversification whenever asset returns are less than perfectly correlated.

Our analysis has ranged from very attractive diversification benefits ($\rho_{AB} < 0$) to no benefits at all $\rho_{AB} = 1.0$. For ρ_{AB} within this range, the benefits will be somewhere in between.

Negative correlation between a pair of assets is also possible. Where negative correlation is present, there will be even greater diversification benefits. Again, let us start with an extreme. With perfect negative correlation, we substitute $\rho_{AB} = -1.0$ in equation X.6 and simplify it in the same way as with positive perfect correlation. Here, too, we can complete the square, this time, however, with different results.

[1] The proofs of the slope and the shape of extreme correlation between asset A and asset B are in Appendix A.

$$\sigma_P^2 = (w_A\sigma_A - w_B\sigma_B)^2$$

And, therefore,

$$\sigma_P = ABS[w_A\sigma_A - w_B\sigma_B] \quad \text{(X.7)}$$

With perfect negative correlation, the benefits from diversification stretch to the limit. Equation X.7 points to the proportions that will reduce the portfolio standard deviation all the way to zero.

An investor can reduce portfolio risk simply by holding instruments which are not perfectly correlated. In other words, investors can reduce their exposure to individual asset risk by holding a diversified portfolio of assets. Diversification will allow for the same portfolio return with reduced risk.

The concept of Markowitz efficient frontier

Every possible asset combination can be plotted in risk-return space, and the collection of all such possible portfolios defines a region in this space. The line along the upper edge of this region is known as the efficient frontier. Combinations along this line represent portfolios (explicitly excluding the risk-free alternative) for which there is lowest risk for a given level of return. Conversely, for a given amount of risk, the portfolio lying on the efficient frontier represents the combination offering the best possible return. Mathematically the efficient frontier is the intersection of the set of portfolios with minimum variance and the set of portfolios with maximum return.

Figure X.2 shows investors the entire investment opportunity set, which is the set of all attainable combinations of risk and return offered by portfolios formed by asset A and asset B in differing proportions. The curve passing through A and B shows the risk-return combinations of all the portfolios that can be formed by combining those two assets. Investors desire portfolios that lie to the northwest in Figure X.2. These are portfolios with high expected returns (toward the north of the figure) and low volatility (to the west).

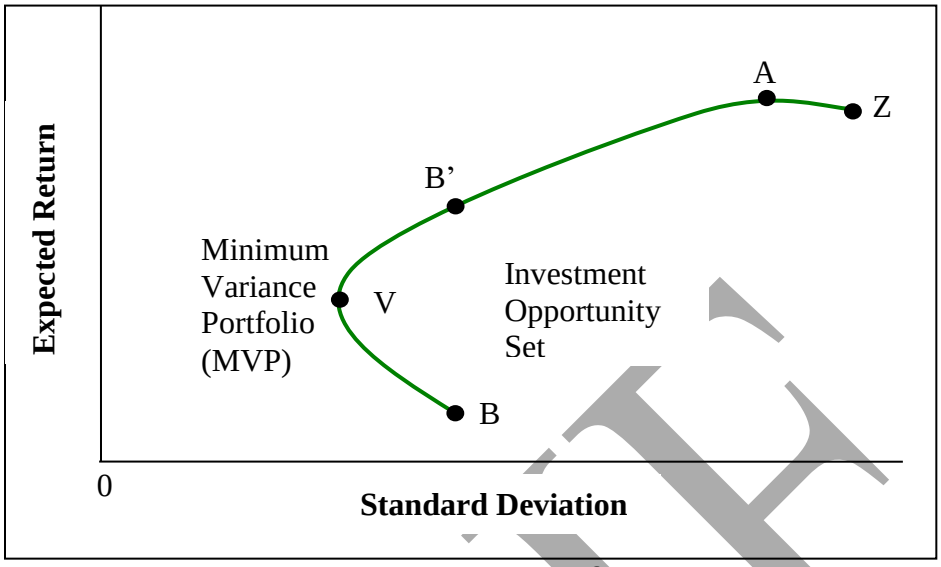


Figure X.2 Investment opportunity set for asset A and asset B

The area within curve ***BVAZ*** is the feasible opportunity set representing all possible portfolio combinations. Portfolios that lie below the minimum-variance portfolio (point V) on the figure can therefore be rejected out of hand as inefficient. The portfolios that lie on the frontier ***VA*** in Figure X.2would not be likely candidates for investors to hold. Because they do not meet the criteria of maximizing expected return for a given level of risk or minimizing risk for a given level of return. This is easily seen by comparing the portfolio represented by points B and B'. Since investors always prefer more expected return than less for a given level of risk, B' is always better than B. Using similar reasoning, investors would always prefer B to V because it has both a higher return and a lower level of risk. In fact, the portfolio at point V is identified as the **minimum-variance portfolio**; since no other portfolio exists that has a lower standard deviation. The curve ***VA*** represents all possible efficient portfolios and is the efficient frontier[2], which represents the set of portfolios that offers the highest possible expected rate of return for each level of portfolio standard deviation.

The efficient frontier will be convex – this is because the risk-return characteristics of a portfolio change in a non-linear fashion as its component weightings are changed. (As described above, portfolio risk is a function of the correlation of the component assets, and thus changes in a non-linear fashion as the weighting of component assets changes.) The efficient frontier is a parabola (hyperbola) when expected return is plotted against variance (standard deviation).

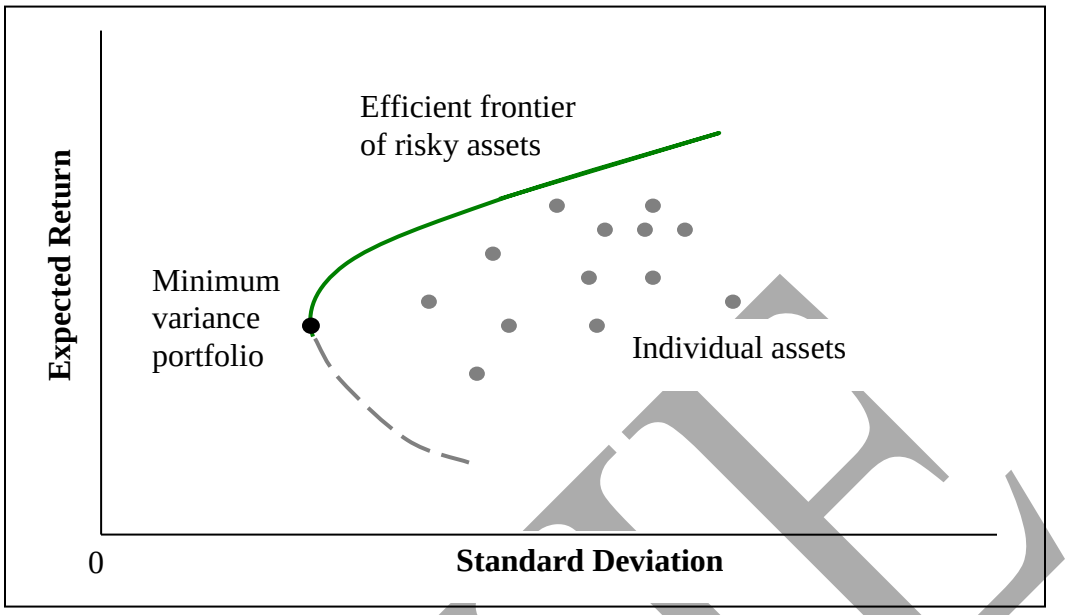


Figure X.3 The efficient frontier of risky assets and individual assets

Any portfolio on the down ward sloping potion of the frontier curve is dominated by the portfolio that lies directly above it on the upward sloping portion of the frontier curve since that portfolio has higher expected return and equal standard deviation. The best choice among the portfolios on the upward sloping portion of the frontier curve is not as obvious, because in this region higher expected return is accompanied by higher risk. The best choice will depend on the investor's willingness to trade off risk against expected return.

Short selling

Various constraints may preclude a particular investor from choosing portfolios on the efficient frontier, however. Short sale restrictions are only one possible constraint. Short sale is a usual regulated type of market transaction. It involves selling assets that are borrowed in expectation of a fall in the assets' price. When and if the price declines, the investor buys an equivalent number of assets at the new lower price and returns to the lender the assets that was borrowed.

Now, relaxing the assumption of no short selling, investors could sell the lowest-return asset B (here, we assume that $E(r_A) \geq E(r_B)$ and $\sigma_A \geq \sigma_B$). If the number of short sales is unrestricted, then by a continuous short selling of B and reinvesting in A the investor could generate an infinite expected

return. The efficient frontier of unconstraint portfolio is shown in Figure X.4. The upper bound of the highest-return portfolio would no longer be A but infinity (shown by the arrow on the top of the efficient frontier). Likewise the investor could short sell the highest-return security A and reinvest the proceeds into the lowest-yield security B[3], thereby generating a return less than the return on the lowest-return assets. Given no restriction on the amount of short selling, an infinitely negative return can be achieved, thereby removing the lower bound of B on the efficient frontier. Hence, short selling generally will increase the range of alternative investments from the minimum-variance portfolio to plus or minus infinity[4].

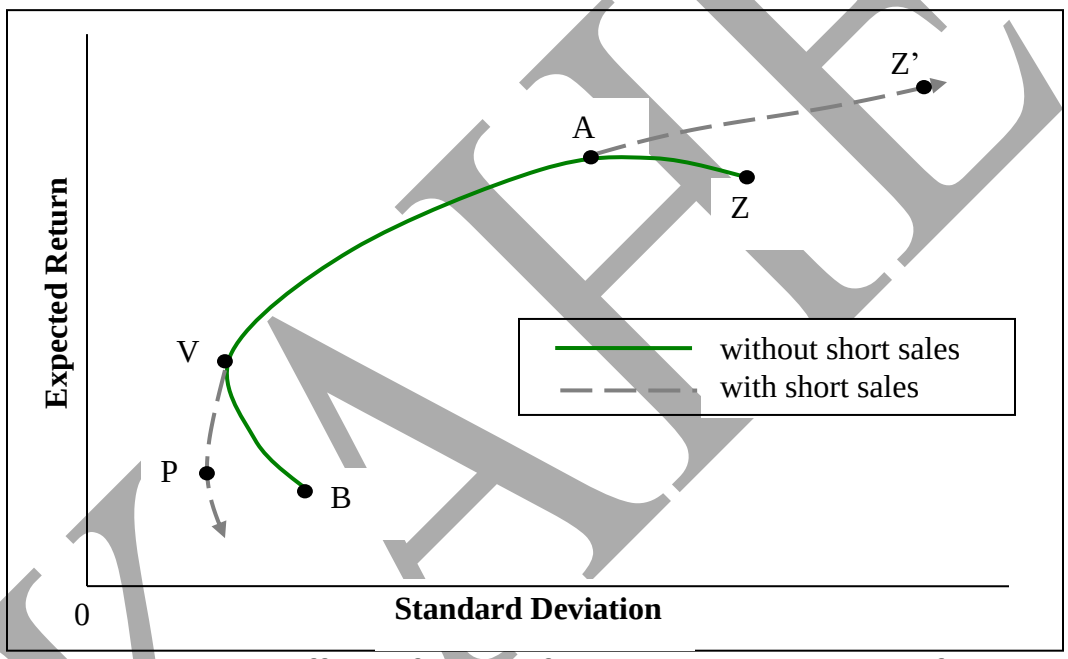


Figure X.4 The efficient frontier of unrestricted/restricted portfolio

Relaxing the assumption of no short selling in this development of the efficient frontier involves a modification of the analysis of the efficient frontier of constraint (not allowed short sales). Next section, we introduce the mathematical analysis of the efficient frontier with/without short selling constraints.

Rational investor will not short sell a high-return asset and buy a low-return asset. This case is just for extreme assumption. Whether an investor engages in any of this short-selling activity depends on the investor's own unique set of indifference curves.

Calculating the Minimum variance portfolio

In Markowitz portfolio model, we assume investors choose portfolios based on both expected return, $E(r_p)$, and the standard deviation of return as a measure of its risk, σ_p. So, the portfolio selection problem can be expressed as maximizing the return with respect to the risk of the investment (or, alternatively, minimizing the risk with respect to a given return, hold the return constant and solve for the weighting factors that minimize the variance).

Mathematically, the portfolio selection problem can be formulated as quadratic program. For two risky assets A and B, the portfolio consists of w_A, w_B, the return of the portfolio is then, The weights should be chosen so that (for example) the risk is minimized, that is

$$\underset{w_A}{\text{Min}} \ \sigma_P^2 = w_A{}^2\sigma_A{}^2 + w_B{}^2\sigma_B{}^2 + 2w_A w_B \rho_{AB}\sigma_A\sigma_B$$

for each chosen return and subject to $w_A + w_B = 1,\ w_A \geq 0,\ w_B \geq 0$. The last two constraints simply imply that the assets cannot be in short positions.

The minimum variance portfolio weights are shown in Table X.1, the detail proofs are in Appendix B.

Table X.1 The mimimum variance portfolio weight of two-assets portfolio without short selling

The correlation of two assets	Weight of Asset A	Weight of Asset B
ρ= 1	$w_A = \frac{\sigma_B}{\sigma_A - \sigma_B}$	$w_B = \frac{\sigma_A - 2\sigma_B}{\sigma_A - \sigma_B}$
ρ= -1	$w_A = \frac{\sigma_B}{\sigma_A + \sigma_B}$	$w_B = \frac{\sigma_A}{\sigma_A + \sigma_B}$
ρ= 0	$w_A = \frac{\sigma_B^2}{\sigma_A^2 + \sigma_B^2}$	$w_B = \frac{\sigma_A^2 - 2\sigma_B^2}{\sigma_A^2 + \sigma_B^2}$

Above, we simply use two-risky-assets portfolio to calculate the minimum variance portfolio weights. If we generalization to portfolios containing N assets, the minimum portfolio weights can then be obtained by minimizing the Lagrange function C for portfolio variance.

$$\text{Min } \sigma_p^2 = \sum_{i=1}^{n}\sum_{j=1}^{n} w_i w_j \rho_{ij} \sigma_i \sigma_j$$

$$\text{Subject to } \quad w_1 + w_2 + ... + w_N = 1$$

$$C = \sum_{i=1}^{n}\sum_{j=1}^{n} w_i w_j \text{Cov}\left(r_i r_j\right) + \lambda_1\left(1 - \sum_{i=1}^{n} W_i\right) \qquad \text{(X.8)}$$

in which λ_1 are the Lagrange multipliers, respectively, ρ_{ij} is the correlation coefficient between r_i and r_j, and other variables are as previously defined.

By using this approach the minimum variance can be computed for any given level of expected portfolio return (subject to the other constraint that the weights sum to one). In practice it is best to use a computer because of the explosive increase in the number of calculations as the number of securities considered grows. The efficient set that is generated by the aforementioned approach (equation X.8) is sometimes called the **minimum-variance set** because of the minimizing nature of the Lagrangian solution.

Calculating the weights of optimal risky portfolio

One of the goals of portfolio analysis is minimizing the risk or variance of the portfolio. Previous section introduce the calculation of minimum variance portfolio, we minimum the variance of portfolio subject to the portfolio weights' summing to one. If we add a condition into the equation X.8, whish is be subject to the portfolio's attaining some target expected rate of return, we can get the optimal risky portfolio.

$$\text{Min } \sigma_p^2 = \sum_{i=1}^{n}\sum_{j=1}^{n} W_i W_j \rho_{ij} \sigma_i \sigma_j$$

Subject to

$\sum_{i=1}^{n} W_i E\left(R_i\right) = E^*$, where E^* is the target expected return and

$$\sum_{i=1}^{n} W_i = 1.0$$

The first constraint simply says that the expected return on the portfolio should equal the target return determined by the portfolio manager. The second constraint says that the weights of the securities invested in the portfolio must sum to one.

The Lagrangian objective function can be written:

$$C = \sum_{i=1}^{n}\sum_{j=1}^{n} w_i w_j \mathrm{Cov}\left(r_i r_j\right) + \lambda_1\left[E^* - \sum_{i=1}^{n} w_i E\left(r_i\right)\right] + \lambda_2\left(1 - \sum_{i=1}^{n} w_i\right) \qquad \text{(X.9)}$$

Taking the partial derivatives of this equation with respect to each of the variables, $w_1, w_2, ..., w_N$, λ_1, λ_2 and setting the resulting equations equal to zero yields the minimization of risk subject to the Lagrangian constraints. Then, we can solve the weights and these weights are represented optimal risky portfolio by using of matrix algebra.

If there no short selling constraint in the portfolio analysis, second constraint, $\sum_{i=1}^{n} w_i = 1.0$, should substitute to $\sum_{i=1}^{n} |w_i| = 1.0$, where the absolute value of the weights $|w_i|$ allows for a given w_i to be negative (sold short) but maintains the requirement that all funds are invested or their sum equals one.

The Lagrangian function is

$$C = \sum_{i=1}^{n}\sum_{j=1}^{n} w_i w_j \mathrm{Cov}\left(r_i r_j\right) + \lambda_1\left[E^* - \sum_{i=1}^{n} w_i E\left(r_i\right)\right] + \lambda_2\left(1 - \sum_{i=1}^{n} |w_i|\right) \qquad \text{(X.10)}$$

If the restriction of no short selling is in minimization variance problem, it needs to add a third constraint:

$$w_i \geq 0, \qquad i = 1, \ldots, N$$

The addition of this non-negativity constraint precludes negative values for the weights (that is, no short selling). The problem now is a quadratic programming problem similar to the ones solved so

far, except that the optimal portfolio may fall in an unfeasible region. In this circumstance the next best optimal portfolio is elected that meets all of the constraints.

Finding the efficient frontier of risky assets

According to two-fund separation, the efficient frontier of risky assets can be formed by any two risky portfolios one the frontier. All portfolios on the mean-variance efficient frontier can be formed as a weighted average of any two portfolios or funds on the efficient frontier**,** is called two-fund separation. So if we have any two points of the portfolio combinations, we can draw an entire efficient frontier of the risky assets. Previous sections we have introduced the minimum variance portfolio and optimal risky portfolio given the expected return, then, we can generate the entire efficient frontier by the separation property.

Deriving the efficient frontier may be quite difficult conceptually, but computing and graphing it with any number of assets and any set of constraints is quite straightforward. Later, we will use EXCEL and MATLAB to generate the efficient frontier.

Finding the optimal risky portfolio

We already have an efficient frontier, however, how we deicide the best allocation of portfolio? One of the factors to consider when selecting the optimal portfolio for a particular investor is degree of risk aversion, investor's willingness to trade off risk against expected return. This level of aversion to risk can be characterized by defining the investor's indifference curve, consisting of the family of risk/return pairs defining the trade-off between the expected return and the risk. It establishes the increment in return that a particular investor will require in order to make an increment in risk worthwhile. The optimal portfolio along the efficient frontier is not unique with this model and depends upon the risk/return tradeoff utility function of each investor. We use the utility function that is commonly employed by financial theorists and the AIMR (Association of Investment Management and Research) assigns a portfolio with a given expected return $E(r_p)$ and standard deviation σ_p the following utility function:

$$U = E(r_p) - 0.005A\sigma_p^2 \qquad \text{(X.11)}$$

where U is the utility value and A is an index of the investor's risk aversion. The factor of 0.005 is a scaling convention that allows us to express the expected return and standard deviation in equation X.11 as percentages rather than decimals. We interpret this expression to say that the utility from a portfolio increases as the expected rate of return increases, and it decreases when the variance increases. The relative magnitude of these changes is governed by the coefficient of risk aversion, A . For risk-neutral investors, A=0. Higher levels of risk aversion are reflected in larger values for A.

Portfolio selection, then, is determined by plotting investors' utility functions together with the efficient-frontier set of available investment opportunities. In Figure X.6, two sets of indifference curves labeled U_1 and U_2 are shown together with the efficient frontier. The U_1 curve has a higher slope, indicating a greater level of risk aversion. The investor is indifferent to any combination of r_p and σ_p along a given curve. The U_2 curve would be appropriate for a less risk-averse investor—that is, one who would be willing to accept relatively higher risk to obtain higher levels of return. The optimal portfolio would be the one that provides the highest utility—a point in the northwest direction (higher return and lower risk). This point will be at the tangent of a utility curve and the efficient frontier. Each investor is logically selecting the optimal portfolio given his or her risk-return preference, and neither is more correct than the other.

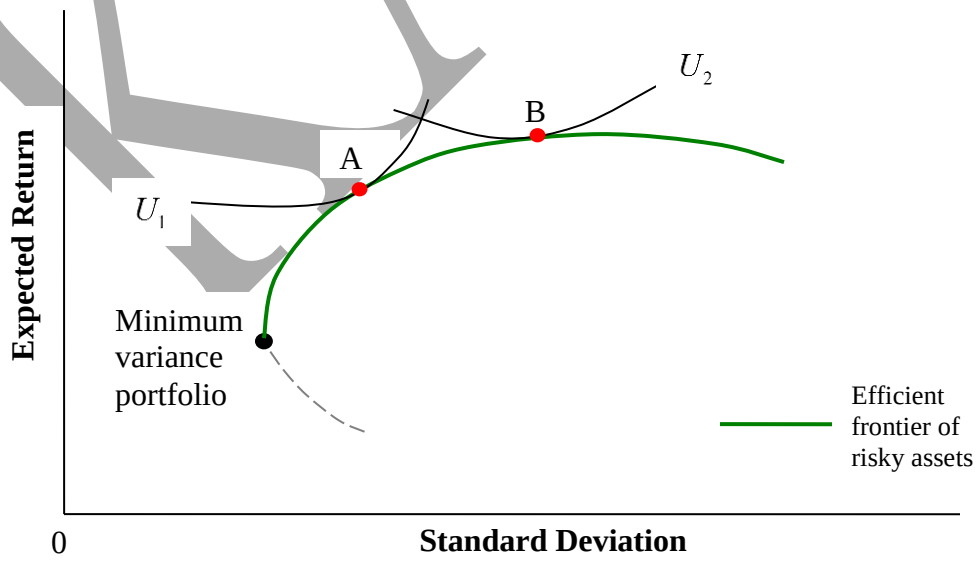


Figure X.6 Indifference Curves and Efficient frontier

In order to simplify the determination of optimal risky portfolio, we use the capital allocation line (CAL), which depicts all feasible risk-return combinations available from different asset allocation choices, to determine the optimal risky portfolio. To start, however, we will demonstrate the solution of the portfolio construction problem with only two risky assets (in our example, asset A and asset B) and a risk-free asset. In this case, we can derive an explicit formula for the weights of each asset in the optimal portfolio. This will make it easy to illustrate some of the general issues pertaining to portfolio optimization.

The objective is to find the weights w_A and w_B that result in the highest slope of the CAL (i.e., the weights that result in the risky portfolio with the highest reward-to-variability ratio). Therefore, the objective is to maximize the slope of the CAL for any possible portfolio, P. Thus out objective function is the slope that we have called CAL_S : The entire portfolio including risky and risk-free assets.

$$CAL_S = \frac{E(r_p) - r_f}{\sigma_p} \qquad \text{(X.12)}$$

For the portfolio with two risky assets, the expected return and standard deviation of portfolio S are

$$E(r_P) = w_A E(r_A) + w_B E(r_B) \qquad \text{(X.5)}$$

$$\sigma_P = (w_A{}^2 \sigma_A{}^2 + w_B{}^2 \sigma_B{}^2 + 2 w_A w_B \rho_{AB} \sigma_A \sigma_B)^{1/2} \qquad \text{(X.13)}$$

When we maximize the objection function, CAL_S, we have to satisfy the constraint that the portfolio weights sum to 1. Therefore, we solve a mathematical problem formally written as

$$\underset{w_i}{Max}\ CAL_S = \frac{E(r_p) - r_f}{\sigma_p}$$

Subject to $\sum w_i = 1$.In this case of two risky assets, the solution for the weights of the ***optimal risky portfolio*** S, can be shown to be as follows[5]:

$$w_A = \frac{[E(r_A) - r_f]\sigma_B^2 - [E(r_B) - r_f]\rho_{AB}\sigma_A\sigma_B}{[E(r_A) - r_f]\sigma_B^2 + [E(r_B) - r_f]\sigma_A^2 - [E(r_A) - r_f + E(r_B) - r_f]\rho_{AB}\sigma_A\sigma_B}$$

$$w_B = 1 - w_A$$

Then, we form an optimal complete portfolio[6] given an optimal risky portfolio and the CAL generated by a combination of portfolio S and risk-free asset. We have constructed the optimal portfolio S, we can use the individual investor's degree of risk aversion, A, to calculate the optimal proportion of complete portfolio to invest in the risky component.

Assuming that a risk-free rate is r_f, and a risky portfolio with expected return $E(r_p)$ and standard deviation σ_p will find that, for any choice of y, the expected return of the complete portfolio is

$$E(r_C) = r_f + y[E(r_p) - r_f]$$

The variance of the overall portfolio is

$$\sigma_C^2 = y^2\sigma_p^2$$

The investor attempts to maximum utility, U, by choosing the best allocation to the risky asset, y. To solve the utility maximization problem more generally, we write the problem as follows:

$$\underset{y}{\text{Max}}\ \text{U} = E(r_C) - 0.005A\sigma_C^2$$

$$= r_f + y[E(r_p) - r_f] - 0.005Ay^2\sigma_p^2$$

Setting the derivative of this expression to zero, we can solve for y yield the optimal position for risk-averse investors in the risky asset, y^*, as follows:

[5] The solution procedure for two risky assets is as follows. Substitute for expected return from equationX.5 and for standard deviation from equation X.13. Substitute $1 - w_A$ for w_B. Differentiate the resulting expression for Sp with respect to w_A, set the derivative equal to zero, and solve for w_B.

[6] The complete portfolio means that the entire portfolio including risky and risk-free assets.

$$y^* = \frac{E(r_p) - r_f}{0.01A\sigma_p^2} \qquad \text{(X.14)}$$

The solution shows that the optimal position in the risky asset is, as one would expect, inversely proportional to the level of risk aversion and the level of risk (measured by the variance) and directly proportional to the risk premium offered by the risky asset.

1. Specify the return characteristics of all securities (expected returns, variances, covariance's).
2. Establish the risky portfolio:
   a. Calculate the optimal risky portfolio S.
   b. Calculate the properties of portfolio S using the weights determined in step and equations X.5 and X.13.
3. Allocation funds between the risky portfolio and the risk-free asset:
   a. Calculate the fraction of the complete portfolio allocated to Portfolio S (the risky portfolio) and to risk-free asset (equation X.14).
   b. Calculate the share of the complete portfolio invested in each asset and in risk-free asset.

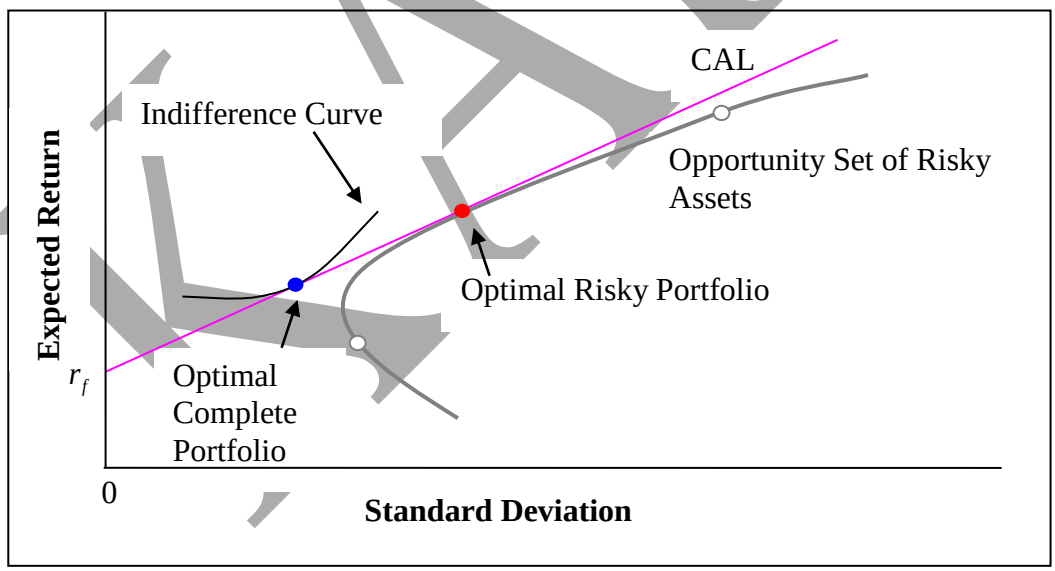


Figure X.7 Determination of the optimal portfolio

In practice, when we try to construct optimal risky portfolios from more than two risky assets we need to rely on Microsoft EXCEL or another computer program. We present can be used to construct efficient portfolios of many assets in the next section.

The **capital market line** (**CML**) is the capital allocation line formed when the risky asset is a market return rather than a single-asset return.

No investment is totally risk-free, but United States Treasuries come close. Although T-bills are often cited as being closest to the ideal risk-free asset for their short terms and low interest rate risk, they do have reinvestment risk. Another security that is close to the ideal are Treasury-Inflation Protected Securities (TIPS), which pay a fixed interest rate on a principal that is adjusted for inflation. For their term length, which can be 5, 10, or 20 years, there is no reinvestment risk, and the interest rate risk is mitigated by the increasing principal, since some of the change in prevailing interest rates results from changes in inflation.

For the risky asset, many investors choose a mutual fund or an exchange-traded fund based on a market index, which provides some diversification in the risky asset without the need for security analysis. This passive strategy of selecting a market index security or investment for the risky asset is sometimes called the **mutual fund theorem**.

What Is a Mutual Fund?

A mutual fund is a company that invests in a diversified portfolio of securities. People who buy shares of a mutual fund are its owners or shareholders. Their investments provide the money for a mutual fund to buy securities such as stocks and bonds. A mutual fund can make money from its securities in two ways: a security can pay dividends or interest to the fund, or a security can rise in value. A fund can also lose money and drop in value.

NAV or Net Asset Value of the fund is the cumulative market value of the assets of the fund net of its liabilities. NAV per unit is simply the net value of assets divided by the number of units outstanding. Buying and selling into funds is done on the basis of NAV-related prices.

NAV is calculated as follows:

NAV= Market value of the fund's investments + Receivables + Accrued Income- Liabilities Accrued Expenses / Number of Outstanding units

Measuring performance of mutual funds

For further evaluating the performance of mutual funds, the risk-return relation models given by Sharpe (1966), Treynor (1965) and Jensen (1968) have been applied

Jack Treynor (1965) conceived an index of portfolio performance measure called as reward to volatility ratio, based on systematic risk. He assumes that the investor can eliminate unsystematic risk by holding a diversified portfolio. Hence his performance measure denoted as T is the excess return over the risk free rate per unit of systematic risk, in other words it indicates risk premium per unit of systematic risk.

Classification of Mutual funds

- Interval Funds
- Income Funds
- Tax Saving Funds
- Sector-Specific Funds
- Fixed-Income Funds
- Closed-End Funds
- Open-End Funds
- Large Cap Funds
- Mid-Cap Funds
- Equity Funds
- Balanced Funds
- Growth Funds
- No Load Funds
- Exchange Traded Funds
- Value Funds
- Money Market Funds
- International Mutual Funds
- Regional Mutual Funds
- Sector Funds
- Index Funds
- Fund of Funds

Money Market Funds

The money market consists of safe (risk-free) short-term debt instruments, mostly government Treasury bills. This is a safe place to park your money. You won't get substantial returns, but you won't have to worry about losing your principal. A typical return is a little more than the amount you would earn in a regular checking or savings account and a little less than the average certificate of deposit (CD). While money market funds invest in ultra-safe assets, during the 2008 financial crisis, some money market funds did experience losses after the share price of these funds, typically pegged at $1, fell below that level and broke the buck.

Income Funds

Income funds are named for their purpose: to provide current income on a steady basis. These funds invest primarily in government and high-quality corporate debt, holding these bonds until maturity in order to provide interest streams. While fund holdings may appreciate in value, the primary objective of these funds is to provide a steady cash flow to investors. As such, the audience for these funds consists of conservative investors and retirees. Because they produce regular income, tax conscious investors may want to avoid these funds.

Bond Funds

Bond funds invest and actively trade in various types of bonds. Bond funds are often actively managed and seek to buy relatively undervalued bonds in order to sell them at a profit. These mutual funds are likely to pay higher returns than certificates of deposit and money market investments, but bond funds aren't without risk. Because there are many different types of bonds, bond funds can vary dramatically depending on where they invest. For example, a fund specializing in high-yield junk bonds is much more risky than a fund that invests in government securities. Furthermore, nearly all bond funds are subject to interest rate risk, which means that if rates go up the value of the fund goes down.

Balanced Funds

The objective of these funds is to provide a balanced mixture of safety, income and capital appreciation. The strategy of balanced funds is to invest in a portfolio of both fixed income and

equities. A typical balanced fund will have a weighting of 60% equity and 40% fixed income. The weighting might also be restricted to a specified maximum or minimum for each asset class, so that if stock values increase much more than bonds, the portfolio manager will automatically rebalance the portfolio back to 60/40.

A similar type of fund is known as an asset allocation fund. Objectives are similar to those of a balanced fund, but these kinds of funds typically do not have to hold a specified percentage of any asset class. The portfolio manager is therefore given freedom to switch the ratio of asset classes as the economy moves through the business cycle.

Equity Funds

Funds that invest primarily in stocks represent the largest category of mutual funds. Generally, the investment objective of this class of funds is long-term capital growth. There are, however, many different types of equity funds because there are many different types of equities. A great way to understand the universe of equity funds is to use a style box, an example of which is below.

The idea here is to classify funds based on both the size of the companies invested in (their market caps) and the growth prospects of the invested stocks. The term value fund refers to a style of investing that looks for high quality, low growth companies that are out of favor with the market. These companies are characterized by low price-to-earning (P/E), low price-to-book (P/B) ratios, and high dividend yields. On the other side of the style spectrum are growth funds, which look to companies that have had (and are expected to have) strong growth in earnings, sales, and cash flows. These companies typically have high P/E ratios and do not pay dividends. A compromise between

strict value and growth investment is a "blend," which simply refers to companies that are neither value nor growth stocks and are classified as being somewhere in the middle.

The other dimension of the style box has to do with the size of the companies that a mutual fund invests in. Large-cap companies have high market capitalizations, with values over $5 billion. Market cap is derived by multiplying the share price by the number of shares outstanding. Large-cap stocks are typically blue chip firms that are often recognizable by name. Small-cap stocks refer to those stocks with a market cap ranging from $200 million to $2 billion. These smaller companies tend to be newer, riskier investments. Mid-cap stocks fill in the gap between small- and large-cap.

A mutual fund may blend its strategy between investment style and company size. For example, a large-cap value fund would look to large-cap companies that are in strong financial shape but have recently seen their share prices fall, and would be placed in the upper left quadrant of the style box (large and value). The opposite of this would be a fund that invests in startup technology companies with excellent growth prospects: small-cap growth. Such a mutual fund would reside in the bottom right quadrant (small and growth).

Global/International Funds

An international fund (or foreign fund) invests only in assets located outside your home country. Global funds, meanwhile, can invest anywhere around the world, including within your home country. It's tough to classify these funds as either riskier or safer than domestic investments, but they have tended to be more volatile and have unique country and political risks. On the flip side, they can, as part of a well-balanced portfolio, actually reduce risk by increasing diversification since the returns in foreign countries may be uncorrelated with returns at home. Although the world's economies are becoming more interrelated, it is still likely that another economy somewhere is outperforming the economy of your home country.

Specialty Funds

This classification of mutual funds is more of an all-encompassing category that consists of funds that have proved to be popular but don't necessarily belong to the more rigid categories we've described so far. These types of mutual funds forgo broad diversification to concentrate on a certain segment of the economy or a targeted strategy. Sector funds are targeted strategy funds aimed at specific sectors of the economy such as financial, technology, health, and so on. Sector funds can therefore be extremely volatile since the stocks in a given sector tend to be highly correlated with each other. There is a greater possibility for large gains, but also a sector may collapse (for example the financial sector in 2008 and 2009).

Regional funds make it easier to focus on a specific geographic area of the world. This can mean focusing on a broader region (say Latin America) or an individual country (for example, only Brazil). An advantage of these funds is that they make it easier to buy stock in foreign countries, which can otherwise be difficult and expensive. Just like for sector funds, you have to accept the high risk of loss, which occurs if the region goes into a bad recession.

Socially-responsible funds (or ethical funds) invest only in companies that meet the criteria of certain guidelines or beliefs. For example, some socially responsible funds do not invest in "sin" industries such as tobacco, alcoholic beverages, weapons or nuclear power. The idea is to get competitive performance while still maintaining a healthy conscience. Other such funds invest primarily in green technology such as solar and wind power or recycling.

Index Funds

Index funds are passively managed funds that seek to replicate the performance of a broad market index such as the S&P 500 or Dow Jones Industrial Average (DJIA). An investor might consider an index fund if they subscribe to the logic that most active portfolio managers cannot beat the market on a regular basis. Since an index fund merely replicates the market return it also benefits investors in the form of low fees. Index funds have been increasing in popularity since Vanguard pioneered the way for passive indexing in mutual fund form.

Exchange Traded Funds (ETFs)

A twist on the mutual fund is the exchange traded fund, or ETF. These ever more popular investment vehicles pool investments and employ strategies consistent with mutual funds, but they are structured as investment trusts that are traded on stock exchanges, and have the added benefits of the features of stocks. For example, ETFs can be bought and sold at any point throughout the trading day. ETFs can also be sold short or purchased on margin. ETFs also typically carry lower fees than the equivalent mutual fund. Many ETFs also benefit from active options markets where investors can hedge or leverage their positions. ETFs also enjoy tax advantages from mutual funds. The popularity of ETFs speaks to their versatility and convenience.

Advantages of Mutual Funds

- Professional Management
- Diversification
- Convenient administration
- Return potential
- Low costs
- Liquidity
- Transparency
- Flexibility
- Choice of scheme
- Well- regulated.

Treynor's index

Where, = Portfolio returns over a period

j = Risk-free return over a period

f β = Market-risk, beta coefficient p

If TP of the mutual fund scheme is greater than then the scheme has out performed the market.

The **major limitation of the Treynor** Index is that it can be applied to the schemes with positive betas during the bull phase of the market.

The results will mislead if applied during bear phase of the market to the schemes with negative betas.

The second limitation is it ignores the reward for unsystematic or unique risk.

Sharpe's Ratio Sharpe (1966) devised an index of portfolio performance measure, referred to as reward to variability ratio denoted by S

He assumes that small investor invests fully in the mutual fund and does not hold any portfolio to eliminate unsystematic risk and hence demands a premium for the total risk.

Sharpe ratio = = Portfolio returns over a period j = Risk-free return over a period

σ = Total risk, standard deviation of portfolio return j

If Sj of the mutual fund scheme is greater than that of the market portfolio,

the fund has outperformed the market.

The superiority of the Sharpe ratio over the Treynor ratio is, it considers the point whether investors are reasonably rewarded for the total risk in comparison to the market.

A mutual fund scheme with a relatively large unique risk may outperform the market in Treynor's index and may underperform the market in Sharpe ratio.

A mutual fund scheme with large Treynor ratio and low Sharpe ratio can be concluded to have relatively larger unique risk.

Thus the two indices rank the funds differently Jensen's Measure Jensen (1968) has given different dimension and confined his attention to the problem of evaluating a fund manager's ability of providing higher returns to the investors.

He measures the performance as the excess return provided by the portfolio over the expected (CAPM) returns. The performance measure, denoted by JP.

He assumes that the investor expects at least CAPM returns. (Rp) = Rf + βj x [(Rm) – Rf]

Where, (Rp) = Expected portfolio return during a particular period j

Rf = Risk free interest rate Rm = return on market/benchmark portfolio

βj = Volatility of portfolio return against that of market Portfolio return or portfolio's market risk.

βj, is a measure of systematic risk of the portfolio and is calculated using following equation

A positive value of J would indicate that the scheme has provided a higher return over the CAPM return and lies above

Security Market Line (SML) and a negative value would indicate it has provided a lower than expected returns and lies below SML.

The Jensen model assumes that the portfolio is fully invested and is subjected to the limitations of CAPM.

Part A (ONE Mark)

Multiple Choice Questions

Online Examination

PART – B (2 MARKS)

1. What is meant by Capital Asset Pricing Model?
2. What is meant by Capital Market Line
3. List out the Assumptions of CAPM
4. What is meant by Security market Line.
5. What is NAV?
6. What do meant by earnings per share of the company?
7. List out the Classification of mutual fund schemes.
8. Define Sharpe's Performance Evaluation.
9. What do you mean by open ended mutual funds?
10. List out the advantages of mutual funds.

Part C (8 Marks)

1. Explain the concept of Capital Market Line and Security Market Line
2. Elucidate the concept of efficient frontier.
3. How to calculate the Net Asset Value (NAV) of a Fund?
4. How the investors can categories the overvalued and undervalued assets?
5. What is meant by mutual funds? What are the advantages of professionally managed portfolio?
6. Distinguish between open –end and closed – end mutual funds.
7. Give an account of the various types of mutual funds available in the Indian capital market?
8. Distinguish between Treynor and Sharpe indices of Portfolio performance? Which do you recommend?
9. State the reason for the Treynor and Sharpe indices giving conflicting performance ranking?
    1. Explain the Jensen index or portfolio performance.

KARPAGAM Academy of Higher Education
Department of Management
Investment Analysis and Portfolio Management – 16BAU501A

Unit V Multiple Choice Questions Part A – (20*1=20 Marks)

S. No	QUESTION	OPTION 1	OPTION 2	OPTION 3	OPTION 4	OPTION 5	OPTION 6	ANSWER
1	The ---------- refers to all the facilities and the institutional arrangements for the borrowing and the loaning of long-term funds	money market	capital market	bullion market	securities market			capital market
2	Stock exchange	helps in the fixation of stock prices	ensures safe and fair dealings	induces good performance of the company	performs all the above functions			performs all the above functions
3	The advice adopted to make profit out of the differences in prices of a security in two different markets is called	arbitrage	listing	jobber	secondary market			arbitrage
4	The market where existing securities are bought and sold	secondary market	primary market	money market activity	all of the above			secondary market
5	According to ---------- all investors hold only the market portfolio and riskless securities	CAPM	SWOT	GDP	NAV			CAPM

6	National stock exchange was recognized on a permanent basis in the year	1956	1992	1958	1959			1992
7	OTCEI is	a national stock exchange	a regional stock exchange	primary market	a government undertaking			a national stock exchange
8	Members of OTCEI are	corporate only	individual only	corporate as well as individual	government			corporate only
9	Consumer protection fund is set up	to protect the investors against price fluctuations	to protect the broker in case of non-payment of money by investors	to provide insurance to investors in case of default by the members	to protect the member and the investor			to provide insurance to investors in case of default by the members
10	A ---------- means giving privilege to certain investors in subscription of securities	call option	put option	send option	right issue			right issue
11	The debentures which are repayable after a certain period are called ----------	convertible debentures	preferred debentures	ordinary debentures	redeemable debentures			redeemable debentures
12	SEBI is	an apex body	a security market	an intermediary in stock exchange	regulate			an apex body
13	---------- show the linear relationship between the	linear line	capital market line	security market line	regression line			Security market line

	expected returns and betas of the securities							
14	Primary market is	an issue marketability outstanding securities	a new issue market	a profitable market	security			a new issue market
15	---------- represents relationship between the expected returns and standard deviation of the portfolio	linear line	capital market line	security market line	regression line			capital market line
16	At par means	shares issued at premium	shares issued at discount	shares issued at face value	actual value			shares issued at face value
17	Right issues are offered to	the existing shareholders	the promoters of the company	the public at large	private company			the existing shareholders
18	The person who is appointed to assist the stock broker is called	remitters	authorized clerk	commission brokers	Marketing officer			authorized clerk
19	Mr.X buys 100 shares of Ponds India Ltd., from Mr,Y. this is a	primary market activity	secondary market activity	money market activity	SEBI			secondary market activity
20	an order for purchase of securities at a fixed price is known as	at best order	limit order	discretionary order	open order			limit order
21	NSE was set up	1956	1992	1986	1987			1992
22	NSE is a fully automated	screen based	brokerage	marketing	transferring			screen based
23	NSE trading ensures total	identity	grievances	transparency	security			transparency

	_____of the transaction							
24	The identity of the NSE trading members is kept	secrecy	transparency	wide	circulating			secrecy
25	NSE aims at	short term settlement	long term settlement	Both a&b	medium term			short term settlement
26	OTCEI stands	over the counter exchange of India	over the customer exchange of India	on trade counter exchange of India				over the counter exchange of India
27	OTCEI was set up for	big concern	medium concern	small and medium size concern	entrepreneur			small and medium size concern
28	Deferred share are also known as ----------	right shares	new shares	secondary shares	founders shares			founders shares
29	An equity share is a	fixed income bearing security	variable income bearing security	hybrid security	average			variable income bearing security
30	Ex-dividend on shares refers to	purchase price includes dividend	purchase price does not include dividend	purchase price includes interest and dividend	convertible price			purchase price does not include dividend
31	Scrip dividend is in the form of	cash	a promissory note with interest	stock	debt			a promissory note with interest
32	_____ Value of a share means the value of assets available per share	par	intrinsic	market value	yield			intrinsic
33	_____ Shares regarded as a hybrid stock between a	preference	Equity Share	Debentures	yield			Equity Share

	bond and a common stock							
34	The call option price is higher when	the option period is longer and the striking price is lower	the option period is longer	the striking price is equal to striking price	there is low premium			the striking price is equal to striking price
35	When the writer sells the option without the stock, it is called	naked option	call option	put option	hedging			naked option
36	Sensex is the weighted average of the prices of	50 shares	30 shares	20 shares	10 shares			30 shares
37	The premium of the call option is directly related to	stock price	market price	current price	standard price			stock price
38	The option buyer gains in the	stock market	primary market	secondary market	bearish market			secondary market
39	The main function entrusted with SEBI is	capital formation	regulating the business stock exchanges and any other securities market	issue of securities	giving financial assistance to stock exchange			regulating the business stock exchange s and any other securities market
40	The carry forward system mainly used by the speculative brokers and large traders is known as	Badla trade	insider trading	Delisting	book building			Badla trade
41	SEBI was set up in the year	1966	1697	1992	1988			1992

42	Composite issue means	Right cum Public issue	grievance cell	buy back shares	Public issue			Right cum Public issue
43	only he can enter into the floor of the stock exchange and transact business in listed securities	owners	businessmen	executives	members			members
44	The nerve centre of the monetary system of the country is	commercial bank	RBI	Corporate Banks	Financial Institution			RBI
45	The following are the convertible securities	preference share	Equity Share	Debentures	Public deposit			preference share
46	A--------- is an option to buy certain securities at a fixed price on a future date	call option	put option	the jobber	trader			a call option
47	new companies rarely offer shares at a	Premium	Discount	Both a&b	Par			Both a&b
48	When the market is moving upwards continuously , of short duration. This is referred as	Bull run	Bear phase	correction	movements			Bull run
49	some organization issue bonds of a	short term	long term	medium	Very short			short term

50	--------- is an investment vehicle that pools together funds from investors to purchase stocks, bonds or other securities	mutual fund	growth fund	maturity fund	initial fund			mutual fund
51	the _____ aquire bonds and automaticall y accept the indenture	sharehold er	investor	bondhold er speculator	broker			bondhold er speculator
52	the activities of _____ have been divided into three points. i.e origination, underwriting and distribution	New issue market	stock exchange	secondary market	SEBI			stock exchange
53	It is transaction generally made by the bear speculator whereby the speculator acquire a right to sell is known as	call option	put option	the jobber	trader			put option
54	Investment in debentures is known as ---------- securities	debtor ship	creditor ship	assets	liabilities			creditor ship
55	The mutual funds that	closed end funds	stock indexed	open end funds	growth schemes			closed end funds

	are listed in the stock exchanges are		funds					
56	The Stock exchanges in India are regulated by the securities contract act	Feb 20 1955	Feb 20 1957	Feb 20 1958	Feb 20 1960			Feb 20 1957
57	The market timer is a	professional portfolio manager	active portfolio manager	passive portfolio manager	marketing manager			21
58	Capital issues control act was passed in	1940	1945	1947	1957			1947
59	The most popular method for floating shares in new issue market is____	Prospectus	Offer for sale	Placement	Rights issue			Prospectus
60	Jensen's performance index gives importance to the	asset combination	professional management	market condition	predictive ability of the manager			predictive ability of the manager

Register No.: ……..

[16BAU501A]

KARPAGAM ACADEMY OF HIGHER EDUCATION

(Deemed to be University Established Under Section 3 of UGC Act, 1956)

COIMBATORE – 641021

(For the candidates admitted from 2016 onwards)

Continuous Internal Examination, July - 2018

III BBA – V Semester

INVESTMENTANALYSIS AND PORTFOLIO MANAGEMENT

Time: 2 Hours Maximum: 50 Marks

Date & Session: .01.2018

PART – A (20 X 1 = 20 Marks)

ANSWER ALL THE QUESTIONS

1. _____ is the employment of funds.

a. Investment b. Speculation c. Gambling d. Portfolio

2. _____ Possibility of incurring a loss in financial transaction

a. Loss b. Risk c. Uncertainty d. Return

3. _____ financial investment also known as non securitized financial investment.

a. Negotiable b. Non negotiable c. Mutual fund d. Profitable

4. _____ an involvement of funds of high risk.

a. Investment b. Speculation c. Risk d. Gambling

5. A longer term fund allocation is termed as_____

a. Speculation b. Investment c. Gambling d. Portfolio

6. A short term holding is associated with trading is called_____

a. Speculation b. Investment c. Gambling d. Portfolio

7. _____ consists of uncertainty and high stackers for thrill and excitement.

a. Investment b. Gambling c. Speculation d. Portfolio

8. Commercial papers are _____

a. Unsecured promissory notes b. Secured promissory notes

c. Sold at a premium d. Issued for a period of 1 to 2 years

9. Investor requires _____ in his investments to meet emergencies

a. Stability b. Liquidity c. Tangibility d. Uncertainty

10. _____ is a long term debt instrument that promises to pay a fixed annual sum as interest for specified period of time.

a. Bond b. Debenture c. Government securities d. Money market securities

11. _____ requires knowledge of the different aspects of securities

a. Portfolio b. Investment c. Speculation d. Gambling

12. _____ is the usual form of government securities

a. Promissory notes b. Stock certificates c. Deposits d. Common stocks

13. _____ are the biggest purchasers of stock certificates

a. LIC b. Provident funds c. Pension fund d. LIC & Provident fund

14. Government securities are invested by_____

a. Financial institutions b. Commercial banks

c. Financial institutions and Commercial Banks d. Mutual fund

15. _____ provides protection against early death.

a. Life insurance b. Investment c. Mutual Fund d. Bank Deposits

16. _____ also qualify as collateral for loans

a. Fixed Deposits b. Saving banks c. RBI d. LIC

17. The shape of the curve can be explained by the expectations of the investors about the future interest rates_____

a. Expectation theory b. Segmentation theory

c. Liquidity preference theory d. leadership theory

18. _____occurs when a government's total expenditure exceeds the revenue there it generates excluding money from borrowings.

a. Fiscal deficit b. Underwriting c. Origination d. Subscription

19. Gross domestic product ia a logical factor to analyse the economy in picking up a stock because it indicates _____

a. Inflation or deflation b. The market value of asset

c. The status of the economy d. The condition of the stock market

20. The growth in book value per share shows the _____

a. Rise in the share price b. Increase in the physical asset of the firm

c. Increase in the net worth d. Growth in reserves

PART – C (3 X 2 = 6 Marks)
ANSWER ALL THE QUESTIONS

21. List out the Investment alternatives?

22. Distinguish between Investment and Speculation.

23. What is an EIC framework?

PART – C (3 X 8 = 24 Marks)
ANSWER ALL THE QUESTIONS

24. a. What is an Investment? Explain its nature, scope and importance of Investment. **(or)**
b. Define risk and distinguish between systematic and unsystematic risk.

25. a. What are the statistical tools used to measure the risk of the securities return? Explain. **(or)**
b. What is yield curve? Explain its theories.

26. a. Elucidate the concept of Economic analysis and state the economic factors considered for this analysis **(or)**
b. How do various indicators predict the prospect for investment in stocks?

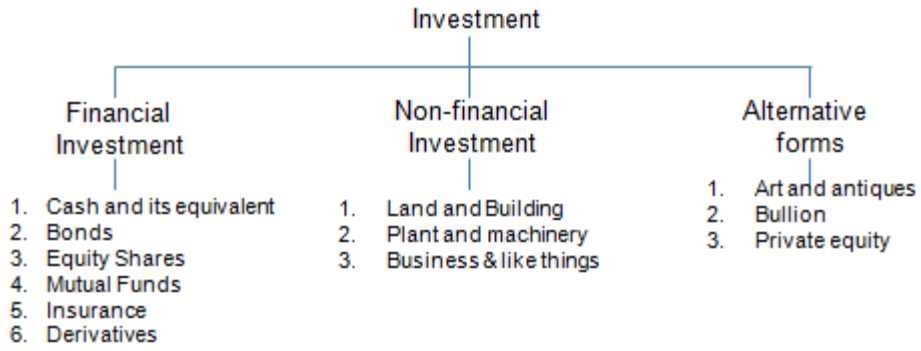
KARPAGAM ACADEMY OF HIGHER EDUCATION
INVESTMENTANALYSIS AND PORTFOLIO MANAGEMENT
III BBA-V – Semester
ANSWER KEY FOR CIA I TEST

PART – A (20 X 1 = 20 Marks)

1. Investment
2. Risk
3. Non negotiable
4. Speculation
5. Investment
6. Speculation
7. Gambling
8. Secured promissory notes
9. Liquidity
10. Bond
11. Investment
12. Promissory notes
13. LIC & Provident fund
14. Financial institutions and Commercial Banks
15. Life insurance
16. Fixed Deposits
17. Expectation theory
18. Fiscal deficit
19. The status of the economy
20. Rise in the share price

PART – C (3 X 2 = 6 Marks)

21. List out the Investment alternatives?



22. Distinguish between Investment and Speculation.

- It also involves putting money into an asset which is not necessarily marketable in the short run in order to enjoy the series of returns the investment is expected to yield.

• People who make fortunes in stock market and they are called investors.

• Decision making is a well thought process.• Key determinant of investment process: – Risk – Expected Return.

Speculation

• Speculation is a financial action that does not promise safety of the initial investment along with the return on the principal sum.

• Its is usually short run phenomenon.

• Speculator the person tend to buy the assets with the expectation that a profit cane earned from subsequent price change and sale.

23. What is an EIC framework?

- Economic
- Industry
- Company analysis.

PART – C (3 X 8 = 24 Marks)

24. a. What is an Investment? Explain its nature, scope and importance of Investment.

Meaning of Investment

Investment is the employment of funds or capital appreciation

Nature and Scope of Investment

It helps in making investment decisions. Higher the risk, higher the expected return. One can take decision only after analyzing entire process of investment that starts with fund contribution and ends with getting expectations fulfilled. Higher the time period of investment, lesser the uncertainties of investment.

 Cash has an investment opportunity when you decide to invest it you are deprived of this opportunity to earn a return on that cash. When the general price level rises the purchasing power of cash declines- larger the increase in inflation, the greater the depletion in the buying power of cash. Some investors buy government securities or deposit their money in bank accounts that are adequately secured. In contrast, some others prefer to buy, hold and sell equity shares even when they know that they get exposed to risk.

 Risk is the probability that the actual return on an investment will be different from its expected return. Using this definition of risk, you may} classify various investments into risk categories. Government securities would be seen as} risk free investments because the probability of actual return diverging from expected return is zero.

b. Define risk and distinguish between systematic and unsystematic risk.
In finance, different types of risk can be classified under two main groups, viz.,

1. Systematic risk.
2. Unsystematic risk.

The meaning of systematic and unsystematic risk in finance:

1. Systematic risk is uncontrollable by an organization and macro in nature.
2. Unsystematic risk is controllable by an organization and micro in nature.

A. Systematic Risk

Systematic risk is due to the influence of external factors on an organization. Such factors are normally uncontrollable from an organization's point of view.

It is a macro in nature as it affects a large number of organizations operating under a similar stream or same domain. It cannot be planned by the organization.

The types of systematic risk are depicted and listed below.

* **Note:** In context of types of risk in finance, purchasing power risk and inflationary risk are same.

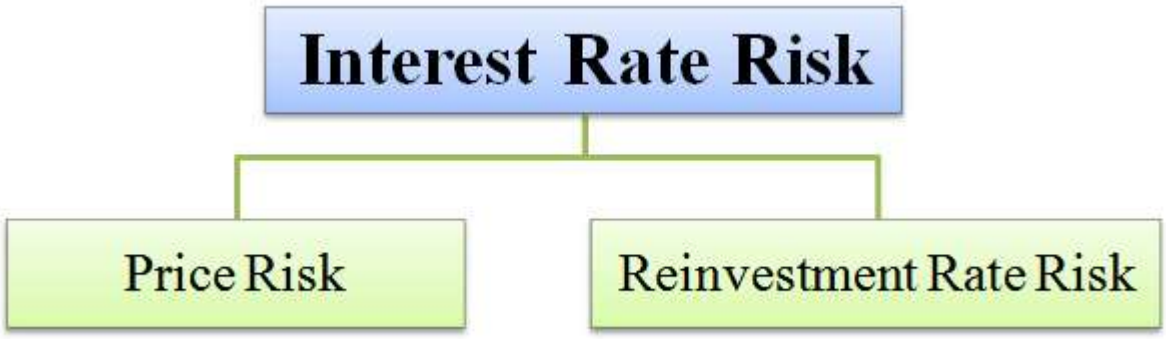
1. Interest rate risk,
2. Market risk and
3. Purchasing power or inflationary risk.

Now let's discuss each risk classified under this group.

1. Interest rate risk

Interest-rate risk arises due to variability in the interest rates from time to time. It particularly affects debt securities as they carry the fixed rate of interest.

The types of interest-rate risk are depicted and listed below.



1. Price risk and
2. Reinvestment rate risk.

The meaning of price and reinvestment rate risk is as follows:

1. Price risk arises due to the possibility that the price of the shares, commodity, investment, etc. may decline or fall in the future.
2. Reinvestment rate risk results from fact that the interest or dividend earned from an investment can't be reinvested with the same rate of return as it was acquiring earlier.

2. Market risk

Market risk is associated with consistent fluctuations seen in the trading price of any particular shares or securities. That is, it arises due to rise or fall in the trading price of listed shares or securities in the stock market.

The types of market risk are depicted and listed below.

1. Absolute risk,
2. Relative risk,
3. Directional risk,
4. Non-directional risk,
5. Basis risk and
6. Volatility risk.

The meaning of different types of market risk is as follows:

1. Absolute risk is without any content. For e.g., if a coin is tossed, there is fifty percentage chance of getting a head and vice-versa.
2. Relative risk is the assessment or evaluation of risk at different levels of business functions. For e.g. a relative-risk from a foreign exchange fluctuation may be higher if the maximum sales accounted by an organization are of export sales.
3. Directional risks are those risks where the loss arises from an exposure to the particular assets of a market. For e.g. an investor holding some shares experience a loss when the market price of those shares falls down.
4. Non-Directional risk arises where the method of trading is not consistently followed by the trader. For e.g. the dealer will buy and sell the share simultaneously to mitigate the risk
5. Basis risk is due to the possibility of loss arising from imperfectly matched risks. For e.g. the risks which are in offsetting positions in two related but non-identical markets.
6. Volatility risk is of a change in the price of securities as a result of changes in the volatility of a risk-factor. For e.g. it applies to the portfolios of derivative instruments, where the volatility of its underlying is a major influence of prices.

B. Unsystematic Risk

Unsystematic risk is due to the influence of internal factors prevailing within an organization. Such factors are normally controllable from an organization's point of view.

It is a micro in nature as it affects only a particular organization. It can be planned, so that necessary actions can be taken by the organization to mitigate (reduce the effect of) the risk.

25. a. What are the statistical tools used to measure the risk of the securities return? Explain.

STANDARD DEVIATION: The risk can be measured with an absolute measure of dispersion, or variability. The most commonly used measure of dispersion over some period of years is the standard deviation, which measures the deviation of each observation from the arithmetic mean of the observations and is a reliable measure of variability, because all the information in a sample is used. The standard deviation is a measure of the total risk of an asset or a portfolio. It captures the total variability in the assets or portfolio's return, whatever the source(s) of that variability

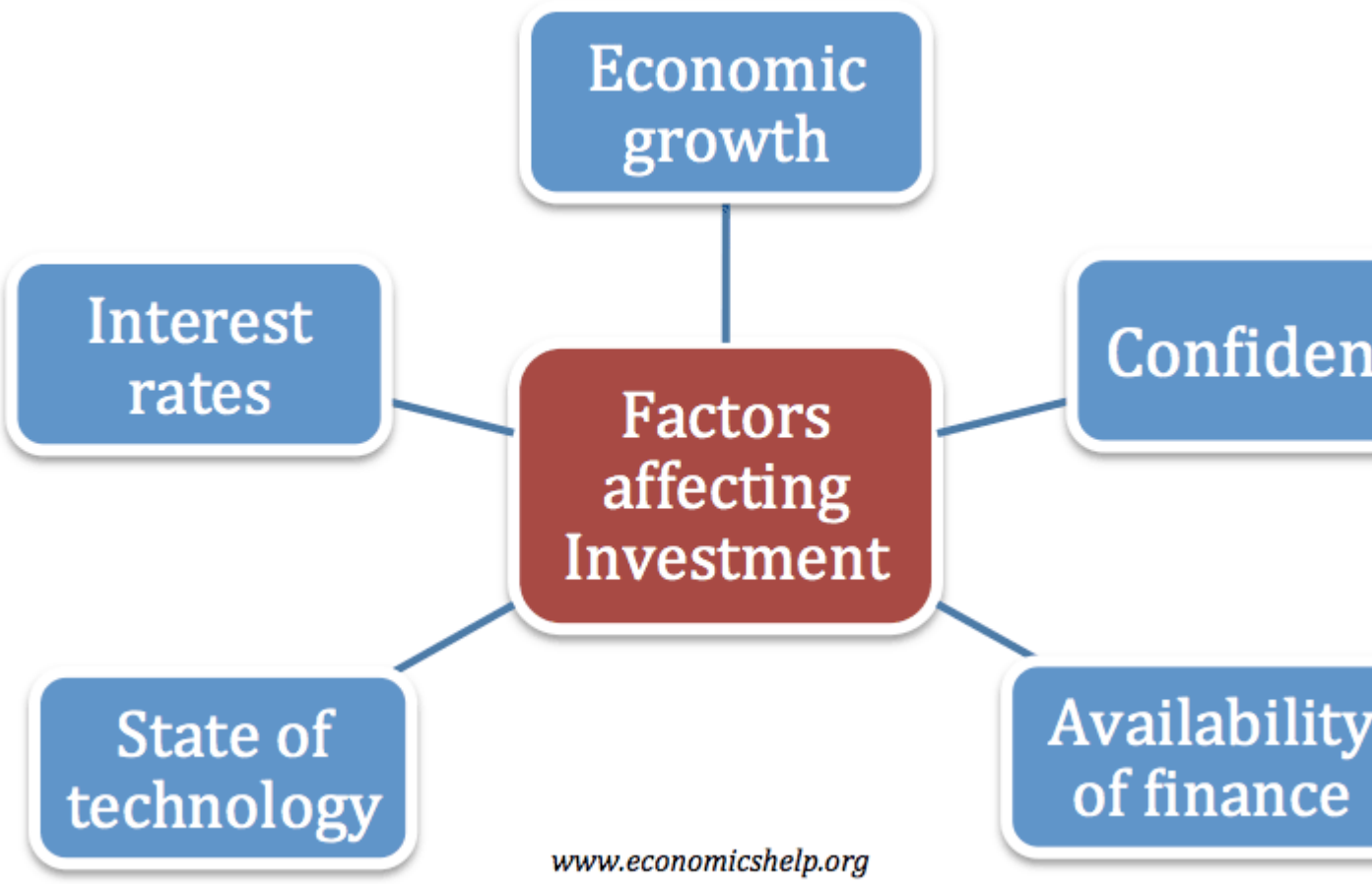
b. What is yield curve? Explain its theories.

The yield curve is a line graph that plots the relationship between yields to maturity and time to maturity for bonds of the same asset class and credit quality. The plotted line begins with the spot interest rate, which is the rate for the shortest maturity, and extends out in time, typically to 30 years. Figure 1 below is the yield curve for U.S. Treasuries on December 31, 2002. It shows that the yield at that time for the two-year Treasury bond was about 1.6%. Figure 1 Source: Salomon Yieldbook

A yield curve can be created for any specific segment of the bond market, from triple-A rated mortgage-backed securities to single-B rated corporate bonds. The Treasury bond yield curve is the most widely used, however, because Treasury bonds have no perceived credit risk, which would influence yield levels, and because the Treasury bond market includes securities of virtually every maturity, from 3 months to 30 years. A yield curve depicts yield differences, or yield spreads, that are due solely to differences in maturity. It therefore conveys the overall relationship that prevails at a given time in the marketplace between bond interest rates and maturities

26. a. Elucidate the concept of Economic analysis and state the economic factors considered for this analysis

1. nterest rates (the cost of borrowing)
2. Economic growth (changes in demand)
3. Confidence/expectations
4. Technological developments (productivity of capital)
5. Availability of finance from banks.
6. Others (depreciation, wage costs, inflation, government policy)



b. How do various indicators predict the prospect for investment in stocks?

Industry/Sector Analysis:

Companies producing similar products are subset of an Industry/Sector. For example, Infosys, TCS, Tech Mahindra belong to IT Sector of India.

It is very important to see how the industry to which the company belongs is faring. Specifics like effect of Government policy, future demand of its products etc. need to be checked.

At times prospects of an industry may change drastically by any alterations in business environment. For instance, devaluation of rupee may brighten prospects of all export oriented companies which just happened with all IT Stocks in 2013.

2. Corporate Analysis:

How has the company been faring over the past few years? Seek information on its current operations, managerial capabilities, growth plans, its past performance vis-a-vis its competitors etc.

3. Financial Analysis:

If performance of an industry as well as of the company seems good, then check if at the current price, the share is a good buy.

For this look at the financial performance of the company and certain key financial parameters like Earnings Per Share (EPS), P/E ratio, current size of equity etc. for arriving at the estimated future price.

For that you need to understand financial statements of a company i.e. Balance Sheet and Profit and Loss Account contained in the Annual Report of a company. To extract the information from the financial statements, a number of tools are used. The most popular tool is the **Ratio Analysis.**

A. Ratio Analysis:

Financial ratios can be broadly classified into three groups.

I. Liquidity ratios:

Liquidity refers to the ability of a firm to meet its financial obligations in the short-term which is less than a year. These are based upon the relationship between current assets and current liabilities. Certain ratios, which indicate the liquidity of a firm are

a. Current Ratio:

The current ratio measures the ability of the firm to meet its current liabilities from the current assets. Higher the current ratio, greater the short-term solvency (i.e. larger is the amount of rupees available per rupee of liability)

$$\text{Current Ratio} = \frac{\textit{Current Assets}}{\textit{Current Liabilities}}$$

b. Acid Test Ratio:

The acid-test ratio is a measurement of firm's ability to convert its current assets quickly into cash in order to meet its current liabilities. Quick assets are current assets excluding inventories and prepaid expenses. Generally speaking 1:1 ratio is considered to be satisfactory.

$$\text{Acid test Ratio} = \frac{\textit{Quick Assets}}{\textit{Current Liabilities}}$$

c. Turnover Ratio:

Turnover ratios measure how quickly certain current assets are converted into cash or how efficiently the assets are employed by a firm. The important turnover ratios are

i. Inventory Turnover Ratio:

The inventory turnover ratio tells the efficiency of inventory management. Higher the ratio, more the efficient of inventory management.

where, the cost of goods sold means sales minus gross profit. 'Average Inventory' refers to simple average of opening and closing inventory.

$$\text{Inventory Turnover Ratio} = \frac{\text{Cost of Goods Sold}}{Avg.\,Inventory}$$

ii. Debtors Turnover Ratio:

The ratio shows how many times accounts receivable (debtors) turnover during the year. If the figure for net credit sales is not available, then net sales figure is to be used. Higher the debtors turnover, the greater the efficiency of credit management.

$$\text{Debtor's Turnover Ratio} = \frac{\text{Net Credit Sales}}{Avg.\,Accounts\ Receivable}$$

iii. Average Collection Period:

Average Collection Period represents the number of days' worth credit sales that is locked in debtors (accounts receivable).

$$\text{Avg. Collection Period} = \frac{\text{Avg. Debtors}}{Avg.\,Daily\ Credit\ Sales}$$

iv. Fixed Assets Turnover Ratio:

Fixed Assets turnover ratio measures sales per rupee of investment in fixed assets. Higher is better

$$\text{Fixed Asset Turnover Ratio} = \frac{\text{Net Sales}}{Net\ Fixed\ Assets}$$

v. Total Assets Turnover:

Total Assets turnover ratio measures how efficiently all types of assets are employed.

$$\text{Total Asset Turnover Ratio} = \frac{\text{Net Sales}}{Avg.\,Total\ Assets}$$

II. Leverage/Capital structure ratio:

Long term financial strength or soundness of a firm is measured in terms of its ability to pay interest regularly or repay principal on due dates or at the time of maturity. Such long term solvency of a firm can be judged by using leverage or capital structure ratios.

a. Ratios calculated from Balance Sheet:

i. Debt to Equity Ratio:

Debt-Equity ratio reflects relative contributions of creditors and owners to finance the business. The desirable/ideal proportion of the two components (high or low ratio) varies from industry to industry.

$$\text{Debt} - \text{Equity Ratio} = \frac{\text{Total Debt}}{Total\ Equity}$$

ii. Debt to Asset Ratio:

Total debt comprises of long term debt plus current liabilities. The total assets comprise of permanent capital plus current liabilities.

$$\text{Debt Asset Ratio} = \frac{Total\ Debt}{Total\ Assets}$$

b. Ratios calculated from Profit and Loss Account:

i. Interest Coverage Ratio:

The lenders use this ratio to assess debt servicing capacity of a firm. Higher the interest coverage ratio better is the firm's ability to meet its interest burden.

$$\text{Interest Coverage Ratio} = \frac{\quad}{Interest}$$

ii. Debt Service Coverage Ratio (DSCR):

Financial institutions calculate the average DSCR for the period during which the term loan for the project is repayable.

$$\frac{Interest\ on\ term\ Loan + Repayment\ of\ term\ Loan}{\quad}$$

Register No.: …….

[16BAU501A]

KARPAGAM ACADEMY OF HIGHER EDUCATION
(Deemed to be University)
(Established under section 3 of UGC Act, 1956)
COIMBATORE-641021
(For the candidates admitted from 2016 onwards)

Continuous Internal Examination II August - 2018
III BBA – V Semester
INVESTMENTANALYSIS AND PORTFOLIO MANAGEMENT

Time: 2 Hours Maximum: 50 Marks
Date & Session: .08.2018

PART – A (20 X 1 = 20 Marks)
Answer ALL the Questions

1. A growth industry is _____
   a) An industry with 10% growth per annum
   b) An industry where demand for its product is exceeding supply
   c) A capital intensive industry
   d) An industry whose average growth is higher than the growth of economy
2. An analysis of the whole market of securities are termed as _____
   a) Macro analysis b) Micro analysis
   c) General analysis d) Particular analysis
3. An investor's focus on a company's basics is called _____ approach.
   a) Upward b) Bottom up
   c) Forward d) Downward
4. A technical analyst gives importance to total _____.
   a) Equity b) Bonds
   c) Shares d) Return
5. The technician believes that there is no _____ value to any stock.
   a) Face value b) Standard Value
   c) Real value d) Market Value
6. The primary trend which is used for analysis is _____.
   a) Short term trend b) Long term trend
   c) Very short term trend d) Medium term trend
7. A _____is a method of finding out the future price of a stock which an investor to buy.

a) Fundamental analysis b) Technical analysis

c) Economic analysis d) Industry analysis

8. The _____has been defined as a homogeneous group of people doing a similar kind of activity.

a) Economy b) Business

c) Industry d) Company

9. Return on equity is helpful in ascertaining the _____.

a) Share value b) Intrinsicvalue

c) Extrinsic value d) Depreciable value

10. Earnings per share represent the profit earned by _____.

a) Dividend b) Eachshare

c) Interest d) Market price

11. Minor trends are also called _____.

a) Random wriggles b) Bullish trend

c) Bearish trend d) Primary trend

12. Share sold in small lots are called _____.

a) Odd lots b) Even lots

c) Share split d) Bonus shares

13. A decrease in the index shows more _____.

a) Selling b) Buying

c) Holding d) investigating

14. The _____theory is one of the oldest technical methods of security valuation.

a) Markowitz theory b) Dow theory

c) Japanese candle sticks charts d) Random walk theory

15. When there is a bull in the trading market followed by _____

a) Low purchase b) High purchase

c) Medium purchase d) Average purchase

16. The market indices do not rise or fall in _____

a) Upward line b) Downward line

c) Straight line d) Bullet line

17. In the weak form of market stock prices reflect _____.

a) the past prices and traded volumes b) the demand for the scrip

c) the economic conditions d) the past price of the scrip

18. Identify the convertible securities _____.

a) Preference shares b) Equity shares

b) Public deposit d) Private deposit

19. Charts help technical analysis _____

a) Complicate b) Flexible

c) Effective d) Wrong

20. Market data includes all of the following except _____.

a) Number of shares traded b) Volume of traded

c) Level of market indices d) Earnings

PART – B (3 X 2 = 6 Marks)
Answer ALL the Questions

21. What is Technical analysis?

22. List out the assumptions of Dow theory.

23. What is company analysis?

PART – C (3 X 8 = 24 Marks)
Answer ALL the Questions

24. a. What is fundamental analysis? How does fundamental analysis differ from technical analysis? (or)

b. "Industry lifecycle exhibits the status of the industry and gives the clue to entry and exit for investors" Elucidate.

25. a. Explain in detail the Dow Theory and how is it used to determine the direction of stock market. (or)

b. Choose any one MNC operated in India and apply SWOT analysis for that MNC.

26. a. Discuss the role of P/E ratio in making the sell and buy decision.

(or)

b. Explain the level of market efficiency through Random – Walk theory

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