STRATEGIC INVESTMENT AND FINANCING DECISIONS

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MBA IV semester

Regulation: IARE R-18

BY

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Course outcomes

CO's	Course outcomes
CO1	Understand the risk, uncertainty, risk analysis in investment decisions, risk adjusted rate of return and certainty equivalents.
CO2	Examine the probability distribution of cash flows decision trees, sensitivity analysis and Monte Carlo approach to simulation.
CO3	Enumerate the investment decisions under capital constraints like capital rationing, portfolio risk and diversified projects.
CO4	Familiarize different types of investment, disinvestments, project abandonment decisions and evidence of internal rate of return.
CO5	Explain the concept of multiple internal rate of return, Modified internal rate of return, pure, simple and mixed investments.

Course outcomes

CO's	Course outcomes
CO6	Determine the Lorie savage paradox, adjusted net present value and know the impact of inflation on capital budgeting decisions.
CO7	Demonstrate the discounted pay back, post pay back, surplus life, surplus payback and bail out pay back.
CO8	Express the concepts of return on investment, equivalent annual cost, terminal value, single period constraints, multi period capital constraints and unresolved problem
CO9	Apply the techniques of net present value, mean variance analysis hertz simulation, hillier approaches and the significance of information and data bank in project selections.
CO10	Discuss the concepts of lease financing, leasing Vs. Operating risk, borrowing vs. procuring, hire purchase and installment purchase decisions.

UNIT– I
INVESTMENT DECISIONS UNDER CONDITIONS OF RISK UNCERTAINTY

Meaning of Investment Decisions:

Investment decision and capital budgeting are not considered different acts in business world. In investment decision, the word ‘Capital’ is Investment decision and capital budgeting are not considered different acts in business world. In investment decision, the word ‘Capital’ is exclusively understood to refer to real assets which may assume any shape viz. building, plant and machinery, raw material and so on and so forth, whereas investment refers to any such real assets.

Simply, selecting the type of assets in which the funds will be invested by the firm is termed as the investment decision. These assets fall into two categories:

1. Long Term Assets
2. Short-Term Assets

Investment proposal

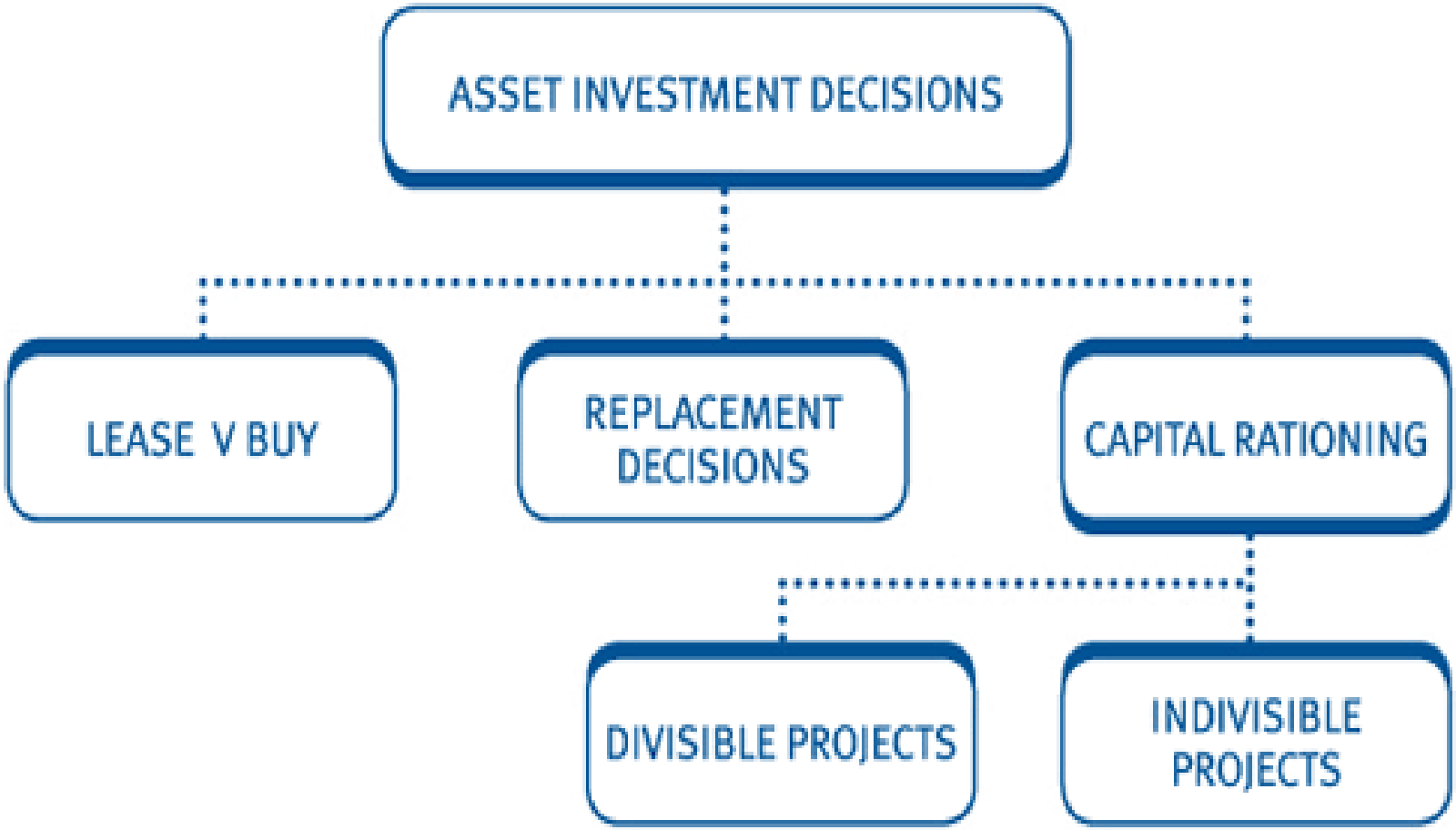
Capital Budgeting is the process of selecting the asset or an investment proposal that will yield returns over a long period.

Step1: Involved in Capital Budgeting is to select the asset, whether existing or new on the basis of benefits that will be derived from it in the future.

Step2 : The next step is to analyze the proposal's uncertainty and risk involved in it. Since the benefits are to be accrued in the future, the uncertainty is high with respect to its returns.

Step3 : the minimum rate of return is to be set against which the performance of the long-term project can be evaluated.

Categories of Investment Decisions:



Categories of Investment Decisions:

- **Inventory Investment:**
  Holding of stocks of materials is unavoidable for smooth running of a business. The expenditure on stocks comes in the category of investments.
- **Strategic Investment Expenditure:**
  In this case, the firm makes investment decisions in order to strengthen its market power. The return on such investment will not be immediate.
- **Modernization Investment Expenditure:**
  In this case, the firm decides to adopt a new and better technology in place of the old one for the sake of cost reduction. It is also known as capital deepening process.

Categories of Investment Decisions:

- **Expansion Investment on a New Business:**
  In this case, the firm decides to start a new business or diversify into new lines of production for which a new set of machines are to be purchased.
- **Replacement Investment:**
  In this category, the firm takes decisions about the replacement of worn out and obsolete assets by new ones.
- **Expansion Investment:**
  In this case, the firm decides to expand the productive capacity for existing products and thus grows further in a unit-direction. This type of investment is also called capital widening.

Need for Investment Decisions:

The need for investment decisions arrives for attaining the long term objective of the firm viz. survival or growth, preserving share of a particular market and retain leadership in a particular aspect of economic activity.

- Estimate of capital outlays and the future earnings of the proposed project focusing on the task of value engineering and market forecasting,
- Availability of capital and consideration of cost-focusing attention as financial analysis, and
- A correct set of standards by which to select projects for execution to maximize return-focusing attention on logic and arithmetic.

Estimate of Capital Outlays and Future Earnings of the Proposed Project:

Advance Expenditure:

The expenditure on technical and economic feasibility reports, plant design, license fee and associated costs, expenditure on the search for finances.

Land and Site Development Expenditure:

This includes the cost of land acquired or leasing of land, expenditures on making the land usable, laying of roads, fencing, etc.

Construction Costs:

The expenditures on factory buildings, residential houses, roads, electricity supply lines, etc.

Machines and Tools:

The cost of machinery should include purchase price of machines, duty, tax, freight insurance, transport charges, etc.

Estimate of Capital Outlays and Future Earnings of the Proposed Project:

Erection of Equipment:

The whole plant constituting different types of machines has to be assembled at the plant site. The payment made for installation will be accounted in this category.

Training Expenditure:

A firm before purchasing such machines has to get its personnel trained to handle them. The cost incurred on such training will have to be accounted.

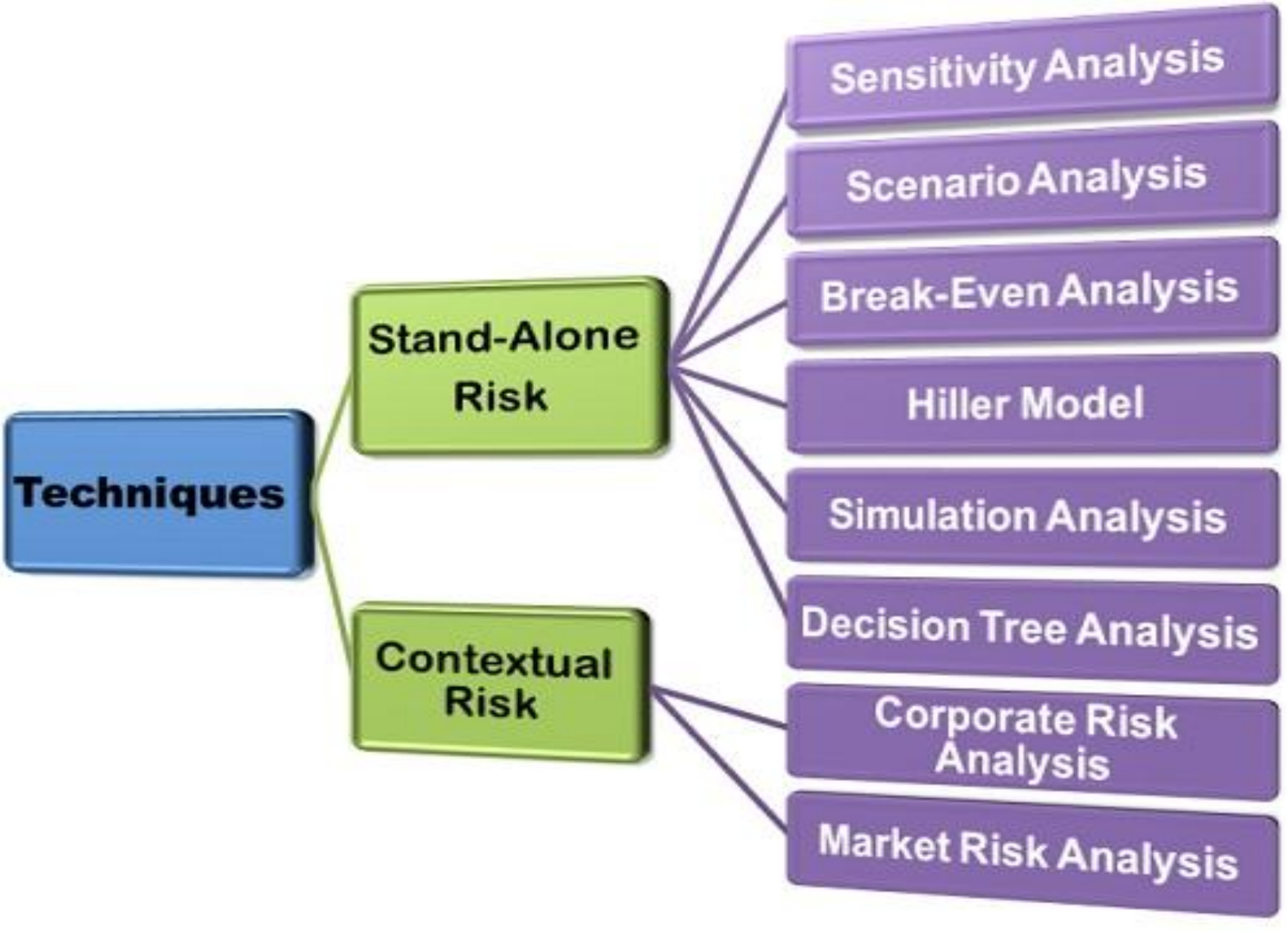
Franchise Cost:

The cost incurred in getting the franchise from the government or any other institution is also included in this category.

Cost of Mobilizing Finance:

The firms raise funds partly in the form of shares, bonds, debentures and fixed deposit from the public at large.

Techniques of investment decision



Sources of Capital

Internal Capital:

- It is generated by the firm itself. It includes retained profit, depreciation provision, taxation provision and other reserves.

Short-term Capital:

- It is needed to meet day to day expenses (working capital).

Medium-term Capital:

- It may be sought for investment in plant and equipment or semi--permanent or permanent addition to current assets. It can be of any use between one to ten years.

Long-term Capital:

- It is needed to meet the requirements of fixed capital formation.

Concepts of risk and uncertainty

- **Systematic Risk**: Interest Risk, Inflation Risk, Market Risk, etc.
- **Unsystematic Risk**: Business Risk and Financial Risk.

1. **Systematic Risk** is associated with the market. This risk affects the overall market of the security. It is unpredictable and undiversifiable; however, the risk can be mitigated through hedging
2. **Unsystematic Risk**

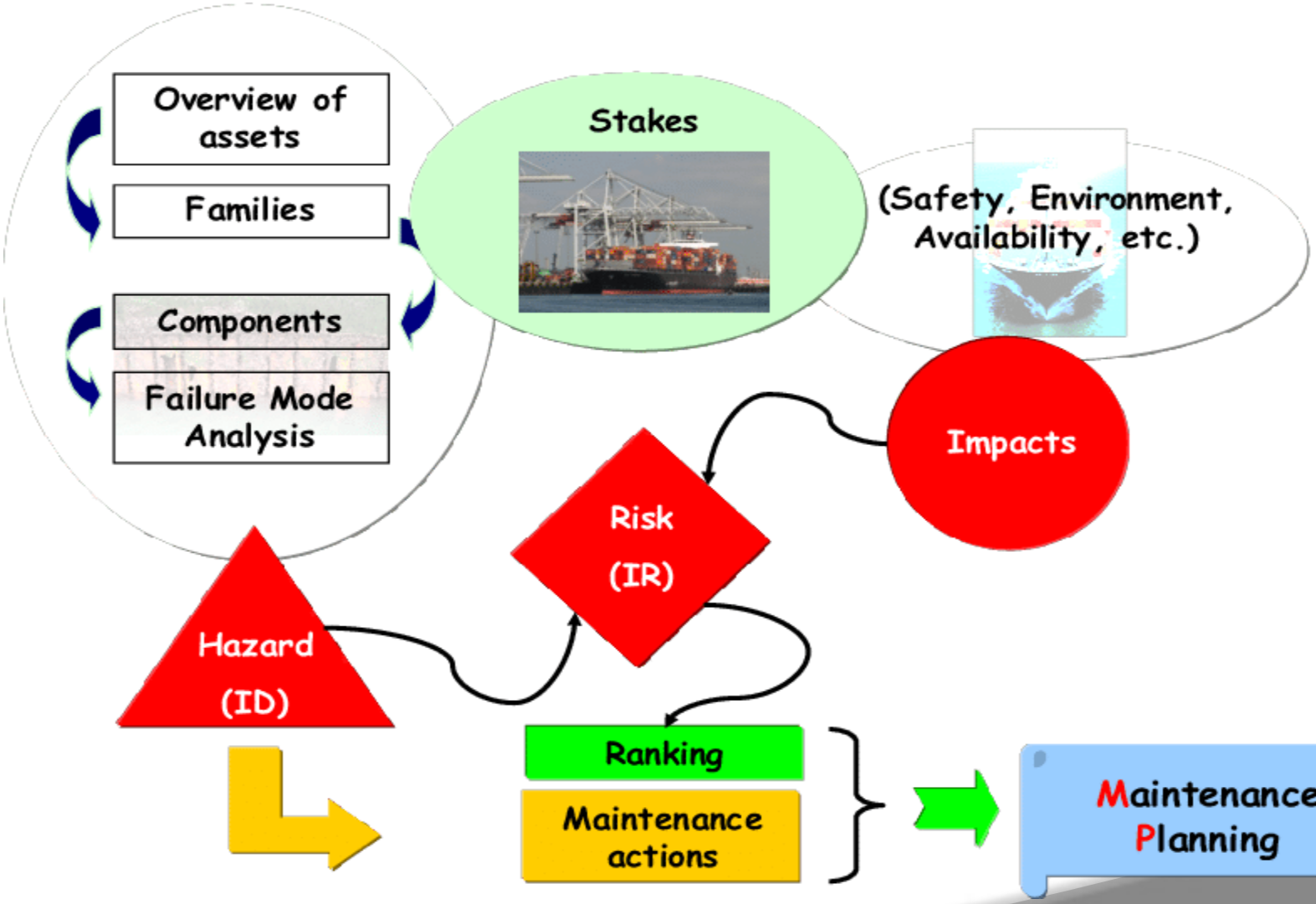
The second category of risk, unsystematic risk, is associated with a company or sector. It is also known as diversifiable risk and can be mitigated through asset diversification.

Uncertainty

Definition of Uncertainty

By the term uncertainty, we mean the absence of certainty or something which is not known. It refers to a situation where there are multiple alternatives resulting in a specific outcome, but the probability of the outcome is not certain. This is because of insufficient information or knowledge about the present condition. Hence, it is hard to define or predict the future outcome or events. Uncertainty cannot be measured in quantitative terms through past models. Therefore, probabilities cannot be applied to the potential outcomes, because the probabilities are unknown.

Uncertainty



Key Differences between Risk and Uncertainty

- The risk is defined as the situation of winning or losing something worthy. Uncertainty is a condition where there is no knowledge about the future events.
- The potential outcomes are known in risk, whereas in the case of uncertainty, the outcomes are unknown.
- Risk can be controlled if proper measures are taken to control it. On the other hand, uncertainty is beyond the control of the person or enterprise, as the future is uncertain.
- Minimization of risk can be done, by taking necessary precautions. As opposed to the uncertainty that cannot be minimized.

Risk analysis Investment decisions

- Assume two famous teams consist of renowned players, and they are going to play a football match the next day.
- Then you can come up with some numbers, like there is a 30% chance of Team A or Team B winning, or there is a 70% possibility of Team A or Team B losing the match.
- Now, let us put the same football match in a different scenario.
- In this situation, if somebody asked you which team is going to win, what would your response be?
- Here, you don’t have any information on past performance, and cannot predict the outcome of the event, even though the rules and the stadium are the same.
- This situation is called uncertainty.

Risk and reward/returns

- Greater the risk greater the return
- A risk without return is a suicide
- Risk can be minimized but cannot be eliminated
- Risk can be managed to keep it at lower side

1. **Credit Risk**: Credit risk is the risk that a change in the credit quality of counterparty will affect the value of security or a portfolio
2. **Liquidity Risk**: Liquidity risk comprises both funding liquidity risk and asset liquidity risk, although these two dimension of liquidity risk are closely related. Funding liquidity risk relates to a firm's ability to raise the necessary cash to roles over its debt.

Factors of Risk

1. Size of investment – larger the project, greater the investments and resulting risks.
2. Reinvestment of Cash Flows – models assume that cash inflows in future can be used by the company to earn similar rate of return from reinvestment. This is not certain.
3. Variability of Cash Flows – reliance on single estimate is risky. Range of estimates is desirable.
4. Life of the Project – cannot be determined precisely and has to be determined by technical experts.

Measurement of Risk

- **Operational Risk**; operational risk refers to potential losses resulting from inadequate system, management failure, faulty controls, fraud, and human error

- **Legal and Regulatory Risk**: Legal and regulatory risk arises for a whole variety of reasons and is closely related to reputation risk

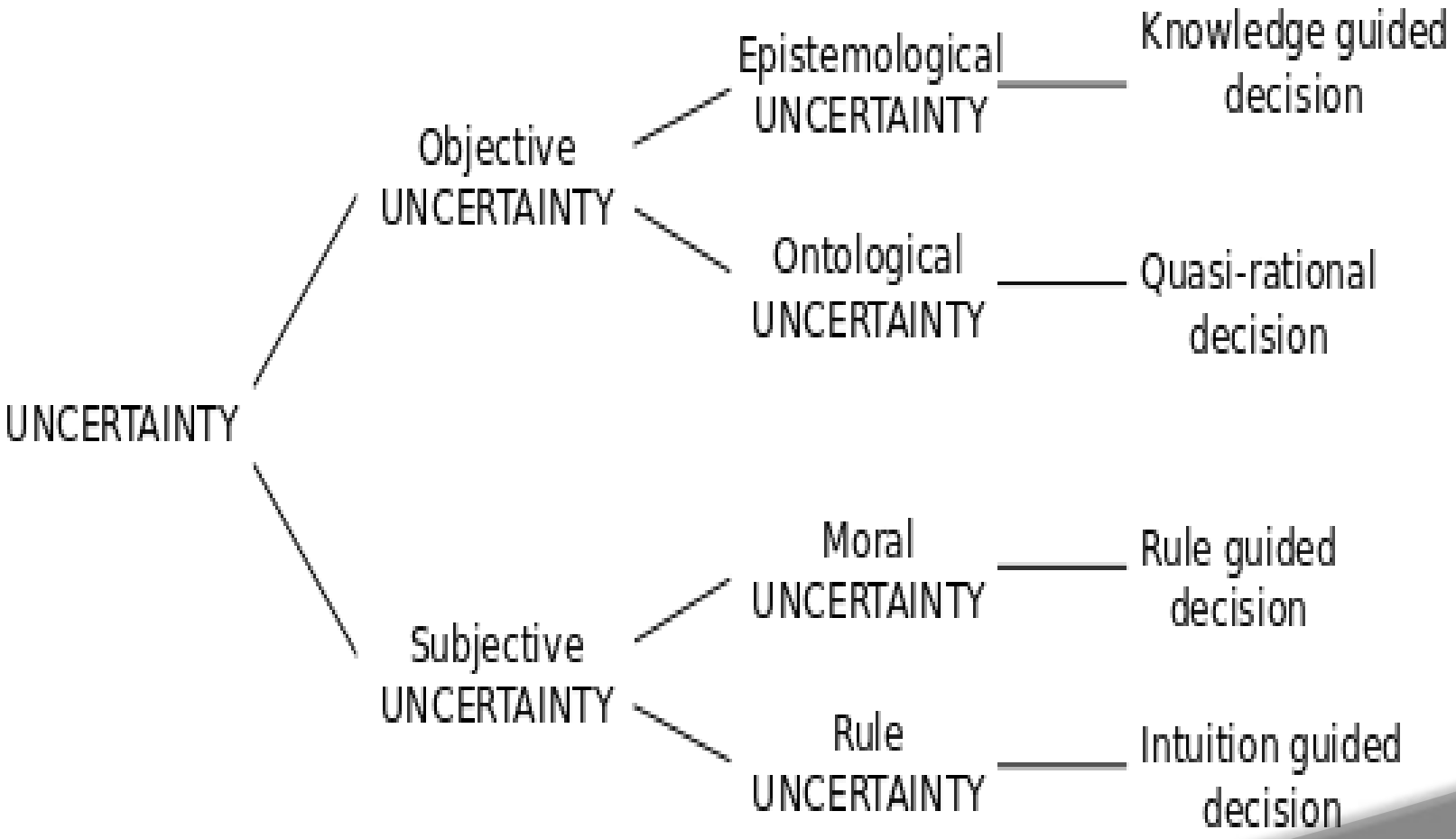
- **Business Risk**: Business risk refers to the classic risk of the world of business, such as uncertainty about the demand for products, the price that can be charged for those products, or cost of producing and delivering products

Measurement of Risk

- **Credit Risk**: Credit risk is the risk that a change in the credit quality of counterparty will affect the value of security or a portfolio

- **Liquidity Risk**: Liquidity risk comprises both funding liquidity risk and asset liquidity risk, although these two dimension of liquidity risk are closely related. Funding liquidity risk relates to a firm's ability to raise the necessary cash to roles over its debt; to meet the cash , margin and collateral requirements of counterparties: and (in the case of fund) to satisfy capital withdrawals. Asset liquidity risk, often simply called liquidity risk, is the risk that an institution will not be able to execute a transaction at the prevailing market price because there is, temporarily, no appetite for the deal on the other side of the market

Characteristics of investment decisions



Market risk

The risk that changes in financial market prices and rates will reduce the monetary value (There are four major types of market risk)

- **Interest Rate Risk**: The simplest form of interest rate risk is the risk that the value of a fixed income security will fall as a result of an increase in market interest rates.

- **Equity Price Risk**: The risk associated with volatility in stock prices. The general market risk of equity refers to sensitivity of an instrument or portfolio value to a change in the level of board stock market indices.

Market risk

- **The risk that changes in financial market** prices and rates will reduce the monetary value (There are four major types of market risk)

- **Foreign Exchange Risk**: Foreign exchange risk arises from open or imperfectly hedged positions in a particular currency. These positions may arise as a natural consequence of business operation, rather than from any conscious desire to take a trading position in a currency.

- **Commodity Price Risk**: The price risk of commodities differs considerably from interest-rate and foreign exchange risk, since most commodities are traded in market in which the concentration of supply in the hand of a few suppliers can magnify price volatility

Sensitivity analysis

The sensitive analyses provides different cash flow estimates under three assumptions:

1. the worst (i.e. the most pessimistic),
2. the expected (i.e. the most likely), and
3. the best (i.e. the most optimistic) outcomes associated with the project

- But it has a limitation in that it does not disclose the chances of the occurrence of these variations.
- To remedy this shortcoming of sensitive analysis so as to provide a more accurate forecast, what is needed is that the probability of the variations occurring should also be given.
- Probability assignment to expected cash flow, therefore, would provided a more precise measure of variability of cash flow

Sensitivity analysis

The quantification of variability of returns involves two steps. First, depending on the chance of occurrence of a particular cash flow estimate, probabilities are assigned

- The assignment of probabilities can be objective or subjective
- The second step is to estimate the expected return on the project. The returns are expressed in terms of expected monetary values. The expected value of a project is a weighted average return , where the weight are the probabilities assigned to the various expected events, i.e. the expected monetary values of estimated cash flows multiplied by the probabilities.

Precise measures of risk: coefficient of variation

- If the projects to be compared involve different outlay, the coefficient of variation is the correct choice, being a relative measure.

  The standard deviation can be misleading in uncertainty of alternative projects, if they differ in size. The coefficient of variation (V) is a correct technique in such cases. Its calculated as follow;

$$V = \frac{Absolute dispersion}{mean} or \frac{S.D}{Expected cash flow} or \frac{\sigma}{\overline{CF}}$$

Risk evaluation approaches-risk adjusted discount rate approach

- Under this method, the amount of risk inherent in a project is incorporated in the discount rate employed in the present value calculations. The relatively risky projects would have relatively high discount rate and relatively safe projects would have relatively low discount rate.
- The rate of discount or what we refer to as the cost of capital (k) is the minimum acceptable required rate of return.
- If the project earns less than the rates earned in the economy for that risk, the shareholders will be earning less than the prevailing rate for that risk level and the value of the company's

UNIT– II
INVESTMENTS AND DISINVESTMENTS

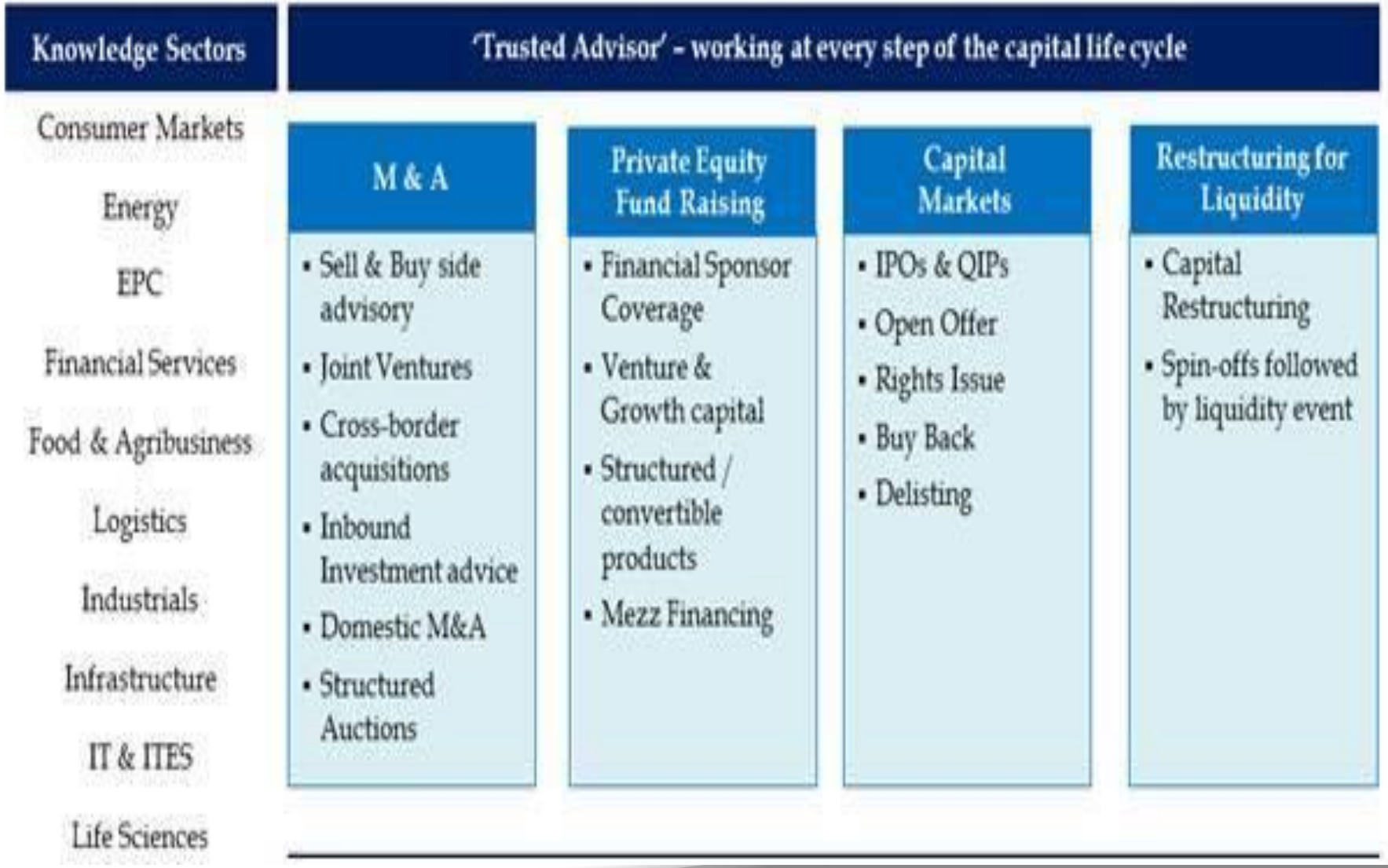
Investments

Definition: Money spent on acquiring a commodity which has the potential of making future income or wealth is known as investment. In simple terms, investment is engaging money today to maximise it in the future. An investor can be anyone, an individual, a business entity or even the government.

Capital investment

1. **Investor**: An investor can be any individual, firm or organization who has the potential of engaging one's capital for a long-term period (usually more than a year) to earn profit or wealth in future.
2. **Speculator**: Speculators usually invest the borrowed sum in the high-risk bearing opportunities for a short-term period (not exceeding six months) to earn high returns. They rely on calculations based on market trend, psychology and technical analysis.
3. **Trader**: Traders are the ones who deal in the derivatives market or the stock market, buying and selling their holdings within a day or a week or a month. They aim to earn a profit in the form of margins derived from price fluctuation.
4. **Gambler**: Gambler is the person who put in money or valuables without any basis or calculations in a game of luck or chance. He/she invests in betting, playing cards, tosses, etc., knowing that the outcome is uncertain.

Disinvestment



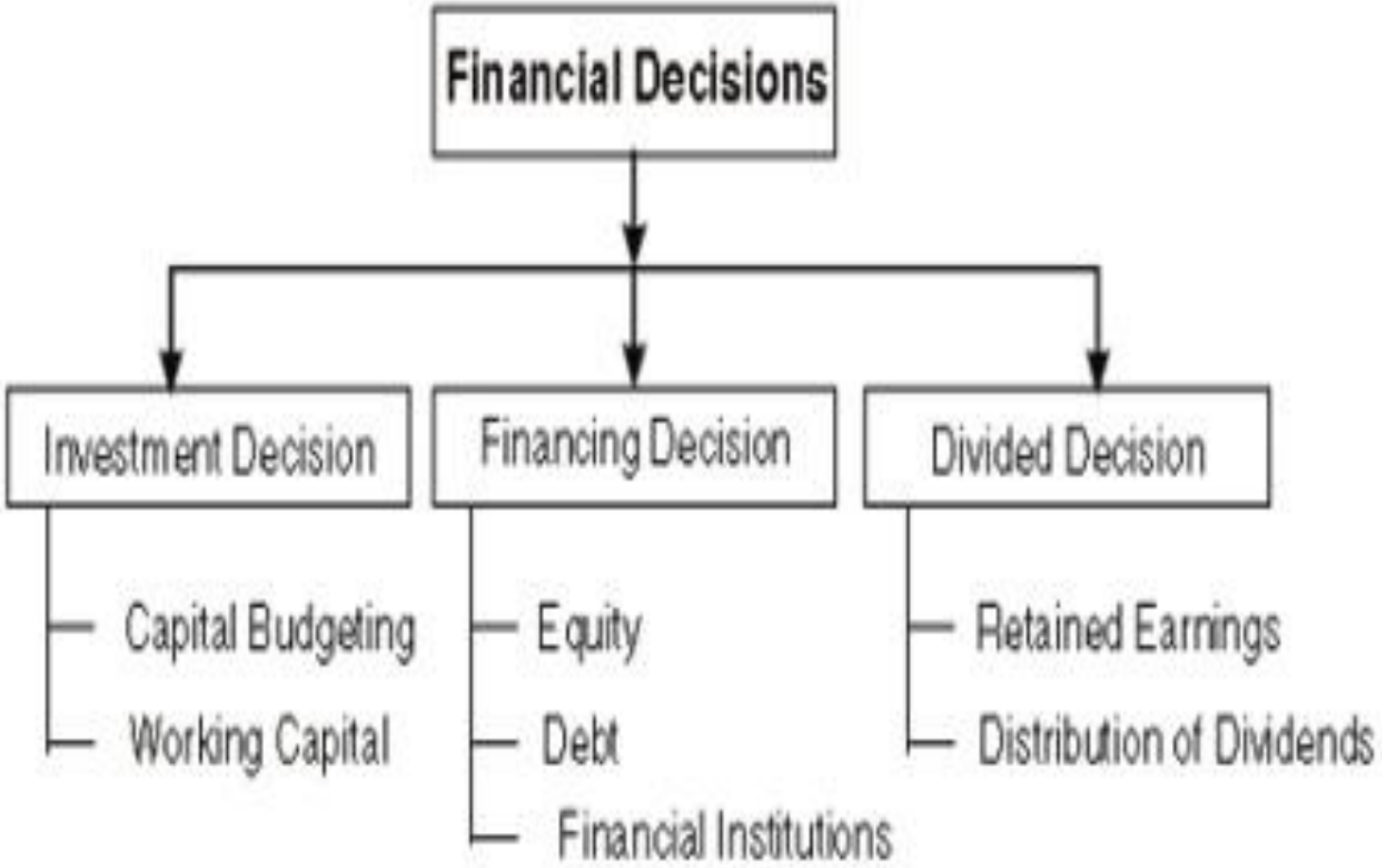
Investments

- **Time**: The period for which the investment is made must be at least one year. More extended the term period of investment is, higher will be the return yield. Investments like government bonds depend on this factor.
- **Risk**: Every investment bears some risk. Higher the potential of the investor to take a chance, better will be the return he gets. Stock market investments are majorly influenced by this factor.

Capital budgeting process

1. **Proposal generation**. Proposals for new investment projects are made at all levels within a business organization and are reviewed by finance personnel.
2. **Review and analysis**. Financial managers perform formal review and analysis to assess the merits of investment proposals
3. **Decision making**. Firms typically delegate capital expenditure decision making on the basis of dollar limits.
4. **Implementation.** Following approval, expenditures are made and projects implemented. Expenditures for a large project often occur in phases.
5. **Follow-up**. Results are monitored and actual costs and benefits are compared with those that were expected. Action may be required if actual outcomes differ from projected ones.

Financial Decisions



Capital Budgeting

1. **Step1:** Involved in Capital Budgeting is to select the asset, whether existing or new on the basis of benefits that will be derived from it in the future.
2. **Step2** : The next step is to analyze the proposal's uncertainty and risk involved in it. Since the benefits are to be accrued in the future, the uncertainty is high with respect to its returns.
3. **Step3** : the minimum rate of return is to be set against which the performance of the long-term project can be evaluated.

Types of investments

Definition: Money spent on acquiring a commodity which has the potential of making future income or wealth is known as investment. In simple terms, investment is engaging money today to maximize it in the future. An investor can be anyone, an individual, a business entity or even the government.

Risk can be measured and quantified, through theoretical models. Conversely, it is not possible to measure uncertainty in quantitative terms, as the future events are unpredictable.

Working Capital

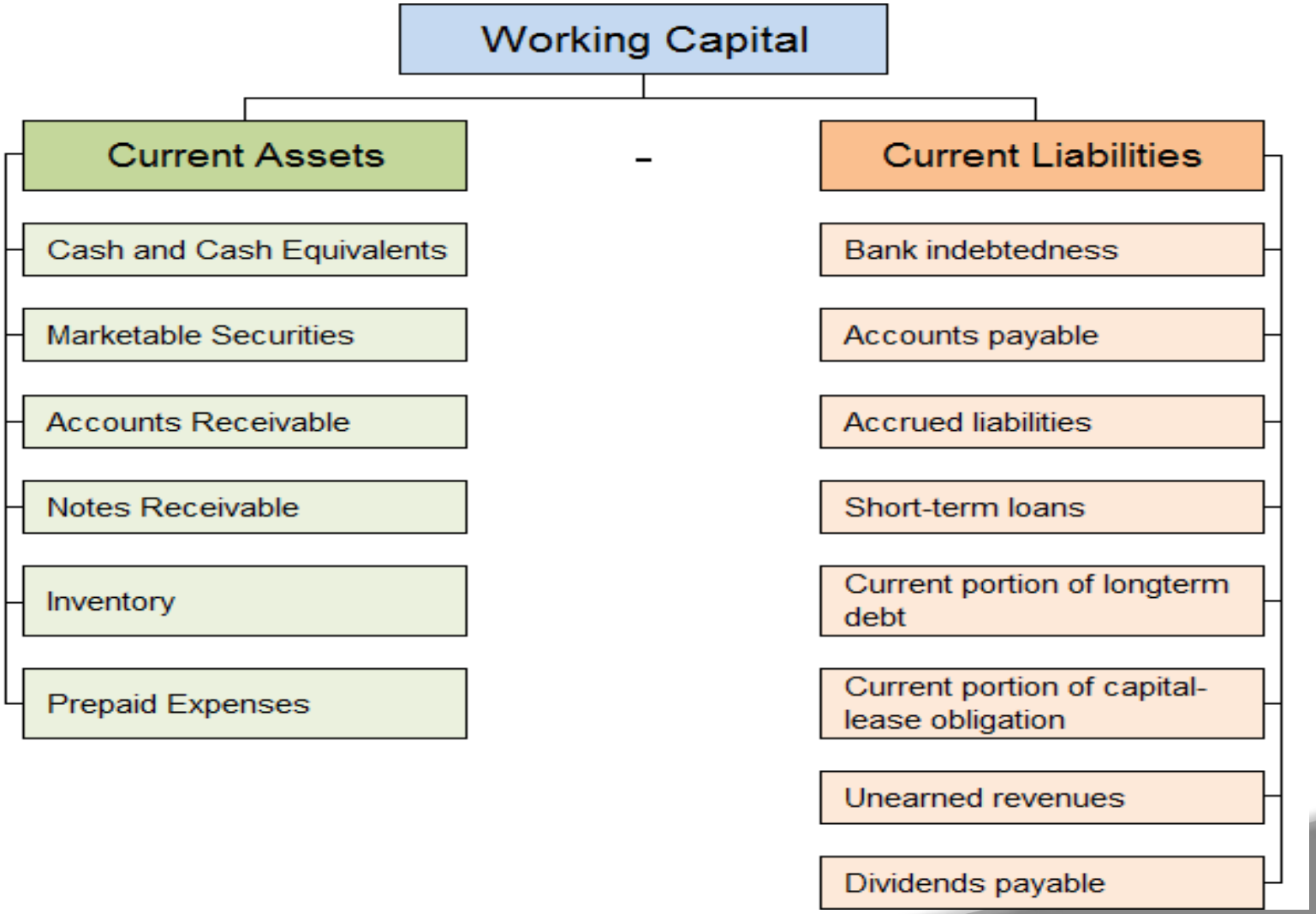
Definition:

Working capital is money available to a company for day-to-day operations. It is also called as circulating capital

Simply put, working capital measures a company's liquidity, efficiency, and overall health of business.

To take advantage of new technology or advancements in equipment or machinery to increase efficiency and reduce costs

Components of working capital



Objectives of Capital Investment

- To acquire additional capital assets for expansion, enabling the business to, for example, increase unit production, create new products, or add value;
- To take advantage of new technology or advancements in equipment or machinery to increase efficiency and reduce costs
- To replace existing assets that have reached end-of-life (a high-mileage delivery vehicle or an aging laptop computer, for example)

Payback method

1. The payback method is widely used by large firms to evaluate small projects and by small firms to evaluate most projects.
2. Its popularity results from its computational simplicity and intuitive appeal.
3. By measuring how quickly the firm recovers its initial investment, the payback period also gives implicit consideration to the timing of cash flows and therefore to the time value of money.
4. Because it can be viewed as a measure of risk exposure, many firms use the payback period as a decision criterion or as a supplement to other decision techniques.

Non discounting: Pay-Back Period

Pay-Back Period Method- It is defined as the number of years required to recover original cost invested in a project. It has two conditions

- When cash inflow is constant every year

  PBP= Cash outflow/cash inflow (p.a.)

- When cash inflow are not constant every year

  $$\text{PBP} = \text{Completed years} + \frac{\text{required inflow}}{\text{inflow of next year}} * 12$$

Non discounting: Annual Rate of Return

Average Rate of Return Method –

ARR means the average annual earning on the project. Under this method, profit after tax and depreciation is considered. The average rate of return can be calculated in the following two ways.

$$\text{ARR on average investment} = \frac{\text{Average profit after tax}}{\text{Average investment}}$$

$$\text{ARR on initial investment} = \frac{\text{Average profit after tax}}{\text{Initial investment}}$$

Discounting Criteria: Pay-Back Period

Discounted Pay-Back Period Method –

- In discounted pay- back period method, the cash inflows are discounted by applying the present value factors for different time periods. For this, discounted cash inflows are calculated by multiplying the P.V. factors into cash inflows.

1. Discounted = completed years + $\frac{\text{Required inflow}}{\text{Inflow of next year}}$

TABLE 10.2 Relevant Cash Flows and Payback Periods for DeYarman Enterprises' Projects

	Project gold	Project silver
Initial investment	$50,000	$50,000
Year	Operating cash inflows	
1	$ 5,000	$40,000
2	5,000	2,000
3	40,000	8,000
4	10,000	10,000
5	10,000	10,000
Payback period	3 years	3 years

Discounting Criteria: Net Present Value

Net present value (NPV) is a sophisticated capital budgeting technique; found by subtracting a project's initial investment from the present value of its cash inflows discounted at a rate equal to the firm's cost of capital.

NPV = Present value of cash inflows – Initial investment

$$\text{NPV} = \sum_{t=1}^{n} \frac{CF_t}{(1 + r)^t} - CF_0$$

- **<u>Evaluation of Net Present Value Method</u>:-**
- Project with the higher NPV should be selected.

Accept	NPV>0
if Reject	NPV<0
May or may not accept	NPV=0

Discounting Criteria: Profitability Index

Profitability Index Method –

As the NPV method it is also shows that project is accepted or not. If Profitability index is higher than the proposal can be accepted.

$$\text{PI} = \frac{\sum_{t=1}^{n} \frac{CF_t}{(1 + r)^t}}{CF_0}$$

Accepted PI > 1

Rejected PI < 1

Profitability index = Total Cash Inflows /Total Cash outflows

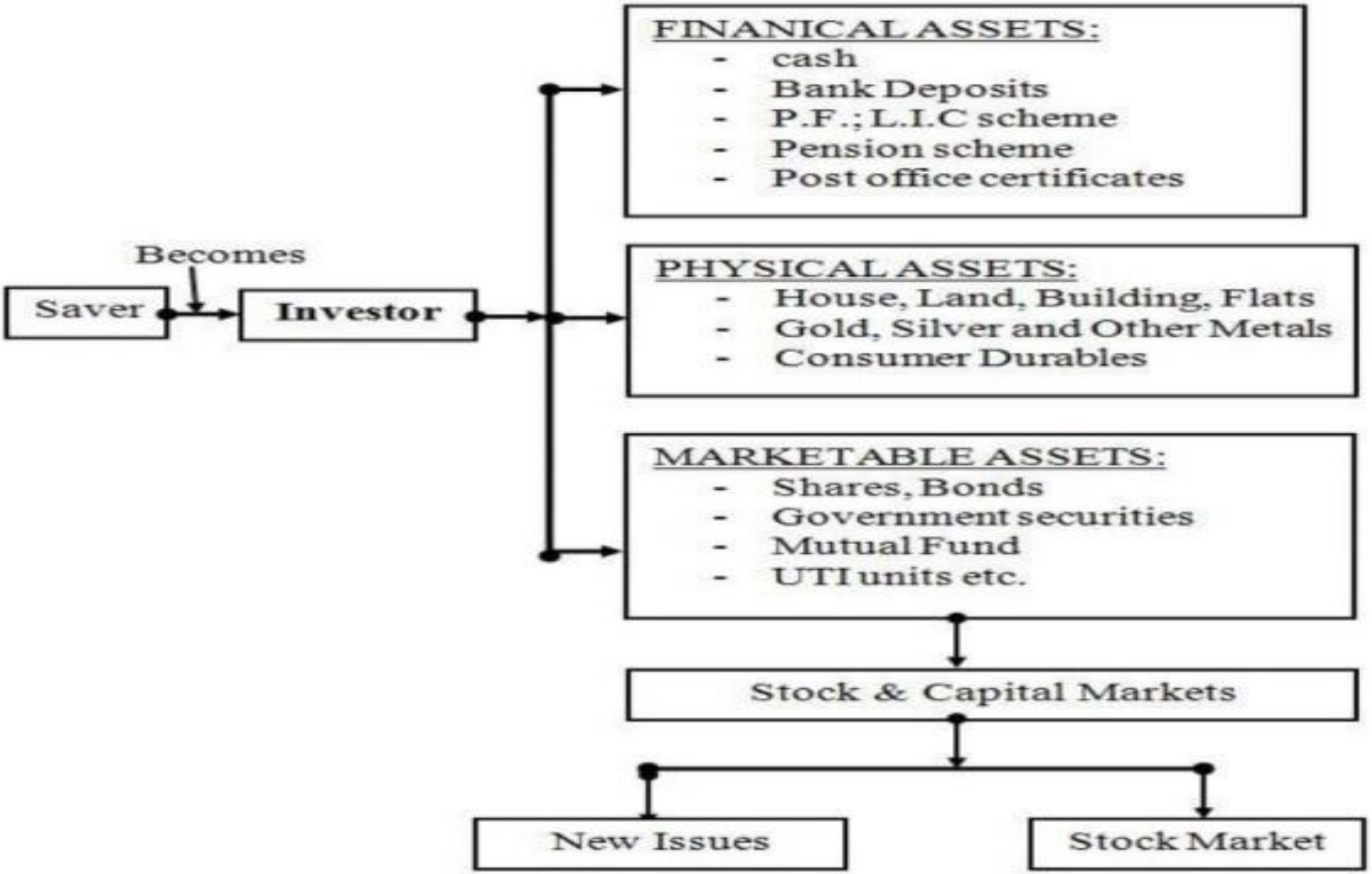
Discounting Criteria: Internal Rate of Return

Internal Rate of Return Method:-

IRR is the rate of return that a project earns. The rate of discount calculated by trial and error , where the present value of future cash flows is equal to the present value of outflows, is known as the Internal Rate of Return.

$$IRR = LDR + \frac{NPV\ @LDR}{NPV@LDR - NPV\ @\ HDR} * (HDR - LDR)$$

Investment avenues



Investment Process

Growth-Oriented V/S Fixed-Income Investments

1. **Stocks and equities**
   Stocks and equities are one of the most common types of growth-oriented investment avenues that can help you grow the value of your original investment over a medium to long time interval.

2. **Debt Mutual Funds**
   Debt mutual funds are a mix of fixed income securities, such as Treasury Bills, Government Securities, Corporate bonds, liquid or money-market funds, short-term income funds, gilt funds, and other debt securities of different time horizons. These have a fixed maturity date and pay a fixed rate of interest.

Growth-Oriented V/S Fixed-Income Investments

Fixed Deposits

Fixed Deposits are financial instruments where you can invest a lumpsum amount, to earn guaranteed returns. Your investment can be locked in for a specified period, during which your interest gets accumulated.

Bonds

When you invest in bonds, you lend your money to the issuer in exchange for periodic interest payouts, along with the returns on the investment amount.

Provident Funds

The Provident Fund is a major part of your retirement funds, which must be kept securely for your future. It is the sum of savings accrued, with contributions made by an employee, during the time he/she worked in the organization, along with an equal contribution from the employer.

Net present value

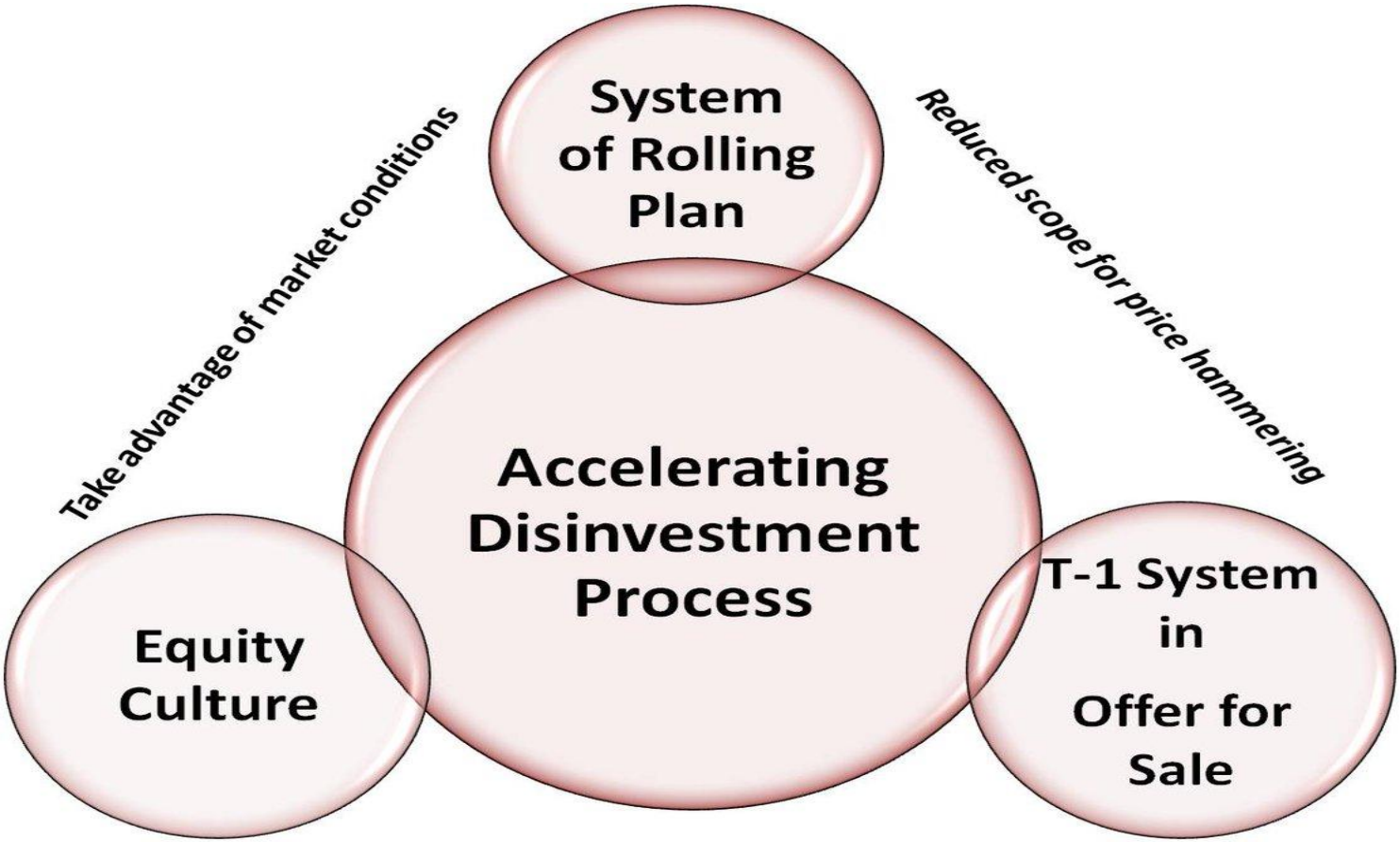
- **Net present value (NPV)** of a project is the potential change in an investor's wealth caused by that project while time value of money is being accounted for. It equals the present value of net cash inflows generated by a project less the initial investment on the project.
- **When cash inflows are even:**

$$NPV = R \times \frac{1 - (1 + i)^{-n}}{i} - \text{Initial Investment}$$

Internal rate of return

- **Internal rate of return** sometime known as **yield on project** is the rate at which an investment project promises to generate a return during its useful life.
- It is the discount rate at which the present value of a project's net cash inflows becomes equal to the present value of its net cash outflows.
- In other words, internal rate of return is the discount rate at which a project's net present value becomes equal to zero.

Disinvestment



Pure versus Mixed Investment

INVESTMENT	DISINVESTMENT
Definition: An investment in which a firm never borrows money from the project.	**Definition:** An investment in which a firm borrows money from the project during the investment period.
How to Determine: If the project passes the net investment test, it is a pure investment.	**How to Determine:** If a project fails the net investment test, it is a mixed investment.
Relationship: A simple investment is always a pure investment.	**Relationship:** If a project is a mixed investment, it is a nonsimple investment.

Importance of disinvestment

1. Financing the increasing fiscal deficit
2. Financing large-scale infrastructure development
3. For investing in the economy to encourage spending
4. For retiring Government debt- Almost 40-45% of the Centre's revenue receipts go towards repaying public debt/interest
5. For social programs like health and education
6. Disinvestment also assumes significance due to the prevalence of an increasingly competitive environment, which makes it difficult for many PSUs to operate profitably. This leads to a rapid erosion of value of the public assets making it critical to disinvest early to realize a high value.

Methods of Disinvestment

Public Offer:

- Offering shares of public sector enterprises at a fixed price through a genera prospectus.

Offer for Sale:

- Offer for sale, determining the fixed price for sale of a public enterprise, inviting open bidders and accepting highest bidder's quotation for sale

Sale of Equity:

- Sale of equity through auction of share amongst pre-determined clientele, whose number can be large. The reserve price for the PSE's equity can be determined with the assistance of merchant bankers.

Methods of Disinvestment

Cross Holding:

- In the case of cross holdings, the government would simply sell part of its shares of one PSU to one or more PSUs.

Golden Share:

- In this model, the government retains a 26 percent share in the PSU. This 26 percent share will continue to give the Government the status of majority shareholder.

Warehousing:

- Under this model, the government owned financial institutions were expected to buy the government's share in select PSUs and holding them until third buyer emerged.

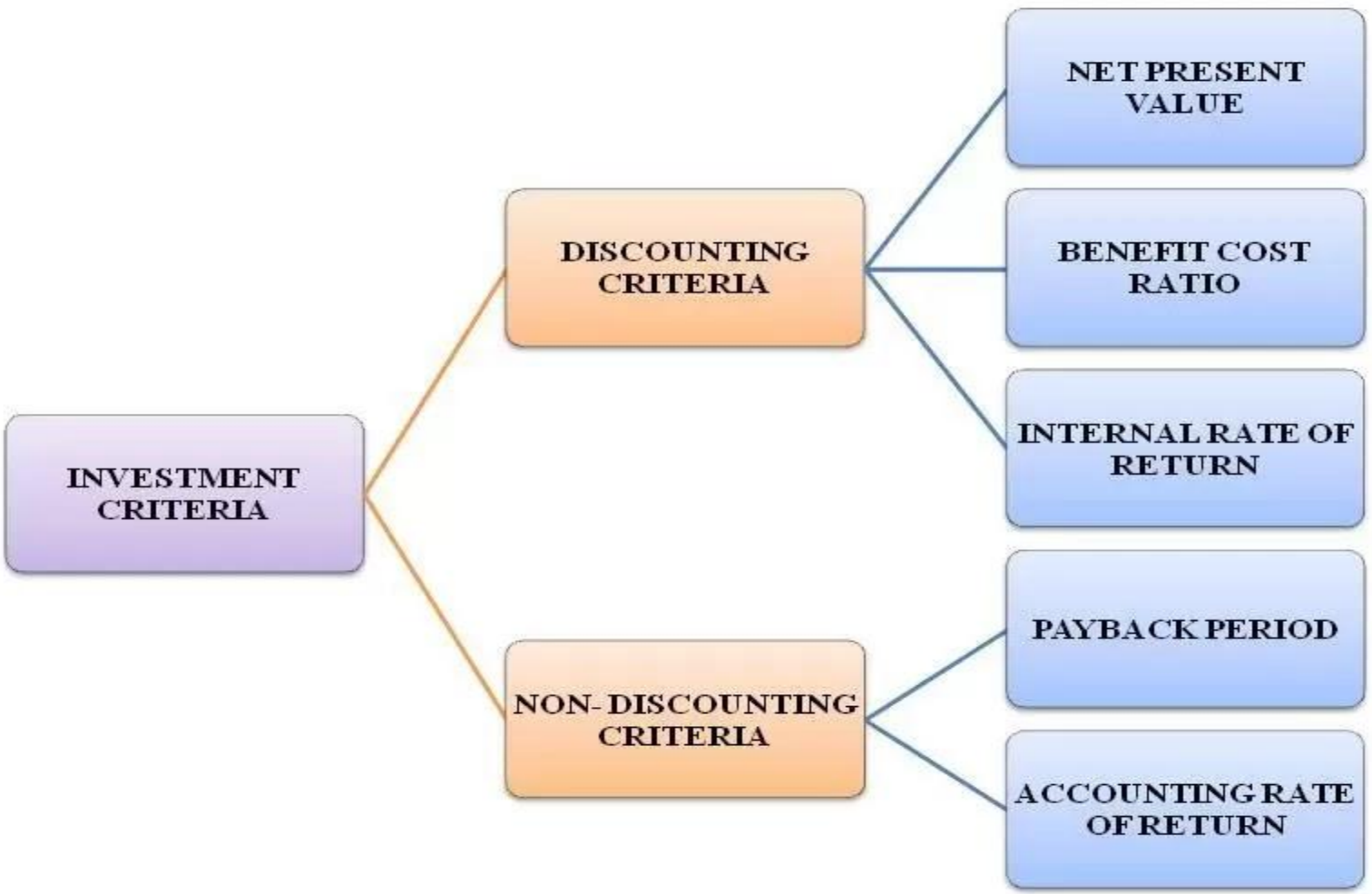
Strategic Sale:

- Disinvestment price will be market based and not prefixed and PSUs shares will be under the department of Disinvestment.

UNIT– III

CRITICAL ANALYSIS OF APPRAISAL TECHNIQUES

Critical analysis of appraisal techniques



Risk-Adjusted Discount Rate

1. **Independent projects** are projects whose cash flows are unrelated to (or independent of) one another; the acceptance of one *does not eliminate* the others from further consideration.
2. **Mutually exclusive projects** are projects that compete with one another, so that the acceptance of one *eliminates* from further consideration all other projects that serve a similar function.

Discounted Payback Period

- Calculates the time it takes to recover the initial investment in current or discounted dollars.
- Incorporates time value of money by adding up the discounted cash inflows at time 0, using the appropriate hurdle or discount rate, and then measuring the payback period.
- It is still flawed in that cash flows after the payback are ignored.

Evaluation of Risk-adjusted Discount Rate

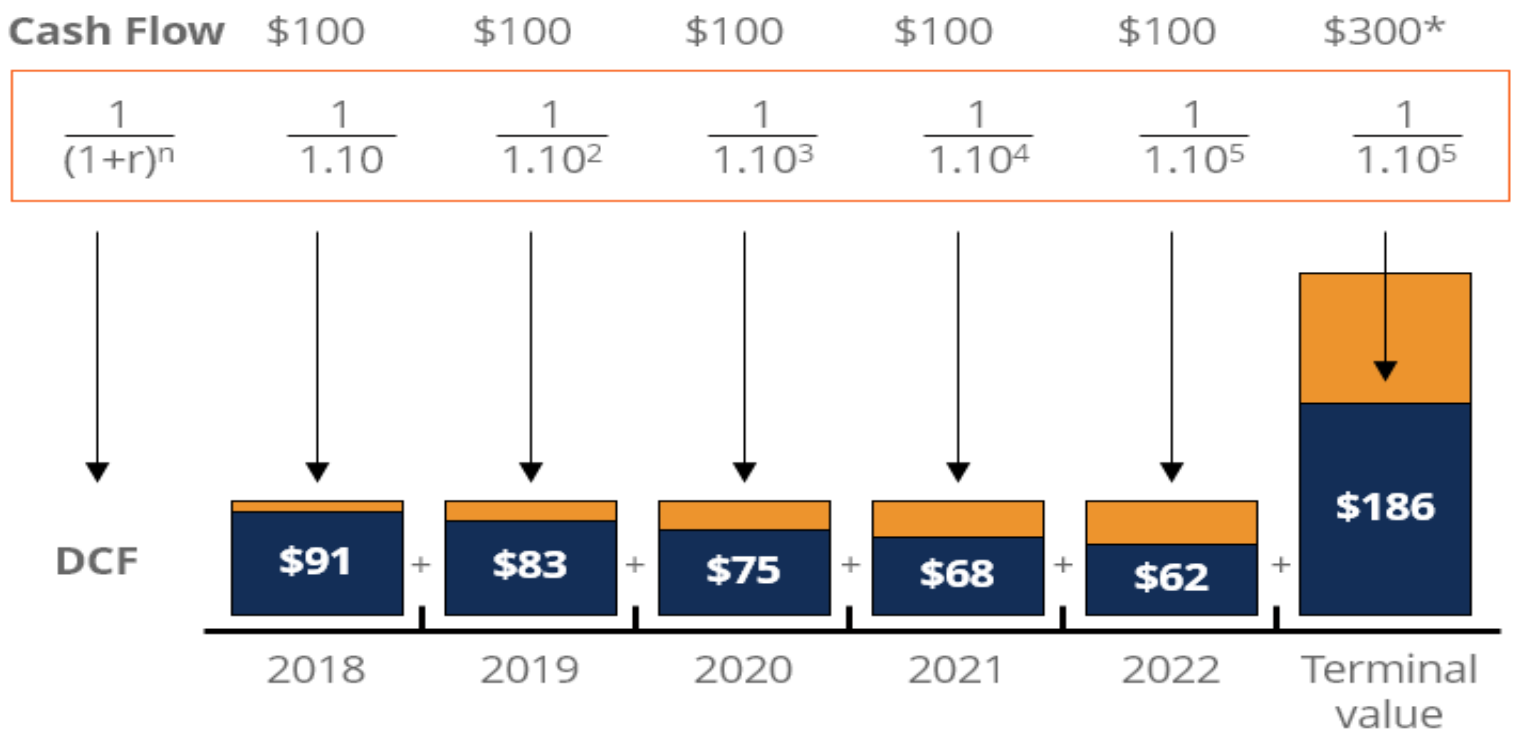
1. It is simple and can be easily understood.
2. It has a great deal of intuitive appeal for risk-averse businessman. It incorporates an attitude (risk-aversion) towards uncertainty.

This approach, however, suffers from the following limitations:

- There is no easy way of deriving a risk-adjusted discount rate. As discussed earlier, CAPM provides for a basis of calculating the risk- adjusted discount rate. Its use has yet to pick up in practice.
- It does not make any risk adjustment in the numerator for the cash flows that are forecast over the future years.
- It is based on the assumption that investors are risk-averse. Though it is generally true, there exists a category of risk seekers who do not demand premium for assuming risks; they are willing to pay a premium to take risks.

Critical analysis of appraisal techniques

Discounted Cash Flow Formula



DCF Value = $565 million

* Value of FCF beyond 2022

Payback period

First, we will find out the present value of the cash flow.

Year 0:-	=150000/(1+0.10)^0	150000
Year 1:	=70000/(1+0.1)^1	63636.36
Year 2:	=60000/(1+0.1)^2	49586.78
Year 3:	=60000/(1+0.1)^3	45078.89

Now, we will calculate the cumulative discounted cash flows –

Year 0:	-150000	
Year 1:	86363.64	=F10-F11
Year 2:	36776.86	=D18-F12
Year 3:	-8302.03	=D19-F13

Now, we will use the formula of discounted payback period to find out the DPP.

Discounted Payback Period = 2.82 years =2+(D19/F13)

Risk-Adjusted Discount Rate

- Risk-adjusted discount rate, will allow for both time preference and risk preference and will be a sum of the risk-free rate and the risk-premium rate reflecting the investor's attitude towards risk.

$$\text{NPV} = \sum_{t=0}^{n} \frac{\text{NCF}_t}{(1+k)^t}$$

- Under CAPM, the risk- premium is the difference between the market rate of return and the risk-free rate multiplied by the beta of the project.

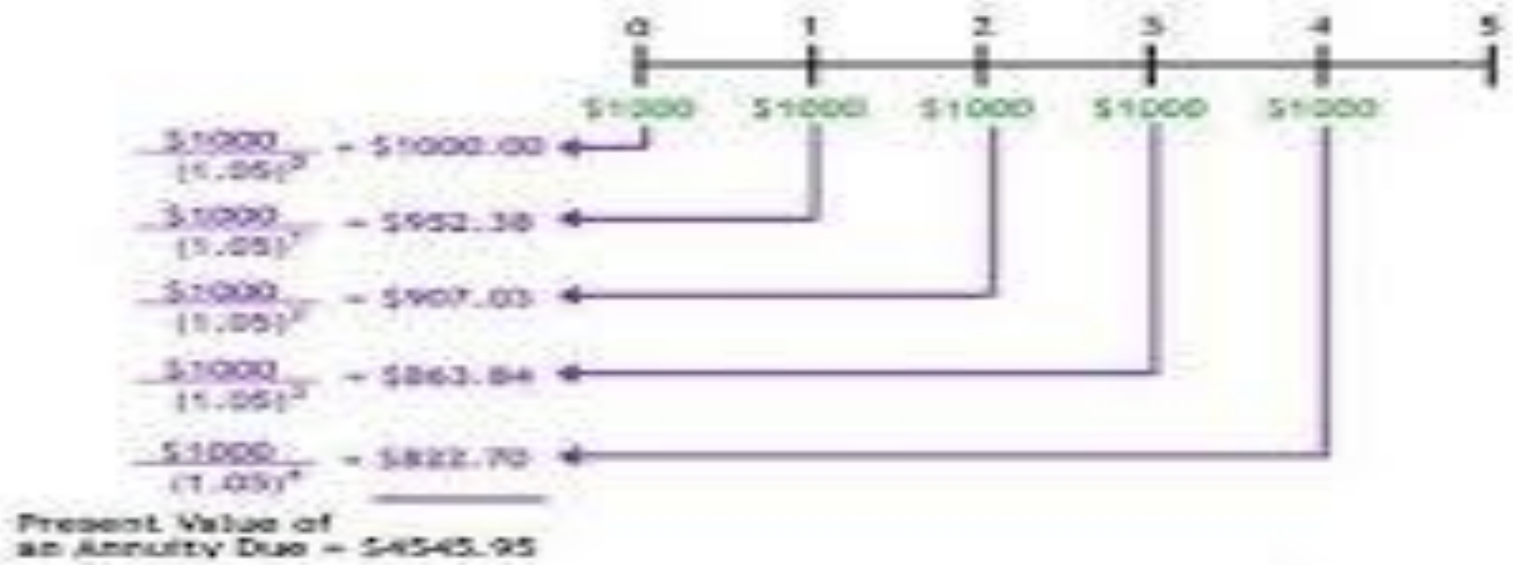
$$k = k_f + k_r$$

Net present Value method

Net Present Value

$$NPV = -C_0 + \frac{C_1}{1+r} + \frac{C_2}{(1+r)^2} + \ldots + \frac{C_T}{(1+r)^T}$$

- C_0 = *Initial Investment*
- C = *Cash Flow*
- r = *Discount Rate*
- T = *Time*



Evaluation of Risk-adjusted Discount Rate

- Reduce the forecasts of cash flows to some conservative levels.
- The certainty—equivalent coefficient assumes a value between 0 and 1, and varies inversely with risk.
- Decision-maker subjectively or objectively establishes the coefficients.
- The certainty—equivalent coefficient can be determined
- as a relationship between the certain cash flows and the risky cash flows.

$$NPV = \sum_{t=0}^{n} \frac{\alpha_t NCF_t}{(1+k_f)^t}$$

$$\alpha_t = \frac{NCF_t^*}{NCF_t} = \frac{\text{Certain net cash flow}}{\text{Risky net cash flow}}$$

Pure versus Mixed Investment

Pure Investment

- **Definition:**

  An investment in which a firm never borrows money from the project.

- **How to Determine:**

  If the project passes the net investment test, it is a pure investment.

- **Relationship:**

  A simple investment is always a pure investment.

Mixed Investment

- **Definition:**

  An investment in which a firm borrows money from the project during the investment period.

- **How to Determine:**

  If a project fails the net investment test, it is a mixed investment.

- **Relationship:**

- If a project is a mixed investment, it is a non simple investment.

Modified Internal Rate of Return (MIRR)

- **Idea:** C:n we avoid a multiple ROR problem? Is there a way to come up with a single ROR for non simple investment?
- **Procedure:** Use two interest rates:
- (1) positive cash flows (cash inflows) are invested at the firm's MARR, and
- (2) negative cash flows (cash outflows) are financed at the firm's cost of capital.

Decision Rule: Accept the investment if:

MIRR > MARR

Inflation and Capital Budgeting

- Nominal Discount rate= (1+Inflation rate)*(1+real rate of discount)-1
- Effect of capital Budgeting Can Be can be incorporated by
- Discounting the money cash flows at nominal discount rate
- Discounting real cash flows at the real discount rate
- management can work out how much extra finance the company will need and take steps to obtain it, e.g. by increasing retention of earnings, or borrowing

Inflation and Capital Budgeting

Inflation has the following effects:

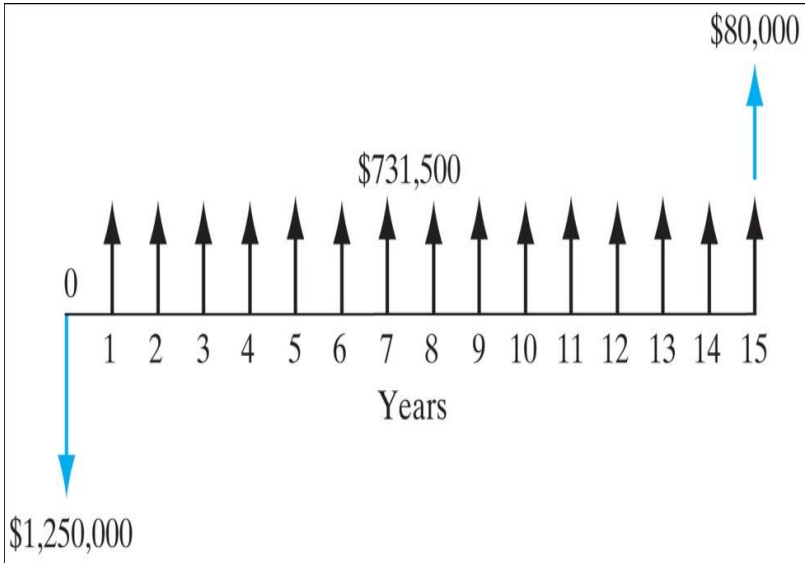
- Inflation will mean higher costs and higher selling prices. It is difficult to predict the effect of higher selling prices on demand. A company that raises its prices by 30%, because the general rate of inflation is 30%, might suffer a serious fall in demand.
- Inflation, as it affects financing needs, is also going to affect the cost of capital.
- Since fixed assets and stocks will increase in money value, the same quantities of assets must be financed by increasing amounts of capital. If the future rate of inflation can be predicted with some degree of accuracy,

Decision Rules for Pure Investment

Decision Rules

- **Decision Criterion for a** Single Project
  - If IRR > MARR, accept the project.
  - If IRR = MARR, remain indifferent.
  - If IRR < MARR, reject the project.
- Decision Criterion for Mutually Exclusive Projects
  - Use incremental analysis

Example



$$PW(i) = -\$1,250,000 + \$731,500(P/A, i, 15) + \$80,000(P/F, i, 15) = 0$$

$$i^* = 58.71\%$$

Since i^* > MARR(18%), accept the investment.

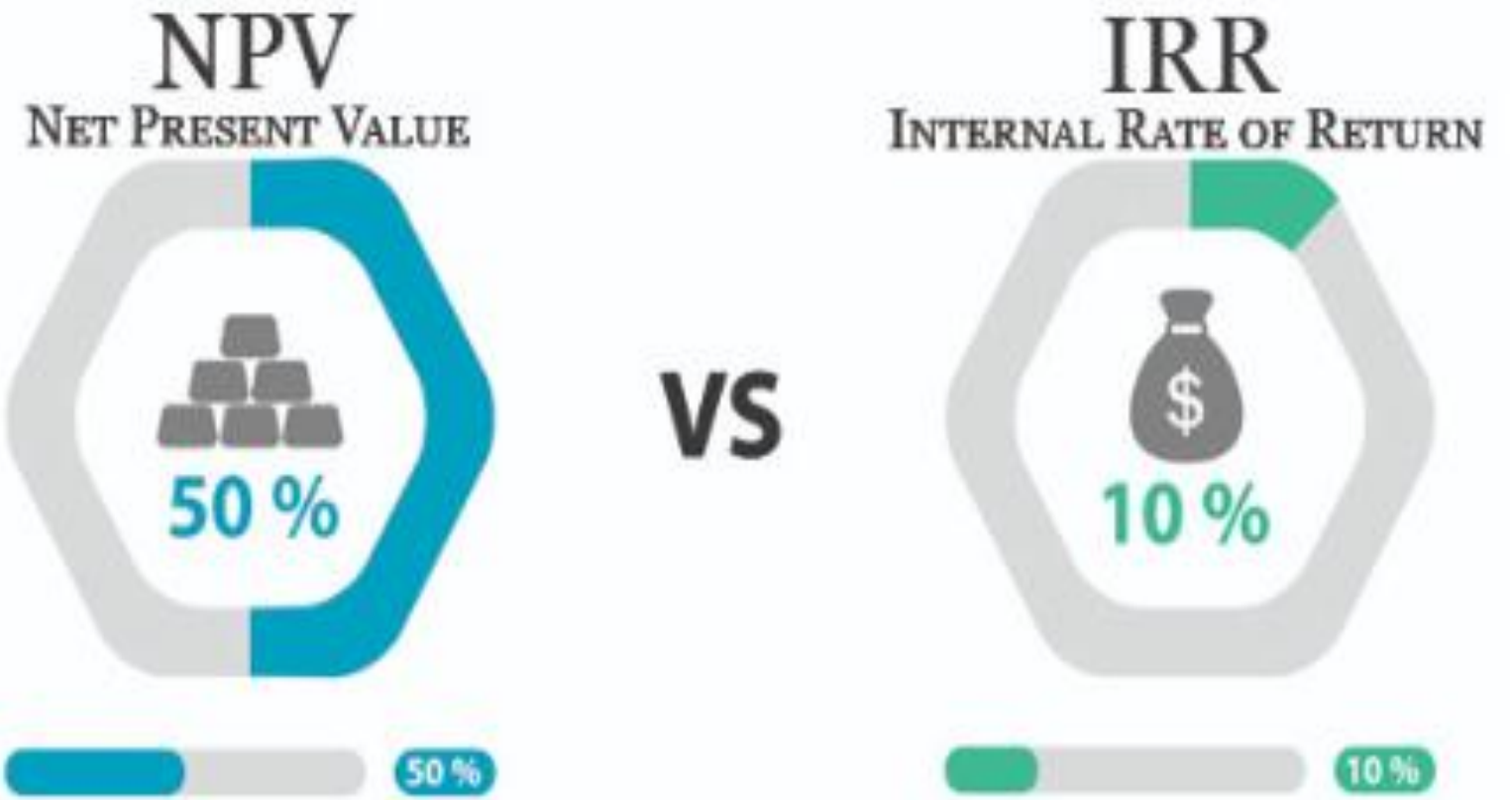
Decision Rule for Mixed Investments

- We need an external interest rate for mixed investments. We will use the MARR as the established external interest rate—the rate earned by money invested outside of the project.
- We calculate a rate of return on the portion of capital that remains invested internally—commonly known as the return on invested capital (RIC).
- Then select the investment if RIC > MARR.

IRR

If	Then	Capital Budgeting Decision
NPV < 0	IRR < Cost of Capital	Reject the investment from the cash flow perspective. Other factors could be important.
NPV = 0	IRR = Cost of Capital	Provides the minimum return. Probably reject from the cash flow perspective. Others factors could be important.
NPV > 0	IRR > Cost of Capital	Screen in for further analysis. Other investments may provide better returns and capital should be rationed, i.e., go to the most profitable projects. Others factors could be important.

IRR


NPV
NET PRESENT VALUE
50 %
50 %
VS
IRR
INTERNAL RATE OF RETURN
$
10 %
10 %

Meaning and Definition of Factoring

- The word factor is derived from the Latin word *facere*. It means to make or do or to get things done.
- Factoring simply refers to selling the receivables by a firm to another party.
- The buyer of the receivables is called the factor. Thus factoring refers to the agreement in which the receivables are sold by a firm (client) to the factor (financial intermediary).

Objectives of Factoring

Factoring is a method of converting receivables into cash. There are certain objectives of factoring.

1.To relieve from the trouble of collecting receivables so as to concentrate in sales and other major areas of business.

2.To minimize the risk of bad debts arising on account of non-realisation of credit sales.

3.To adopt better credit control policy.

4.To carry on business smoothly and not to rely on external sources to meet working capital requirements.

5.To get information about market, customers' credit worthiness etc. so as to make necessary changes in the marketing policies or strategies.

UNIT– IV

STRATEGIC ANALYSIS OF SELECTED INVESTMENT DECISIONS

Lease - definition

- A lease is an agreement whereby the lessor conveys to the lessee , in return for rent, the right to use an asset for an agreed period of time.
- A financing arrangement that provides a firm with an advantage of using an asset, without owning it, may be termed as ‘leasing’.

Characteristics of lease

- The Parties
- The Asset
- The Term
- The Lease Rentals

Avoid Ownership and thereby Avoiding Risks of Ownership:

- Ownership is avoided to avoid the investment of money into the asset.
- It indirectly keeps the leverage low and hence opportunities of borrowing money remain open for the business.
- A Lease is an off balance sheet item.

Lease Agreement

- Three parties - Manufacturer, lessor(financier) and lessee.
- **Guarantee Agreement :** in addition to master lease agreement. Guarantor liable for the due amt. of lessee. He signs the guarantee agreement. If Guarantor is a company then Board Resoultion for the same is a must.
- Income and Address proof of Guarantor taken.
- Agreement on a stamp paper.

- **Promissory Note:**

Lessee to execute an unconditional promissory note in favour of lessor for the full amount of lease rentals payable, counter guaranteed by the guarantor.

- **Receipt of Goods:**

In case of tripartite lease , the manufacturer/ supplier/ lessor, delivers the goods directly to the lessee, so he has the execute the receipt for the goods

Leasing -Tax Provisions

Lessor:

- The depreciation can be claimed by the lessor and not the lessee.
- Depreciation can be charged as a tax deductible expense item by lessor.

Lessee:

1.The lease rentals and Insurance, repairs, maintenance charges paid by lessee are tax deductible items of expenses for the lessee

Financial evaluation of leasing

- Financial theorists and model builders have devoted a substantial amount of time and effort to developing an analytical framework within which the differential costs associated with leasing versus buying can be compared.
- In spite of this abundance of models, the perplexed financial manager can take some comfort in the fact that the practical effects resulting from the differences in the models tend to be small because few real -world decisions are changed as a result of which lease –buy model is chosen.

Hire purchase

Meaning:

Hire purchase is a method of financing of the fixed asset to be purchased on future date. Under this method of financing, the purchase price is paid in instalments.

Ownership of the asset is transferred after the payment of the last instalment.

Features of Hire Purchase:

The main features of hire purchase finance are:

1. The hire purchaser becomes the owner of the asset after paying the last instalment.
2. Every instalment is treated as hire charge for using the asset.
3. Hire purchaser can use the asset right after making the agreement with the hire vendor.
4. The hire vendor has the right to repossess the asset in case of difficulties in obtaining the payment of instalment.

Advantages of Hire Purchase:

Hire purchase as a source of finance has the advantages:

1. Financing of an asset through hire purchase is very easy.
2. Hire purchaser becomes the owner of the asset in future.
3. Hire purchaser gets the benefit of depreciation on asset hired by him/her.
4. Hire purchasers also enjoy the tax benefit on the interest payable by them.

Disadvantages of Hire Purchase:

Hire purchase financing suffers from following disadvantages:

1. Ownership of asset is transferred only after the payment of the last instalment.
2. The magnitude of funds involved in hire purchase are very small and only small types of assets like office equipment's, automobiles, etc., are purchased through it.
3. The cost of financing through hire purchase is very high

Legal Framework

- There is no exclusive legislation dealing with hire purchase transaction in India. The Hire purchase Act was passed in 1972. An Amendment bill was introduced in 1989 to amend some of the provisions of the act. However, the act has been enforced so far.

1. The format / contents of the hire-purchase agreement
2. Warrants and the conditions underlying the hire- purchase agreement,
3. Ceiling on hire-purchase charges,
4. Rights and obligations of the hirer and the owner.

- In absence of any specific law, the hire purchase transactions are governed the provisions of the Indian Contract Act and the
- Sale of Goods Act. In chapter relating to leasing we have discussed the provisions related to Indian Contract Act, here we will discuss the provisions of Sale of Goods Act.

Taxation aspects

There are three aspects of taxation of hire-purchase deals:

1. income-tax,
2. sales tax and,
3. interest tax.

The hire-purchase transaction can be used as a tax planning device in two ways:

I. by inflating the net income (finance income — interest on borrowings by the finance company) at the rear-end of the deal

II. by using hire-purchase as a bridge between the lessor and the lessee, that is, introduction of an sales, are liable to sales tax.

Financial Evaluation of hire purchasing

From the Point of View of the Hirer (Purchaser):

•The tax treatment given to hire purchase is exactly the opposite of that given to lease financing. It may be recalled that in lease financing, the lessor is entitled to claim depreciation and other deductions associated with the ownership of the equipment including interest on the amount borrowed to purchase the asset, while the lessee enjoys full deduction of lease rentals. In sharp contrast, in a hire purchase deal, the hirer is entitled to claim depreciation and the deduction for the finance charge (interest) component of the hire instalment.

Leasing Process

Decision criterion

1. **Decision criterion:** The decision criterion from the point of view of hirer is the cost of hire purchase vis a vis the cost of leasing. If the cost of hire purchase is less than the cost of leasing, the hirer should prefer the hire purchase alternative and vice-versa.
2. **Cost of hire purchase:** The cost of hire purchase to the hirer consists of the following:

- Down payment and Service Charges
- Present value of hire purchase payments discounted by the
- cost of debt.
- Present value of depreciation tax shield discounted by cot of capital.
- Present value of net salvage value discounted by cost of capital.

Advantages of leasing

Balanced cash outflow

- The biggest advantage of leasing is that cash outflow or payments related to leasing are spread out over several years, hence saving the burden of one-time significant cash payment.
- This helps a business to maintain a steady cash-flow profile.

Tax benefit

- Leasing expense or lease payments are considered as operating expenses, and hence, of interest, are tax deductible.

Off-balance sheet debt

- Although lease expenses get the same treatment as that of interest expense, the lease itself is treated differently from debt.
- Leasing is classified as an off-balance sheet debt and doesn't appear on company's balance sheet.

Better planning

1. Lease expenses usually remain constant for over the asset's life or lease tenor, or grow in line with inflation.
2. This helps in planning expense or cash outflow when undertaking a budgeting exercise.

No risk of obsolescence

- For businesses operating in the sector, where there is a high risk of technology becoming obsolete, leasing yields great returns and saves the business from the risk of investing in a technology that might soon become outdated.
- For example, it is ideal for the technology business

Regulatory framework of leasing

- Provisions under Contract Act relating to Bailment:
- two parties - lessor - bailor, lessee-bailee.
- Transfer of possession of goods from bailor(lessor) to bailee(lessee), for a specific purpose.
- As under bailment, on accomplishment of purpose the goods transferred from lessee to lessor.

Regulatory framework of leasing….

- Notto set up an Adverse Title: must inform the lessor of any adverse claim.
- Payment of Lease Rental:
- Insure and Repair the Goods:
- Liabilities of the Lessor(Bailor):

Theoretical Framework of Leasing

- Liabilities of Lessor (Bailor):
- Delivery of Goods:
- - Ensure delivery of goods to the lessee, along with documents for lawful use of asset. Lease commences on delivery.
- Peaceful Possession:
- - Lessor must ensure quite possession of the goods during the lease term
- Fitness of Goods
- To Disclose All Defects: all known defects to be disclosed. If not then the lessor has to compensate the losses incurred by the lessee due to such defects.

Theoretical Framework of Leasing…

Remedies for Breach;

1.Remedies to the Lessor:

- **Forfeiture :** forfeiture of all lease rentals paid up to the date of termination, even if it exceeds the amt. of benefit received by the lessee.

•Repossession :

- repossession of goods on breach of lease through serving of a notice on lessee.
- For repossession of goods physical force can be used by the lessor.

Theoretical Framework of Leasing…

1. Insurance of the leased Asset ;
2. Both lessor or lesse can obtain the insurance.
3. Generally obtained by the lessee, covering loss due damage by fire, riot, faulty handling, Act of God etc.
4. Claims Proceeds : in case of asset being fully destroyed, the claims received , adjusted against the lessor's dues.
5. Sub Lease by lessee : not allowed unless provided in the lease agreement. Except for assets where sub lease is apparent. Sub lease becomes the lease of the original lessor as well.

Lease Documentation and Agreement

1. Lease Approval Process:
2. Appraisal of the Lease proposal. Sanctioning of the credit amount.
3. Letter of Offer, with stipulated time for acceptance.
4. Acceptance of Offer by lessee within stipulated time, with Board Resolution for acceptance of the offer.

Lease Agreements...

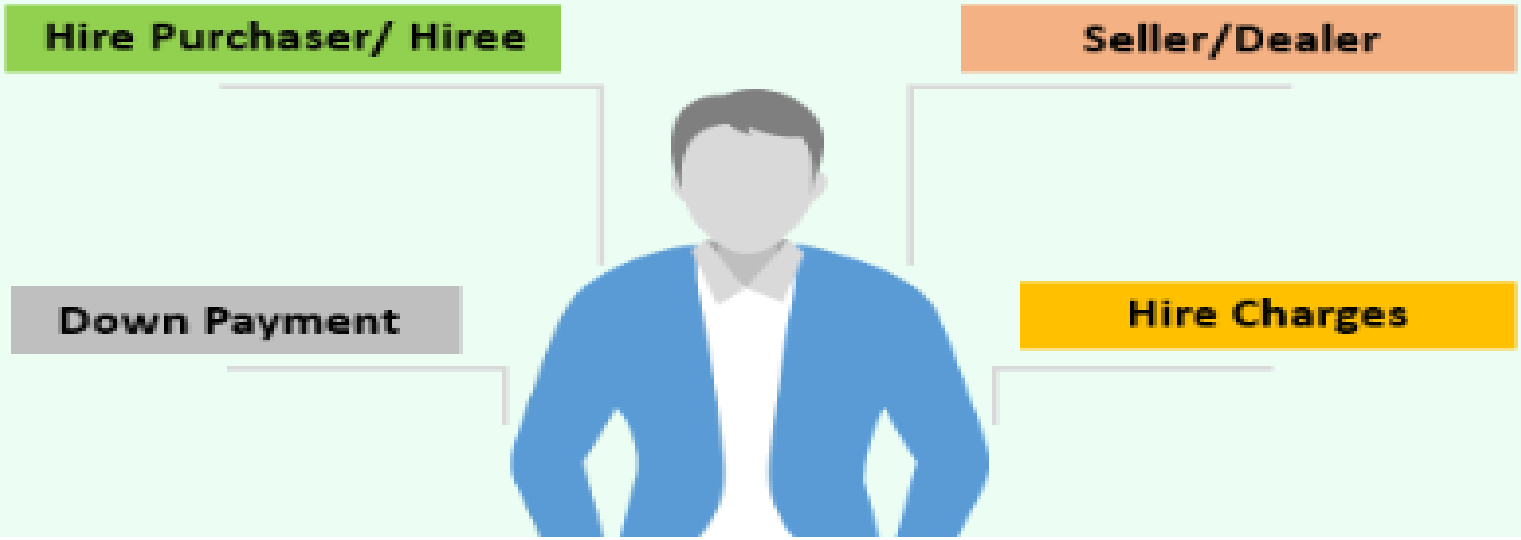
1. It specifies the legal rights and obligations of the lessor and lessee.
2. Usually a Master lease is signed containing the qualitative terms in the main part, and the equipment details, rentals, credit limits and payment duration etc in attached schedules.
3. Additional lease facilities are finalized under supplemental lease agreements, with reference to the Main Master Lease Agreement.

Lease Agreements...

- **Clauses in Lease Agreement:**
- Nature of the lease : financial lease, operating lease etc.
- Description of the equipment, its actual condition, size, estimated useful life, components etc.
- **Delivery and Re-delivery** : when and how the equipment would be delivered to the lessee and redelivered by him.
- **Lease Rentals ;** procedure for payments of lease rentals with the rates. Besides, the late payment charges.
- Repairs & Maintenance : responsibility of repairs, insurance etc.
- Title : identification and ownership of equipment.
- Events of default and Remedies : consequences of default and recourse available to the lessor.

Hire purchase

Components of Hire Purchase



Hire Purchase

VS

Hire purchase

Under a Hire purchase contract, a purchaser pays an initial deposit and takes the item away. He or she then makes regular repayments (instalments). The instalments include both repayment of the debt and the interest being charged by the vendor.

Hire purchase formulas

Total amount paid = deposit + instalments

Total interest paid = total amount paid – original price of item

The interest rate being charged under a hire purchase agreement is calculated using the SIMPLE INTEREST formula and is called the ANNUAL FLAT RATE of interest:

$$R_f = 100\, I / p_t$$

Categories of Investment Decisions:

- **Inventory Investment:**

  Holding of stocks of materials is unavoidable for smooth running of a business. The expenditure on stocks comes in the category of investments.

- **Strategic Investment Expenditure:**

  In this case, the firm makes investment decisions in order to strengthen its market power. The return on such investment will not be immediate.

- **Modernization Investment Expenditure:**

  In this case, the firm decides to adopt a new and better technology in place of the old one for the sake of cost reduction. It is also known as capital deepening process.

Financial Evaluation of hire purchasing

From the Point of View of the Hirer (Purchaser):

The tax treatment given to hire purchase is exactly the opposite of that given to lease financing. It may be recalled that in lease financing, the lessor is entitled to claim depreciation and other deductions associated with the ownership of the equipment including interest on the amount borrowed to purchase the asset, while the lessee enjoys full deduction of lease rentals. In sharp contrast, in a hire purchase deal, the hirer is entitled to claim depreciation and the deduction for the finance charge (interest) component of the hire instalment.

UNIT– V

FINANCING DECISIONS

Mergers vs acquisition

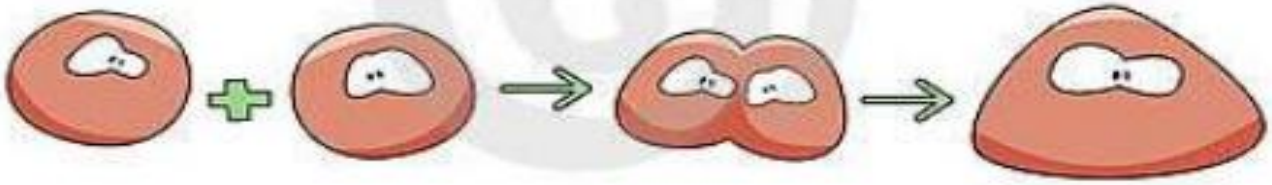
MERGERS AND ACQUISITIONS

Acquisition

An acquisition occurs when a buyer acquires all or part of assets or business of a selling entity, and where both parties are actively assisting in the purchase transaction.

Merger

A merger occurs when two companies combine into one entity



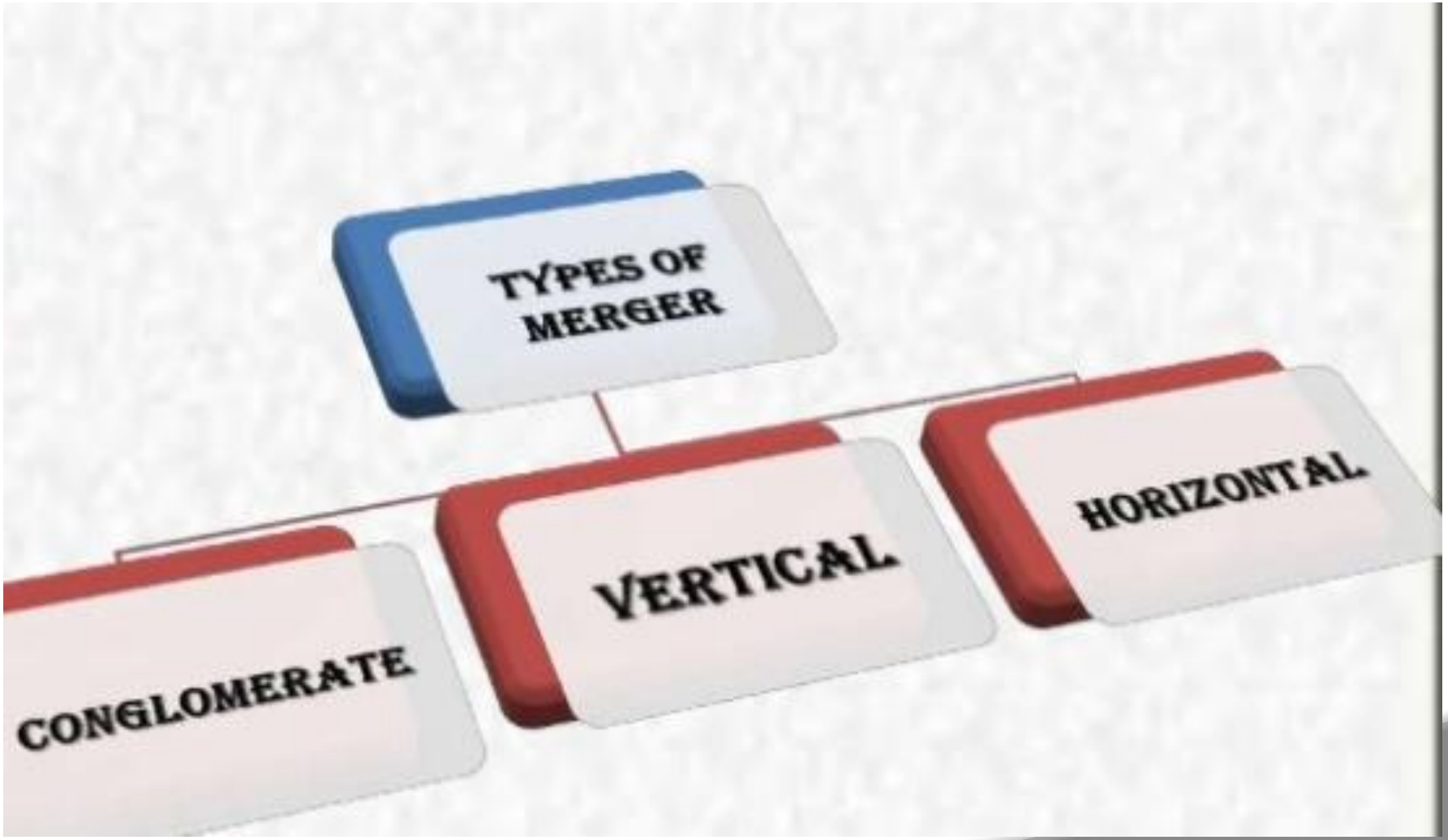
2

Mergers and acquisitions

Definition: Mergers and acquisitions are increasingly becoming strategic choice for organizational growth, and achievement of business goals including **profit**, **empire building, market dominance and long term survival**.

1. The ultimate goal of this is however **maximization of shareholder value**.
2. The phenomenon of rising M&A activity is observed world over across various continents, although, it has commenced much earlier in
3. developed countries (as early as **1895 in US and 1920s in Europe**), and is relatively recent in developing countries.

Types of mergers



Categories of Investment Decisions:

- **Expansion Investment on a New Business:**

  In this case, the firm decides to start a new business or diversify into new lines of production for which a new set of machines are to be purchased.

- **Replacement Investment:**

  In this category, the firm takes decisions about the replacement of worn out and obsolete assets by new ones.

- **Expansion Investment:**

  In this case, the firm decides to expand the productive capacity for existing products and thus grows further in a unit-direction. This type of investment is also called capital widening.

- **Need for Investment Decisions:**

  The need for investment decisions arrives for attaining the long term objective of the firm viz. survival or growth, preserving share of a particular market and retain leadership in a particular aspect of economic activity.

Types of mergers

HORIZONTAL MERGER

✓A merger occurring between companies producing similar products, goods and offerings similar services.

✓This type of merger occurs frequently as a result of larger companies attempting to create more effective economies of scale.

Example- Boeing-McDonnell Douglas

Types of mergers

VERTICAL MERGER

✓A merger between two companies producing different goods and services for one specific finished products.

✓The merger of the firm that have actual or potential buyer-seller relationship.

Example- Car manufacture purchasing a tire company.

Types of mergers

CONGLOMERATE MERGER

- **A merge between firms that are involved in totally interrelated business activity.**

Two types of conglomerate merger are:

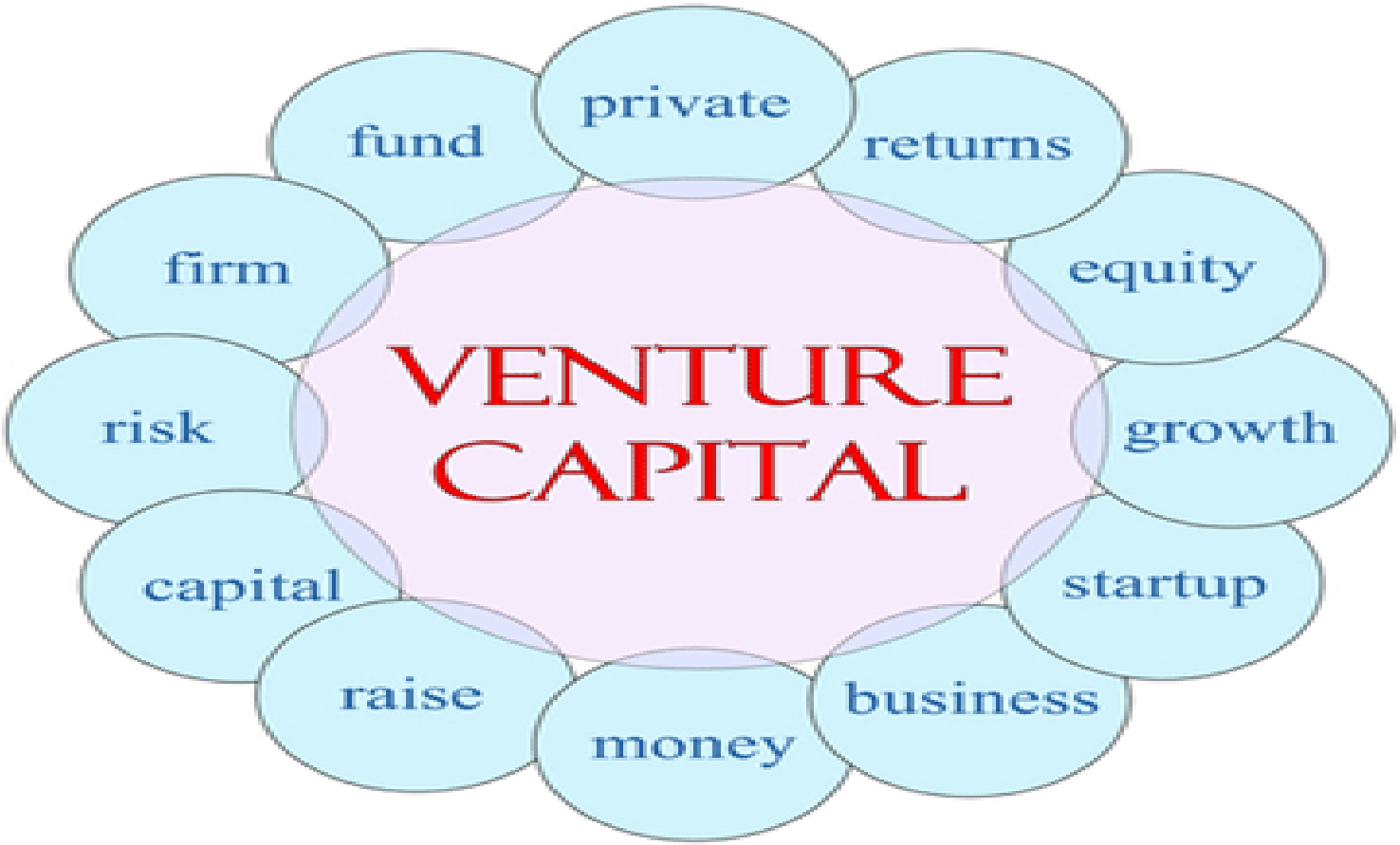
- ✓**Pure conglomerate merger**- It involve firms with nothing common.

- ✓**Mixed conglomerate merger**- It involves firms that are looking for product extensions or market extensions.

- **Example- PepsiCo-Pizza Hut; Proctor &**

Meaning Venture Capital

- It is a private or institutional investment made into early-stage / start-up companies (new ventures).
- As defined, ventures involve risk (having uncertain outcome) in the expectation of a sizeable gain.
- Venture Capital is money invested in businesses that are small; or exist only as an initiative, but have huge potential to grow. The people who invest this money are called venture capitalists (VCs).
- The venture capital investment is made when a venture capitalist buys shares of such a company and becomes a financial partner in the business.


VENTURE CAPITAL
private
returns
equity
growth
startup
business
money
raise
capital
risk
firm
fund

Features of Venture Capital investments

- High Risk
- Lack of Liquidity
- Long term horizon
- Equity participation and capital gains
- Venture capital investments are made in innovative projects
- Suppliers of venture capital participate in the management of the company

- Documents required:
- Purchase Order, Invoice, Bill of Sale from supplier, delivery note, insurance policies, import license, copy of shops and establishments registration certificate, copies of Audited balance Sheet and P&L A/c. for 3yrs, M of A and Articles of Association, Provisional results for the first 6 months, IT returns/Salary certificate.

Lease Documentation and Agreement…..

- All these documents to be obtained by the lessor from the lessee.
- They are called “Attendant Documents” as they help in taking a decision for the lease proposal.
- Insurance Policy compulsory for the leased asset, in the name of the lessor account lessee. Policy should be in the custody of the lessor.

Mergers

1. Mergers is the combination of two companies to form one new company.
2. The combination of the two companies involves a transfer of ownership.
3. Both companies surrender their stock and issue new stock as a new company.

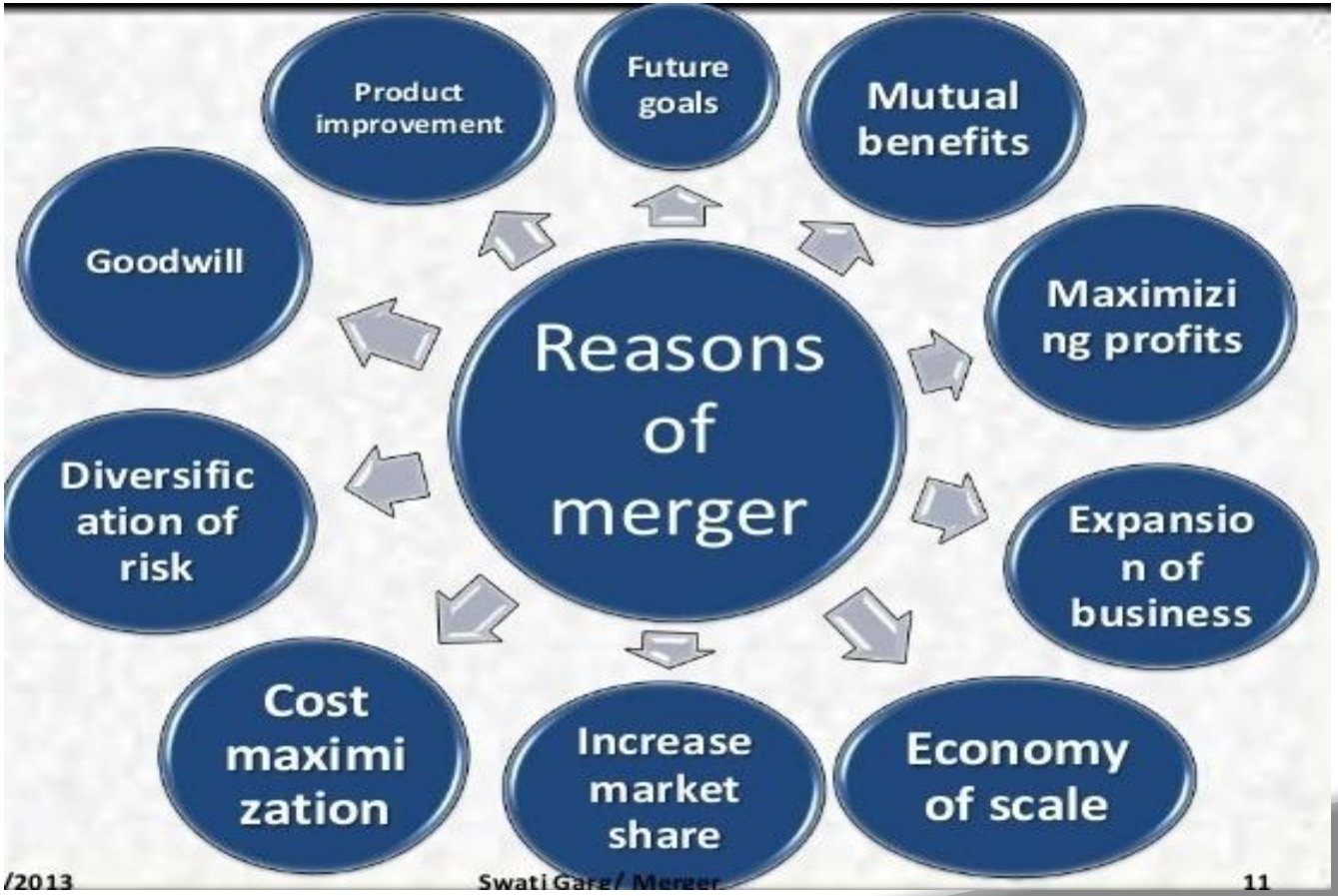
4. A merger can takes place in following way:
   - Buy purchasing of assets
   - Buy purchasing common shares
   - By exchanging shares for assets
   - By exchanging shares for shares

NPV of Hire purchase Plan: The NPV of HPP consist of

1. PV of hire purchase instalments
2. Documentation and service fee.
3. PV of tax shield on initial direct cost
4. Loan amount
5. Initial cost.
6. PV of interest tax on finance income (interest)
7. PV of income tax on finance income meted for interest tax
8. PV of income tax on documentation and

Mergers

Simply put, working capital measures a company's liquidity, efficiency, and overall health of business.



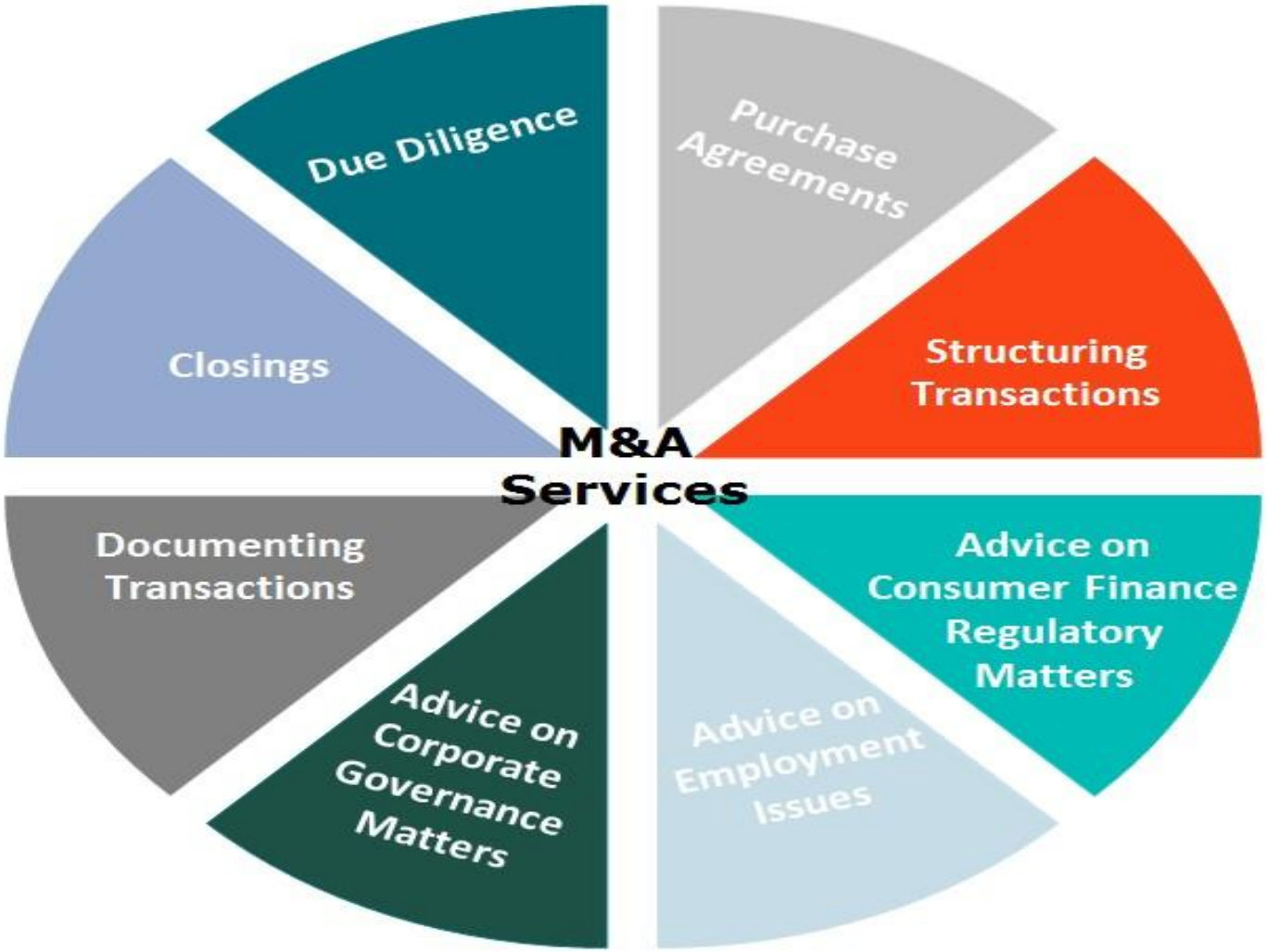
Quality assets

1. While leasing an asset, the ownership of the asset still lies with the lessor whereas the lessee just pays the rental expense.
2. Given this agreement, it becomes plausible for a business to invest in good quality assets which might look unaffordable or expensive otherwise.

Better usage of capital

1. Given that a company chooses to lease over investing in an asset by purchasing, it releases capital for the business to fund its other capital needs or to save money for a better capital investment decision.

acquisitions basic issues



From the View Point of Vendor / Financer

Hire purchase and leasing represent two alternative investment decisions of a finance company / financial intermediary / hire vendor. The decision criterion therefore is based on a comparison of the net present values of the two alternatives, namely, hire purchase and lease financing. The alternative with a higher NPV would be selected and the alternative having a lower NPV would be rejected.

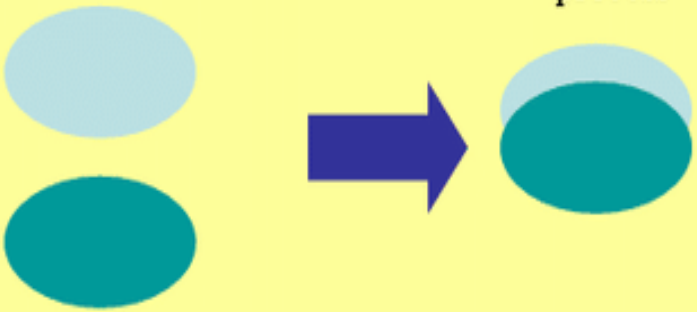
- **Remedies to the lessee:** may claim damages for loss resulting from the termination.
- This includes increased lease rentals he has to pay on new lease asset obtained + damages for not allowing him to use the asset from termination date to the date of expiry of the lease term.

Mergers and acquisition process

The merger process

2 companies prior to a merger

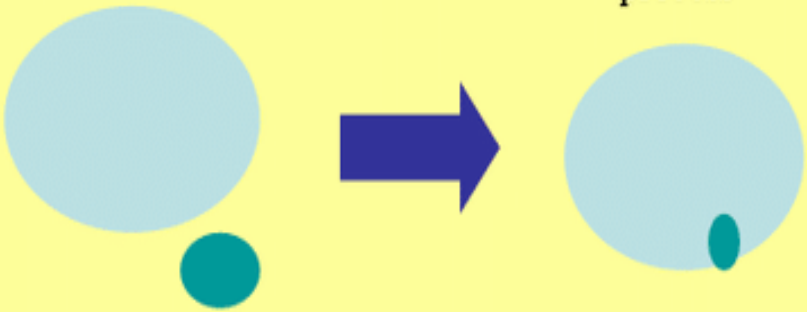
Merged companies following an integration process



The acquisition process

2 companies prior to an acquisition

Merged companies following an integration process



The joint venture process

2 partners to a joint venture

The resulting joint venture

The alliance process

2 companies prior to an alliance

Companies working in an alliance

Mergers vs acquisition

Merger

Merger refers to consolidation of two or more companies to form an all-new entity with a new name. Merger assists the companies in uniting their strengths, resources and weaknesses. Merger leads to a reduction in trade barriers and competition.

Types of Merger

- Horizontal
- Vertical
- Congeneric
- Reverse
- Conglomerate

v/s

Acquisitions

Acquisition is the purchase of an entity by another entity. This can be done either by acquiring ownership over 51% of its share capital or by taking over the assets of the company. The acquiring company is more influential in terms of structure, operations and size as compared to the target company.

Types of Acquisition

- Hostile
- Friendly
- Buyout