**UNIT- V**

**CAPITAL BUDGETING**

**INTRODUCTION:**

Capital forms the base for the business. Capital, in general, does not mean only money. It may refer to money’s worth also. Capital has different forms. Creativity, innovation or new ideas can be considered as one form of capital. Some people have ideas but they may not have money. There are some others who have money only. The ideal combination for business is to have both. Today, there are different sources of raising finance for many types of business provided we have the margin or the base money. In this chapter are restrict our discussion to money form of capital.

Finance is the prerequisite to commence and vary on business. **It is rightly said to be the lifeblood of the business.** No growth and expansion of business can take place without sufficient finance. It shows that no business activity is possible without finance. This is why; every business has to make plans regarding acquisition and utilization of funds.

### FUNCTION OF FINANCE:

### According to B. O. Wheeler, Financial Management is concerned with the acquisition and utiliasation of capital funds in meeting the financial needs and overall objectives of a business enterprise. Thus the primary function of finance is to acquire capital funds and put them for proper utilization, with which the firm’s objectives are fulfilled.

### The firm should be able to procure sufficient funds on reasonable terms and conditions and should exercise proper control in applying them in order to earn a good rate of return, which in turn allows the firm to reward the sources of funds reasonably, and leaves the firm with good surplus to grow further.

### SIGNIFICANCE OF CAPITAL:

### Capital plays a very significant role in the modern production system. It is very difficult to imagine the process of production without capital accumulation and technological advancement are closely related to each other. Capital creates and enhances the level of employment opportunities. It has a strategic role in enhancing productivity. Capital is necessary not only for micro-enterprises but also to the government. Capital is a scare resource and every country has to utilize the same judiciously.

**NEED FOR CAPITAL:**

The business needs for capital are varied. They are:

1. **To promote a business:** Capital is required at the promotion stage. A large variety of expenses have to be incurred on project reports, feasibility studies and reports, preparation and filing of various documents, and for meeting various other expenses in connection with the raising of capital from the public.
2. **To conduct business operations smoothly:** Business firms also need capital for the purpose of conducting their business operation such as research and development, advertising, sales promotion. Distribution and operating expenses.
3. **To expand and diversity:** The firm requires a lot of capital for expansion and diversification purposes. This includes development expense such as purchase of sophisticated machinery and equipment and also payment towards sophisticated technology.
4. **To meet contingencies:** A firm needs funds to meet contingencies such as a sudden fall in sales major litigation (legal cases), natural calamities like fire, and so on.
5. **To pay taxes:** The firm has to meet its statutory commitments such as income tax and sales tax excise duty and so on.
6. **To pay dividends and interests:** The business has to make payment towards dividends and in interests to shareholders and financial institutions respectively.
7. **To replace the assets:** The business needs to replace its assets like plant and machinery after a certain period of use. For this purpose the firm needs funds to make suitable replacement of assets in place of old and worn-out assets.
8. **To support welfare programmers:** The Company may also have to take up social welfare programmers such as literacy drive, and health camps. It may have to donate to charitable trusts educational institutions or public service organizations.
9. **To wind up:** At the time of winding up, the company may need funds to meet the liquidation expenses.

**TYPES OF CAPITAL**

Capital can broadly be divided into two types:

* Fixed capital.
* Working capital

**1. Fixed Capital:**

Fixed capital is that portion of capital **which is invested in acquiring long-term assets such as land and buildings, plant and machinery, furniture and fixtures, and so on**. Fixed capital forms the skeleton of the business. It provides the basic assets as per the business. These assets are not meant for resale. They are intended to generate revenues.

The following are the features of fixed assets:

1. ***Permanent in nature:***Fixed capital is more or less permanent in nature. It is generally not withdrawn as long as the business carries on its business.
2. ***Profit generation****:* Fixed assets are the sources of profits but they can never generate profits by themselves. They use stocks, cash and debtors to generate profits.
3. ***Low quality****:*  The fixed assets cannot be converted into cash quickly. Liquidity refers to conversion of assets into cash.
4. ***Amount of fixed capital****:* The amount of fixed capital of a company depends on a number of factors such as size of the company, nature of business, method of production and so on. A manufacturing company such as steel factory may require relatively large finance when compared to a service organization such as a software company.
5. ***Utilized for promotion and expansion****:* The fixed capital is mostly needed at the times of promoting the company to purchase the fixed assets or at the time of expansion/modernization, in other words, the need for fixed capital arises less frequently.

**Types of Fixed Assets**

Fixed assets can be divided into three types:

1. **Tangible Fixed Assets:**

These are physical items which can be seen and touched. Most of the common fixed assets are land, buildings, machinery, motor vehicles, furniture and so on.

1. **Tangible Fixed Assets:**

These do not have physical form. They cannot be seen or touched. But these are very valuable to business. Examples are goodwill, brand names, trademarks, patents, copy rights and so on.

1. **Financial Fixed Assets:**

These are investments in shares, foreign currency deposits, government bonds, shares held by the business in other companies and so on.

**2. Working Capital:**

**Working capital is the flesh and blood of the business**. It is that position of capital that makes a company work. It is not just possible to carry on the business with only fixed assets; working capital is a must. Working capital is also called ***circulating capital.***It is used to meet regular or recurring needs of the business. The regular needs refer to the purchase of materials, payment of wages and salaries, expenses like rent advertising, power and so on. In short, working capital is the amounts needed to cover the cost of operating the business.

Finance is required for two purpose viz. **for it establishment and to carry out the day-to-day operations** of a business. Funds are required to purchase the fixed assets such as plant, machinery, land, building, furniture, etc, on long-term basis. Investments in these assets represent that part of firm’s capital, which is blocked on a permanent of fixed basis and is called fixed capital. Funds are also needed for short-term purposes such as the purchase of raw materials, payment of wages and other day-to-day expenses, etc. and these funds are known as working capital.

Working capital takes the form of cash, near cash and other assets in the process o f moving towards cash form in a short period. These other assets are rocks of raw materials, supplies needed for manufacture, stocks of finished goods ready for sale, semi-processed items or components, debtors and others short-term investments if any.

**Features of Working Capital:**

1. ***Short life spans:***Working capital changes in its form: from cash to stock to debtors; debtors to cash. The cash balances may be kept idle for a week or so, debtors have a life span of a few months, raw materials are held for a short-time until they go into production; finished goods are held for a short-time until they are sold.
2. ***Smooth flow of operations:*** Adequate amount of working capital enables the business to conduct its operations smoothly. It is therefore, called the ‘flesh and blood’ of the business.
3. ***Liquidity****:* The assets represented by the working capital can be converted into cash quickly within a short period of time unlike fixed assets.
4. ***Amount of working capital****:* The amount of working capital of a business depends on many factors such as size and nature of the business, production of wages and salaries, rent and other expenses and so on.
5. ***Utilize for payment of current expenses****:* The working capital is used to pay for current expenses such as suppliers or raw materials, payment of wages and salaries, rent and other expenses and so on.

**Components of working capital:**

Form the accounting point of view, working capital is the difference between current assets and current liabilities.

 **Working capital= Current Assets – Current Liabilities**

**Current Assets:** *Cash* isrequired to pay salaries. Office expenses and to pay creditors for purchases

*Stock of raw materials* in adequate quantities to ensure uninterrupted production

*Stock of finished goods* in sufficient quantities to meet the demand from consumers

*Debtors, that is,* people to whom we sell goods on credit basis for increased sales

*Prepaid expenses,* that is, the expenses paid in advance such as insurance, rent, and salaries and so on

*Bills receivable* these are the bills of exchange received for the money lent or to be received for a short period.

**Current Liabilities:** Creditors, that is, the people from whom we purchase on credit basis. *Accruals,* that is, those expenses in respect of which, the liability has arisen. In other words, the expenses have fallen due and hence to be incurred, such as interest salaries, taxes and so on. *Bills payables* these are the bills of exchange against which money is to be paid within a short period.

**Working Capital Cycle:**



### Concept of working capital:

There are two concepts of working capital:

1. Gross working capital
2. Net working capitaL
3. **Gross working capital:**

In the broader sense, the term working capital refers to the gross working capital. The notion of the gross working capital refers to the **capital invested in total current assets of the enterprise**. Current assets are those assets, which in the ordinary course of business, can be converted into cash within a short period, normally one accounting year.

Examples of current assets:

1. Cash in hand and bank balance
2. Bills receivables or Accounts Receivables
3. Sundry Debtors (less provision for bad debts)
4. Short-term loans and advances.
5. Inventories of stocks, such as:
	1. Raw materials
	2. Work – in process
	3. Stores and spares
	4. Finished goods
6. **Net working capital:**

In a narrow sense, the term working capital refers to the net working capital. Networking capital represents **the excess of current assets over current liabilities**.

### CLASSIFICATION OR KINDS OF WORKING CAPITAL:

Working capital may be classified in two ways:

1. On the basis of concept.
2. On the basis of time permanency

**On the basis of concept,** working capital is classified as gross working capital and net working capital is discussed earlier. This classification is important from the point of view of the financial manager. On the basis of time, working capital may be classified as:

1. Permanent or fixed working capital
2. Temporary of variable working capital
	1. **Permanent or fixed working capital**:

Which is continuously required by the enterprise to carry out its normal business operations and this minimum is known as permanent of fixed working capital. For example, every firm has to maintain a minimum level of raw materials, work in process; finished goods and cash balance to run the business operations smoothly and profitably.

The permanent working capital can further be classified into **regular working capital and reserve working capital.**

**Regular working capital** is the minimum amount of working capital required to ensure circulation of current assets from cash to inventories, from inventories to receivables and from receivable to cash and so on.

**Reserve working capital** is the excess amount over the requirement for regular working capital which may be provided for contingencies that may arise at unstated period such as strikes, rise in prices, depression etc.

* 1. **Temporary or variable working capital**:

Temporary or variable working capital is the amount of working capital, which is required to meet the seasonal demands and some special exigencies. Thus the variable working capital can be further classified into seasonal working capital and special working capital. While seasonal working capital is required to meet certain seasonal demands, the special working capital is that part of working capital which is required to meet special exigencies such as launching of extensive marketing campaigns, for conducting research etc.

### Importance of working capital:

1. **Solvency of the business**: Adequate working capital helps in maintaining solvency of the business by providing uninterrupted flow of production.
2. **Good will**: Sufficient working capital enables a business concern to make prompt payment and hence helps in creating and maintaining good will.
3. **Easy loans**: A concern having adequate working capital, high solvency and good credit standing can arrange loans from banks and others on easy and favorable terms.
4. **Cash Discounts**: Adequate working capital also enables a concern to avail cash discounts n the purchases and hence it reduces costs.
5. **Regular supply of raw materials**: Sufficient working capital ensures regular supply of raw materials and continuous production.
6. **Regular payments of salaries wages and other day to daycommitments**: A company which has ample working capital can make regular payment of salaries, wages and other day to day commitments which raises the morale of its employees, increases their efficiency, reduces wastage and cost and enhances production and profits.
7. **Exploitation of favorable market conditions**: The concerns with adequate working capital only can exploit favorable market conditions such as purchasing its requirements in bulk when the prices are lower.
8. **Ability to face crisis:** Adequate working capital enables a concern to face business crisis in emergencies.
9. **Quick and regular return on Investments**: Every investor wants a quick and regular return on his investment. Sufficiency of working capital enables a concern to pay quick and regular dividends to its investors, as there may not be much pressure to plough back profits. This gains the confidence of its investors and creates a favorable market to raise additional funds in the future.
10. **High morale:** Adequacy of working capital creates an environment of security, confidence, and high morale and creates overall efficiency in a business. Every business concern should have adequate working capital to run its business operations. It should have neither redundant excess working capital nor inadequate shortage of working capital. Both, excess as well as short working capital positions are bad for any business. However, out of the two, it is the inadequacy of working capital which is more dangerous from the point of view of the firm.

**The need or objectives of working capital:**

1. For the purchase of raw materials.
2. To pay wages, salaries and other day-to-day expenses and overhead cost such as fuel, power and office expenses, etc.
3. To meet the selling expenses such as packing, advertising, etc.
4. To provide credit facilities to the customers and
5. To maintain the inventories of raw materials, work-in-progress, stores and spares and finishes stock etc.

Generally, the level of working capital needed depends upon the time gap (known as operating cycle) and the size of operations. Greater the size of the business unit generally, larger will be the requirements of working capital. The amount of working capital needed also goes on increasing with the growth and expansion of business. Similarly, the larger the operating cycle, the larger the requirement for working capital. There are many other factors, which influence the need of working capital in a business, and these are discussed below in the following pages.

### Factors determining the working capital requirements:

1. **Nature or character of business**: The working capital requirements of a firm basically depend upon the nature of its business. Public utility undertakings like electricity, water supply and railways need very limited working capital as their sales are on cash and are engaged in provision of services only.
2. **Size of business or scale of operations**: The working capital requirements of a concern are directly influenced by the size of its business, which may be measured in terms of scale of operations. However, in some cases, even a smaller concern may need more working capital due to high overhead charges, inefficient use of available resources and other economic disadvantages of small size.
3. **Production policy**: If the demand for a given product is subject to wide fluctuations due to seasonal variations, the requirements of working capital, in such cases, depend upon the production policy.

The production could be kept either steady by accumulating inventories during stack periods with a view to meet high demand during the peck season or the production could be curtailed during the slack season and increased during the peak season

1. **Manufacturing process/Length of production cycle**: In manufacturing business, the requirements of working capital will be in direct proportion to the length of manufacturing process. Longer the process period of manufacture, larger is the amount of working capital required, as the raw materials and other supplies have to be carried for a longer period.
2. **Seasonal variations:** If the raw material availability is seasonal, they have to be bought in bulk during the season to ensure an uninterrupted material for the production. A huge amount is, thus, blocked in the form of material, inventories during such season, which give rise to more working capital requirements
3. **Working capital cycle**: In a manufacturing concern, the working capital cycle starts with the purchase of raw material and ends with the realization of cash from the sale of finished products. This cycle involves purchase of raw materials and stores, its conversion into stocks of finished goods through work–in progress with progressive increment of labour and service costs, conversion of finished stock into sales, debtors and receivables and ultimately realization of cash...
4. **Business cycles**: Business cycle refers to alternate expansion and contraction in general business activity. In a period of boom, i.e., when the business is prosperous, there is a need for larger amount of working capital due to increase in sales. On the contrary, in the times of depression, i.e., when there is a down swing of the cycle, the business contracts, sales decline, difficulties are faced in collection from debtors and firms may have to hold large amount of working capital.
5. **Rate of growth of business**: The working capital requirements of a concern increase with the growth and expansion of its business activities. The retained profits may provide for a part of working capital but the fast growing concerns need larger amount of working capital than the amount of undistributed profits.

# Source of finance/ CAPITAL

**METHODS AND SOURCES OF FINANCE:**

Method of Finance is the type of finance used-such as a loan or a mortgage. The source of finance would be where the money was obtained from-a loan may be obtained from a bank while the mortgage may be obtained from a credit society. From a financial statement, we can read in what form the capital is tied up (fixed assets or current assets) and how these are financed (from own capital or borrowed funds).

It is necessary to notice the difference between methods and sources of finance to identify which type of asset can be bought from what source of funds. For example, fixed asset can be bought only from long-term source of funds. If you buy a long-term asset utilizing funds from short-term sources, the asset has to be sold off to repay the short-term loan, in the event of pressure to repay the loan.

**METHODS OF FINANCE:**

The following are the common methods of finance:

* Long –term finance
* Medium-term fiancé
* Short-term fiancé

Now we will discuss each of these methods identifying the sources under each method:

**1.  LONG-TERM FINANCE:**

Long-term finance refers to that finance available for a long period say three years and above. The long-term methods outlined below are used to purchase fixed assets such as land and buildings, plant and so on.

**Own Capital:**

Irrespective of the form of organization such as soletrader, partnership or a company, the owners of the business have to invest their own finances to start with. Money invested by the owners, partners or promoters is permanent and will stay with the business throughout the life of the business.

**Share Capital:**

Normally in the case of a company, the capital is raised by issue of shares. The capital so raised is called share capital. The liability of the shareholder is limited to the extent of his contribution to the share capital of the company. The shareholder is entitled to dividend in case the company makes profits and the directors announce dividend formally in the general body meetings. The share capital can be of two types: ***Preference share capital and equity share capita*l.** The salient features of preference share capital and ordinary share capital are discussed below:

**Preference Share Capital:** Capital raised through issue of preference shares is called preference share capital.

***Preference share:*** A preference shareholder enjoys two rights over equity shareholders: (a) right to receive fixed rate of dividend and (b) right to return of capital. After setting the claims of outsiders, preference shareholders are the first to get their dividend and then the balance will go to the equity shareholders. However, the preference shareholders do not have any voting rights in the annual general body meetings of the company. This deprives them of the right to participate in the management of the affairs of the company.

***Types of preference shares:*** Preference shares are of five types. They are:

***Cumulative preference share:***A cumulative preference share gets his right to the arrears of dividend cumulated over a period of time. If the company is not in a position to pay dividends during a particular year due to paucity of profits, it has to pay the same to the cumulative preference shareholders when it makes profits. In other words, the holders of cumulative preference shares enjoy the right to receive, when profits permit, the dividend missed in the years when the profits were nil or inadequate.

1. ***Non-cumulative preference shares:*** The holders of these shares do not enjoy any right over the arrears of dividend. Hence the unpaid dividend in arrears cannot be claimed in future.
2. ***Participating preference shares****:* The holder of these shares enjoys the dividend two times. They get their normal fixed rate of dividend as per their entitlement. They participate again along with the equity shareholders in the distribution of profits.
3. ***Redeemable preference shares****:* These shares are repaid at the end of a given period. The period of repayment is stipulated on each share.
4. *Non-redeemable preference shares* These shares continue as long as the company continues. They are repaid only at the end of the lifetime of the company.

**Equity Share Capital:** Capital raised through issue of equity share is called equity share capital. An equity share is also called ordinary share. An equity shareholder does not enjoy any priorities such as those enjoyed by a preference shareholder. But an equity shareholder is entitled to voting rights as many as the number of shares he holds. The profits after praying all the claims belong to the equity shareholders. In case of loss, they are the first to suffer the losses. Equity shareholders are the real risk bearers of the company. But at the same time, they are entitled for the whole surplus of the profits after payment of dividends to preference shareholders. Therefore, the rate of dividend on equity shares is not fixed.

**Retained Profits:**

The retained profits are the profits remaining after all the claims. They form a very significant source of finance. Retained profits form good source of working capital. Particularly in times of growth and expansion, retained profits can be advantageously utilized.

**Long-term Loans:**

There are specialized financial institutions offering long-term loans, provided the business proposal is feasible. The promoter should be offer asset of the business as security to avail of this source.

**Debentures:**

Debentures are the loans taken by the company. It is a certificate or letter issued by the company under its common seal acknowledging the receipt of loan. A debenture holder is the creditor of the company. A debenture holder is entitled to a fixed rate of interest on the debenture amount. Payment of interest on debenture is the first charge against profit.

**1. Convertible Debentures:** These debentures are converted into equity shares after the period mentioned in the terms and conditions of issue. In terms of cost, debentures are cheaper than the equity shares. Where the company is not sure of good profits to sustain the size of equity, it prefers to issue convertible debentures. These debentures continue as loan for the defined period. These are converted into equity shares on the specified date. Then onwards, these shareholders will be entitled to dividend, which will be normally higher than the rate of interest on debentures.

**2. Partly Convertible Debentures:** A portion of debentures is to be converted into equity shares. They continue as loan till the date of payment.

**3. Non-convertible Debentures:** These debentures will not be converted into equity shares. They continue as loan till the date of payment.

**4. Secured Debentures**: These debentures are safe because the assets of the company are offered as security towards the payment of the debentures. Newly promoted companies issue secured debentures to create confidence among the investors.

**5. Partly Secured Debentures**: These debentures are partly covered by the security. In other words, the security value is lesser than the face value of the debentures issued.

**6. Unsecured Debentures**: There is no security for these debentures. Normally, the companies having a good financial records issue unsecured debentures.

**7. Redeemable Debentures**: These debentures are repaid on a specified date.

**8. Non-redeemable Debentures**: These are repaid only at the end of the lifetime of the company.

**II. MEDIUM-TERM FINANCE:**

Medium-term finance refers to such sources of finance where the repayment is normally over one year and less than three years. This is normally utilized to buy or lease motor-vehicles, computer equipment, or machinery whose life is less than three years. The sources of medium-term finance are as given below:

**Bank Loans:**

Bank loans are extended at a fixed rate interest. Repayment of the loan and interest are scheduled at the beginning and are usually directly debited to the current account of the borrower. These are secured loans.

**Hire-purchase**:

It is a facility to buy a fixed asset while paying the price over a long period of time. In other words, the possession of the asset can be taken by making a down payment of a part of the price and the balance will be repaid with a fixed rate of interest in agreed number of installments. The buyer becomes the owner of the asset only on payment of the last installment.

**Leasing of Renting**:

Where there is a need for fixed assets, the asset need not be purchased. It can be taken on lease or rent for specified number of years. The company who owns the asset is called *lessor* and the company which takes the asset on lease is called *lessee*. The agreement between the lessor and lessee is called a lease agreement. On the expiry of the lease agreement, the owner takes the asset back into his custody. Under lease agreement, ownership to the asset never passes.

**Venture Capital**:

This form of finance is available only for limited companies. Venture capital is normally provided in such projects where there is relatively a higher degree of risk. For such projects, finance through the conventional sources may not be available. Many banks offer such finance through their merchant banking divisions, of specialist banks which offers advice un-financial assistance.

**iii) Short-term fiancé**:

Short term finance is that finance which is available for a period of less than one year. The following are the sources of short term finance.

**Commercial Paper (CP):**

CPs are issued usually in large denominations by the leading, nationally reputed, highly rated and credit worthy, large manufacturing and finance companies in the public and private sectors.

**Bank overdraft:**

This is a special arrangement with the banker where the customer can draw more than what he has any savings/current account subject to a maximum limit interest is charged on a day to day basis on the actual amount overdrawn. This source is utilized to meet the temporary shortage of funds.

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**Trade Credit**:

This is a short term credit facility extended by the creditor to the debtor. Normally, it is common for the trader to by the material and other supplies from the suppliers on the credit basis. After selling the stocks the trader pays the cash and buys fresh stocks again on credit. Sometimes, the suppliers may insist on the buyer to sign on bill (bill of exchange). This bill is called bills payable.

**Debit factoring or Credit factoring:**

Debit factoring is an arrangement with factor where the trader agrees to sell its accounts receivable or debtor at discount to the specialized dealer called factors. In the case of Credit factoring the trader agrees to sell his accounts payables (at premium).

**Capital Budgeting:**

Capital budgeting **is the process of making investment decision in long-term assets** or courses of action. Capital expenditure incurred today is expected to bring its benefits over a period of time. These expenditures are related to the acquisition & improvement of fixes assets.

Capital budgeting is the planning of expenditure and the benefit, which spread over a number of years. It is the process of deciding whether or not to invest in a particular project, as the investment possibilities may not be rewarding. The manager has to choose a project, which gives a rate of return, which is more than the cost of financing the project. For this the manager has to evaluate the worth of the projects in-terms of cost and benefits. The benefits are the expected cash inflows from the project, which are discounted against a standard, generally the cost of capital.

**Capital budgeting Techniques:**

The capital budgeting appraisal methods are techniques of evaluation of investment proposal will help the company to decide upon the desirability of an investment proposal depending upon their; relative income generating capacity and rank them in order of their desirability. These methods provide the company a set of norms on the basis of which either it has to accept or reject the investment proposal. The most widely accepted techniques used in estimating the cost-returns of investment projects can be grouped under two categories.

1. Traditional methods
2. Discounted Cash flow methods

**1. Traditional methods**

These methods are based on the principles to determine the desirability of an investment project on the basis of its useful life and expected returns. These methods depend upon the accounting information available from the books of accounts of the company. These will not take into account the concept of ‘time value of money’, which is a significant factor to determine the desirability of a project in terms of present value.

**A. Pay-back period method**: It is the most popular and widely recognized traditional method of evaluating the investment proposals. It can be defined, as ‘the number of years required to recover the original cash out lay invested in a project’.

According to Weston & Brigham, “**The pay back period is the number of years it takes the firm to recover its original investment by net returns before depreciation, but after taxes**”.

According to James. C. Vanhorne, “The payback period is the number of years required to recover initial cash investment.

The pay back period is also called payout or payoff period. This period is calculated by dividing the cost of the project by the annual earnings after tax but before depreciation under this method the projects are ranked on the basis of the length of the payback period. A project with the shortest payback period will be given the highest rank and taken as the best investment. The shorter the payback period, the less risky the investment is the formula for payback period is

Cash outlay (or) original cost of project

Pay-back period = -------------------------------------------------------------

Annual cash inflow

**Merits:**

1. It is one of the earliest methods of evaluating the investment projects.
2. It is simple to understand and to compute.
3. It dose not involve any cost for computation of the payback period
4. It is one of the widely used methods in small scale industry sector
5. It can be computed on the basis of accounting information available from the books.

**Demerits:**

1. This method fails to take into account the cash flows received by the company after the pay back period.
2. It doesn’t take into account the interest factor involved in an investment outlay.
3. It doesn’t take into account the interest factor involved in an investment outlay.
4. It is not consistent with the objective of maximizing the market value of the company’s share.
5. It fails to consider the pattern of cash inflows i. e., the magnitude and timing of cash in flows.

**B. Accounting (or) Average rate of return method (ARR):**

It is an accounting method, which uses the accounting information repeated by the financial statements to measure the probability of an investment proposal. **It can be determine by dividing the average income after taxes by the average investment** i.e., the average book value after depreciation.

According to ‘Soloman’, accounting rate of return on an investment can be calculated as the ratio of accounting net income to the initial investment, i.e.

Average net income after taxes

ARR= ----------------------------------------------------- X 100

Average Investment

Total Income after Taxes

Average net income after taxes = --------------------------------------

No. Of Years

Total Investment

Average investment = --------------------------------------

2

On the basis of this method, the company can select all those projects whose ARR is higher than the minimum rate established by the company. It can reject the projects with an ARR lower than the expected rate of return. This method can also help the management to rank the proposal on the basis of ARR. A highest rank will be given to a project with highest ARR, where as a lowest rank to a project with lowest ARR.

**Merits:**

1. It is very simple to understand and calculate.
2. It can be readily computed with the help of the available accounting data.
3. It uses the entire stream of earning to calculate the ARR.

**Demerits:**

1. It is not based on cash flows generated by a project.
2. This method does not consider the objective of wealth maximization
3. IT ignores the length of the projects useful life.
4. It does not take into account the fact that the profits can be re-invested.

**II: Discounted cash flow methods:**

**The traditional method does not take into consideration the time value of money**. They give equal weight age to the present and future flow of incomes. The DCF methods are based on the concept that a rupee earned today is more worth than a rupee earned tomorrow. These methods take into consideration the profitability and also time value of money.

**A. Net present value method (NPV)**

The NPV takes into consideration the time value of money. The cash flows of different years and valued differently and made comparable in terms of present values for this the net cash inflows of various period are discounted using required rate of return which is predetermined.

According to Ezra Solomon, **“It is a present value of future returns, discounted at the required rate of return minus the present value of the cost of the investment**.”

NPV is the difference between the present value of cash inflows of a project and the initial cost of the project.

According the NPV technique, only one project will be selected whose NPV is positive or above zero. If a project(s) NPV is less than ‘Zero’. It gives negative NPV hence. It must be rejected. If there is more than one project with positive NPV’s the project is selected whose NPV is the highest.

The formula for NPV is

NPV= Present value of cash inflows – investment.

 C1 C2 C3 Cn

NPV = ------ + ------- + -------- + -------

 (1+K) (1+K) (1+K) (1+K)

Co- investment

C1, C2, C3… Cn= cash inflows in different years.

K= Cost of the Capital (or) Discounting rate

D= Years.

**Merits:**

1. It recognizes the time value of money.
2. It is based on the entire cash flows generated during the useful life of the asset.
3. It is consistent with the objective of maximization of wealth of the owners.
4. The ranking of projects is independent of the discount rate used for determining the present value.

**Demerits:**

1. It is different to understand and use.
2. The NPV is calculated by using the cost of capital as a discount rate. But the concept of cost of capital. If self is difficult to understood and determine.
3. It does not give solutions when the comparable projects are involved in different amounts of investment.
4. It does not give correct answer to a question whether alternative projects or limited funds are available with unequal lines.

**B. Internal Rate of Return Method (IRR**

**The IRR for an investment proposal is that discount rate which equates the present value of cash inflows with the present value of cash out flows of an investment**. The IRR is also known as cutoff or handle rate. It is usually the concern’s cost of capital.

According to Weston and Brigham “The internal rate is the interest rate that equates the present value of the expected future receipts to the cost of the investment outlay.

When compared the IRR with the required rate of return (RRR), if the IRR is more than RRR then the project is accepted else rejected. In case of more than one project with IRR more than RRR, the one, which gives the highest IRR, is selected.

The IRR is not a predetermine rate, rather it is to be trial and error method. It implies that one has to start with a discounting rate to calculate the present value of cash inflows. If the obtained present value is higher than the initial cost of the project one has to try with a higher rate. Like wise if the present value of expected cash inflows obtained is lower than the present value of cash flow. Lower rate is to be taken up. The process is continued till the net present value becomes Zero. As this discount rate is determined internally, this method is called internal rate of return method.

 P1 - Q

 IRR = L+ --------- X D

 P1 –P2

L- Lower discount rate

P1 - Present value of cash inflows at lower rate.,P2 - Present value of cash inflows at higher rate.

Q- Actual investment.D- Difference in Discount rates.

**Merits:**

1. It consider the time value of money
2. It takes into account the cash flows over the entire useful life of the asset.
3. It has a psychological appear to the user because when the highest rate of return projects are selected, it satisfies the investors in terms of the rate of return an capital
4. It always suggests accepting to projects with maximum rate of return.
5. It is inconformity with the firm’s objective of maximum owner’s welfare.

**Demerits:**

1. It is very difficult to understand and use.
2. It involves a very complicated computational work.
3. It may not give unique answer in all situations.

**C. Probability Index Method (PI):**

The method is also called benefit cost ration. **This method is obtained cloth a slight modification of the NPV method**. In case of NPV the present value of cash out flows are profitability index (PI), the present value of cash inflows are divide by the present value of cash out flows, while NPV is a absolute measure, the PI is a relative measure.

It the PI is more than one (>1), the proposal is accepted else rejected. If there are more than one investment proposal with the more than one PI the one with the highest PI will be selected. This method is more useful incase of projects with different cash outlays cash outlays and hence is superior to the NPV method.

The formula for PI is

 Present Value of Future Cash Inflow

 Probability index = ----------------------------------------

 Investment

**Merits:**

1. It requires less computational work then IRR method
2. It helps to accept / reject investment proposal on the basis of value of the index.
3. It is useful to rank the proposals on the basis of the highest/lowest value of the index.
4. It is useful to tank the proposals on the basis of the highest/lowest value of the index.
5. It takes into consideration the entire stream of cash flows generated during the useful life of the asset.

**Demerits:**

1. It is somewhat difficult to understand
2. Some people may feel no limitation for index number due to several limitation involved in their competitions
3. It is very difficult to understand the analytical part of the decision on the basis of probability index.