

UNIT – IV

CAPITAL BUDGETING

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.

$$\text{Payback period} = \frac{\text{cash outlay (OR) Original cost of project}}{\text{annual cash inflow}}$$

Merits:

1. It is one of the earliest methods of evaluating the investment projects.
2. It is simple to understand and to compute.
 1. It does not involve any cost for computation of the payback period
 2. It is one of the widely used methods in small scale industry sector
 3. 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 determined 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.,

$$\text{ARR} = \frac{\text{Average net income after taxes}}{\text{average investment}} \times 100$$

$$\text{Average income after taxes} = \frac{\text{Total income after taxes}}{\text{no. of years}}$$

$$\text{Average investment} = \frac{\text{total investment}}{2}$$

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, whereas 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 earnings 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 project's 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 weightage 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 are valued differently and made comparable in terms of present values for this the net cash inflows of various periods 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 to 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 are 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.

$$NPV = \frac{c_1}{1+k} + \frac{c_2}{(1+k)} + \frac{c_3}{(1+k)} + \frac{c_n}{(1+K)}$$

Co- investment

C₁, C₂, C₃... C_n = 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 difficult 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 is difficult to understand 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.
5. **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 hurdle 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.

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.

$$IRR = L + \frac{P_1 - Q}{P_1 - P_2} \times D$$

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 ratio. This method is obtained through 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 divided by the present value of cash out flows, while NPV is an absolute measure, the PI is a relative measure.

If 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 in case of projects with different cash outlays and hence is superior to the NPV method.

The formula for PI is

$$\text{Probability Index} = \frac{\text{Present value of future cash inflow}}{\text{investment}}$$

Merits:

1. It requires less computational work than 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 rank 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 limitations involved in their competitions
3. It is very difficult to understand the analytical part of the decision on the basis of probability index.

Unit -5

FINANCIAL ANALYSIS THROUGH RATIOS

Accounting ratio show inter-relationships which exist among various accounting data. When relationships among various accounting data supplied by financial statements are worked out, they are known as accounting ratios.

Uses or Advantages or Importance of Ratio Analysis

Ratio Analysis stands for the process of determining and presenting the relationship of items and groups of items in the financial statements. It is an important technique of financial analysis. It is a way by which financial stability and health of a concern can be judged. The following are the main uses of Ratio analysis:

- (A) Useful in financial position analysis: Accounting reveals the financial position of the concern. This helps banks, insurance companies and other financial institution in lending and making investment decisions.
- (ii) Useful in simplifying accounting figures: Accounting ratios simplify, summaries and systematic the accounting figures in order to make them more understandable and in lucid form.
- (iii) Useful in assessing the operational efficiency: Accounting ratios helps to have an idea of the working of a concern. The efficiency of the firm becomes evident when analysis is based on accounting ratio. This helps the management to assess financial requirements and the capabilities of various business units.
- (iv) Useful in forecasting purposes: If accounting ratios are calculated for number of years, then a trend is established. This trend helps in setting up future plans and forecasting.
- (v) Useful in locating the weak spots of the business: Accounting ratios are of great assistance in locating the weak spots in the business even through the overall performance may be efficient.
- (vi) Useful in comparison of performance: Managers are usually interested to know which department performance is good and for that he compare one department with the another department of the same firm. Ratios also help him to make any change in the organisation structure.

Limitations of Ratio Analysis:

These limitations should be kept in mind while making use of ratio analyses for interpreting the financial statements. The following are the main limitations of ratio analysis.

1. False results if based on incorrect accounting data: Accounting ratios can be correct only if the data (on which they are based) is correct. Sometimes, the information given in the financial statements is affected by window dressing, i. e. showing position better than what actually is.
2. No idea of probable happenings in future: Ratios are an attempt to make an analysis of the past financial statements; so they are historical documents. Now-a-days keeping in view the complexities of the business, it is important to have an idea of the probable happenings in future.
3. Variation in accounting methods: The two firms' results are comparable with the help of accounting ratios only if they follow the same accounting methods or bases. Comparison will become difficult if the two concerns follow the different methods of providing depreciation or valuing stock.
4. Price level change: Change in price levels make comparison for various years difficult.
5. Only one method of analysis: Ratio analysis is only a beginning and gives just a fraction of information needed for decision-making so, to have a comprehensive analysis of financial statements, ratios should be used along with other methods of analysis.
6. No common standards: It is very difficult to lay down a common standard for comparison because circumstances differ from concern to concern and the nature of each industry is different.
7. Different meanings assigned to the same term: Different firms, in order to calculate ratio may assign different meanings. This may affect the calculation of ratio in different firms and such ratio when used for comparison may lead to wrong conclusions.
8. Ignores qualitative factors: Accounting ratios are tools of quantitative analysis only. But sometimes qualitative factors may surmount the quantitative aspects. The calculations derived from the ratio analysis under such circumstances may get distorted.

Classification of ratios:

All the ratios broadly classified into four types due to the interest of different parties for different purposes. They are:

1. Profitability ratios
2. Turn over ratios
3. Financial ratios
4. Leverage ratios

Profitability ratios: These ratios are calculated to understand the profit positions of the business. These ratios measure the profit earning capacity of an enterprise. These ratios can be related its share or capital to a certain margin on sales or profitability of capital employ

Profitability ratios in relation to sales: Profitability ratios are almost importance of concern. These ratios are calculated is focus the end results of the business activities which are the sole criterion of overall efficiency of organisation.

$$1. \text{Gross Profit Ratio} = \frac{\text{gross profit}}{\text{Net sales}} \times 100$$

Note: Higher the ratio the better it is

$$\text{Net Profit Ratio} = \frac{\text{net profit after interest and taxes}}{\text{net sales}} \times 100$$

Note: Higher the ratio the better it is

3. Operating Ratio (Operating expenses ratio)

4. Operating ratio (Operating expenses ratio)

$$\frac{\text{Cost of goods sold} + \text{operating expenses}}{\text{Net sales}} \times 100$$

Net: Lower the ratio the better it is

$$5. \text{ Operating profit ratio: } \frac{\text{Operating profit}}{\text{Net sales}} \times 100 = 100 \text{ operating ratio}$$

Note: Higher the ratio the better it is cost of goods sold= opening stock + purchase + wages + other direct expenses- closing stock (or) sales – gross profit.

Operating expenses: = administration expenses + selling, distribution expenses operating profit= gross profit – operating expense.

Profitability ratios in relation to investments:

$$1. \text{ Return on investments: } \frac{\text{Net profit after tax \& latest depreciation}}{\text{share holders funds}} \times 100$$

Share holders funds = equity share capital + preference share capital + reserves & surpluses + undistributed profits.

Note: Higher the ratio the better it is

2. **Return on equity capital:**
$$\frac{\text{Net Profit after tax \& interest - preferred dividend}}{\text{equity share capital}} \times 100$$

Note: Higher the ratio the better it is

3. Earnings per share =
$$\frac{\text{Net profit after tax - preferred dividend}}{\text{No. of equity shares}}$$

4. Return on capital employed =
$$\frac{\text{operating profit}}{\text{capital employed}} \times 100$$

5. Return on total assets =
$$\frac{\text{N. P. after tax and interest}}{\text{Total Assets}}$$

Here, capital employed = equity share capital + preference share capital + reserves & surpluses + undistributed profits + debentures + public deposit + securities + long term loan + other long term liability – fictitious assets (preliminary expressed & profit & loss account debt balance)

Turn over ratios or activity ratios:

These ratios measure how efficiently the enterprise employs the resources of assets at its command. They indicate the performance of the business. The performance of an enterprise is judged with its turnover. It means ratios are also called efficiency ratios.

1. **Stock turnover ratio** =
$$\frac{\text{cost of goods sold}}{\text{average stock}}$$

Here,

$$\frac{\text{opening stock} + \text{closing stock}}{2}$$

Average stock=

Note: Higher the ratio, the better it is

$$2. \text{ Working capital turnover ratio} = \frac{\text{sales}}{\text{working capital}}$$

Note: Higher the ratio the better it is working capital = current assets – essential liabilities.

$$3. \text{ Fixed assets turnover ratio} = \frac{\text{sales}}{\text{fixed assets}}$$

Note: Higher the ratio the better it is.

$$3 (i) \text{ Total assets turnover ratio is : } \frac{\text{sales}}{\text{total assets}}$$

Note: Higher the ratio the better it is.

$$4. \text{ Capital turnover ratio} = \frac{\text{Sales}}{\text{Capital employed}}$$

Note: Higher the ratio the better it is

$$5. \text{ Debtors turnover ratio} = \frac{\text{credits sales or sales}}{\text{average debtors}}$$

$$5(i) = \text{Debtors collection period} = \frac{365 \text{ (or) } 12}{\text{Turnove ratio}}$$

Here,

$$\frac{\text{opening debtors} + \text{closing bebtors}}{2}$$

Average debtors =

Debtors = debtors + bills receivable

Note: Higher the ratio the better it is.

$$\text{6. Creditors turnover ratio} = \frac{\text{credit purchases or purchases}}{\text{average creditors}}$$

$$\text{6 (i) creditors collection period} = \frac{365 \text{ (or) } 12}{\text{Creditor turnover ratio}}$$

Here,

$$\text{Average creditor} = \frac{\text{opening + closing creditors}}{2}$$

Creditors = creditors + bills payable.

Note: lower the ratio the better it is.

3. Financial ratios or liquidity ratios:

Liquidity refers to ability of organisation to meet its current obligation. These ratios are used to measure the financial status of an organisation. These ratios help to the management to make the decisions about the maintained level of current assets & current liabilities of the business. The main purpose to calculate these ratios is to know the short terms solvency of the concern. These ratios are useful to various parties having interest in the enterprise over a short period – such parties include banks. Lenders, suppliers, employees and other.

The liquidity ratios assess the capacity of the company to repay its short term liabilities. These ratios are calculated in ratio method.

$$\text{Current ratio} = \frac{\text{current assets}}{\text{current liabilities}}$$

Note: The ideal ratio is 2:1

i. e., current assets should be twice. The current liabilities.

$$\text{Quick ratio or liquid ratio or acid test} = \frac{\text{quick assets}}{\text{current liabilities}} \text{ ratio:}$$

Quick assets = cash in hand + cash at bank + short term investments + debtors + bills receivables short term investments are also known as marketable securities.

Here the ideal ratio is 1:1 is, quick assets should be equal to the current liabilities.

Leverage ratio or solvency ratios:

Solvency refers to the ability of a business to honour long term obligations like interest and installments associated with long term debts. Solvency ratios indicate long term stability of an enterprise. These ratios are used to understand the yield rate if the organisation.

Lenders like financial institutions, debenture, holders, banks are interested in ascertaining solvency of the enterprise. The important solvency ratios are:

$$1. \text{ Debt - equity ratio} = \frac{\text{outsiders funds}}{\text{share holders funds}} = \frac{\text{Debt}}{\text{Equity}}$$

Here, Outsiders funds = Debentures, public deposits, securities, long term bank loans + other long term liabilities.

Share holders funds = equity share capital + preference share capital + reserves & surpluses + undistributed projects.

The ideal ratio is 2:1

$$2. \text{ Preprimary ratio or equity ratio} = \frac{\text{share holder funds}}{\text{total assets}}$$

The ideal ratio is 1:3 or 0.33:1

$$3. \text{ Capital - greasing ratio} = \frac{(\text{equity share capital} + \text{reserves \& surplusses} + \text{undistributed projects})}{(\text{Outsiders funds} + \text{preferenceshare capital})}$$

Here,

higher gearing ratio is not good for a new company or the company in which future earnings are uncertain.

$$11. \text{ Debt to total fund ratio} = \frac{\text{outsiders funds}}{\text{capital employed}}$$

Capital employed= outsiders funds + share holders funds = debt + equity.

The ideal ratio is 0.6.7 :1 or 2:3