

Capital Budgeting

Capital budgeting is applied to evaluate expenditure decisions which involve current outlays in return for an anticipated flow of future benefits.

Importance

Capital budgeting decisions have been given the primary importance to financial decision making since they are the most crucial and critical business decisions as they have significant impact on the profitability aspect of the firm. Capital budgeting decisions have been given special importance because:

1. Capital budgeting has long term implications. Its effects well extend into the future and will have to be endured for a longer period than the consequences of current operating expenditure.
2. Capital budgeting requires large amount of funds. Therefore investment decisions must be thoughtful and correct.
3. Once the capital budgeting decisions are taken, they are not easily reversible.
4. Capital budgeting decisions are most difficult because of the fact that their assessment depends on the future uncertain events and activities of the firm. It is a difficult task to estimate future benefits accurately.

Methods of Appraisal

Capital budgeting decisions involve long term commitment. For this purpose a sound appraisal method should be adopted in order to measure the economic worth of each investment project.

Investment criteria intended to be used must possess the following features:

1. It should be a criterion which may be applicable to any investment project
2. It must provide a way of distinguishing between acceptable and unacceptable projects
3. It must provide a ranking of projects according to desirability
4. It should give more importance to early benefits than later ones

There are a number of investment criteria which are widely used. The methods of appraising capital expenditure decisions can be classified into 2 broad categories:

- a. Non-discounted technique
- b. Discounted technique

a. Non-discounted technique

1. **Average Rate of return (ARR):** is used in order to measure the profitability of the investment proposals. Under this method, average annual profit (after tax) is expressed as a percentage of investment.

$$ARR = \frac{\text{Average annual profit after tax}}{\text{Average investment}} \times 100$$

Average annual profit after tax is determined by adding the after-tax expected profits for each year over the life of the project and dividing the same by the number of years.

$$\text{Average Investment} = \frac{\text{Total investment}}{2}$$

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$$\text{Average Investment} = \text{Salvage value} + (\text{Cost price} - \text{Salvage value}) / 2$$

Advantage:

- i. It is very simple and easy to calculate
- ii. It uses readily available accounting information

Disadvantage:

- i. Based on accounting profit and not on cash flows
- ii. Does not recognize the timings of cash inflows (i.e. time value of money)
- iii. Does not take into consideration the length of lives of the project

2. **Pay back Period:** It is defined as the number of years required to cover the original cash outlay which are invested in a project. In other words, pay back period is the period required

for the savings in cost or net cash flow after tax but before depreciation, to recover the investment. It can be easily understood that the project with the shortest pay back period will be treated as the best.

Advantage:

- i. It is simple to understand and easy to operate
- ii. It looks into the liquidity aspect i.e. how soon the cost of the asset will be recovered
- iii. Short term approach (shortest pay back period is the best) reduces the chance of loss through obsolescence particularly when the industry is subject to rapid industrial development

Disadvantage:

- i. It recognizes recovery of capital cost only and not profits earned while the project continues after pay back period
- ii. It does not recognize the time value of money

b. Discounted technique

1. **Net Present Value (NPV):** is the time value of money approach to evaluate the return from an investment proposal. The project's future cash inflows are discounted at a stipulated rate (usually the cost of capital) to arrive at their present value of the cost of the project (i.e. the cash outflow) is subtracted from the sum of present values of cash inflows. The difference is the net present value. The decision rule under NPV is to accept the project if NPV is positive and reject if NPV is negative.

Advantage:

- i. It recognizes time value of money
- ii. It recognizes all cash flows throughout the life of the project
- iii. It helps to satisfy the wealth maximizing objective of the firm

Disadvantage:

- i. Arriving at the correct discounting factor (i.e. interest rate) is very difficult

2. **Profitability Index (or Benefit Cost Ratio):** It is the relation between the present value of future net cash inflows and the initial cash outlay.

$$PI = \frac{\text{Present value of cash inflow}}{\text{Initial Cash Outlay}}$$

As long as PI is equal to or greater than 1, an investment proposal is acceptable. In the case of mutually exclusive proposals, the higher the index, the more profitable is the proposal and vice versa.

Although PI is an extension of the NPV method, financial managers prefer the NPV method over PI as the former expresses in absolute term, the expected economic contribution of the project. In contrast PI expresses only the relative profitability. Therefore NPV method is the better of the two methods when one has to choose between mutually exclusive projects that involve different initial outlays under conditions when a firm has unlimited funds available for investment. On the other hand, in case of capital rationing, PI method will be more useful since it indicates a return from a project per rupee of initial investment which is the limiting factor.

3. **Net Benefit Cost Ratio:**

$$NBCR = \frac{\text{Net Present value of cash inflow}}{\text{Initial Cash Outlay}}$$

If NBCR is greater than 0 then the project can be accepted.

4. **Internal Rate of Return:** IRR is a discounting rate which equates the present value of cash inflows with the present value of cash outflows. In other words, the rate at which the net present value equals to zero is known as IRR. It is actually the rate of return earned by the project.

According to this method, IRR should be compared with a required rate of return known as the cut-off or the hurdle rate, which is often taken to be the firm's cost of capital. If the IRR is more than the required rate, the project is profitable; otherwise it should be rejected.