

CAPITAL BUDGETING

Prepared by: **Janice Maria Jose**

Department of Commerce

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MEANING

- ⦿ It means investment decisions.
- ⦿ It is the process of allocating the resources of the organization in the long term investment projects to generate profits.
- ⦿ It is the process of making capital investment decisions.
- ⦿ It is the process of identifying, analyzing and selecting investment projects whose returns are expected over a series of years in future.

FEATURES

- ⦿ Funds are invested in long term activities.
- ⦿ It involves large outlays.
- ⦿ Current funds are exchanged for future benefits.
- ⦿ The benefits are expected over a number of years in future.
- ⦿ High degree of risk.
- ⦿ Irreversible.
- ⦿ Gestation period is long.

IMPORTANCE OF CAPITAL BUDGETING

- ⦿ Huge investment.
- ⦿ Long term implications.
- ⦿ Irreversible decisions.
- ⦿ Risk
- ⦿ Growth
- ⦿ Impact on firm's competitive strength.
- ⦿ Most difficult decision.
- ⦿ Cost control
- ⦿ Wealth maximisation

LIMITATIONS

- ⦿ Future is uncertain.
- ⦿ Some factors cannot be expressed in monetary terms.
- ⦿ Estimation of period is difficult.
- ⦿ Rate of return estimation is difficult.
- ⦿ Some factors influencing cannot be quantified.
- ⦿ Difficult to estimate cost of capital.
- ⦿ Decisions will affect firm's liquidity, profitability etc.

CAPITAL BUDGETING PROCESS

- ◉ Project generation (goal of organisation-
expectation of stakeholders)
- ◉ Project screening(rejection of unfavourable
proposals)
- ◉ Project evaluation(analyse feasible
opportunities)
- ◉ Project selection
- ◉ Project execution and implementation
- ◉ Performance review

SITUATIONS OF CAPITAL BUDGETING

- ◉ Mechanization of a process
- ◉ Replacing and modernizing a process
- ◉ Choosing between alternative machines
- ◉ Introducing a new product
- ◉ Expanding the business
- ◉ Accept-reject decisions
- ◉ Contingent decisions
- ◉ Investment for R&D

ESTIMATION OF CASH FLOWS

- ◉ The costs applicable to the projects are called cash outflows. (investment)
- ◉ The benefits which are likely to arise from the project are called cash inflows.
- ◉ The estimation of costs and benefits are made with the help of inputs provided by marketing, production, taxation departments.

CONSIDERATIONS IN DETERMINING CASH FLOWS

- ⦿ Cash flows or accounting profit
- ⦿ Incremental Cash flows
- ⦿ Effect of taxes
- ⦿ Effect of depreciation
- ⦿ Proceeds from sale of asset
- ⦿ Effect of overhead costs and other indirect expenses

TYPES OF CASH FLOWS

Initial cash flow(initial investment)

The cost of new asset. It is the investment required for beginning a new project.

Net annual cash flows/ operating cash flows

The initial investment is expected to generate a series of cash inflows in the form of benefits/ returns from the project.

Terminal cash flows

It is the cash inflows for the last or terminal year of the project.

⦿ Required rate of return

The expected rate of return from a proposal is required in order to adjust the future cash flows of a project and to determine the profitability of the proposal.

An investment proposal is accepted when the return from it is more than the required rate of return.

It is also known as *cost of capital* or *cut off rate* or *hurdle rate*.

RISK ANALYSIS IN CAPITAL BUDGETING

RISK ANALYSIS IN CAPITAL BUDGETING

- ◉ If an investment proposal has high profitability, the risk associated with it will also be high.
- ◉ If the risk is high then investor's money is unsafe.
- ◉ *The process of comparing the risk and returns to select the most profitable investment proposal is known as risk-return analysis.*
- ◉ Positive correlation between risk and return.
- ◉ The best project is the one which has **highest return and lowest risk.**

NEED FOR RISK ANALYSIS

- ⦿ Risk in an investment refers to the variability that is likely to arise in the future between the estimated returns and actual returns from the investment proposal.
- ⦿ It is necessary to take into account the risk factor in capital budgeting decision, if not the firm cannot maximize its returns.
- ⦿ Assessing risk and incorporating the same in the final decision is an integral part of financial analysis.

METHODS OF RISK ANALYSIS

- ⦿ **General /traditional techniques**

Some adjustments are made to the estimated cash flows to make them more reliable.

- a) risk adjusted discount factor

- b) certainty equivalent method

- ⦿ **Modern/quantitative methods**

RISK ADJUSTED DISCOUNT RATE

- ◉ Under this method some adjustments are made in the discount rate according to the degree of risk associated with the project.
- ◉ If the risk is high ,discount rate is raised(adding risk premium to discount rate).
- ◉ $12\% + 3\% = 15\%$.
- ◉ This gives lesser present value of the cash flows.

- ⦿ Risk adjusted discount rate is equal to risk-free return+ risk premium for investing in a risky project.
- ⦿ Risk free rate is that rate at which the future cash inflows should be discounted if there had been no risk.
- ⦿ Risk premium rate is the extra return expected by investors over the normal rate on account of project being risky.
- ⦿ **Higher discount rate**- more risky projects.
- ⦿ **Lower discount rate** - less risky project.

MERITS

- ⦿ Simple to understand.
- ⦿ Easy to calculate.
- ⦿ Provides compensation for the risk factor.
- ⦿ Can be used along with NPV and IRR method.
- ⦿ Takes into account the risk averse attitude of investors.

DEMERITS

- ⦿ No scientific way of determining the risk premium.
- ⦿ Subjective and controversial.- Personal judgments.
- ⦿ Not scientific method- adjustment should be made in the cash inflows.
- ⦿ Not valid- assumes that risk increases with time at constant rate.

DECISION RULE

- ⦿ It can be used both in NPV and IRR method.
- ⦿ **NPV method**- The project with higher NPVs should be selected.
- ⦿ **IRR method**- The projects with IRR greater than the risk adjusted rate of return is selected.

CERTAINTY EQUIVALENT METHOD

- ◉ Under this method, the risk involved in the project is taken into consideration by adjusting the expected cash flows and not the discount rate.
- ◉ The anticipated cash inflows are reduced to a conservative level by applying a **correction factor** termed as certainty equivalent coefficient.
- ◉ It is the ratio of riskless cash inflow to risky cash inflow.
- ◉ Certainty equivalent coefficient=
$$\text{riskless cash inflow} / \text{risky cash inflow}$$

- Riskless cash inflow means the cash inflow which the management expects to have after discounting all negative situations, a situation of no risk at all.
- It will be lower than the cash inflow which can be expected in a risky situation.
- Certainty equivalent coefficient can be calculated for estimated cash inflows of each year, depending upon the developments / events going to take place in future.
- The coefficient factor is then multiplied with the expected cash inflow to ascertain the sure cash inflow.

MERITS

- ⦿ Simple to understand.
- ⦿ Easy to apply.
- ⦿ Reduces uncertain cash flows to make them more realistic.
- ⦿ Takes risk into consideration by adjusting the cash flows which are subject to risk.
- ⦿ It is superior to risk adjusted discount rate.

DEMERITS

- ⦿ Difficult to calculate and understand the certainty equivalent coefficient.
- ⦿ Does not directly use the probability distribution of possible cash flows.
- ⦿ Arbitrary and subjective.
- ⦿ Difficult to implement.

DECISION RULE

- ⦿ Certainty coefficient lies between 0 and 1.
- ⦿ Higher the risk- lower the coefficient.
- ⦿ Projects with higher NPVs may be accepted.