

Basics of Finance

Module-3

Capital Budgeting





Definition and Meaning of capital budging

Importance

Nature and significance

Methods(Traditional and Modern)

Capital Budgeting

Capital: Operating assets used for production.

Budget: A plan that details projected cash flows during some period.

Capital Budgeting: Process of analyzing projects and deciding which ones to include in capital budget.






**Decision regarding the investment of
capital in long term assets**



Capital Budgeting



Capital budgeting is the method of determining and estimating the potential of long-term investment options involving enormous capital expenditure. It is all about the company's strategic decision making, which acts as a milestone in the business.



Features of Capital Budgeting



Huge Funds

High Degree of Risk

Affects Future Competitive Strengths

Difficult Decision

Estimation of Large Profits

Long Term Effect

Affects Cost Structure

Irreversible Decision



Huge Funds: Capital budgeting involves expenditures of high value which makes it a crucial function for the management.

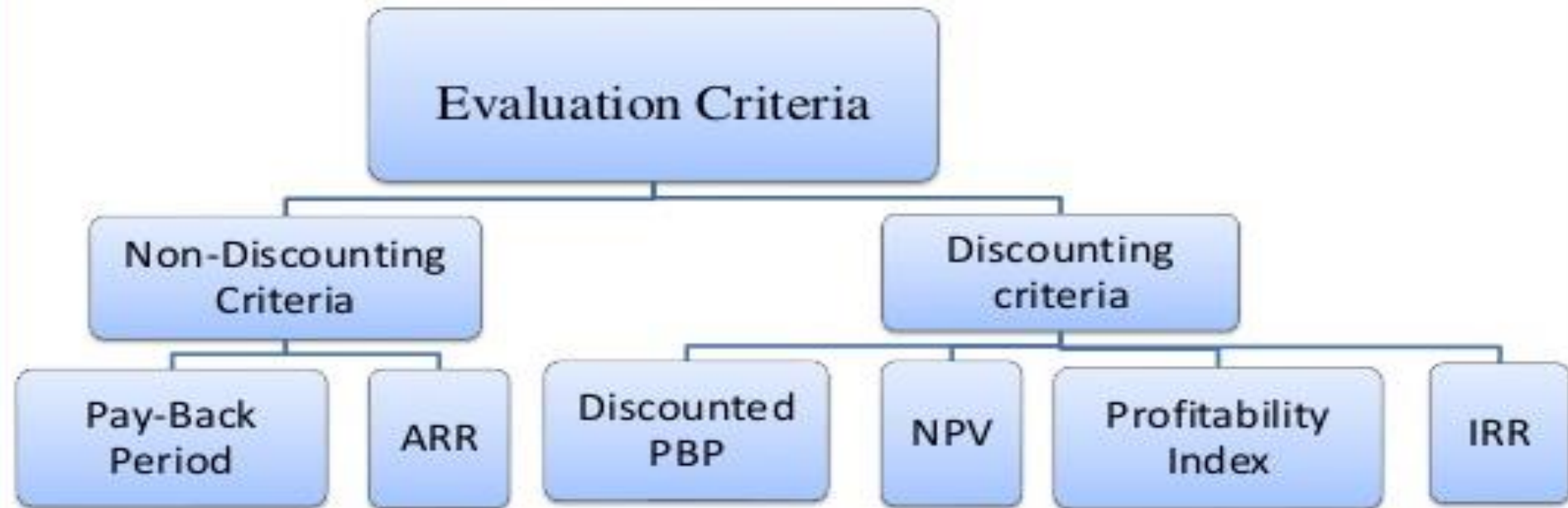
- **High Degree of Risk:** To take decisions which involve huge financial burden can be risky for the company.
- **Estimation of Large Profits:** Any investment decision taken by the company is made with the perspective of earning desirable profits in the long term.
- **Long Term Effect:** The effect of the decisions taken today, whether favourable or unfavourable, will be visible in the future or the long term.



➔ Importance of Capital Budgeting



Evaluation Criteria: Capital Investment Proposal





Pay back Period

- ▶ most popular and widely recognized traditional methods.
- ▶ it is defined as the number of years required to recover the original cash outlay invested in a project,
- ▶ This method refers to the period in which the proposal will generate cash to recover the initial investment made.
- ▶ **Payback period = Cash Outflows (Initial investment) / Annual cash inflow**

Non discounting: Pay-Back Period

1. 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**

$$\text{PBP} = \text{Cash outflow/cash inflow (p.a.)}$$

➤ **When cash inflow are not constant every year**

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

Rule of Acceptance

- If the project pay back period is less than the standard pay back period set by the management then it should be accepted
- Shortest Pay back period should prefer
- **Advantages**
 - Easy to understand
 - Easy to Calculate
 - Shows Liquidity



when inflows is not Constant every year

Q1. Outflows-2,00,000

Inflows-


I Year- 50,000

II Year – 40,000

III Year -60,000

IV Year-80,000

V Year -50,000



Outflows-1,00,000

Inflows-

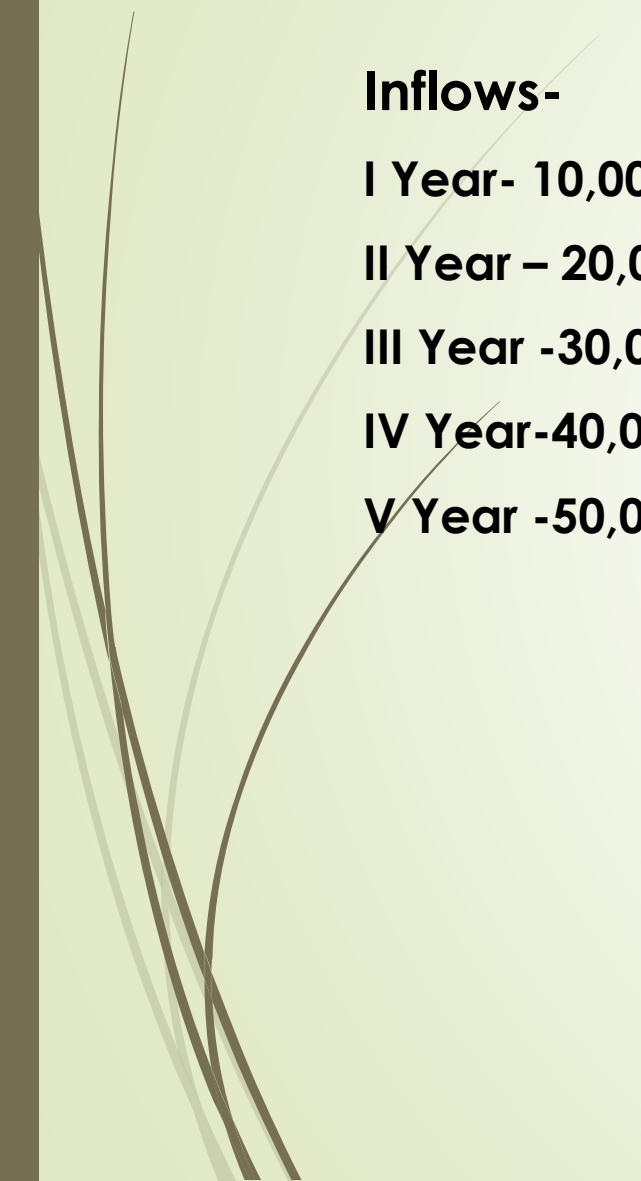
I Year- 10,000

II Year – 20,000

III Year -30,000

IV Year-40,000

V Year -50,000





Q.3 Outflows-1,00,000

Inflows-

I Year- 50,000

II Year – 40,000

III Year -3,0000

IV Year-20,000

V Year -10,000

➤ **Outflows-12,00,000- Find Pay Back Period**

Q 2. Inflows

➤ **1-3,00,000**

➤ **2-3,00,000**

➤ **3-4,50,000**

➤ **4-4,50,000**

➤ **5-7,50,000**

Basics of Finance

Module-3

Capital Budgeting

ARR & NPV

Accounting rate of return method (ARR):

DEFINITION

- ◉ Accounting rate of return (also known as simple rate of return) is the ratio of estimated accounting profit of a project to the average investment made in the project. ARR is used in investment appraisal.

FORMULA

- ◉ Accounting Rate of Return is calculated using the following formula:

- ◉
$$\text{ARR} = \frac{\text{Average Accounting Profit}}{\text{Average Investment}}$$

Basics of Finance

Module-3

Importance and Significance



➤ Outflows 20,00,000, Projected Net profit after Tax and Depreciation .

Find ARR

Inflows-

I Year-4,50,000

II Year -6,00,000

III Year -7,00,000

IV Year-7,50,000

V Year -7,00,000

- ▶ Company have a project to purchase machine of Rs **1,00,000** having a life of **5 years**, **40% Tax**, assuming the straight line method. Find **ARR**,.

Inflows-

I Year- 50,000

II Year – 30,000

III Year -20,000

IV Year-30,000

V Year -40,000

Net present value (NPV)

- Net present value (NPV) is a method used to determine the current value of all future cash flows generated by a project, including the initial capital investment.
- The required rate of return is used as the discount rate for future cash flows to account for the time value of money.
- Net present value is a tool of Capital budgeting to analyze the profitability of a project or investment. It is calculated by taking the difference between the present value of cash inflows and present value of cash outflows over a period of time.
- NPV takes into consideration the time value of money.

-
- ▶ Net present value should be found out by subtracting present value of cash outflows from present value of cash inflows.
 - ▶ $NPV = PV_{inflows} - PV_{outflows}$
 - ▶ The project should be accepted if NPV is positive (i.e., $NPV > 0$).



Problem 1:

ABC Ltd. is considering investing in a project that is expected to cost ₹ 12, 00, 000 and has an effective life of 5 years. The projected cash inflows for this period are as follows.

Year	Amount [₹]
1	3,00,000
2	3,00,000
3	4,50,000
4	4,50,000
5	7,50,000
Total	22,50,000

Calculate: [A] Pay Back Period [B] Net Present Value @ 10% rate of discounts
[C] Profitability Index. [D] Discounted Pay Back Period at 10% rate of discount.

Solution:

Basics of Finance

Module-3

PI and NPV



➤ Suraj Ltd is planning an investment in new project. The investment budget of the the company is Rs.12,80,000



Year	Cash inflows
➤ 1	40,000
➤ 2	80,000
➤ 3	1,20,000
➤ 4	1,80,000
➤ 5	2,40,000

Profitability index:

- It is the ratio of the present value of future cash benefits, at the required rate of return to the initial cash outflow of the investment.
- As this ratio increases beyond 1.0, the proposed investment becomes more desirable to companies. When this ratio does not exceed 1.0, the investment should be deferred, as the project's present value is less than the initial investment.
- It is also called as benefit cost ratio
- **PI = PV cash inflows / Present Value of Cash Outflows**

➤ Sakshi Ltd is planning an investment in new project. The investment budget of the company is Rs.15,00,000, at 10%

➤ Year Cash Inflows

➤ 1 650000

➤ 2 600000

➤ 3 600000

➤ 4 575000

➤ 5 525000

➤ **Outflows 25,00,000, Discount rate 10% pa on original value Find NPV**

Inflows-

I Year- 5,00,000

II Year -7,00,000

III Year -9,50,000

IV Year-10,00,000

V Year -11,00,000

Basics of Finance

Module-3

PI and IRR





➤ **Three Projects**

➤ **A- Discounted Cash Inflows 6,50,000 and Dis Cash Outflows 5,50,000**

➤ **B- Dis Ci 95000 and Di Co 75000**

➤ **C – Dis Ci 1,00,30,000 and Co 1,00,20,000**



Meaning :

- Internal rate of returns is that rate at which the sum of discounted cash inflow equals the sum of discounted cash outflow. In other words it is the rate which discounts the cash flow to zero.



Internal Rate of Return (IRR)

- Is the rate of interest at which
 - The present value of expected cash inflows from a project
 - Equals
 - The present value of expected cash outflows of the project.

%

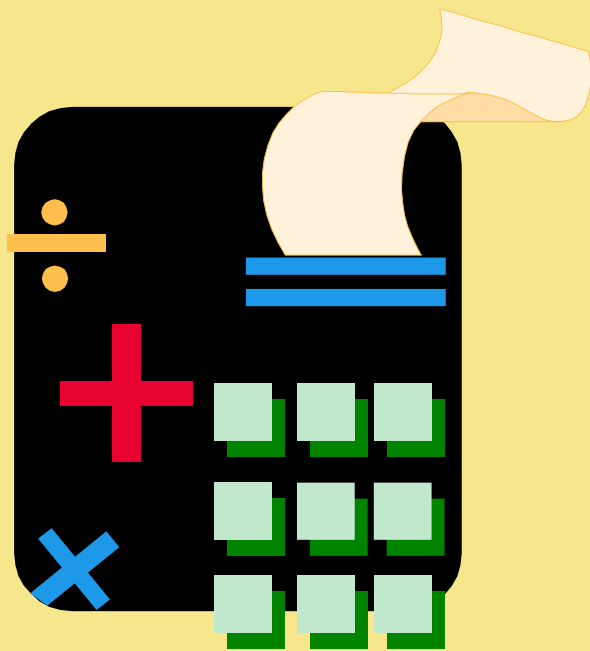
%

%


%

%

Trial and Error . . .



Try a discount rate and calculate the NPV of the project using that rate.


$$\text{IRR} = \text{Lower rate} + \frac{(\text{NPV at Lower rate})}{(\text{PV at Lower rate} - \text{PV at Higher rate})} * (\text{Higher rate} - \text{Lower rate})$$

Or

$$\text{IRR} = \text{Lower rate} + \frac{(\text{NPV at Lower rate})}{(\text{NPV at Lower rate} - \text{NPV at Higher rate})} * (\text{Higher rate} - \text{Lower rate})$$

► **Cost of Project-1,00,000, Required Rate of Return-10%**

Cash Inflows-50,000 , 30,000 , 45,000

	Proposal A	Proposal B
Initial Investment	27,00,000	30,00,000
Expected Life	6yrs	6yrs
Depreciation	Straight Line Method	Straight Line Method
Earning		
I year	650000	9750000
II Year	725000	1000000
III Year	875000	1100000
IV year	950000	1025000
V Year	900000	950000
Vi Year	800000	850000
NPV @15%		