

CAPITAL BUDGETING TECHNIQUES

CONVENTIONAL PROBLEMS

Investment Dilemma at ABC Corporation

ABC Corporation, a mid-sized manufacturing company, has recently experienced rapid growth and is looking to expand its operations. The company has identified two investment opportunities, **Project A** and **Project B**, both requiring an initial investment of ₹1,15,000. Given the company's limited resources, only one project can be pursued. The management team is relying on your expertise to analyze the financial viability of these projects and recommend the best choice.

The financial details of the projects are as follows:

Project Cash Flows (₹):

Year	Project A	Project B
0	(₹1,15,000)	(₹1,15,000)
1	₹7,188	₹51,750
2	₹21,562	₹38,812
3	₹40,250	₹28,750
4	₹50,315	₹21,563
5	₹57,500	₹14,375

Additionally, the company has the following assumptions:

- **Weighted Average Cost of Capital (WACC):** 9.40%
- **Reinvestment Rate for Cash Flows:** 7.50%

Your Task:

As a financial consultant, you are tasked with evaluating the two projects using capital budgeting techniques. Specifically, you need to calculate the following:

1. **Net Present Value (NPV):** Assess the value addition of each project.
2. **Profitability Index (PI):** Determine the value created per rupee invested.
3. **Internal Rate of Return (IRR):** Identify the return rate each project can generate.
4. **Modified Internal Rate of Return (MIRR):** Account for the reinvestment assumptions in the IRR.
5. **Crossover Rate:** Determine the discount rate at which both projects are equally desirable.

Caselet: Investment Decision for Nova Textiles Pvt. Ltd.

Nova Textiles Pvt. Ltd., a renowned fabric manufacturer, is planning to diversify its product portfolio. The company has shortlisted two projects, **Project Loom** and **Project Weave**, both requiring an upfront investment of ₹1,25,000. However, with limited financial resources, the company can only pursue one project. Nova Textiles has tasked you, their trusted financial consultant, to help determine the more viable investment option.

The financial projections for the two projects are as follows:

Project Cash Flows (₹):

Year	Project Loom	Project Weave
0	(₹1,25,000)	(₹1,25,000)
1	₹10,000	₹55,000
2	₹25,000	₹45,000
3	₹40,000	₹30,000
4	₹50,000	₹20,000
5	₹58,000	₹15,000

Other important details include:

- **Weighted Average Cost of Capital (WACC):** 10.50%
- **Reinvestment Rate:** 8.25%

Your Role:

As a financial analyst, you are required to evaluate these projects based on the following capital budgeting techniques:

1. **Net Present Value (NPV):** Assess the total value addition of each project.
2. **Profitability Index (PI):** Determine the return per rupee invested.
3. **Internal Rate of Return (IRR):** Evaluate the expected return rate for each project.
4. **Modified Internal Rate of Return (MIRR):** Incorporate reinvestment assumptions into the IRR calculation.
5. **Crossover Rate:** Identify the discount rate at which both projects provide the same NPV.

Caselet: Expansion Plans for Zenith Packaging Ltd.

Zenith Packaging Ltd., a leading manufacturer of eco-friendly packaging solutions, is exploring opportunities to expand its production capacity. The company has identified two potential

investment options, **Project Alpha** and **Project Beta**, each requiring an upfront investment of ₹1,75,000. With limited capital availability, only one project can be pursued. The management team has asked for your expertise in evaluating these opportunities.

The financial details of the projects are as follows:

Project Cash Flows (₹):

Year	Project Alpha	Project Beta
0	(₹1,75,000)	(₹1,75,000)
1	₹20,000	₹70,000
2	₹40,000	₹50,000
3	₹50,000	₹40,000
4	₹60,000	₹30,000
5	₹65,000	₹25,000

Additional assumptions for the analysis:

- Weighted Average Cost of Capital (WACC):** 8.25%
- Reinvestment Rate for Cash Flows:** 7.50%

Your Role:

As the financial consultant, you are tasked with evaluating the financial feasibility of both projects using capital budgeting techniques. Your analysis should include the following metrics:

- Net Present Value (NPV):** Measure the value addition each project brings to the company.
- Profitability Index (PI):** Assess the return per rupee invested.
- Internal Rate of Return (IRR):** Determine the expected return rate for each project.
- Modified Internal Rate of Return (MIRR):** Adjust the IRR to incorporate realistic reinvestment assumptions.
- Crossover Rate:** Calculate the discount rate where both projects yield the same NPV.

Caselet: Investment Opportunity for Greenfield Tech Pvt. Ltd.

Greenfield Tech Pvt. Ltd., an innovative startup specializing in renewable energy solutions, is planning to invest in advanced technology projects to enhance its market presence. The company has identified two options, **Project Solar** and **Project Wind**, both requiring an initial investment

of ₹2,00,000. With limited financial capacity, the management has decided to proceed with only one project and needs your expert guidance to make the best decision.

The cash flow projections for the two projects are as follows:

Project Cash Flows (₹):

Year	Project Solar	Project Wind
0	(₹2,00,000)	(₹2,00,000)
1	₹30,000	₹80,000
2	₹47,500	₹57,500
3	₹55,000	₹45,000
4	₹65,000	₹35,000
5	₹70,000	₹30,000

Additional assumptions for the analysis:

- **Weighted Average Cost of Capital (WACC):** 8.75%
- **Reinvestment Rate for Cash Flows:** 8.00%

Your Role:

As the financial advisor for Greenfield Tech, you are tasked with evaluating the two projects using the following capital budgeting techniques:

1. **Net Present Value (NPV):** Assess the value each project will add to the company.
2. **Profitability Index (PI):** Calculate the benefit per rupee invested.
3. **Internal Rate of Return (IRR):** Determine the return each project is expected to generate.
4. **Modified Internal Rate of Return (MIRR):** Reflect the realistic reinvestment assumptions in the IRR calculation.
5. **Crossover Rate:** Identify the discount rate at which both projects are equally preferable.

Caselet: Strategic Expansion for Nexus Energy Ltd.

Nexus Energy Ltd., a leading provider of energy-efficient solutions, is planning a strategic expansion to diversify its offerings. The company has identified two investment opportunities: **Project Aurora** and **Project Blaze**, each requiring an upfront investment of ₹2,50,000. Due to

budget constraints, the management can only pursue one project and has sought your expertise to evaluate and recommend the best option.

The financial details for the two projects are as follows:

Project Cash Flows (₹):

Year	Project Aurora	Project Blaze
0	(₹2,50,000)	(₹2,50,000)
1	₹40,000	₹1,05,000
2	₹55,000	₹80,000
3	₹75,000	₹60,000
4	₹85,000	₹40,000
5	₹90,000	₹30,000

Additional assumptions for the analysis:

- **Weighted Average Cost of Capital (WACC):** 8.75%
- **Reinvestment Rate:** 8.00%

Your Role:

As a financial analyst at Nexus Energy Ltd., you are tasked with evaluating the two projects using the following capital budgeting techniques:

1. **Net Present Value (NPV):** Quantify the total value each project will create for the company.
2. **Profitability Index (PI):** Assess the value generated per rupee invested.
3. **Internal Rate of Return (IRR):** Estimate the expected return for each project.
4. **Modified Internal Rate of Return (MIRR):** Incorporate reinvestment assumptions to adjust the IRR.
5. **Crossover Rate:** Calculate the discount rate at which both projects would be equally preferred.