What is Capital Budgeting?

Worksheet

Capital budgeting uses metrics like NPV (net present value), IRR (internal rate of return), and payback period to evaluate whether an investment will generate enough returns to justify its cost.

$$\text{NPV} = \sum_{t=0}^{n} \frac{CF_t}{(1+r)^t}$$

Questions

1. An investment of $60,000 generates annual cash flows of $12,000 for 6 years at a 10% discount rate. Which metric measures the percentage return?

A) NPV
B) IRR
C) Payback period
D) Profitability index

2. If a project has a negative NPV, what should management do?

A) Accept it anyway
B) Reject it
C) Extend the project life
D) Increase cash flows

3. Which criterion always prioritizes value creation?

A) Shortest payback period
B) Highest IRR
C) Highest NPV
D) Lowest initial cost

4. $50,000 investment, $10,000/year for 8 years. Payback?

A) 4 years
B) 5 years
C) 6 years
D) 8 years

5. A company invests $50,000 today. It expects cash flows of $15,000/year for 5 years. At a 10% discount rate, what is the NPV?

6. A $100,000 investment generates $20,000 annually for 8 years. Payback period?

7. Project A requires $80,000, generates $25,000/year for 5 years. Project B requires $50,000, generates $18,000/year for 5 years. At 12% discount rate, which is better?

8. Define: What is capital budgeting?

9. Define: What does NPV stand for?

10. Define: When is NPV positive?

Answer Key

1. B) IRR - IRR (Internal Rate of Return) is the discount rate that makes NPV = 0, representing the project's return percentage.

2. B) Reject it - Negative NPV means the project destroys value; it should be rejected unless strategic reasons exist.

3. C) Highest NPV - Highest NPV maximizes shareholder value - other metrics can be misleading in isolation.

4. B) 5 years - Payback = $50,000 $10,000/year = 5 years.

5. Year 1: 15,000/(1.10)^1 = 13,636 Year 2: 15,000/(1.10)^2 = 12,397 Year 3: 15,000/(1.10)^3 = 11,270 Year 4: 15,000/(1.10)^4 = 10,245 Year 5: 15,000/(1.10)^5 = 9,313 Total PV = 56,861 NPV = 56,861 50,000 = $6,861 (positive, accept project)

6. Payback = Initial Investment / Annual Cash Flow Payback = 100,000 / 20,000 = 5 years Project breaks even in year 5

7. Project A: NPV = 25,000(3.605) 80,000 = $10,125 Project B: NPV = 18,000(3.605) 50,000 = $14,890 Project B has higher NPV despite lower absolute cash flows

8. The process of evaluating and selecting long-term investment projects based on their expected returns.

9. Net Present Value - the total value of future cash flows discounted to today's dollars.

10. When the present value of future cash flows exceeds the initial investment, making the project worthwhile.