Annai Vailankanni Arts and Science clg TNJ-7

B.Com - CA

III - CA -

Management ACCounting

Mgt acc

Pay Back period (Steps)

Alc Rate of Return

Discounted cash flow

Pay Back period

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# Pay Back Period

$$= \frac{\text{Initial Invt.}}{\text{Annual cash inflows}}$$

NO:1 Method NO: 1

A Project costs Rs 1.00.000 and yields an annual cash inflow Rs 20.000 for 7 yrs Calculate Pay Back Period

$$= \frac{100000}{20,000} = 5 \text{ yrs.}$$

– 1,00,000

**Problem 31 :** A Limited Comapny is considering investing in a project requiring a capital outlay of Rs. 2,00,000. Forecast of annual income after depreciation but before tax is as follows:

| Year | Rs. |
|---|---|
| 1 | 1,00,000 |
| 2 | 1,00,000 |
| 3 | 80,000 |
| 4 | 80,000 |
| 5 | 40,000 |

Depreciation may be taken as 20% on original cost and taxation at 50% of net income. Calculate :

a) Pay-back method.

Method : 2

Working Notes.

1. 1.00000 × 50% = 50.000
2. " " = "
3. 80000 × 50% = 40000
4. " × 50% = "
5. 40000 × 50% = 20000

d) income after Depreciation but before tax,

Center Value 3rd

40000 is fixed

OR $2,00,000 \times \frac{20}{100} = 40000$

| Year | Profit | Tax 50% | After 50% (Assumption) | Depre | Cash flow | Cum cash flow |
|---|---|---|---|---|---|---|
| 1 | 1.00,000 | 50000 | 50 000 | 40000 | 90000 | 90000 |
| 2 | 1.00.000 | 50000 | 50000 | 40000 | 90000 | + 180000 |
| 3 | 80.000 | 40000 | 40000 | 40000 | 80000 | + 260000 |
| 4 | 80.000 | 40000 | 40,000 | 40000 | 80000 | 340000 |
| 5 | 40.000 | 20000 | 20000 | 40000 | 60000 | 400000 |

# Ac Rate of Return

$$ARR = \frac{\text{Average Annual profit}}{\text{Original Investment}} \times 100$$

(OR)

$$\frac{\text{Average Annual Profit}}{\text{Average investment}} \times 100$$

Average Investment calculate

$$= \frac{\text{Original investment}}{2}$$

(Or) : $$\frac{\text{Original Investment} - \text{Scrap value}}{2}$$

# A/c Rate of Return

## Sum : Answer

| Particulars | A | B |
|---|---|---|
| Total profit (after dep. interest tax) | 6000 | 6000 |
| Life yr | 4 | 5 |
| | $\frac{6000}{4}$ | $\frac{10000}{5}$ |
| Average net profit | = 1500 | 2000 |

A investment = 20000

B " = 30000

$\frac{1500}{20000} \times 100$ $\frac{2000}{30000} \times 100$

$\frac{2000}{30000} \times 100 = 6.67\%$

**Problem 3:** There are two projects A and B. The cost of the project is Rs. 30,000 in each case. The cash inflows are as under:

| Year | Cash inflows | |
|---|---|---|
| | Project A | Project B |
| 1 | 10,000 | 2,000 |
| 2 | 10,000 | 4,000 |
| 3 | 10,000 | 24,000 |

Calculate pay back period.

**Solution:**

| Year | Project A | | Project B | |
|---|---|---|---|---|
| | Cash inflows Rs. | Cumulative Cashinflows Rs. | Cash inflows Rs. | Cumulative Cash inflows Rs. |
| 1 | 10,000 | 10,000 | 2,000 | 2,000 |
| 2 | 10,000 | 20,000 | 4,000 | 6,000 |
| 3 | 10,000 | 30,000 | 24,000 | 30,000 |

The pay-back period is 3 years in both the cases. However project A is better compared to project B because cash inflows are greater in the initial years.

**Problem 4:** A project cost Rs. 5,00,000 and yields annually a profit of Rs. 80,000 after depreciation at 12% p.a. but before tax of 50%. Calculate pay back period.

**(B.Com., Bharathidasan)**

**Solution:**

$$\text{Pay back period} = \frac{\text{Initial investment}}{\text{Annual cash inflow}}$$

Initial Investment = Rs. 5,00,000

Annual cash inflow = Profit after Tax plus Depreciation

| | Rs. |
|---|---|
| Profit before tax | 80,000 |
| Less: Tax @ 50% | 40,000 |
| Profit after tax | 40,000 |
| Add. Depreciation (Rs. 5,00,000 × 12%) | 60,000 |
| Annual cash inflow | 1,00,000 |

**Problem 6:** A company proposing to expand its production can go in either for an automatic machine costing Rs. 2,24,000 with an estimated life of 5½ years or an ordinary machine costing Rs. 60,000 having an estimated life of 8 years. The annual sales and costs are estimated as follows:

| | Automatic Machine Rs. | Ordinary Machine Rs. |
|---|---|---|
| Sales | 1,50,000 | 1,50,000 |
| Costs: | | |
| Material | 50,000 | 50,000 |
| Labour | 12,000 | 60,000 |
| Variable Overheads | 24,000 | 20,000 |

Compute the comparative profitability of the proposals under the pay-back period and post pay-back period. Ignore Income-tax.

**(B.Com., Bharathidasan adapted)**

**Solution:**

**Profitability Statement**

| | Automatic Machine Rs. | Ordinary Machine Rs. |
|---|---|---|
| Cost of the machine | 2,24,000 | 60,000 |
| Sales | 1,50,000 | 1,50,000 |
| Less: Cost(Material, labour, overhead) | 86,000 | 1,30,000 |
| Annual Cash inflow | 64,000 | 20,000 |
| Pay back period | $\frac{2,24,000}{64,000}$ = 3½ yrs. | $\frac{60,000}{20,000}$ = 3 Yrs. |

Profitability beyond pay-back =

64,000 × 2 (5½ yrs. – 3½ yrs.) = Rs. 1,28,000

20,000 × 5 (8 yrs. – 3 yrs.) = Rs. 1,00,000

From the viewpoint of pay-back period alone, ordinary machine

period.

**Problem 10:** A firm is considering two projects A and B. Following particulars are available:

| | Project A | Project B |
|---|---|---|
| Cost | Rs.1,00,000 | Rs. 1,00,000 |
| Annual Cash Inflows | Rs. 25,000 | Rs. 20,000 |
| Economic Life | 10 years | 10 year |

Which project will you suggest under **a.** Pay back period **b.** Post pay back profit and **c.** Post pay back profitability index

**Solution:** **(B.Com., Bharathidasan adapted)**

**a. Pay back period = Initial Investment / Annual Cash Inflows**

Project A = Rs.1,00,000 / 25,000 = 4 years

Project B = Rs.1,00,000 / 20,000 = 5 years

Project A has shorter pay back period and hence it is suggested.

b.Post pay back profit = Annual Cash Inflows (Life of the asset - Pay back period)

Project A = Rs.25,000 ( 10 years – 4 years)
= Rs.25,000 x 6 years = Rs.1,50,000

Project B = Rs.20,000 ( 10 years – 5 years)
= Rs.20,000 x 5 years = Rs.1,00,000

Post pay back profit is higher in Project A than Project B. Hence, project A is suggested.

c. Post pay back profitability index $\frac{\text{Post pay back profit}}{\text{Initial investment}} \times 100$

Project A = Rs.1,50,000 / 1,00,000 x 100 = 150%

Project B = Rs. 1,00,000 / 1,00,000 x 100 = 100%

Profitability Index of Project A is higher than Project B. Hence Project A should be chosen.

## NET PRESENT VALUE

**Problem 11:** Project X initially costs Rs. 25,000. It generates the following cash inflows:

| Year | Cash inflows | Present Value of Re. 1 at 10% |
|---|---|---|
| 1 | Rs. 9,000 | 0.909 |
| 2 | Rs. 8,000 | 0.826 |
| 3 | Rs. 7,000 | 0.751 |
| 4 | Rs. 6,000 | 0.683 |
| 5 | Rs. 5,000 | 0.621 |

Taking the cut-off rate as 10%, suggest whether the project should be accepted or not.