

ADVANCED CAPITAL BUDGETING DECISIONS

CLASS 8

Topic Inflation & Capital Budgeting

Question 1:

Shashi Co. Ltd has projected the following cash flows from a project under evaluation:

Year	0	1	2	3
₹ (in lakhs)	(72)	30	40	30

The above cash flows have been made at expected prices after recognizing inflation. The firm's cost of capital is 10%. The expected annual rate of inflation is 5%. Show how the viability of the project is to be evaluated. PVF at 10% for 1-3 years are 0.909, 0.826 and 0.751.

(Source: ICAI)

ANSWER:

Here the given cash flows have to be adjusted for inflation. Alternatively, the discount rate can be converted into nominal rate, as follows:-

$$\text{Year 1} = \frac{0.909}{1.05} = 0.866; \quad \text{Year 2} = \frac{0.826}{(1.05)^2} \text{ or } \frac{0.826}{1.1025} = 0.749$$

$$\text{Year 3} = \frac{0.751}{(1.05)^3} = \frac{0.751}{1.1576} = 0.649$$

Year	Nominal Cash Flows (₹ in lakhs)	Adjusted PVF as above	PV of Cash Flows (₹ in lakhs)
1	30	0.866	25.98
2	40	0.749	29.96
3	30	0.649	19.47
Cash Inflow			75.41
Less: Cash Outflow			72.00
Net Present Value			3.41

With positive NPV, the project is financially viable.

Alternative Solution Assumption:

The cost of capital given in the question is "Real".

Nominal cost of capital = $(1.10)(1.05) - 1 = 0.155 = 15.50\%$

DCF Analysis of the project

(₹ Lakhs)

	Period	PVF @15.50%	CF	PV
Investment	0	1	-72	-72.00
Operation	1	0.866	30	+25.98
---do---	2	0.750	40	+30.00
---do---	3	0.649	30	+19.47
NPV				+3.45

The proposal may be accepted as the NPV is positive.

Question 2:

Sonal Textiles Limited is considering an investment of Rs.10 crore in a project. The project has a life of 5 years and the salvage value of the project at the end of its life would be nil. The depreciation charge would be Rs.2 crore every year. The expected revenues and costs (excluding depreciation) ignoring the inflation would be as follows:

(Rs in crore)		
Year	Revenues	Costs
1	15.0	12.0
2	18.0	14.5
3	19.0	15.5
4	17.0	14.0
5	13.0	11.0

The inflation-adjusted cost of capital to the company is 13%. The expected inflation rates for revenues and costs would be as follows:

Year	Revenues (%)	Costs (%)
1	6.0	7.5
2	5.5	7.5
3	5.5	7.0
4	5.0	7.0
5	5.0	6.0

The tax rate applicable to the company is 35%.

You are required to calculate the inflation-adjusted net present value of the project.

(Source: FOD)

ANSWER:

Cash flows in different years are as follows:

Year (1)	Expected Revenue (2)	Expected cost (3)	Depreciati on Tax- shield (4)	Net cash flow [(8) ± (3)] (1±T) + DT
1	$15 \times (1.06) = 15.9$	$12 \times (1.075) = 12.9$	0.7	2.65
2	$18 (1.06) (1.055)$ $= 20.13$	$14.5 \times (1.075) \times (1.075) = 16.76$	0.7	2.89
3	$19 (1.06) (1.055) (1.055)$ $= 22.42$	$15.5 \times (1.075) \times (1.075) \times (1.07)$ $\times = 19.17$	0.7	2.81
4	$17(1.06) (1.055) (1.055)$ $(1.05) = 21.06$	$14.0 \times (1.075) \times (1.075) \times (1.07)$ $\times (1.07) = 18.52$	0.7	2.35
5	$13 (1.06) (1.055) (1.055)$	$11.0 \times (1.075) \times (1.075) \times (1.07)$	0.7	1.66

	(1.05) (1.05) = 16.91	× (1.07) × (1.06) = 15.43		
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$$\begin{aligned}
 \text{NPV} &= \frac{2.65}{1.13} + \frac{2.89}{(1.13)^2} + \frac{2.81}{(1.13)^3} + \frac{2.35}{(1.13)^4} + \frac{1.66}{(1.13)^5} - 10 \\
 &= 2.35 + 2.26 + 1.95 + 1.44 + 0.90 - 10 \\
 &= 8.9 - 10 \\
 &= -1.10.
 \end{aligned}$$