

***ADVANCED CAPITAL
BUDGETING DECISIONS***

CLASS 5-HW-Q11

Topic Scenario Analysis

Question 11:

A company wants to invest in a project. This requires an initial investment of ₹ 4,50,000. Salvage value after estimated useful life of 5 years is 50,000. Other details of project are as follows:

	Worst case	Most likely	Best case
Contribution (₹)	3,30,000	5,40,000	6,31,250
Fixed cost excluding depreciation) (₹)	75,000	1,50,000	2,00,000

Tax rate is 40%. Expected cost of capital of project is 12%. Ignore tax on capital gain.

- Calculate NPV in each scenario.
- The company is certain about most likely result in first two years, but uncertain about remaining period. In such a situation, calculate NPV expecting worst case scenario during next two years and best case scenario in the remaining period.

Years	1	2	3	4	5
PVIF _{0.12,t}	0.893	0.797	0.712	0.636	0.567
PVIFA _{0.12,t}	0.893	1.690	2.402	3.038	3.605

(Source: ICAI)

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① Calculation of NPV in each scenario :-

Scenario	Worst Case	Most Likely	Best Case
Contribution	330000	540000	631250
(-) Fixed Cost (cash)	75000	150000	200000
(-) Depreciation [(450000 - 50000) / 5yrs]	80000	80000	80000
NOPAT (t = 40%)	105000	186000	210750
(+) Depreciation	80000	80000	80000
CFAT	185000	266000	290750
PVAF (12%, 5)	3.605	3.605	3.605
PV of CFAT	666925	958930	1048153.75
(+) PV of Salvage Value [50000 x PVIF (12%, 5)]	28350	28350	28350
(-) Initial Investment	450000	450000	450000
NPV	245275	537280	626503.75

② Co. is certain about most likely results in 1st 2 years. Expecting worst case scenario in next 2 years & best case scenario in last year,

$$\text{NPV} = 266000 \times 1.690 + 185000 \times 1.348 + 290750 \times 0.567 + 50000 \times 0.567 - 450000$$

$$= 449540 + 249380 - 164855.25 + 28350 - 450000$$

$$\therefore \text{NPV} = \underline{442125.25}$$