



4. Reduction in Sales Volume

Year	Volume	%	Revised Volume
Year 1	20,000 units	10%	18,000
Year 2	30,000 units	10%	27,000
Year 3	30,000 units	10%	27,000

23. Illustration

From the following details relating to a project, analyze the sensitivity of the project to changes in initial project cost, annual cash inflow and cost of capital:

Initial Project Cost (₹)	1,20,000
Annual Cash Inflow (₹)	45,000
Project Life (Years)	4
Cost of Capital	10%

To which of the three factors, the project is most sensitive? (Use annuity factors: for 10% 3.169 and 11% 3.103).

(ICAI SM, Old PM, RTP May '18, MTP May'20 Old)

Solution:

Initial Cash Flow	= (1,20,000)
Annual Cash Flow	= 45,000
k_c	= 10%
No. of Years	= 4
NPV of the project at 10% k_c	= PVFAC (10%, 4years) * 45,000 - 1,20,000
	= 3.169*45,000 - 1,20,000
	= 1,42,605 - 1,20,000
NPV	= ₹ 22,605
Sensitivity computation for a 10% adverse change	

	Current	Initial COF	ACF	k_c
Initial Cash Outflow (A)	(1,20,000)	(1,32,000)	(1,20,000)	(1,20,000)
CFA (B)	45,000	45,000	40,500	45,000
Disc. Factor (C)	10%	10%	10%	11%
PVA	3.169	3.169	3.169	3.103
PVIF (D) = (B)*(C)	1,42,606	1,42,606	1,28,344.5	1,42,606
NPV (A)+(D)	22,605	10,605	8,344.5	19,635
% change in NPV	0%	- 53.08%	- 63.08%	- 13.14%

Based on the above, cash inflow is the most sensitive factor as 10% change in it leads to 63.08% change in the NPV.

24. Illustration

Red Ltd. is considering a project with the following Cash flows:

₹

Years	Cost of Plant	Recurring Cost	Savings
0	10,000		
1		4,000	12,000
2		5,000	14,000

