

The Capital Budgeting Decision Process

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*Capital Expenditure Motives?
Capital Budgeting Process?*

1. Proposal Generation
2. Review and Analysis
3. Decision Making
4. Implementation
5. Follow-Up

Basic Terminology!

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Independent Vs Mutually Exclusive

Unlimited Funds Vs Capital Rationing

Accept Reject Vs Ranking Approach

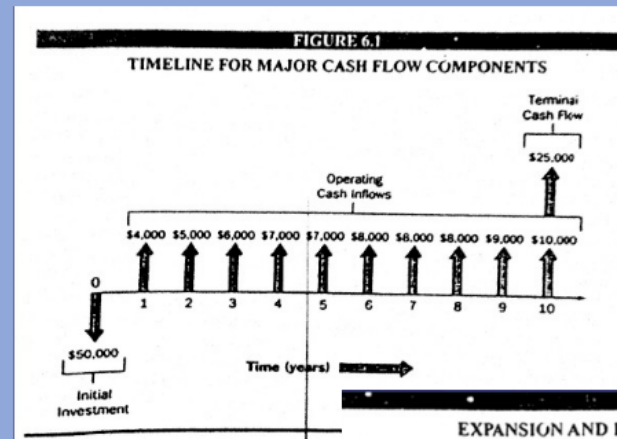
Conventional Vs NonConventional Cash Flow Patterns

Annuity Vs Mixed Stream Cash Flows

Identifying the Relevant (Incremental) Cash Flows

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Major Cash Flow Components



Expansion Vs Replacement Cash Flows

TABLE 6.2
EXPANSION AND REPLACEMENT CASH FLOWS

	Expansion		Replacement	Relevant Cash Flows [(2) - (3)] (4)
	New Asset B (1)	New Asset B (2)	Old Asset A (3)	
Initial Investment	\$13,000 ^a	\$10,000 ^b	...	\$10,000
Year	Operating Cash Inflows			
1	\$5,000	\$5,000	\$3,000	\$2,000
2	5,000	5,000	2,500	2,500
3	5,000	5,000	2,000	3,000
4	5,000	5,000	1,500	3,500
5	5,000	5,000	1,000	4,000
Terminal cash flow	\$7,000	\$7,000	\$2,000	\$5,000

International Capital Budgeting and Long Term Investments

Perbedaan dengan domestic capital budgeting:

(1) arus kas masuk dan keluar terjadi dalam mata uang asing, (2) investasi asing memiliki resiko politik.

Terdapat:

- (1) Exchange Rate Risk
- (2) Political Risk

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Capital Budgeting Techniques!

1. Payback Period

TABLE 6.3
CAPITAL EXPENDITURE DATA FOR DELTA COMPANY

	Project A	Project B
Initial Investment	\$42,000	\$45,000
Year	Operating Cash Inflows	
1	\$14,000	\$28,000
2	14,000	12,000
3	14,000	10,000
4	14,000	10,000
5	14,000	10,000
Average	\$14,000	\$14,000

2. Net Present Value (NPV)

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3. Internal Rate of Return

$$0 = \sum_{t=0}^N \frac{CF_t}{(1 + IRR)^t}$$

TABLE 6.4
THE CALCULATION OF NPVS FOR DELTA COMPANY'S CAPITAL EXPENDITURE ALTERNATIVES

Project A			
Annual cash inflow			\$14,000
× Present-value annuity interest factor, PVIFA*			<u>3.791</u>
Present value of cash inflows			\$53,074
– Initial investment			<u>42,000</u>
Net present value (NPV)			<u>\$11,074</u>
Project B			
Year	Cash Inflows (1)	Present-Value Interest Factor, PVIF* (2)	Present Value [(1) × (2)] (3)
1	\$28,000	.909	\$25,452
2	12,000	.826	9,912
3	10,000	.751	7,510
4	10,000	.683	6,830
5	10,000	.621	6,210
	Present value of cash inflows		\$55,914
	– Initial investment		<u>45,000</u>
	Net present value (NPV)		<u>\$10,914</u>

*FROM TABLE A-4, FOR 5 YEARS AND 10 PERCENT.
*FROM TABLE A-3, FOR GIVEN YEAR AND 10 PERCENT.

Comparing NPV and IRR Techniques

NPV Profiles

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Conflicting Rankings

Multiple IRRs

Which Approach is Better??

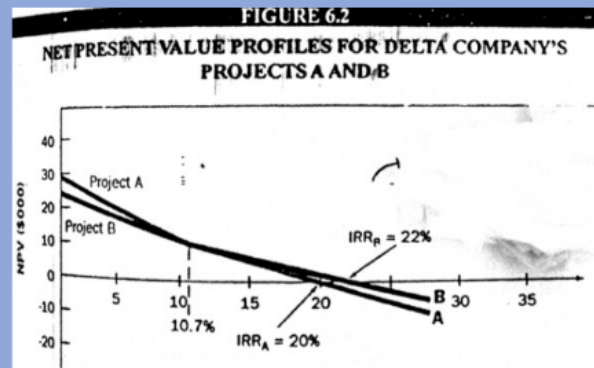


TABLE 6.5
REINVESTMENT RATE COMPARISONS FOR A PROJECT

Year (1)	Cash Inflows (2)	Number of Years Earning Interest (3)	Reinvestment Rate			
			10%	15%		
		(3) × (1)	Future Value (2) × (4)	Future Value (2) × (6)		
1	\$ 52,000	2	1.210	\$ 62,920	1.323	\$ 68,796
2	78,000	1	1.100	85,800	1.150	89,700
3	100,000	0	1.000	100,000	1.000	100,000
				Future value at end of year 3		
				\$248,720		\$258,496
NPV @ 10% = \$16,867						
IRR = 15%						

TABLE 6.6
PROJECT CASH FLOWS AFTER REINVESTMENT

Year	Reinvestment Rate	
	10%	15%
Initial Investment	\$170,000	
Operating Cash Inflows		
1	50	50
2	0	0
3	248,720	258,496
NPV @ 10%	\$ 16,867	\$ 24,213
IRR	13.5%	15.0%

Risk Adjustment Techniques

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Certainty Equivalents (CEs)

$$NPV = \sum_{i=1}^n \frac{\alpha_i \times CF_i}{(1 + R_f)^i} - II$$

TABLE 6.7
ANALYSIS OF DELTA COMPANY'S PROJECTS A AND B USING CERTAINTY EQUIVALENTS

Project A					
Year (t)	Cash Inflows (1)	Certainty Equivalent Factors* (2)	Certain Cash Inflows [(1) × (2)] (3)	PVIF _{R_f} (4)	Present Value [(3) × (4)] (5)
1	\$14,000	.90	\$12,600	.943	\$11,882
2	14,000	.90	12,600	.890	11,214
3	14,000	.80	11,200	.840	9,408
4	14,000	.70	9,800	.792	7,762
5	14,000	.60	8,400	.747	6,275
Present value of cash inflows					\$46,541
- Initial investment					-42,000
Net present value (NPV)					\$4,541
Project B					
Year (t)	Cash Inflows (6)	Certainty Equivalent Factors* (7)	Certain Cash Inflows [(6) × (7)] (8)	PVIF _{R_f} (9)	Present Value [(8) × (9)] (10)
1	\$28,000	1.00	\$28,000	.943	\$26,401
2	12,000	.90	10,800	.890	9,612
3	10,000	.90	9,000	.840	7,560
4	10,000	.80	8,000	.792	6,336
5	10,000	.70	7,000	.747	5,229
Present value of cash inflows					\$55,141
- Initial investment					-45,000
Net present value (NPV)					\$10,141

Risk Adjusted Discount Rates

$$NPV = \sum_{i=1}^n \frac{CF_i}{(1 + RADR)^i} - II$$

CE Vs RADR?

