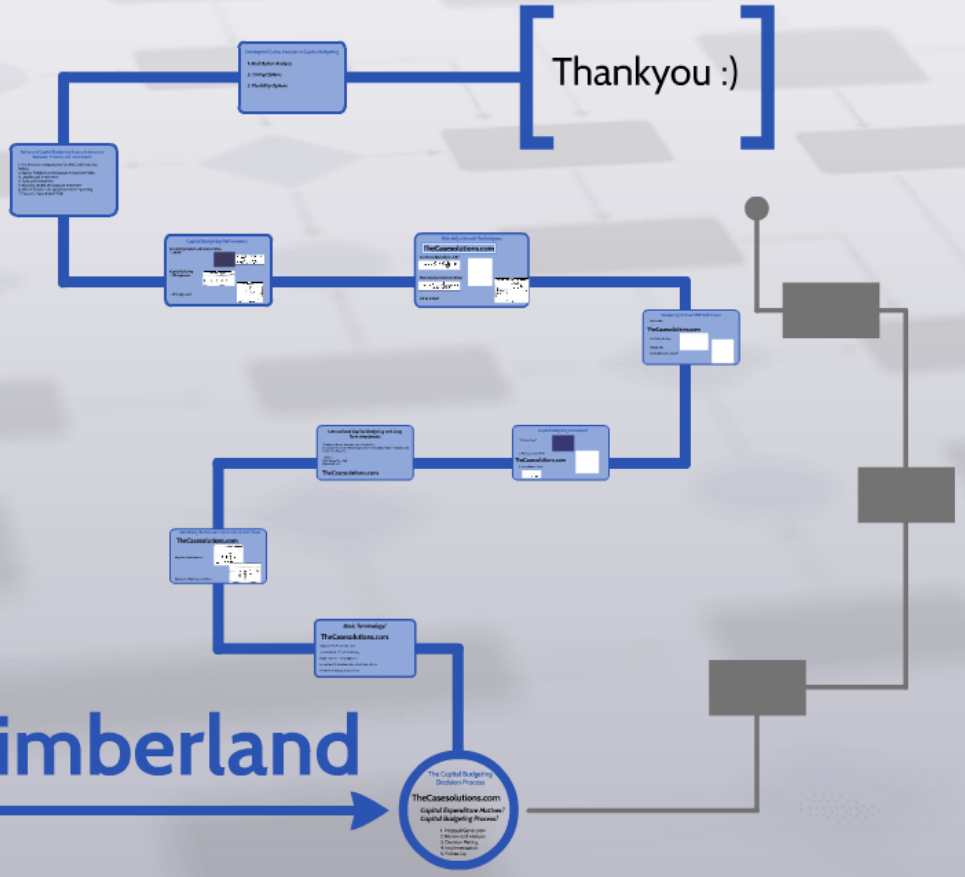

RMS: Investing in Chinese Timberland

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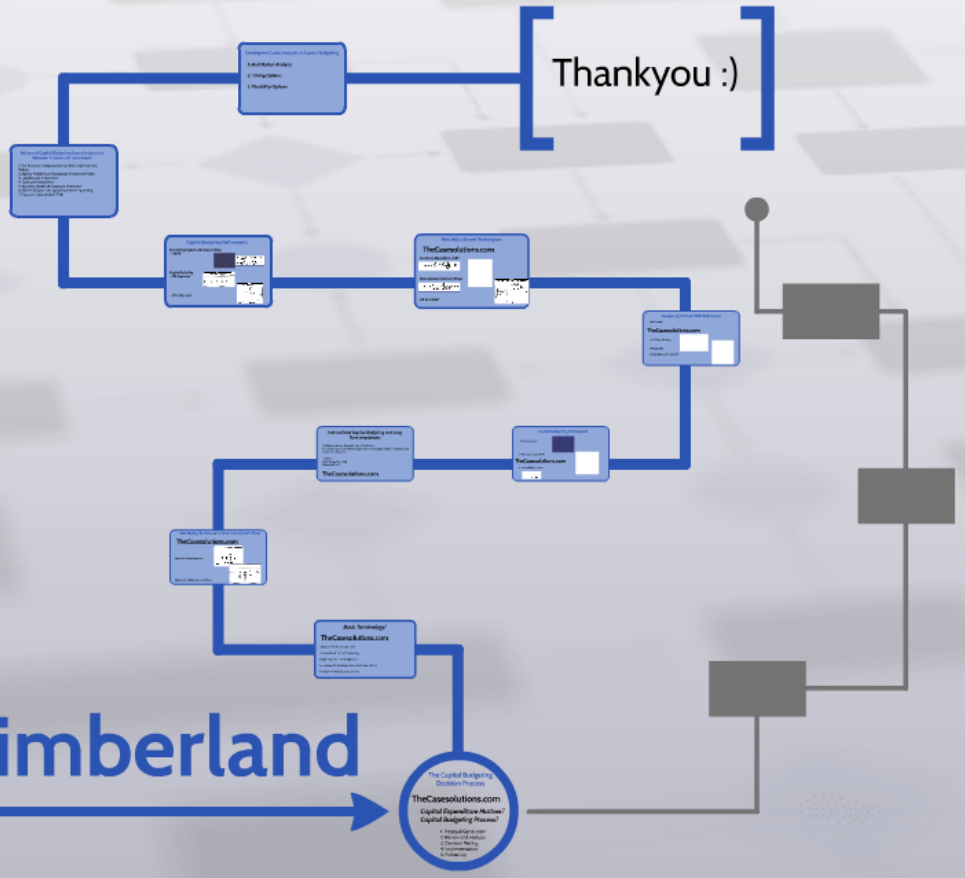

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The Capital Budgeting Decision Process

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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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Indepedent 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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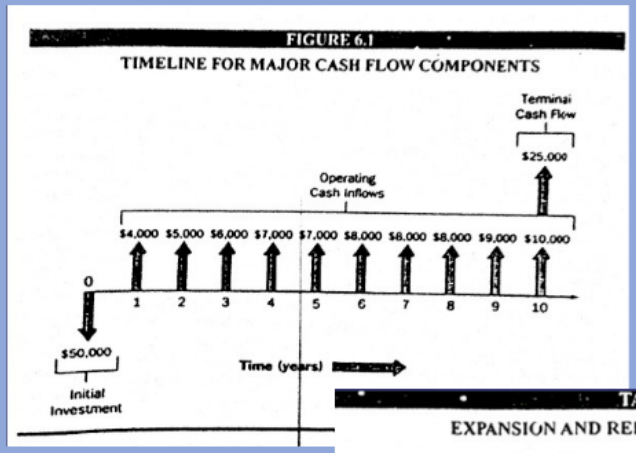
Major Cash Flow Components



Expansion Vs Replacement Cash Flows

TABLE 6.2

EXPANSION AND REPLACEMENT CASH FLOWS

	Expansion	Replacement		
	New Asset B (1)	New Asset B (2)	Old Asset A (3)	Relevant Cash Flows [(2) − (3)] (4)
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

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)

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[a]	3.791
Present value of cash inflows	$53,074
− Initial investment	42,000
Net present value (NPV)	$11,074

Project B

Year	Cash Inflows (1)	Present-Value Interest Factor, PVIF[b] (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	45,000
		Net present value (NPV)	$10,914

[a] FROM TABLE A-4, FOR 5 YEARS AND 10 PERCENT.
[b] FROM TABLE A-3, FOR GIVEN YEAR AND 10 PERCENT.

3. Internal Rate of Return

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

Comparing NPV and IRR Techniques

NPV Profiles

Conflicting Rankings

Multiple IRRs

Which Approach is Better??

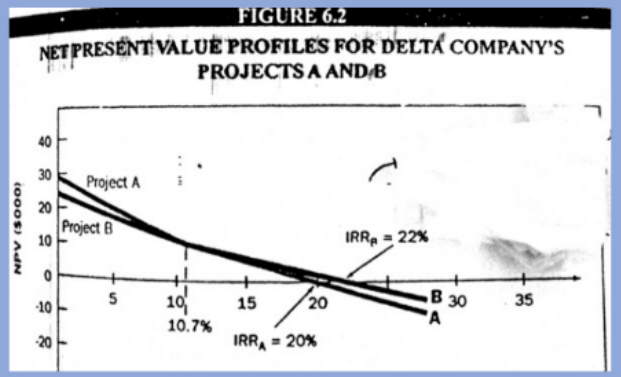


TABLE 6.5
REINVESTMENT RATE COMPARISONS FOR A PROJECT

			Reinvestment Rate			
			10%		15%	
Year (1)	Cash Inflows (2)	Number of Years Earning Interest (t) [3 − (1)] (3)	FVIF$_{10\%,t}$ (4)	Future Value [(2) × (4)] (5)	FVIF$_{15\%,t}$ (6)	Future Value [(2) × (6)] (7)
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

	Reinvestment Rate	
	10%	15%
Initial Investment	$170,000	
Year	Operating Cash Inflows	
1	$0	$0
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)

$$NPV = \sum_{t=1}^{n} \frac{\alpha_t \times CF_t}{(1 + R_f)^t} - II$$

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)	$PVIF_{7\%,t}$ (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

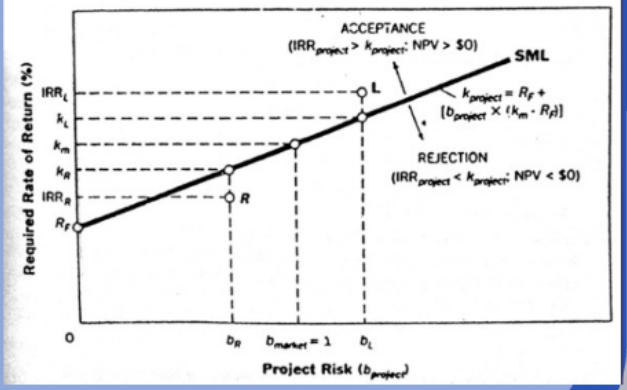
Year (t)	Cash Inflows (6)	Certainty Equivalent Factors* (7)	Certain Cash Inflows [(6) × (7)] (8)	$PVIF_{7\%,t}$ (9)	Present Value [(8) × (9)] (10)
1	$28,000	1.00	$28,000	.943	$26,404
2	12,000	.90	10,800	.890	9,612
3	10,000	.90	9,000	.840	7,560
4	10,000	.80	8,000	.792	6,336
5	10,000	.70	7,000	.747	5,229
			Present value of cash inflows		$55,141
			− Initial investment		45,000
			Net present value (NPV)		$10,141

Risk Adjusted Discount Rates

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

FIGURE 6.3

CAPM AND SML IN CAPITAL BUDGETING DECISION MAKING



CE Vs RADR?