

Relevant Cash Flows

Issue

Which cash flows to use in project evaluation?

$$NPV = \sum_{t=0}^n \frac{CF_t}{(1+k)^t}$$

Incremental Cash Flows

Project's $CF_t = \text{Firm's } CF_t \text{ with project} - \text{Firm's } CF_t \text{ without project}$

CF vs. NI

Credit vs. Cash Sales and Expenses

Capital Outlays vs. Depreciation

Timing

Some Specifics

Sunk Costs

Financing Costs

Opportunity Costs (actually, implicit costs)

Externalities: cannibalism & synergy

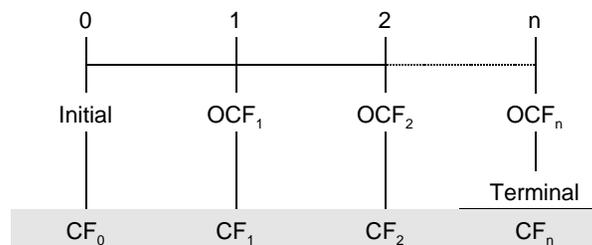
Change in Net Working Capital (ΔNWC)

Taxes

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Classifying Cash Flows

Chronologically



Examples

Initial (t=0): purchase, shipping & installation; change in NWC

Operating (t=1,...n): cash sales/expenses, taxes

Terminal (t=n): net salvage value, reversal of ΔNWC

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Calculating Cash Flows

Initial Cash Flows

Operating Cash Flows

$$OCF_t = NI_t + Dep_t$$

$$OCF_t = (R_t - C_t)(1 - T) + TDep_t$$

Terminal Cash Flows

Reversal of ΔNWC

$$\Delta NWC_T = -\Delta NWC_0$$

Net Salvage Value

$$NSV = SV - T(SV - BV)$$

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Taxes

Depreciation

Opposite Effects on NI and CF

$$Dep_t = MACRS_t \times \text{Basis}$$

Basis: purchase, shipping & installation

Arbitrary Recovery Period

Half-Year Convention

Investment Tax Credit

Intermittent Fiscal Policy Tool

Sale of Depreciable Asset

at time of sale: $-T(SV - BV)$

each period: $+T \Delta Dep_t$

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MACRS Recovery Allowances				
Year	Class-Life of Investment			
	3-Year	5-Year	7-Year	10-Year
1	33%	20%	14%	10%
2	45	32	25	18
3	15	19	17	14
4	7	12	13	12
5		11	9	9
6		6	9	7
7			9	7
8			4	7
9				7
10				6
11				3
	100%	100%	100%	100%

Selected MACRS Class Lives			
3-Year	5-Year	7-Year	10-Year
Tractor/Trailer	Car	Furniture	Mobile Home
R Horse (>2)	Truck	Washer	Barge
Horse (>12)	Computer	A/C	Tug
	Software	Telephone	
	Typewriter	Farm Equip.	
	Dairy Cow	Power Tool	
	Br. Sheep		

Miscellaneous

Replacement

$$\Delta OCF_t = (\Delta R_t - \Delta C_t)(1 - T) + T \Delta Dep_t$$

NSV of old equipment may be "shifted" toward present

Inflation

Be consistent: nominal CFs, nominal k

$$NPV = \sum_{t=0}^n \frac{CF_t}{(1+k)^t}$$

Abandonment

Disinvestment also a capital budgeting decision