

Formulas - Final Exam

Note: I_0 is the same as Initial Investment (II).

NPV: $NPV = (P.V. \text{ of Cash Inflows} - P.V. \text{ of Initial Investment})$

$$NPV = \sum_{t=1}^n \frac{CF_t}{(1+k)^t} - I_0$$

Profitability Index:

$$PI = \left(\sum_{t=1}^n \frac{CF_t}{(1+k)^t} \right) \div I_0$$

IRR:

$$I_0 = \sum_{t=1}^n \frac{CF_t}{(1+IRR)^t}$$

Payback_{annuity} = I_0 / CF_t

TABLE 8.2 Rounded Depreciation Percentages by Recovery Year Using MACRS for First Four Property Classes

Recovery year	Percentage by recovery year ^a			
	3 years	5 years	7 years	10 years
1	33%	20%	14%	10%
2	45	32	25	18
3	15	19	18	14
4	7	12	12	12
5		12	9	9
6		5	9	8
7			9	7
8			4	6
9				6
10				6
11				4
Totals	<u>100%</u>	<u>100%</u>	<u>100%</u>	<u>100%</u>

^aThese percentages have been rounded to the nearest whole percent to simplify calculations while retaining realism. To calculate the actual depreciation for tax purposes, be sure to apply the actual unrounded percentages or directly apply double-declining balance (200%) depreciation using the half-year convention.

TABLE 8.2 The Basic Format for Determining Initial Investment

Installed cost of new asset =
Cost of new asset
+ Installation costs
- After-tax proceeds from sale of old asset =
Proceeds from sale of old asset
± Tax on sale of old asset
± Change in net working capital
Initial investment

TABLE 8.7 Calculation of Operating Cash Inflows Using the Income Statement Format

Revenue
- Expenses (excluding depreciation)
Profits before depreciation and taxes
- Depreciation
Net profits before taxes
- Taxes
Net profits after taxes
+ Depreciation
Operating cash inflows

TABLE 8.10 The Basic Format for Determining Terminal Cash Flow

After-tax proceeds from sale of new asset =
Proceeds from sale of new asset
± Tax on sale of new asset
- After-tax proceeds from sale of old asset =
Proceeds from sale of old asset
± Tax on sale of old asset
± Change in net working capital
Terminal cash flow