Direcció Financera II

Appendix Chapter 2: Capital Budgeting in Practice

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Evaluating a project in practice

- Difference between cash flows and earnings?
- Input necessary to compute cash flows and/or earnings?

- Example:
  - Firm: Linksys (subsidiary of Cisco Systems, a maker of consumer networking hardware)
  - Project: *Homenet*, wireless home network appliance, which would provide both hardware and software necessary to run an entire home from any Internet connection

Feasibility study

- Estimated life of the project four years
- Revenue estimates:
  - Sales = 100,000 units/year
  - Per Unit Price = $235
- Cost Estimates
  - Up-Front R&D = $15,000,000
  - Up-Front New Equipment = $7,500,000
    - Expected life of the new equipment is 5 years (housed in existing lab)
  - Annual Overhead = $3,000,000
  - Per Unit Cost = $110
- Cost of the feasibility study $300,000

Incremental Earnings Forecast

	Year	0	1	2	3	4	5
Incremental Earnings Forecast ($000s)							
1	Sales	—	23,500	23,500	23,500	23,500	—
2	Cost of Goods Sold	—	(9,500)	(9,500)	(9,500)	(9,500)	—
3	**Gross Profit**	—	14,000	14,000	14,000	14,000	—
4	Selling, General, and Administrative	—	(3,000)	(3,000)	(3,000)	(3,000)	—
5	Research and Development	(15,000)	—	—	—	—	—
6	Depreciation	—	(1,500)	(1,500)	(1,500)	(1,500)	(1,500)
7	**EBIT**	(15,000)	9,500	9,500	9,500	9,500	(1,500)
8	Income Tax at 40%	6,000	(3,800)	(3,800)	(3,800)	(3,800)	600
9	**Unlevered Net Income**	**(9,000)**	**5,700**	**5,700**	**5,700**	**5,700**	**(900)**

Which tax rate?

Are taxes relevant even if we make losses?

Capital Expenditures and Depreciation

- Investments in plant, property and equipment:
  - are a cash expense not directly listed as expense but
  - a fraction of cost deducted each year as depreciation
- Methods:
  - Straight Line Depreciation: Asset's cost is divided equally over its life ($7.5 million ÷ 5 years = $1.5 million/year)
  - Modified Accelerated Cost Recovery System (MACRS) depreciation *(sistema modificado acelerado de recuperacion de costos o smarc) (see rates in next table, obtained from a complicated* formula, which can be found in accounting textbooks)

Tasa de depreciación (%) para cada período de recuperación SMARC en años						
Año	n = 3	n = 5	n = 7	n = 10	n = 15	n = 20
1	33.33	20.00	14.29	10.00	5.00	3.75
2	44.45	32.00	24.49	18.00	9.50	7.22
3	14.81	19.20	17.49	14.40	8.55	6.68
4	7.41	11.52	12.49	11.52	7.70	6.18
5		11.52	8.93	9.22	6.93	5.71
6		5.76	8.92	7.37	6.23	5.29
7			8.93	6.55	5.90	4.89
8			4.46	6.55	5.90	4.52
9				6.55	5.91	4.46
10				6.55	5.90	4.46
11				3.28	5.91	4.46
12					5.90	4.46
13					5.91	4.46
14					5.90	4.46
15					5.91	4.46
16					2.95	4.46
17 – 20						4.46
21						2.23

Indirect effects and real-world complexities

- Project Externalities
  - **Cannibalization** is when sales of a new product displaces sales of existing product
  - Would customers of HomeNet have purchased existing Linksys wireless routers?
- Opportunity costs
  - The value a resource could have provided in its best alternative use
  - Homenet's equipment will be housed in an existing lab, but what is the opportunity cost of not using the space in an alternative way (e.g., renting it out)?
- Further,
  - Sales, the average selling price, the average cost per unit will vary over time
- Where should we allocate the $300,000 of the feasibility study?

From Earnings to Cash Flows

	Year	0	1	2	3	4	5
Incremental Earnings Forecast ($000s)							
1	Sales	—	23,500	23,500	23,500	23,500	—
2	Cost of Goods Sold	—	(9,500)	(9,500)	(9,500)	(9,500)	—
3	**Gross Profit**	—	14,000	14,000	14,000	14,000	—
4	Selling, General, and Administrative	—	(3,000)	(3,000)	(3,000)	(3,000)	—
5	Research and Development	(15,000)	—	—	—	—	—
6	Depreciation	—	(1,500)	(1,500)	(1,500)	(1,500)	(1,500)
7	**EBIT**	(15,000)	9,500	9,500	9,500	9,500	(1,500)
8	Income Tax at 40%	6,000	(3,800)	(3,800)	(3,800)	(3,800)	600
9	**Unlevered Net Income**	**(9,000)**	**5,700**	**5,700**	**5,700**	**5,700**	**(900)**
Free Cash Flow ($000s)							
10	Plus: Depreciation	—	1,500	1,500	1,500	1,500	1,500
11	Less: Capital Expenditures	(7,500)	—	—	—	—	—
12	Less: Increases in NWC	—	(2,100)	—	—	—	2,100
13	**Free Cash Flow**	**(16,500)**	**5,100**	**7,200**	**7,200**	**7,200**	**2,700**

Net Working Capital (NWC) (fondo de maniobra de capital)

- Definition

$$\text{Net Working Capital} = \text{Current Assets} - \text{Current Liabilities}$$
$$= \text{Cash} + \text{Inventory} + \text{Receivables} - \text{Payables}$$

- Most projects require investment in NWC:
  - Cash held at registers, safe box or checking account
  - Inventories of raw materials or finished product
  - Receivables: earned but not paid (credit offered to customers)
  - Payables: spent but not paid (credit received by suppliers)

Trade credit: difference between receivables & payables

Homenet NWC Requirements

	Year	0	1	2	3	4	5
Net Working Capital Forecast ($000s)							
1	Cash Requirements	–	–	–	–	–	–
2	Inventory	–	–	–	–	–	–
3	Receivables (15% of Sales)	–	3,525	3,525	3,525	3,525	–
4	Payables (15% of COGS)	–	(1,425)	(1,425)	(1,425)	(1,425)	–
5	Net Working Capital	–	2,100	2,100	2,100	2,100	–

Investments in NWC reduce cash available to the firm:

$$\Delta NWC_t = NWC_t - NWC_{t-1}$$