Chapter 10

- **Making Capital Investment Decisions**

- Pro Forma Financial Statements

•**"Pro forma financial statement is a technique of projecting future years operations."**

Evaluate a proposed investment

- First, we need to set a Pro Forma (projected) financial statement.
- Given these , we can develop the projected CFs from the projects.
- Once we have the CFs, we can estimate the value of the project using techniques such as NPV, IRR, ..etc.

Pro Forma (Projected) Financial Statements and Projected Cash Flow

- Capital budgeting relies heavily on Pro Forma accounting statements, particularly income statements
- Computing cash flows
  - Operating Cash Flow (OCF) = EBIT + depreciation – taxes
  - OCF = Net income + depreciation when there is no interest expense
  - Cash Flow From Assets (CFFA) = OCF – net capital spending (NCS) – changes in NWC

Example 10.1

- Suppose we think we can sell 50,000 cans per year at a price of $4 per can. It costs us about $2.5 per can, and such type of product has only a three-year life. We require a 20% return on this product. Fixed costs for the project, including such things as rent on the production facility, will run $12,000 per year. Further we will need to invest a total of $90,000 in manufacturing equipment. Assume that full year depreciation is 3 years. Finally, the project will require an initial $20,000 investment in net working capital and the tax rate is 34%.

- FA are 90,000 at the starts of the projects life, and declined by the 30,000 each year.
- At the end of the projects life, the FA will be worthless, but the firm will recover the $20,000 that was tied up in working capital.

(We assume that the firm will recover 100% of the working capital. However, sometimes as a result of bad debts, inventory loss etc., we may assume that firm recovered only 90%.)

Making The Decision

- Now that we have the cash flows, we can apply the techniques that we learned in chapter 9.
- Compute NPV and IRR
  - CF_0 = -110,000; $CF_{1\text{-}2\text{-}3}$ = 51,780 ; I = 20
  - NPV = 10,648
  - IRR = 25.8%
- ***Should we accept or reject the project?***

Depreciation

- Depreciation itself is a non-cash expense; consequently, it is only relevant because it affects taxes
- Computing Depreciation
  - Straight-line depreciation
    - D = (Initial cost – salvage) / number of years
      (Salvage Value: The estimated value of an asset at the end of its useful life.)
    - Very few assets are depreciated straight-line for tax purposes
  - MARCS (Modified Accelerated Cost Recovery System)
    - Need to know which asset class is appropriate for tax purposes
    - Multiply percentage given in table by the initial cost

MACRS

- A depreciation method under US tax law allowing for the accelerated write-off of property under various classification.
- Class Examples
  3-Year Equipment used in research
  5-Year Autos, Computers
  7-Years Most Industrial equipments

MACRS

Year	3-Year	5-Year	7-Year
1	33.33 %	20.00 %	14.29 %
2	44.44 %	32.00 %	24.49 %
3	14.82 %	19.20 %	17.49 %
4	7.41 %	11.52 %	12.49 %
5		11.52 %	8.93 %
6		5.76 %	8.93 %
7			8.93 %
8			4.45 %

- Given the choice would a firm prefer to use MACRS depreciation or Straight-Line Depreciation? Why?

After-tax Salvage

- *Salvage Value:* The estimated value of an asset at the end of its useful life.
- If the salvage value is different from the book value of the asset, then there is a tax effect
- Book value = initial cost – accumulated depreciation
- After-tax salvage = Salvage – Tax(Salvage – Book Value)

Example 10.2: Depreciation and After-tax Salvage

- You purchase equipment for $100,000 and it costs $10,000 to have it delivered and installed. Based on past information, you believe that you can sell the equipment for $17,000 when you are done with it in 6 years. The company's marginal tax rate is 40%. What is the depreciation expense each year and the after-tax salvage in year 6 for each of the following situations?

Example: Straight-line Depreciation

- Suppose the appropriate depreciation schedule is straight-line
  - D = (110,000 – 17,000) / 6 = 15,500 every year for 6 years
  - BV in year 6 = 110,000 – 6(15,500) = 17,000
  - After-tax salvage = 17,000 - 0.40(17,000 – 17,000) = 17,000

Example: 3-Year MACRS

Year	MACRS percent	D	Ending BV
1	.3333	.3333(110,000) = 36,663	73,337
2	.4444	.4444(110,000) = 48,884	24,453
3	.1482	.1482(110,000) = 16,302	8,151
4	.0741	.0741(110,000) = 8,151	0

BV in year 6 = 110,000 – 36,663 – 48,884 – 16,302 – 8,151 = 0

After-tax salvage = 17,000 - 0.4(17,000 – 0) = $10,200

Example: 7-Year MACRS

Year	MACRS Percent	D	Ending BV
1	.1429	.1429(110,000) = 15,719	94,281
2	.2449	.2449(110,000) = 26,939	67,342
3	.1749	.1749(110,000) = 19,239	48,103
4	.1249	.1249(110,000) = 13,739	34,364
5	.0893	.0893(110,000) = 9,823	24,541
6	.0893	.0893(110,000) = 9,823	14,718

BV in year 6 = 110,000 – 15,719 – 26,939 – 19,239 – 13,739 – 9,823 – 9,823 = 14,718

After-tax salvage = 17,000 - .4(17,000 – 14,718) = 16,087.20

Example 10.3

- Suppose that you think that you can sell 6,000 units per year at a price of $1,000 each. Variable cost will run about $400 per unit, and the product should have a four year life. Fixed cost for the project will run $450,000 per year. Further we will need to invest a total of $1,250,000 in manufacturing equipment. This equipment is seven-years MARCS property for tax purposes. In four years, the equipment will be worth about half of what we paid for it. We will have to invest $1,150,000 in net working capital at the start. After that, net working capital requirements will be 25% of sales. Use a 34% tax rate throughout.

Example: Continued

- a) Prepare a pro-forma income statement for each year
- b) Calculate operating CF
- c) Calculate NPV assuming a 28% required return

Example 10.4

- Suppose that you think that you can sell 6,000 units in the first year, 6,500 units in the second year, 7,00 units in the third year and 8000 unit in the fourth yea at a price of $1,000 each. Variable cost will run abou $400 per unit, and the product should have a four year life. Fixed cost for the project will run $450,000 per year. Further we will need to invest a total of $1,250,000 in manufacturing equipment. This equipment is seven-years MARCS property for tax purposes. In four years, the equipment will be worth about half of what we paid for it. We will have to invest $1,150,000 in net working capital at the start. After that, net working capital requirements will be 25% of sales. Use a 34% tax rate throughout.

Example: Continued

- a) Prepare a pro-forma income statement for each year
- b) Calculate operating CF
- c) Calculate NPV assuming a 28% required return

Sugested Problems

- 25.