Capital Budgeting

Capital Budgeting

- What is capital budgeting?
- How do compute the value of a bond?
- How do we compute the value of a share of stock?
- How do we compute the value of a project?



- Sunk Costs?
- Opportunity Costs?
- Side Effects?
- Changes in Net Working Capital?
- Taxes?
- Financing Costs?

Project Cash Flows



• What is net working capital?

• Why include it?

• Is it a cash inflow or a cash outflow?

*Don't forget to recover net working capital at the end of the project.

Net Working Capital

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MACRS Depreciation Table			
Year	<u>3 year</u>	<u>5 year</u>	<u>7 year</u>
1 2 3 4 5 6 7 8	33.33% 44.45% 14.81% 7.41%	20.00% 32.00% 19.20% 11.52% 11.52% 5.76%	14.29% 24.49% 17.49% 12.49% 8.93% 8.92% 8.93% 4.46%

MACRS Depreciation: An Example

 You just bought a new machine for \$15,000, which is in the 5-year asset class. Create a MACRS depreciation schedule.

Example #1

You are considering the introduction of a new product, EasyBs, which will be on the market for 5 years. Last year, you spent \$20,000 on a market study to determine the appropriate price would be \$5 per unit. You expect sales to be 10,000 units in year 1 and grow by 2,000 units each year after. Costs are expected to be 20% of sales, and the firm's marginal tax rate is 40%. In addition, you must purchase a manufacturing machine for \$100,000, which is depreciated using MACRS (3-year class), and worthless at the end of the project. Due to an increase in inventories, net working capital is expected to increase by \$15,000. If the required return on this project is 12%, should you introduce EasyBs?

Company Valuation

• How do we do it?

• The main difference:





Example #2

Auburn Industries is evaluating the option of purchasing a fork-lift truck costing \$60,000. If purchased, the truck will replace 4 workers, each with an average annual salary of \$15,000. However, an experienced fork-lift operator will have to be hired at a salary of \$20,000 per year. Fuel and maintenance expense is expected to be \$10,000 per year. At the end of its 5-year life, the truck will have a market value of \$10,000. Auburn Industries uses straight-line depreciation and depreciates the asset to \$0, assigns a 10% required rate of return for this type of investment, and has a marginal tax rate of 40%. Should the fork-lift truck be purchased?

Example #3

A company is considering the acquisition of production equipment which will reduce both labor and materials costs. The cost is \$100,000 and it will be depreciated on a straightline basis down to \$0. The useful life of the equipment is five years, and it will have a \$20,000 market value at the end of five years. Operating costs will be reduced by \$30,000 in the first year and the savings will increase by \$5,000 per year in years 2, 3, and 4. Due to increased maintenance costs, savings in year five will be \$10,000 less than the year four savings. The equipment will also reduce net working capital by \$5,000 throughout the life of the project. The firm's tax rate is 35 percent and the required return is 16 percent. Should the firm purchase this production equipment?

Example #4

You have been asked by the president of your company to evaluate the proposed acquisition of a new flux capacitor for the firm's R&D department. The equipment's basic price is \$70,000 and it would cost another \$15,000 to modify it for special use by your firm. The flux capacitor, which has a MACRS 3-year recovery period, would be sold after 3 years for \$30,000. Use of the equipment would require an increase in net working capital (spare parts inventory) of \$4,000. The flux capacitor would have no effect on revenues, but it is expected to save the firm \$25,000 per year in before-tax operating costs, mainly labor. The firm's marginal tax rate is 40 percent. If the project's cost of capital is 10 percent, should the flux capacitor be purchased?