

Exercise 1. *Conceptual questions* [10]

1. We will occasionally calculate a concept of *net debt* by subtracting a firms' cash and financial assets from the firms debt (of various kinds). What is the reasoning behind such an usage?
2. Two techniques for investigating the risk of a project are *Scenario Analysis* and *Breakeven Sensitivity Analysis*. Briefly characterize these techniques. What are the differences between them?
3. Issuing securities, be it debt (bonds) or equities, has costs. How do we deal with such *issue costs* in valuations?
4. Which of the following two formulations is correct?

(a)

$$\begin{array}{rcl} \text{Enterprise} & = & \text{Present Value of} \\ \text{value} & & \text{Firm FCF from Operations} \quad + \quad \text{Value of Nonoperating} \\ & & \text{Cash Flows} \end{array}$$

(b)

$$\begin{array}{rcl} \text{Enterprise} & = & \text{Present Value of} \\ \text{value} & & \text{Firm FCF from Operations} \quad - \quad \text{Value of Nonoperating} \\ & & \text{Cash Flows} \end{array}$$

5. What are the two major methods to estimate a *terminal value*?
6. Suppose you choose as a valuation ratio (Firm Total Sales) vs (Firms Market Capitalization). (Market Capitalization is the same as the market value of equity). What implicit assumption does one make if one compares this ratio across firms?
7. Suppose you estimate a firm's value using both a DCF analysis and a ratio analysis. Do you expect the two value estimates to be equal?

Exercise 2. *Divisional Cost of Capital* [5]

- Under what circumstances would it be appropriate for a firm to use different costs of capital for its different operating divisions?
- If the overall firm WACC were used as the hurdle rate for all divisions, would the riskier divisions or the more conservative divisions tend to get most of the investment projects? Why?
- If you were to try to estimate the appropriate cost of capital for different divisions, what problems might you encounter?
 - What are two techniques you could use to develop a rough estimate for each division's cost of capital?

Exercise 3. *Garp* [5]

Garrett Simpsons Investments is evaluating a firm (Garp, Inc) for recommendation to its clients and trying to evaluate the firm's current stock price. The firm is about to offer its shares to the public and had earnings last year of \$2.50 a share, which the analysts believe is expected to grow by 20% next year. Similar firms in the industry are currently selling for price-earnings ratios ranging from ten to fifteen times current period earnings. However, these competitor firms are already public entities and have relatively low growth expectations for their earnings. What is your estimate of an appropriate price range for the shares of Garp?

Exercise 4. *Smaltz* [10]

Smaltz Enterprises is currently involved in its annual review of the firm's cost of capital. Historically, the firm has relied on the CAPM to estimate its cost of equity capital. The firm estimates that its equity beta is 1.25, and the yield to maturity on long-term US Treasury bonds is 4.28%. The firm's CFO is currently in a debate with one of the firm's advisers at its investment bank about the level of the market risk premium. However, the investment banker argues that this premium has shrunk dramatically in recent years and is more likely to be in the 3% to 4% range.

1. Estimate Smaltz's cost of equity capital using a market risk premium of 3.5%.
2. Smaltz's capital structure is comprised of 75% equity (based on current market prices) and 25% debt on which the firm pays a yield of 5.125% before taxes at 25%.

What is the firm's WACC using both a 3% and 4% market risk premium?

Exercise 5. *Project evaluation of FCF* [5]

As a summer intern you are asked to prepare a spreadsheet calculating the project free cash flow associated with a project your employer is considering. Initially your boss assumes that no debt would be used to fund the project. During your presentation to the committee that evaluates projects, you learn that, in fact, the project will be financed with 25% debt. Are the following statements true or false (explain your answer):

1. You need to go back to your office and adjust the project's free cash flows to include the interest on the debt.
2. You need to go back to your office and adjust the project cash flows to update the taxes paid due to the tax shield provided by taking on debt.
3. Your cash flow model does not need to be updated because the financing of the project does not affect the free cash flow calculation.

Exercise 6. *Jemison* [15]

In the spring of 2015, Jemison Electric was considering an investment in a new distribution center. Jamison's CFO anticipates additional earnings before interest and taxes (EBIT) of \$100,000 for the first year of operation of the center, and, over the next five years, the firm estimates that this amount will grow at a rate of 5% per year. The distribution center will require an initial investment of \$400,000 that will be depreciated over a five-year period toward a zero salvage value using straight-line depreciation of \$80,000 per year. Jemison's CFO estimates that the distribution center will need operating net working capital equal to 20% of EBIT to support operation.

Assuming the firm faces a 30% tax rate, calculate the project's annual project free cash flows (FCFs) for each of the next five years where the salvage value of operating networking capital and fixed assets is assumed to equal their book values, respectively.

Exercise 7. [10]

You are given some information about Iota Industries:

Iota Industries market value balance sheet (\$ millions) and cost of capital:

Assets		Liabilities		Cost of Capital	
Cash	250	Debt	650	Debt	7%
Other Assets	1200	Equity	800	Equity	14%
				Tax rate τ_c	21%

Iota Industries has a new project with projected free cash flows (millions):

Year	0	1	2	3
Free Cash Flows	(\$250)	\$75	\$150	\$100

Assume that this new project is of average risk for Iota and that the firm wants to hold constant its debt to equity ratio.

1. Find Iota's weighted average cost of capital (WACC)
2. Find the value of the project.
3. Find the debt capacity of the project.

Exercise 8. *Aardvark* [10]

The Aardvark Corporation is considering launching a new product and is trying to determine an appropriate discount rate for evaluating this new product. Aardvark has identified the following information for three single division firms that offer products similar to the one Aardvark is interested in launching:

Comparable Firm	Equity Cost of Capital	Debt Cost of Capital	Debt-to-Value Ratio
Anteater Enterprises	12.50%	6.50%	50%
Armadillo Industries	13%	6.10%	40%
Antelope Inc.	14%	7.10%	60%

Based on this information, what is your best estimate of the unlevered cost of equity for the Aardvark Corporation?

Exercise 9. *WalMart* [10]

In the Wal-Mart case we discussed the divestiture of the company Wal-Mart from the portfolio of the Norwegian Government Pension Fund Global (GPFG).

1. From a financial perspective, what are the costs to GPFG of divesting their Wal-Mart stocks?
2. From the perspective of Wal-Mart, what are the likely consequences of the Norwegian fund's public divestiture?

Exercise 10. *SM* [20]

In the *Swedish Match* case the company was considering borrowing 4 bill SEK and using the proceeds to repurchase equity.

What if the company instead issued bonds of 8 bill SEK and used the proceeds to repurchase equity? Evaluate this alternative proposal.

Enclosed with this exam you will find the exhibits from the Swedish Match case.