

Question 5

Chap 13 problem 11

Chap 14 Problem 4

Chap 14 Problem 9

- a. What is the expected return on an equally weighted portfolio of these three stocks?
- b. What is the variance of a portfolio invested 20 percent each in A and B and 60 percent in C?

10. Returns and Standard Deviations [LO1] Consider the following information:

State of Economy	Probability of State of Economy	Rate of Return If State Occurs		
		Stock A	Stock B	Stock C
Boom	.15	.35	.45	.27
Good	.55	.16	.10	.08
Poor	.25	-.01	-.06	-.04
Bust	.05	-.12	-.20	-.09

- a. Your portfolio is invested 30 percent each in A and C, and 40 percent in B. What is the expected return of the portfolio?

- b. What is the variance of this portfolio? The standard deviation?

- 11. Calculating Portfolio Betas [LO4]** You own a stock portfolio invested 35 percent in Stock Q, 25 percent in Stock R, 30 percent in Stock S, and 10 percent in Stock T. The betas for these four stocks are .84, 1.17, 1.11, and 1.36, respectively. What is the portfolio beta? 

- 12. Calculating Portfolio Betas [LO4]** You own a portfolio equally invested in a risk-free asset and two stocks. If one of the stocks has a beta of 1.27 and the total portfolio is equally as risky as the market, what must the beta be for the other stock in your portfolio?

- 13. Using CAPM [LO4]** A stock has a beta of 1.05, the expected return on the market is 10 percent, and the risk-free rate is 3.8 percent. What must the expected return on this stock be?

- 14. Using CAPM [LO4]** A stock has an expected return of 10.2 percent, the risk-free rate is 4.5 percent, and the market risk premium is 7.5 percent. What must the beta of this stock be?

- 15. Using CAPM [LO4]** A stock has an expected return of 12.4 percent, its beta is 1.17, and the risk-free rate is 4.2 percent. What must the expected return on the market be?

- 16. Using CAPM [LO4]** A stock has an expected return of 13.3 percent, its beta is 1.45, and the expected return on the market is 10.5 percent. What must the risk-free rate be?

- 17. Using CAPM [LO4]** A stock has a beta of 1.25 and an expected return of 14 percent. A risk-free asset currently earns 2.1 percent. 

- a. What is the expected return on a portfolio that is equally invested in the two assets?

- b. If a portfolio of the two assets has a beta of .93, what are the portfolio weights?

- c. If a portfolio of the two assets has an expected return of 9 percent, what is its beta?

- d. If a portfolio of the two assets has a beta of 2.50, what are the portfolio weights? How do you interpret the weights for the two assets in this case? Explain.

- 18. Using the SML [LO4]** Asset W has an expected return of 12.8 percent and a beta of 1.25. If the risk-free rate is 4.1 percent, complete the following table for portfolios of Asset W and a risk-free asset. Illustrate the relationship between portfolio

- 14-6
9. **Company Risk versus Project Risk [LO5]** Both Dow Chemical Company, a large natural gas user, and Superior Oil, a major natural gas producer, are thinking of investing in natural gas wells near Houston. Both companies are all equity financed. Dow and Superior are looking at identical projects. They've analyzed their respective investments, which would involve a negative cash flow now and positive expected cash flows in the future. These cash flows would be the same for both firms. No debt would be used to finance the projects. Both companies estimate that their projects would have a net present value of \$1 million at an 18 percent discount rate and a -\$1.1 million NPV at a 22 percent discount rate. Dow has a beta of 1.25, whereas Superior has a beta of .75. The expected risk premium on the market is 8 percent, and risk-free bonds are yielding 12 percent. Should either company proceed? Should both? Explain.
10. **Divisional Cost of Capital [LO5]** 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?

QUESTIONS AND PROBLEMS



BASIC
(Questions 1-19)

1. **Calculating Cost of Equity [LO1]** The Muse Co. just issued a dividend of \$2.75 per share on its common stock. The company is expected to maintain a constant 5.8 percent growth rate in its dividends indefinitely. If the stock sells for \$59 a share, what is the company's cost of equity?
2. **Calculating Cost of Equity [LO1]** The Zombie Corporation's common stock has a beta of 1.2. If the risk-free rate is 4.8 percent and the expected return on the market is 11 percent, what is the company's cost of equity capital?
3. **Calculating Cost of Equity [LO1]** Stock in Dragula Industries has a beta of 1.1. The market risk premium is 7 percent, and T-bills are currently yielding 4.5 percent. The company's most recent dividend was \$1.70 per share, and dividends are expected to grow at a 6 percent annual rate indefinitely. If the stock sells for \$39 per share, what is your best estimate of the company's cost of equity?
4. **Estimating the DCF Growth Rate [LO1]** Suppose In a Found, Ltd., just issued a dividend of \$1.69 per share on its common stock. The company paid dividends of \$1.35, \$1.43, \$1.50, and \$1.61 per share in the last four years. If the stock currently sells for \$50, what is your best estimate of the company's cost of equity capital using the arithmetic average growth rate in dividends? What if you use the geometric average growth rate?
5. **Calculating Cost of Preferred Stock [LO1]** Holdup Bank has an issue of preferred stock with a \$4.25 stated dividend that just sold for \$92 per share. What is the bank's cost of preferred stock?
6. **Calculating Cost of Debt [LO2]** Mudvayne, Inc., is trying to determine its cost of debt. The firm has a debt issue outstanding with 18 years to maturity that is quoted at 107 percent of face value. The issue makes semiannual payments and has an embedded cost of 6 percent annually. What is the company's pretax cost of debt? If the tax rate is 35 percent, what is the aftertax cost of debt?

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7. **Calculating Cost of Debt [LO2]** Jiminy's Cricket Farm issued a 30-year, 8 percent semiannual bond 3 years ago. The bond currently sells for 93 percent of its face value. The company's tax rate is 35 percent.

- What is the pretax cost of debt?
- What is the aftertax cost of debt?
- Which is more relevant, the pretax or the aftertax cost of debt? Why?

8. **Calculating Cost of Debt [LO2]** For the firm in Problem 7, suppose the book value of the debt issue is \$60 million. In addition, the company has a second debt issue on the market, a zero coupon bond with 10 years left to maturity; the book value of this issue is \$35 million, and the bonds sell for 57 percent of par. What is the company's total book value of debt? The total market value? What is your best estimate of the aftertax cost of debt now?

9. **Calculating WACC [LO3]** Mullineaux Corporation has a target capital structure of 60 percent common stock, 5 percent preferred stock, and 35 percent debt. Its cost of equity is 12 percent, the cost of preferred stock is 5 percent, and the pretax cost of debt is 7 percent. The relevant tax rate is 35 percent.

- What is Mullineaux's WACC?
- The company president has approached you about Mullineaux's capital structure. He wants to know why the company doesn't use more preferred stock financing because it costs less than debt. What would you tell the president?

10. **Taxes and WACC [LO3]** Sixx AM Manufacturing has a target debt-equity ratio of .45. Its cost of equity is 13 percent, and its cost of debt is 6 percent. If the tax rate is 35 percent, what is the company's WACC?

11. **Finding the Target Capital Structure [LO3]** Fama's Llamas has a weighted average cost of capital of 9.6 percent. The company's cost of equity is 12 percent, and its pretax cost of debt is 7.9 percent. The tax rate is 35 percent. What is the company's target debt-equity ratio?

12. **Book Value versus Market Value [LO3]** Erna Corp. has 8 million shares of common stock outstanding. The current share price is \$73, and the book value per share is \$7. Erna Corp. also has two bond issues outstanding. The first bond issue has a face value of \$85 million, has a 7 percent coupon, and sells for 97 percent of par. The second issue has a face value of \$50 million, has an 8 percent coupon, and sells for 108 percent of par. The first issue matures in 21 years, the second in 6 years.

- What are Erna's capital structure weights on a book value basis?
- What are Erna's capital structure weights on a market value basis?
- Which are more relevant, the book or market value weights? Why?

13. **Calculating the WACC [LO3]** In Problem 12, suppose the most recent dividend was \$4.10 and the dividend growth rate is 6 percent. Assume that the overall cost of debt is the weighted average of that implied by the two outstanding debt issues. Both bonds make semiannual payments. The tax rate is 35 percent. What is the company's WACC?

14. **WACC [LO3]** Paget, Inc., has a target debt-equity ratio of 1.25. Its WACC is 9.2 percent, and the tax rate is 35 percent.

- If the company's cost of equity is 14 percent, what is its pretax cost of debt?
- If instead you know that the aftertax cost of debt is 6.8 percent, what is the cost of equity?

15. **Finding the WACC [LO3]** Given the following information for Lightning Power Co., find the WACC. Assume the company's tax rate is 35 percent.

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