Chapter 13 - #8~#13, #15~#19, and #23~#24.

8. **Book Value versus Market Value** Filer Manufacturing has 8.3 million shares of common stock outstanding. The current share price is $53, and the book value per share is $4. Filer Manufacturing also has two bond issues outstanding. The first bond issue has a face value of $70 million and a coupon rate of 7 percent and sells for 108.3 percent of par. The second issue has a face value of $60 million and a coupon rate of 7.5 percent and sells for 108.9 percent of par. The first issue matures in 8 years, the second in 27 years.
   a. What are Filer's capital structure weights on a book value basis?
   b. What are Filer's capital structure weights on a market value basis?
   c. Which are more relevant, the book or market value weights? Why?

9. **Calculating the WACC** In the previous problem, suppose the company's stock has a beta of 1.2. The risk-free rate is 3.1 percent, and the market risk premium is 7 percent. Assume that the overall cost of debt is the weighted average implied by the two outstanding debt issues. Both bonds make semiannual payments. The tax rate is 35 percent. What is the company's WACC?

10. **WACC** Kose, Inc., has a target debt–equity ratio of .45. Its WACC is 11.2 percent, and the tax rate is 35 percent.
   a. If Kose's cost of equity is 15 percent, what is its pretax cost of debt?
   b. If instead you know that the aftertax cost of debt is 6.4 percent, what is the cost of equity?

11. **Finding the WACC** Given the following information for Huntington Power Co., find the WACC. Assume the company's tax rate is 35 percent.

Debt:	5,000 6 percent coupon bonds outstanding, $1,000 par value, 25 years to maturity, selling for 105 percent of par; the bonds make semiannual payments.
Common stock:	175,000 shares outstanding, selling for $58 per share; the beta is 1.10.
Market:	7 percent market risk premium and 5 percent risk-free rate.

12. **Finding the WACC** Titan Mining Corporation has 9.3 million shares of common stock outstanding and 260,000 6.8 percent semiannual bonds outstanding, par value $1,000 each. The common stock currently sells for $34 per share and has a beta of 1.20, and the bonds have 20 years to maturity and sell for 104 percent of par. The market risk premium is 7 percent, T-bills are yielding 3.5 percent, and Titan Mining's tax rate is 35 percent.

    a. What is the firm's market value capital structure?

    b. If Titan Mining is evaluating a new investment project that has the same risk as the firm's typical project, what rate should the firm use to discount the project's cash flows?

13. **SML and WACC** An all-equity firm is considering the following projects:

Project	Beta	IRR
W	.80	9.4%
X	.95	10.9
Y	1.15	13.0
Z	1.45	14.2

The T-bill rate is 3.5 percent, and the expected return on the market is 11 percent.

a. Which projects have a higher expected return than the firm's 11 percent cost of capital?

b. Which projects should be accepted?

c. Which projects would be incorrectly accepted or rejected if the firm's overall cost of capital was used as a hurdle rate?

15. **Calculating Flotation Costs** Southern Alliance Company needs to raise $55 million to start a new project and will raise the money by selling new bonds. The company will generate no internal equity for the foreseeable future. The company has a target capital structure of 65 percent common stock, 5 percent preferred stock, and 30 percent debt. Flotation costs for issuing new common stock are 8 percent, for new preferred stock, 5 percent, and for new debt, 3 percent. What is the true initial cost figure Southern should use when evaluating its project?

16. **WACC and NPV** Och, Inc., is considering a project that will result in initial aftertax cash savings of $3.5 million at the end of the first year, and these savings will grow at a rate of 4 percent per year indefinitely. The firm has a target debt–equity ratio of .55, a cost of equity of 13 percent, and an aftertax cost of debt of 5.5 percent. The cost-saving proposal is somewhat riskier than the usual projects the firm undertakes; management uses the subjective approach and applies an adjustment factor of +2 percent to the cost of capital for such risky projects. Under what circumstances should Och take on the project?

17. Preferred Stock and WACC The Saunders Investment Bank has the following financing outstanding. What is the WACC for the company?

Debt:	60,000 bonds with a coupon rate of 6 percent and a current price quote of 109.5; the bonds have 20 years to maturity. 230,000 zero coupon bonds with a price quote of 17.5 and 30 years until maturity.
Preferred stock:	150,000 shares of 4 percent preferred stock with a current price of $79, and a par value of $100.
Common stock:	2,600,000 shares of common stock; the current price is $65, and the beta of the stock is 1.15.
Market:	The corporate tax rate is 40 percent, the market risk premium is 7 percent, and the risk-free rate is 4 percent.

18. Flotation Costs Goodbye, Inc., recently issued new securities to finance a new TV show. The project cost $19 million, and the company paid $1,150,000 in flotation costs. In addition, the equity issued had a flotation cost of 7 percent of the amount raised, whereas the debt issued had a flotation cost of 3 percent of the amount raised. If Goodbye issued new securities in the same proportion as its target capital structure, what is the company's target debt–equity ratio?

19. Calculating the Cost of Equity Floyd Industries stock has a beta of 1.3. The company just paid a dividend of $.95, and the dividends are expected to grow at 4.5 percent per year. The expected return on the market is 11 percent, and Treasury bills are yielding 4.3 percent. The most recent stock price for Floyd is $64.

a. Calculate the cost of equity using the DDM method.
b. Calculate the cost of equity using the SML method.
c. Why do you think your estimates in (a) and (b) are so different?

23. Flotation Costs Trower Corp. has a debt–equity ratio of .85. The company is considering a new plant that will cost $145 million to build. When the company issues new equity, it incurs a flotation cost of 8 percent. The flotation cost on new debt is 3.5 percent. What is the initial cost of the plant if the company raises all equity externally? What if it typically uses 60 percent retained earnings? What if all equity investments are financed through retained earnings?

24. Project Evaluation This is a comprehensive project evaluation problem bringing together much of what you have learned in this and previous chapters. Suppose you have been hired as a financial consultant to Defense Electronics, Inc. (DEI), a large, publicly traded firm that is the market share leader in radar detection systems (RDSs). The company is looking at setting up a manufacturing plant overseas to produce a new line of RDSs. This will be a five-year project. The company bought some land three years ago for $7.5 million in anticipation of using it as a toxic dump site for waste chemicals, but it built a piping system to safely discard the chemicals instead. The land was appraised last week for $7.1 million. In five years, the aftertax value of the land will be $7.4 million, but the company expects to keep the land for a future project. The company wants to build its new manufacturing plant on this land; the plant and equipment will cost $40 million to build. The following market data on DEI's securities is current:

Debt:	260,000 6.8 percent coupon bonds outstanding, 25 years to maturity, selling for 103 percent of par; the bonds have a $1,000 par value each and make semiannual payments.
Common stock:	9,500,000 shares outstanding, selling for $67 per share; the beta is 1.25.
Preferred stock:	450,000 shares of 5.25 percent preferred stock outstanding, selling for $84 per share and having a par value of $100.
Market:	7 percent expected market risk premium; 3.6 percent risk-free rate.

DEI uses G.M. Wharton as its lead underwriter. Wharton charges DEI spreads of 6.5 percent on new common stock issues, 4.5 percent on new preferred stock issues, and 3 percent on new debt issues. Wharton has included all direct and indirect issuance costs (along with its profit) in setting these spreads. Wharton has recommended to DEI that it raise the funds needed to build the plant by issuing new shares of common stock. DEI's tax rate is 35 percent. The project requires $1,400,000 in initial net working capital investment to get operational. Assume Wharton raises all equity for new projects externally.

a. Calculate the project's initial Time 0 cash flow, taking into account all side effects.

b. The new RDS project is somewhat riskier than a typical project for DEI, primarily because the plant is being located overseas. Management has told you to use an adjustment factor of +2 percent to account for this increased riskiness. Calculate the appropriate discount rate to use when evaluating DEI's project.

c. The manufacturing plant has an eight-year tax life, and DEI uses straight-line depreciation. At the end of the project (that is, the end of Year 5), the plant and equipment can be scrapped for $8.5 million. What is the aftertax salvage value of this plant and equipment?

d. The company will incur $7,900,000 in annual fixed costs. The plan is to manufacture 18,000 RDSs per year and sell them at $10,900 per machine; the variable production costs are $9,450 per RDS. What is the annual operating cash flow (OCF) from this project?

e. DEI's comptroller is primarily interested in the impact of DEI's investments on the bottom line of reported accounting statements. What will you tell her is the accounting break-even quantity of RDSs sold for this project?

f. Finally, DEI's president wants you to throw all your calculations, assumptions, and everything else into the report for the chief financial officer; all he wants to know is what the RDS project's internal rate of return (IRR) and net present value (NPV) are. What will you report?