CHAPTER 11

Questions and Problems

(In the problems below, you can use a risk premium of 5.5% and a tax rate of 40% if either is not specified)

1. Stock buybacks really do not return cash to stockholders, because only those who sell back stock receive the cash. Is this statement true or false? Explain.

2. Between 1988 and 2008, we saw an increase in the percent of cash returned to stockholders in the form of dividends. Why?

3. Lube Oil, a chain of automobile service stations, reports net income of $100 million after depreciation of $50 million. The firm has capital expenditures of $80 million, and the noncash working capital increased from $25 to $40 million. Estimate the firm's FCFE, assuming that the firm is all equity financed.

4. Lube Oil, in Question 3, paid a dividend of $20 million and bought back $25 million in stock. Estimate how much the cash balance of the firm changed during the year.

5. How would your answers to the last two questions change if you were told that Lube Oil started the year with $120 million in debt and ended the year with $135 million?

6. Now assume that Lube Oil has a return on equity of 5 percent and a cost of equity of 10 percent. As a stockholder in Lube Oil, would you want the firm to change its dividend policy? Why or why not?

7. Tech Products reported a net loss of $80 million for the latest financial year. In addition, the firm reported a net capital expenditure of $70 million, and a change in noncash working capital of $10 million. Finally, the firm had $10 million in debt at the start of the year that it paid off during the year. Estimate the FCFE.

8. Tech Products, from Question 7, pays a dividend of $40 million. Assuming that the firm started the period with no cash, how did it raise the funding for the dividend payment?

9. New Age Telecomm is a young, high-growth telecommunications firm. It pays no dividends, though the average dividend payout for other firms in the telecommunications sector is 40 percent. Is New Age paying too little in dividends? Why or why not?

10. The following is a regression of dividend payout ratios on the risk and ln(market capitalization: in millions) of chemical firms:

Dividend Payout Ratio = 0.14 + 0.05 [ln (Market Capitalization in millions)] – 0.1 (Beta)

Harman Chemicals has a market capitalization of $1.5 billion and a beta of 1.2. It pays out 22 percent of its earnings as dividends. How does this dividend payout compare to the industry?

11. JLChem Corporation, a chemical manufacturing firm with changing investment opportunities, is considering a major change in dividend policy. It currently has 50 million shares outstanding and pays an annual dividend of $2 per share. The firm current and projected income statement are provided below (in millions):

	Current	*Projected for Next Year*
EBITDA	$1,200	$1,350
– Depreciation	$200	$250
EBIT	$1,000	$1,100
– Interest expense	$200	$200
EBT	$800	$900
– Taxes	$320	$360
Net income	$480	$540

The firm's current capital expenditure is $500 million. It is considering five projects for the next year:

Project	*Investment*	*Beta*	*IRR (Using Cash Flows to Equity)*
A	$190 mil	0.6	12.0%
B	$200 mil	0.8	12.0%
C	$200 mil	1.0	14.5%
D	$200 mil	1.2	15.0%

E	$100 mil	1.5	20.0%

The firm's current beta is 1.0, and the current Treasury bill rate is 5.5 percent. The firm expects working capital to increase $50 million both this year and next. The firm plans to finance its net capital expenditures and working capital needs with 30 percent debt.

a. What is the firm's current payout ratio?

b. What proportion of its current FCFE is it paying out as dividends?

c. What would your projected capital expenditure be for next year (i.e., which of the five projects would you accept and why)?

d. How much cash will the company have available to pay out as dividends next year? (What is the maximum amount the company can pay out as dividends?)

e. Would you pay out this maximum amount as dividends? Why or why not? What other considerations would you bring to this decision?

f. JKL Corporation currently has a cash balance of $100 million (after paying the current year's dividends). If it pays out $125 million as dividends next year, what will its projected cash balance be at the end of the next year?

12. GL Corporation, a retail firm, is making a decision on how much it should pay out to its stockholders. It has $100 million in investible funds. The following information is provided about the firm:

- It has 100 million shares outstanding, each share selling for $15. The beta of the stock is 1.25 and the risk-free rate is 8 percent. The expected return on the market is 16 percent.
- The firm has $500 million of debt outstanding. The marginal interest rate on the debt is 12 percent.
- The corporate tax rate is 50 percent.
- The firm has the following investment projects:

Project	Investment Requirement	After-Tax Return on Capital
A	$15 million	27%
B	$10 million	20%
C	$25 million	16%

D	$20 million	14%
E	$30 million	12%

The firm plans to finance all its investment needs at its current debt ratio.

a. Should the company return money to its stockholders?

b. If so, how much should be returned to stockholders?

13. InTech, a computer software firm that has never paid dividends before, is considering whether it should start doing so. This firm has a cost of equity of 22 percent and a cost of debt of 10 percent (the tax rate is 40 percent). The firm has $100 million in debt outstanding and 50 million shares outstanding, selling for $10 per share. The firm currently has net income of $90 million and depreciation charges of $10 million. It also has the following projects available:

Project	*Initial Investment*	*Annual EBIT*	*Salvage*	*Lifetime*	*Depreciation*
1	$10 million	$1 mil	$500,000	5 years	$2.5 mil
2	$40 million	$5 mil	$1 million	10 years	$10 mil
3	$50 million	$5 mil	$1 million	10 years	$10 mil

The firm plans to finances its future capital investment needs using 20 percent debt.

a. Which of these projects should the firm accept?

b. How much (if any) should the firm pay out as dividends?

14. LimeAde, a large soft drink manufacturing firm, is faced with the decision of how much to pay out as dividends to its stockholders. It expects to have a net income of $1,000 (after depreciation of $500), and it has the following projects:

Project	*Initial Investment*	*Beta*	*IRR (to Equity Inve*
A	$500	2.0	21%
B	$600	1.5	20%
C	$500	1.0	12%

The firm's beta is 1.5 and the current risk-free rate is 6 percent. The firm plans to finance net capital expenditures (Cap Ex – Depreciation) and working capital with 20 percent debt. The firm also has current revenues of $5,000, which it expects to grow at 8 percent.

Working capital will be maintained at 25 percent of revenues. How much should the firm return to its stockholders as a dividend?

15. NoLone, an all-equity manufacturing firm, has net income of $100 million currently and expects this number to grow at 10 percent a year for the next three years. The firm's working capital increased by $10 million this year and is expected to increase by the same dollar amount each of the next three years. The depreciation is $50 million and is expected to grow 8 percent a year for the next three years. Finally, the firm plans to invest $60 million in capital expenditure for each of the next three years. The firm pays 60 percent of its earnings as dividends each year. NoLone has a cash balance currently of $50 million. Assuming that the cash does not earn any interest, how much would you expect to have as a cash balance at the end of the third year?

16. Boston Turkey is a publicly traded firm, with the following income statement and balance sheet from its most recent financial year:

Income Statement

Revenues	$1,000,000
– Expenses	$400,000
– Depreciation	$100,000
EBIT	$500,000
– Interest Expense	$100,000
Taxable Income	$400,000
– Tax	$160,000
Net Income	$240,000

Balance Sheet

Assets		*Liabilities*	
Property, plant, and equipment	$1,500,000	Accounts payable	$500,000

Land and buildings	$500,000	Long-term debt	$1,000,000
Current assets	$1,000,000	Equity (100,000 shares)	$1,500,000
Total	$3,000,000	Total	$3,000,000

Boston Turkey expects its revenues to grow 10 percent next year and its expenses to remain at 40 percent of revenues. The depreciation and interest expenses will remain unchanged at $100,000 next year. The working capital, as a percentage of revenue, will also remain unchanged next year.

The managers of Boston Turkey claim to have several projects available to choose from next year, in which they plan to invest the funds from operations, and they suggest that the firm really should not be paying dividends. The projects have the following characteristics:

Project	*Equity Investment*	*Expected Annual Cash Flow to Equity*	*Beta*
A	$100,000	12,500	1.00
B	$100,000	14,000	1.50
C	$50,000	8,000	1.80
D	$50,000	12,000	2.00

The Treasury bill rate is 3 percent, and the Treasury bond rate is 6.25 percent. The firm plans to finance 40 percent of its future net capital expenditures (Cap Ex – Depreciation) and working capital needs with debt.

a. How much can the company afford to pay in dividends next year?

b. Now assume that the firm actually pays out $1.00 per share in dividends next year. The current cash balance of the firm is $150,000. How much will the cash balance of the firm be at the end of next year, after the payment of the dividend?

17. Z-Tec, a firm providing Internet services, reported net income of $10 million in the most recent year, while making $25 million in capital expenditures (depreciation was $5 million). The firm had no working capital needs and uses no debt.

a. Can the firm afford to pay out dividends right now? Why or why not?

b. Assuming net income grows 40 percent a year and that net capital expenditures grow 10 percent a year, when will the firm be in a position to pay dividends?

18. You are analyzing the dividend policy of Conrail, a major railroad, and you have collected the following information from the past five years.

Year	*Net Income (Million)*	*Capital Expenditure (Million)*	*Depreciation (Million)*	*Noncash Working Capital (Million)*	*Dividends (Million)*
1991	$240	$314	$307	$35	$70
1992	$282	$466	$295	$(110)	$80
1993	$320	$566	$284	$215	$95
1994	$375	$490	$278	$175	$110
1995	$441	$494	$293	$250	$124

The average debt ratio during this period was 40 percent, and the total noncash working capital at the end of 1990 was $10 million.

a. Estimate how much Conrail could have paid in dividends during this period.

b. If the average return on equity during the period was 13.5 percent, and Conrail had a beta of 1.25, what conclusions would you draw about their dividend policy? (The average Treasure bond rate during the period was 7 percent, and the average return on the market was 12.5 percent during the period.)

19. Assume now that you have been asked to forecast cash flows that you will have available to repurchase stock and pay dividends during the next five years for Conrail (from Problem 18). In making these forecasts, you can assume the following:

- Net income is anticipated to grow 10 percent a year from 1995 levels for the next five years.
- Capital expenditures and depreciation are expected to grow 8 percent a year from 1995 levels.
- The revenues in 1995 were $3.75 billion and are expected to grow 5 percent each year for the next five years. The working capital as a percent of revenues is expected to remain at 1995 levels.
- The proportion of net capital expenditures and depreciation that will be financed with debt will drop to 30 percent.

a. Estimate how much cash Conrail will have available to pay dividends or repurchase stocks over the next five years.

b. How will the perceived uncertainty associated with these cash flows affect your decision on dividends and equity repurchases?

20. Cracker Barrel, which operates restaurants and gift stores, is reexamining its policy of paying minimal dividends. In 1995, Cracker Barrel reported net income of $66 million; it had capital expenditures of $150 million in that year and claimed depreciation of only $50 million. The working capital in 1995 was $43 million on sales of $783 million. Looking forward, Cracker Barrel expects the following:

- Net income is expected to grow 17 percent a year for the next five years.
- During the five years, capital expenditures are expected to grow 10 percent a year, and depreciation is expected to grow 15 percent a year.
- The working capital as a percent of revenues is expected to remain at 1995 levels, and revenues are expected to grow 10 percent a year during the period.
- The company has not used debt to finance its net capital expenditures and does not plan to use any for the next five years.

a. Estimate how much cash Cracker Barrel would have available to pay out to its stockholders over the next five years.

b. How would your answer change if the firm plans to increase its leverage by borrowing 25 percent of its net capital expenditure and working capital needs?

21. Assume that Cracker Barrel, from Problem 20, wants to continue with its policy of not paying dividends. You are the CEO of Cracker Barrel and have been confronted by dissident stockholders, demanding to know why you are not paying out your FCFE (estimated in the previous problem) to your stockholders. How would you defend your decision? How receptive will stockholders be to your defense? Would it make any difference that Cracker Barrel has earned a return on equity of 25 percent over the previous five years and that its beta is only 1.2?

22. Manpower, which provides nongovernment employment services in the United States, reported net income of $128 million in 1995. It had capital expenditures of $50 million and

depreciation of $24 million in 1995, and its working capital was $500 million (on revenues of $5 billion). The firm has a debt ratio of 10 percent and plans to maintain this debt ratio.

a. Estimate how much Manpower will have available to pay out as dividends next year.

b. The current cash balance is $143 million. If Manpower is expected to pay $12 million in dividends next year and repurchase no stock, estimate the expected cash balance at the end of the next year.

23. How would your answers to the previous problem change if Manpower in plans to pay off its outstanding debt of $100 million next year and become a debt-free company?

24. You are an institutional investor and have the collected the following information on five maritime firms to assess their dividend policies.

Company	FCFE	Dividends Paid	ROE	Beta
Alexander & Brown	$55	$35	8%	0.80
American President	$60	$12	14.5%	1.30
OMI	–$15	$5	4.0%	1.25
Overseas Shipholding	$20	$12	1.5 %	0.90
Sea Containers	–$5	$8	14%	1.05

The average risk-free rate during the period was 7 percent, and the average return on the market was 12 percent.

a. Assess which of these firms you would pressure to pay more in dividends.

b. Which of the firms would you encourage to pay less in dividends?

c. How would you modify this analysis to reflect your expectations about the future of the entire sector?

25. You are analyzing the dividend policy of Black and Decker, a manufacturer of tools and appliances. The following table summarizes the dividend payout ratios, yields, and expected growth rates of other firms in the waste disposal business.

Company	*Payout Ratio*	*Dividend Yield*	*Ex. Growth*
Fedders	11%	1.2%	11.0%

Maytag	37%	2.8%	23.0%
National Presto	67%	4.9%	13.5%
Toro	15%	1.5%	16.5%
Whirlpool	30%	2.5%	20.5%
Black & Decker	24%	1.3%	23.0%

a. Compare Black and Decker's dividend policy to those of its peers, using the average dividend payout ratios and yields.
b. Do the same comparison, controlling for differences in expected growth.

26. The following regression was run using all NYSE firms in 1995

$$YIELD = 0.0478 - 0.0157\ BETA + 0.0000008\ MKTCAP + 0.006797\ DBTRATIO + 0.0002\ ROE - 0.09\ NCEX/TA \quad R^2 = 12.88\%$$

where BETA = beta of the stock, MKTCAP = market value of equity + book value of debt, DBTRATIO = book value of debt/MKTCAP, ROE = return on equity in 1994, and NCEX/TA = (capital expenditures – depreciation)/total assets. The corresponding values for Black and Decker, in 1995, were as follows:

Beta = 1.30
MKTCAP = $5,500 million
DBTRATIO = 35%
ROE = 14.5%
NCEX/TA = 4.00%

Black and Decker had a dividend yield of 1.3 percent and a dividend payout ratio of 24 percent in 1995.

a. Estimate the dividend yield for Black and Decker, based on the regression.
b. Why might your answer be different using this approach than the answer to the prior question, where you used only the comparable firms?

27. Handy and Harman, a leading fabricator of precious metal alloys, pays out only 23 percent of its earnings as dividends. The average dividend payout ratio for metal fabricating firms is 45 percent. The average growth rate in earnings for the entire sector is 10 percent (Handy and Harman is expected to grow 23 percent). Should Handy and

Harman pay more in dividends just to get closer to the average payout ratio? Why or why not?