QUESTIONS
November, 15, 2011

A. Short Answer Questions

A1.

Explain how the price earnings ratio of a stock will change if each of the following factors changes as indicated, assuming other factors are unchanged.

a. The dividend growth rate increases.
b. The retention rate increases.
c. The earnings per share increases.

A2.

At Litchfield Chemical Corp. (LCC), a director of the company said that the use of dividend discount models by investors is "proof" that the higher the dividend, the higher the stock price.

a. Using a constant-growth dividend discount model as a basis of reference, evaluate the director's statement.
b. Explain how an increase in dividend payout would affect each of the following (holding all other factors constant):
    i. Sustainable growth rate.
    ii. Growth in book value.

B. Problems

B1.

The market consensus is that Analog Electronic Corporation has an ROE=9%, has a beta of 1.25, and plans to maintain indefinitely its traditional plowback ratio of 2/3. This year's earnings were $3 per share. The annual dividend was just paid. The consensus estimate of the coming year's market return is 14%, and T-bills currently offer a 6% return.

a. Find the price at which Analog stock should sell.
b. Calculate the P/E ratio.
c. Calculate the present value of growth opportunities.
d. Suppose your research convinces you Analog will announce momentarily that it will immediately reduce its plowback ratio to 1/3. Find the intrinsic value of the stock. The market is still unaware of this decision. Explain why V_0 no longer equals P_0 and why V_0 is greater or less than P_0.

B2.

a. MF Corp. Has an ROE of 16% and a plowback ratio of 50%. If the coming year's earnings are expected to be $2 per share, at what price will the stock sell? The market capitalisation rate is 12%.

b. What price do you expect MF shares to sell for in three years?

B3.

The FI Corporation's dividends per share are expected to grow indefinitely by 5% per year.

a. If this year's year-end dividend is $8 and the market capitalisation rate is 10% per year, what must the current stock price be according to the DDM?

b. If the expected earnings per share are $12, what is the implied value of the ROE on future investment opportunities?
c. How much is the market paying per share for growth opportunities (i.e., for an ROE on future investments that exceeds the market capitalisation rate)?

B4.

Mike Brandreth, an analyst who specialises in the electronics industry, is preparing a research report on Dynamic Communication. A colleague suggests to Brandreth that he may be able to determine Dynamic's implied dividend growth rate from Dynamic's current common stock price, using the Gordon growth model. Brandreth believes that the appropriate required rate of return for Dynamic's equity is 8 percent. Dynamic Communication has observed a dividend per share of $0.80 for the last 4 years.

a. Assume that the firm's current stock price of $58.49 equals intrinsic value. What sustained rate of dividend growth is implied by this value? Use the constant growth dividend discount model (i.e. , the Gordon growth model)
b. The management of Dynamic has indicated to Brandreth and other analysts that the company's current dividend policy will be continued. Is the use of the Gordon growth model to value Dynamic's common stock appropriate or inappropriate? Justify your response based on the assumptions of the Gordon growth model.

B5.

You are valuing the stock of IBM as of December 21, 2001, and you have gathered the following information:

20 year T-bond yield to maturity	5.8%
IBM 8.375% of 2019 yield to maturity	6.238%

The IBM bonds, you note, are investment grade (rated A1 by Standard & Poor's and A+ by Moody's Investors Service). The beta on IBM stock is 1.24.

a. Calculate the cost of equity using the CAPM. Assume that the equity risk premium is 5.7 percent.
b. Calculate the cost of equity using the bond yield plus risk premium approach, with a risk premium of 3 percent.
c. Suppose you found that IBM stock, which closed at 121.45 on December 21, 2001, was slightly undervalued based on a DCF valuation using the CAPM cost of equity from question a). Does the alternative estimate of the cost of equity from question b) support the conclusion based on question a)?

B6.

Consider a company with the following capital structure:

	Book Value	Market Value
Debt	$100 million	$106 million
Preferred Stock	$50 million	$52 million
Common Stock	$350 million	$842.million
Total Invested Capital	4500 million	$1,000 million

Some other characteristics of the company are:

Beta of the common stock	1.07
Expected long-term growth rate	6.0%
Quality of debt	Aa
Quality of preferred shares	A
Expected dividend yield on common stock	3.7%
Marginal Income tax rate	35%
Current preferred stock price per share	$50.00
Perpetual dividend on preferred (per share).	$3.75

The prevailing financial market conditions are as follows:

Quality	Yields on Newly Issued Bonds by Quality
Aaa	6.9%
Aa	7.0%
A	7.2%
Baa	7.5%

Risk free rate	6.5%
Equity risk premium over bonds	2.7%
Expected return on stock market index	9.5%

What is the company's weighted average cost of capital?

B7.

As an analyst for a US domestic equity-income mutual fund you are evaluating ABC Water Service Corporation, for possible inclusion in the approved list of investments.

Not all countries have traded water utility stocks. In the United States, about 85 percent of the population gets its water from government entities. A group of investor-owned water utilities, however, also supplies water to the public. ABC is the parent company of three regulated water utility companies serving Connecticut and Massachusetts. Because ABC operates in a regulated industry providing an important staple to a stable population, you are confident that its future earnings growth should follow its stable historical growth record. ABC's return on equity has consistently come in close to the historical median ROE for US businesses of 12.2 percent, reflecting the regulated prices for its product.

Estimated FY2001 and FY2002 EPS are $1.27 and $1.33 reflecting 4.7 percent growth. ABC has a current dividend rate of $0.81. Although ABC dividend payout ratio has been relatively stable (73 percent in 2000, 77 percent in 1999, 75 percent in 1998, 77 percent in 1997,and 78 percent in 1996), you conclude that ABC has not followed an exact fixed-payout dividend policy. ABC has been conservative in reflecting earnings growth in increased dividends. Your forecast of dividends for FY2002 is $0.83. Your nominal annual GDP growth estimate is 4 percent.

Compared with the mean dividend payout ratio of 76 percent from 1996-2000, you expect a long term average dividend payout ratio of 70 percent going forward. You anticipate a 3.7 percent long-term dividend growth rate. A recent price of BC is $30.00. You estimate ABC's cost of equity at 6.2 percent.

a. Calculate the Gordon growth model estimate of value for ABC stock.
b. State whether ABC appears to be overvalued, fairly valued, or undervalued based on the Gordon growth model estimate value.
c. Justify the selection of the Gordon growth model for valuing ABC.

d. ABC's beta is -0.16. Calculate the CAPM estimate of the cost of equity for ABC. (Assume an equity risk premium of 5.7 percent. The risk-free rate based on the long term T-bond was also 5.7 percent as of the price quotation date).
e. Calculate the Gordon growth estimate of value using the cost of equity from your answer in d). Assuming that a price-earnings ratio (P/E) of 24 based on estimated FY2002 is an approximate guide to value, evaluate whether this Gordon growth estimate is possible.
f. How does uncertainty in ABC cost of equity affect your confidence in your answer to question b)?