Valuation of Equity Securities I

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 rates increases.

b) The retention rates increases.

c) The earnings per share increases.

A2. Indicate whether the following statements are true or false. Provide a *brief* (one or two sentences) explanation in each case.

a) The constant growth dividend model is ideal in valuing high-growth stocks

b) In the constant growth dividend model, *g* refers to the growth rate of past dividends.

c) In the constant dividend growth model, it must be the case that (k_e – g) must be greater than or equal to zero.

A3. Market analysts expect DBD Ltd to pay a dividend per share of $1.80 next year and these dividends are expected to grow at a constant annual rate over the foreseeable future. The expected return on this stock is 15 percent p.a. and the price today is $10.00. Based on this information, the constant annual growth rate of the company's dividends is closest to:

a) -3.0% b) -2.5% c) 2.5% d) 3.0%

B. Problems

B1. Nano Technologies Ltd recently earned $3.00 per share and has a history of paying out 40% of earnings as dividends. This payout ratio is expected to continue in the foreseeable future. Also, Nano's earnings and dividends per share are expected to grow at a constant growth rate of 5 percent forever.

a) What price should this stock sell for today if investors expect a 12% rate of return?

b) Your colleague Noah tall as suggested that perhaps a constant growth rate of 5 percent in dividends and earnings is too optimist. He suggests that it is more likely that *earnings* would initially *decline* at a rate of 10 percent per year during the next 3 years in view of the "*gestation*" period for Nano's recent high technology venture and then grow at the previously estimated 5 percent per year. Assuming the dividend payout ratio remains unchanged at 40% reestimate Nano's price using Noah's assumptions.

c) Analyze the sensitivity of the prices estimates to the assumptions made (No calculations required.)

B2

This year NoDebt plc reported earnings per share (EPS) of 20p. They will grow at a rate of 10% p.a. in the next three years and at a rate of 5% p.a. thereafter.

The dividend policy of the firm determines a constant dividend payout of 60% and investors may expect it to hold for the future. This year's dividend has just been paid.

NoDebt plc is considering opening a new plant abroad. If the Board of Directors decides to undertake this investment opportunity it will be funded by next year's dividend. EPS will increase by 5p in years two and three and will grow at a rate of 5.5% p.a. thereafter.

The company's shareholders require a rate of return of 11%.

a) What is the value of one share if the board decides to ignore the investment opportunity?
b) What would be the value of one share if the board decides to go ahead with the new plant abroad?
c) If you were a member of the board what would be your opinion about this new investment opportunity considering you are committed to the shareholder wealth maximization?
d) What is the expected impact on NoDebt stock price in the following three dates: the announcement date of dividends, the ex-dividend date and the payment date of the dividends?

B3

Company Barcelona is a high-tech start-up company that had a total after tax earnings of $2m in 2008. Of these, $500,000 was paid out as a dividend to shareholders on December, 31, 2008, and the remaining dividends are invested to finance future growth. Barcelona's earnings will grow at a rate at a rate of 50% per year starting now (beginning of 2009) for duration of 3 years. Then it will enter a more mature growth phase and grow at a constant rate of 8% per annum forever after. The cost of equity capital of the firm is 15%. Barcelona will keep the payout policy unchanged for another two years (including 2009). After this it will retain only 40% of after tax earnings.

a) Value Barcelona using the dividend growth model (as of January, 1, 2009).
b) Some analysts estimate that the cost of equity during the high-risk start up years is higher, at 20% p.a.. and 15% thereafter. How does this assumption affect the value of Barcelona you found under (a)?
c) In the meeting of the board of directors in December 2008 the sales director makes the following proposal: "We should not make the proposed dividend payment of $500,000 at the end of this month. Rather, we should keep the money and invest it. If we do this, we can increase our market share and grow at 60% next year rather than at the projected 50%.For the two years after next, we would continue to grow at 50% (2009-2010) and 8% thereafter. The payout ratio would also remain unchanged relative to our current projections, and all other parts of our forecasts would remain valid. If we do this, we would increase the value of the company to our shareholders". Is the sales director correct, i.e. should the shareholders sacrifice the 2008 year-end dividend payment for faster growth?

B4.

Charles Biser expects the market price of Orangeco common stock to increase from $32 per share currently to $38 next year. He also projects the current annual dividend of $0.94 per share will rise to $1.00 next year. Biser's expected return on the Orangeco stock is *closest* to:

a) 21.9% **b)** 21.7% **c)** 18.8% or **d)** 15.6%