FINA 1082 – Financial Management
Valuation of Equity Securities II
Tutorial Questions for Lecture 5

These questions do not need to be submitted and will be discussed in Tutorial 5. Note that detailed answers to these questions will only be provided in tutorials. This policy is in place to ensure that you attend your tutorial regularly and receive timely feedback from your tutor. If you are unsure of your answers you should check with your tutor, a pit stop tutor or the lecturer.

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. 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% forever.

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

b. Your colleague Noah tall has suggested that perhaps a constant growth rate of 5 % 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% per year. Assuming the dividend payout ratio remains unchanged at 40% reestimate Nano's price using Noah's assumptions.

c. Analyse the sensitivity of the price 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% per annum in the next three years and at a rate of 5% per annum 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% per annum thereafter.
The company 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. 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.

B4. If the expected rate of return of the market portfolio is 15% and a stock with a beta of 1.0 pays a dividend yield of 4%, what must the market believe is the expected rate of price appreciation on that stock?

B5.
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?

B6. 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 capitalization 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?

How much is the market paying per share for growth opportunities (i.e., for an ROE on future investments that exceeds the market capitalization rate)?