

FIN 534 – Homework Chapter 7

With the calculation too

1. Which of the following statements is CORRECT?

- a. The constant growth model takes into consideration the capital gains investors expect to earn on a stock.
- b. Two firms with the same expected dividend and growth rates must also have the same stock price.
- c. It is appropriate to use the constant growth model to estimate a stock's value even if its growth rate is never expected to become constant.
- d. If a stock has a required rate of return  $r_s = 12\%$ , and if its dividend is expected to grow at a constant rate of 5%, this implies that the stock's dividend yield is also 5%.
- e. The price of a stock is the present value of all expected future dividends, discounted at the dividend growth rate.

2. Stocks A and B have the following data. Assuming the stock market is efficient and the stocks are in equilibrium, which of the following statements is CORRECT?

A B

Price \$25 \$25

Expected growth (constant) 10% 5%

Required return 15% 15%

- a. Stock A's expected dividend at  $t = 1$  is only half that of Stock B.
- b. Stock A has a higher dividend yield than Stock B.
- c. Currently the two stocks have the same price, but over time Stock B's price will pass that of A.
- d. Since Stock A's growth rate is twice that of Stock B, Stock A's future dividends will always be twice as high as Stock B's.
- e. The two stocks should not sell at the same price. If their prices are equal, then a disequilibrium must exist.

3. Which of the following statements is CORRECT?

- a. A major disadvantage of financing with preferred stock is that preferred stockholders typically have supernormal voting rights.
- b. Preferred stock is normally expected to provide steadier, more reliable income to investors than the same firm's common stock, and, as a result, the expected after-tax yield on the preferred is lower than the after-tax expected return on the common stock.
- c. The preemptive right is a provision in all corporate charters that gives preferred stockholders the right to purchase (on a pro rata basis) new issues of preferred stock.
- d. One of the disadvantages to a corporation of owning preferred stock is that 70% of the dividends received represent taxable income to the corporate recipient, whereas interest income earned on bonds would be tax free.

Estimated  $r_s = 10.00\%$  (must be changed to force Calculated Price to equal the Actual Market Price) \$15.00 Year 0 1 2 3 4 5 Dividend growth rate (insert correct values) 10% 10% 10% 5% 5% Calculated dividends ( $D_0$  has been paid) \$1.00 ? ? ? ? ?  $TV_3 = P_3 = D_4 / (r_s - g_4)$ . Find using Estimated  $r_s$ . ? Total CFs ? ? ? PVs of CFs when discounted at Estimated  $r_s$  ? ? ? Calculated Price =  $P_0 = \text{Sum of PVs} = \$0.00$  A positive number will be here when dividends are estimated. The Calculated Price will equal the Actual Market Price once the correct  $r_s$  has been found. Rapid growth Actual Market Price,  $P_0$ : Normal growth

e. One of the advantages to financing with preferred stock is that 70% of the dividends paid out are tax deductible to the issuer.

4. Church Inc. is presently enjoying relatively high growth because of a surge in the demand for its new product. Management expects earnings and dividends to grow at a rate of 25% for the next 4 years, after which competition will probably reduce the growth rate in earnings and dividends to zero, i.e.,  $g = 0$ . The company's last dividend,  $D_0$ , was \$1.25, its beta is 1.20, the market risk premium is 5.50%, and the risk-free rate is 3.00%. What is the current price of the common stock?

a. \$26.77

b. \$27.89

c. \$29.05

d. \$30.21

e. \$31.42

5. Your boss, Sally Maloney, treasurer of Fred Clark Enterprises (FCE), asked you to help her estimate the intrinsic value of the company's stock. FCE just paid a dividend of \$1.00, and the stock now sells for \$15.00 per share. Sally asked a number of security analysts what they believe FCE's future dividends will be, based on their analysis of the company. The consensus is that the dividend will be increased by 10% during Years 1 to 3, and it will be increased at a rate of 5% per year in Year 4 and thereafter. Sally asked you to use that information to estimate the required rate of return on the stock,  $r_s$ , and she provided you with the following template for use in the analysis.

Sally told you that the growth rates in the template were just put in as a trial, and that you must replace them with the analysts' forecasted rates to get the correct forecasted dividends and then the estimated TV. She also notes that the estimated value for  $r_s$ , at the top of the template, is also just a guess, and you must replace it with a value that will cause the Calculated Price shown at the bottom to equal the Actual Market Price. She suggests that, after you have put in the correct dividends, you can manually calculate the price, using a series of guesses as to the Estimated  $r_s$ . The value of  $r_s$  that causes the calculated price to equal the actual price is the correct one. She notes, though, that this trial-and-error process would be quite tedious, and that the correct  $r_s$  could be found much faster with a simple Excel model, especially if you use Goal Seek. What is the value of  $r_s$ ?

a. 11.84%

b. 12.21%

c. 12.58%

d. 12.97%

e. 13.36%

**Chapter 7 Homework**  
**Correct Answers**

- 1: a
- 2: a
- 3: b
- 4: c

Last dividend ( $D_0$ )	\$1.25
Short-run growth rate	25%
Long-run growth rate	0%
Beta	1.20
Market risk premium	5.50%
Risk-free rate	3.00%
Required return = $r_s = r_{RF} + b(RP_M) =$	9.60%

Year	0	1	2	3	4	5
		25%	25%	25%	25%	0%
Dividend	\$1.2500	\$1.5625	\$1.9531	\$2.4414	\$3.0518	\$3.0518
Terminal value = $D_5 / (r_s - g_s) =$					31.7891	
Total CFs		\$1.5625	\$1.9531	\$2.4414	\$34.8409	
PV of the CFs		\$1.4256	\$1.6260	\$1.8544	\$24.1461	

**Price = Sum of PVs = \$29.05**