B&M mod 3 chapter 4 common stocks practice exam question

(The attached PDF file has better formatting.)

- The risk-free rate is 3.4%, the market risk premium is 7.4%, and a firm's CAPM β is 1.154.
- In 20X1, the firm's after-tax earnings per share are 7.43, and its payout ratio is 71% each year.
- Earnings are expected to grow indefinitely at a constant rate.
- The firm's ROE = ratio of earnings to book value of equity = 14.9%.

Question 3.1: Market capitalization rate

What is the firm's market capitalization rate?

Answer 3.1: The firm's market capitalization rate (from the CAPM equation) = 3.4% + 1.154 × 7.4% = 11.94%.

Question 3.2: Growth rate of earnings per share

What is the firm's growth rate of earnings per share?

Answer 3.2: The firm's growth rate of earnings per share is the return on equity times the dividend payout ratio = 14.9% × (1 – 71%) = 4.321%

Question 3.3: Growth rate of dividends per share

What is the firm's growth rate of dividends per share?

Answer 3.3: The firm's payout ratio is not changing, so the growth rate of dividends per share equals the growth rate of earnings per share.

Question 3.4: 20X1 dividend

What is the firm's dividend in 20X1?

Answer 3.4: In 20X1, the firm's after-tax earnings per share are 7.43 and its payout ratio is 71%, so its dividend is 7.43 × 71% = 5.275.

Question 3.5: Expected dividend in 20X2?

What is the firm's expected dividend in 20X2?

Answer 3.5: The firm's expected dividend in 20X2 is the 20X1 dividend times the growth rate of dividends per share = 5.275 × (1 + 4.321%) = 5.503

Question 3.6: Stock price in 20X1

What is the firm's stock price in 20X1?

Answer 3.6: By the stock growth model, the stock price right after the dividend at time t=0 (20X1) if the same dividend payout ratio is retained =

the dividend one year from now / (market capitalization rate – dividend growth rate) =

$$5.503 / (11.94\% – 4.321\%) = 72.227$$

Question 3.7: Paying out all earnings

If the firm paid out all earnings as dividends starting in 20X1 (instead of paying out only 60%), what would its stock price be in 20X1 right after its dividend payment?

Answer 3.7: If the firm paid out all earnings as dividends starting in 20X1 (instead of paying out only 60%), its stock price in 20X1 right after its dividend payment would be its earnings × (1 + dividend growth rate) / market capitalization rate = 7.43 × (1 + 4.321%) / (11.94%) = 64.917

Question 3.8: Present value of growth opportunities

What is the firm's present value of growth opportunities?

Answer 3.8: The present value of growth opportunities = stock price with current dividend payout ratio – stock price with 100% dividend payout ratio = 72.227 – 64.917 = 7.310