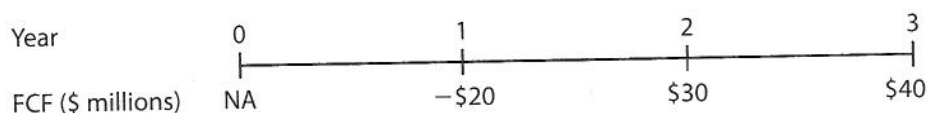


Intermediate
Problems 7–15

- indefinitely. Smith has no debt or preferred stock, and its WACC is 10%. If Smith has 50 million shares of stock outstanding, what is the stock's value per share?
- 9-6 **PREFERRED STOCK VALUATION** Fee Founders has perpetual preferred stock outstanding that sells for \$60 a share and pays a dividend of \$5 at the end of each year. What is the required rate of return?
- 9-7 **PREFERRED STOCK RATE OF RETURN** What will be the nominal rate of return on a perpetual preferred stock with a \$100 par value, a stated dividend of 8% of par, and a current market price of (a) \$60, (b) \$80, (c) \$100, and (d) \$140?
- 9-8 **PREFERRED STOCK VALUATION** Ezzell Corporation issued perpetual preferred stock with a 10% annual dividend. The stock currently yields 8%, and its par value is \$100.
- What is the stock's value?
 - Suppose interest rates rise and pull the preferred stock's yield up to 12%. What is its new market value?
- 9-9 **PREFERRED STOCK RETURNS** Bruner Aeronautics has perpetual preferred stock outstanding with a par value of \$100. The stock pays a quarterly dividend of \$2, and its current price is \$80.
- What is its nominal annual rate of return?
 - What is its effective annual rate of return?
- 9-10 **VALUATION OF A DECLINING GROWTH STOCK** Martell Mining Company's ore reserves are being depleted, so its sales are falling. Also, because its pit is getting deeper each year, its costs are rising. As a result, the company's earnings and dividends are declining at the constant rate of 5% per year. If $D_0 = \$5$ and $r_s = 15\%$, what is the value of Martell Mining's stock?
- 9-11 **VALUATION OF A CONSTANT GROWTH STOCK** A stock is expected to pay a dividend of \$0.50 at the end of the year (that is, $D_1 = 0.50$), and it should continue to grow at a constant rate of 7% a year. If its required return is 12%, what is the stock's expected price 4 years from today?
- 9-12 **VALUATION OF A CONSTANT GROWTH STOCK** Investors require a 15% rate of return on Levine Company's stock (that is, $r_s = 15\%$).
- What is its value if the previous dividend was $D_0 = \$2$ and investors expect dividends to grow at a constant annual rate of (1) -5%, (2) 0%, (3) 5%, or (4) 10%?
 - Using data from Part a, what would the Gordon (constant growth) model value be if the required rate of return was 15% and the expected growth rate was (1) 15% or (2) 20%? Are these reasonable results? Explain.
 - Is it reasonable to think that a constant growth stock could have $g > r_s$? Explain.
- 9-13 **CONSTANT GROWTH** You are considering an investment in Keller Corp's stock, which is expected to pay a dividend of \$2.00 a share at the end of the year ($D_1 = \$2.00$) and has a beta of 0.9. The risk-free rate is 5.6%, and the market risk premium is 6%. Keller currently sells for \$25.00 a share, and its dividend is expected to grow at some constant rate g . Assuming the market is in equilibrium, what does the market believe will be the stock price at the end of 3 years? (That is, what is \hat{P}_3 ?)
- 9-14 **NONCONSTANT GROWTH** Microtech Corporation is expanding rapidly and currently needs to retain all of its earnings; hence, it does not pay dividends. However, investors expect Microtech to begin paying dividends, beginning with a dividend of \$1.00 coming 3 years from today. The dividend should grow rapidly—at a rate of 50% per year—during Years 4 and 5; but after Year 5, growth should be a constant 8% per year. If the required return on Microtech is 15%, what is the value of the stock today?
- 9-15 **CORPORATE VALUATION** Dozier Corporation is a fast-growing supplier of office products. Analysts project the following free cash flows (FCFs) during the next 3 years, after which FCF is expected to grow at a constant 7% rate. Dozier's WACC is 13%.



- What is Dozier's terminal, or horizon, value? (Hint: Find the value of all free cash flows beyond Year 3 discounted back to Year 3.)
- What is the firm's value today?

Challenging
Problems 16–21

- c. Suppose Dozier has \$100 million of debt and 10 million shares of stock outstanding. What is your estimate of the current price per share?

9-16 **NONCONSTANT GROWTH** Mitts Cosmetics Co.'s stock price is \$58.88, and it recently paid a \$2.00 dividend. This dividend is expected to grow by 25% for the next 3 years, then grow forever at a constant rate, g ; and $r_s = 12\%$. At what constant rate is the stock expected to grow after Year 3?

9-17 **CONSTANT GROWTH** Your broker offers to sell you some shares of Bahnsen & Co. common stock that paid a dividend of \$2.00 *yesterday*. Bahnsen's dividend is expected to grow at 5% per year for the next 3 years. If you buy the stock, you plan to hold it for 3 years and then sell it. The appropriate discount rate is 12%.

- Find the expected dividend for each of the next 3 years; that is, calculate D_1 , D_2 , and D_3 . Note that $D_0 = \$2.00$.
- Given that the first dividend payment will occur 1 year from now, find the present value of the dividend stream; that is, calculate the PVs of D_1 , D_2 , and D_3 and then sum these PVs.
- You expect the price of the stock 3 years from now to be \$34.73; that is, you expect \hat{P}_3 to equal \$34.73. Discounted at a 12% rate, what is the present value of this expected future stock price? In other words, calculate the PV of \$34.73.
- If you plan to buy the stock, hold it for 3 years, and then sell it for \$34.73, what is the most you should pay for it today?
- Use Equation 9-2 to calculate the present value of this stock. Assume that $g = 5\%$ and that it is constant.
- Is the value of this stock dependent upon how long you plan to hold it? In other words, if your planned holding period was 2 years or 5 years rather than 3 years, would this affect the value of the stock today, \hat{P}_0 ? Explain.

9-18 **NONCONSTANT GROWTH STOCK VALUATION** Taussig Technologies Corporation (TTC) has been growing at a rate of 20% per year in recent years. This same growth rate is expected to last for another 2 years, then decline to $g_n = 6\%$.

- If $D_0 = \$1.60$ and $r_s = 10\%$, what is TTC's stock worth today? What are its expected dividend and capital gains yields at this time, that is, during Year 1?
- Now assume that TTC's period of supernormal growth is to last for 5 years rather than 2 years. How would this affect the price, dividend yield, and capital gains yield? Answer in words only.
- What will TTC's dividend and capital gains yields be once its period of supernormal growth ends? (Hint: These values will be the same regardless of whether you examine the case of 2 or 5 years of supernormal growth; the calculations are very easy.)
- Of what interest to investors is the changing relationship between dividend and capital gains yields over time?

9-19

CORPORATE VALUATION Barrett Industries invests a large sum of money in R&D; as a result, it retains and reinvests all of its earnings. In other words, Barrett does not pay any dividends and it has no plans to pay dividends in the near future. A major pension fund is interested in purchasing Barrett's stock. The pension fund manager has estimated Barrett's free cash flows for the next 4 years as follows: \$3 million, \$6 million, \$10 million, and \$15 million. After the fourth year, free cash flow is projected to grow at a constant 7%. Barrett's WACC is 12%, its debt and preferred stock total \$60 million, and it has 10 million shares of common stock outstanding.

- What is the present value of the free cash flows projected during the next 4 years?
- What is the firm's terminal value?
- What is the firm's total value today?
- What is an estimate of Barrett's price per share?

9-20 **CORPORATE VALUE MODEL** Assume that today is December 31, 2008, and that the following information applies to Vermeil Airlines:

- After-tax operating income [EBIT(1 - T)] for 2009 is expected to be \$500 million.
- The depreciation expense for 2009 is expected to be \$100 million.
- The capital expenditures for 2009 are expected to be \$200 million.
- No change is expected in net working capital.
- The free cash flow is expected to grow at a constant rate of 6% per year.
- The required return on equity is 14%.
- The WACC is 10%.