

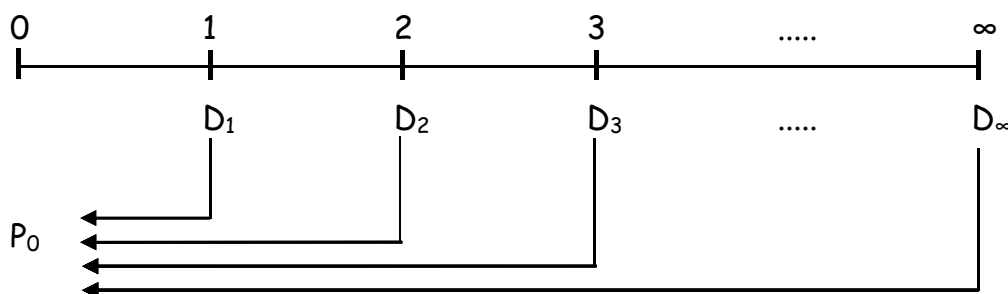
Stock Market: Their Valuations



Common Stock and Preferred Stock

- Owners of common stock are not guaranteed any dividend payments; have lowest priority claim on firm's assets in event of bankruptcy
- Legally, common stockholders enjoy limited liability

Equity value is determined by the present value of the dividend payments and selling price (if any.)



$$P_0 = \frac{D_1}{(1+k_S)} + \frac{D_2}{(1+k_S)^2} + \dots + \frac{D_{\infty-1}}{(1+k_S)^{\infty-1}} + \frac{D_\infty}{(1+k_S)^\infty}$$

Preferred Stock Valuation

$$P_0 = \frac{D}{k_p}$$

where P_0 = price of preferred stock at $t=0$
 D = dividend per share starting one period after $t = 0$
 k_p = required return per period for preferred stock investment

Example 1

Suppose that Delta Airlines has a perpetual preferred stock issue that pays a dividend of 5.00 percent per year with US\$100 par value and that investors require an 8.00 percent return on such an investment. What is the value of the preferred stock today? What is the value of this preferred stock one year from now?

Exercise

1. Fill in the data to make the following data of these preferred stocks completed.

Stock	Par Value	Dividend Rate	Dividend Payment	Rate of Return	Price
A	100.00 baht per share	7.00 percent	Annually	12.50 percent	
B	110.00 baht per share	6.50 percent	Annually	17.25 percent	
C	120.00 baht per share	8.25 percent	Semi-annually	15.00 percent	
D	150.00 baht per share	5.50 percent	Semi-annually		50.00 baht per share
E	90.00 baht per share		Quarterly	20.00 percent	40.50 baht per share
F		6.50 percent	Semi-annually	26.00 percent	50.00 baht per share
G	175.00 baht per share	10.00 percent		17.50 percent	100.00 bath per share

2. In 2012, Giant Slayer Inc. (GSI) issued preferred stock paying an annual dividend of 5.00 percent, with par of US\$120. Moody's and Standard and Poor's both rated GSI's preferred shares at the low end of the investment grade category. Suppose that Jack required a return on Inception preferred stock of 7 1/8 percent. What would be the market price that Jack would pay for GSI preferred share assuming that the next dividend is paid in one year?

At December 2013, after Jack invested in GSI Inc. preferred stock for 1 year, supposed the rating agencies upgrade GSI's credit rating and, as a result, investors lower their required return to 5 1/2 percent. What happened to the preferred stock price? What is the annual return for Jack?

3. Mark Bank just issued some new preferred stock. The issue will pay a €9.00 annual dividend in perpetuity, beginning six years from now. If the market requires a 7.00 percent return on this investment, how much does a share of preferred stock cost today?

Common Stock Valuation

Gordon Growth Model / Dividend Discounted Model (DDM)

- Values a share of stock under the assumption that dividends grow at a constant rate forever.
- **Stock Value** = PV of future cash flows
= PV of expected dividends (assumed infinite holding period)
= PV of expected dividends and expected selling price (assumed finite holding period)

$$\hat{P}_0 = \frac{D_0(1+g)}{k_s - g} = \frac{D_1}{k_s - g}$$

where P_0 = price of common stock at $t=0$
 D_1 = dividend per share at period $t = 1$
 k_p = required return per period for common stock investment
 g = dividend growth rate per period

Dividend Yield and Capital Gain Yield

Total return of stock investment has two components:

- Dividend yield: return from dividend in current period
- Capital gain yield: gain or loss on price difference

Total return on stock investment = Dividend yield + Capital Gain Yield

$$k_s = \frac{D_1}{P_0} + g$$

Example 2

Suppose an investor is considering the purchase of a share of the Utah Mining Company. The stock will pay \$3.00 dividend a year from today. This dividend is expected to grow at 10.00 percent per year for the foreseeable future. The investor thinks the required return on this stock is 15.00 percent, given her assessment of Utah Mining's risk. What is the value of a share of Utah Mining Company's stock? What are dividend yield and capital gain yield?

Example 3

Del Mar Corporation is a small printing company that serves a rural three-county area near San Diego, California. The county's economic base has remained constant over the years and Del Mar's sales and earnings reflect this trend. The firm pays US\$5.00 dividend per year and the board of directors has no plans to change the dividend. If the firm's investors are mostly local business people who expect a 20.00 percent return on their investment, what should be the price of the firm's stock? What are dividend yield and capital gain yield?

Exercise

4. The Brennan Co. just paid a dividend of €1.40 per share on its stock. The dividends are expected to grow at a constant rate of 6.00 percent per year indefinitely. If investors require a 15.00 percent on Brennan Co. stock, what is the current price? What will the price be in three years? In 10 years?
5. The next dividend payment by MUG, Inc., will be \$3.10 per share. The dividends are anticipated to maintain a 5.00 percent growth rate forever. If MUG stock currently sells for \$48.00 per share, what is the required return?
6. Sugam Limited will pay a INR3.60 per share dividend next year. The company pledges to increase its dividend by 4.50 percent per year indefinitely. If you require a 13.00 percent return on your investment, how much will you pay for the company's stock today?
7. Hollin Corporation stock currently sells for \$50.00 per share. The market requires a 14.00 percent return on the firm's stock. If the company maintains a constant 8.00 percent growth rate in dividends, what was the most recent dividend per share paid of the stock?
8. Suppose you know that a company's stock sells for ¥11,000 per share and the required return on the stock is 12.00 percent. You also know that the total return on the stock is evenly divided between a capital gains yield and a dividend yield. If the company's policy to always maintain a constant growth rate in its dividends, what is the current dividend per share?
9. Gruber Corp. pays a constant \$12.00 dividend on its stock. The company will maintain this dividend for the next eight years and will then cease paying dividends forever. If the required return on this stock is 10.00 percent, what is the current share price?
10. Yumen XI, Inc., is a young start-up company. No dividends will be paid on the stock over the next nine years because the firm needs to plow back its earnings to fuel growth. The company will pay CNY 8.00 per share dividend in 10 years and will increase the dividend by 6.00 percent per year thereafter. If the required return on this stock is 15.00 percent, what is the current share price?
11. Xian Mining Company's iron ore reserves are being depleted, and its costs of recovering a declining quantity of ore are rising each year. As a result, the company's dividends are declining at a rate of 10.00 percent per year. If the dividend per share to be paid tomorrow is CNY 5.00 per share and the required return is 14.00 percent, what is the value of firm's stock?

Example 3

Consider the stock of Elixir Drug Company, which has a new massage ointment and is enjoy rapid growth. The dividend for a stock a year from today will be \$1.15. During the following four years the dividend will grow at 15.00 percent per year. After that, growth will equal 10.00 percent per year. What is the value of this stock given the required return of 15.00 percent?

Exercise

12. Rot-Not-Us Inc. has developed a new food preserving technique and at the popularity of this technique increases, the firm will grow quite rapidly, perhaps as much as 20.00 percent per year. Over time, as the competitors are being able to market comparable technique, the firm's growth rate will reach a steady state. At that point, the firm may grow at the same rate as the overall economy, perhaps 5.00 percent per year. Assume that the market's required rate of return on this stock is 14.00 percent and the most recent dividend was \$2.00 per share. Investors anticipated that the firm will increase dividend by 20.00 percent per year for the next three years, after which time it will grow at 5.00 percent per year indefinitely. What is the price of Rot-Not-Us common stock today?

Exercise

13. Suppose Self Power Generator Co. Ltd (SPG) just paid dividend of 3.50 baht per share. With growing demand of economic expansion for the next 5 years, SPG expected dividend to grow at 50.00 percent rate for next year and decline by 10.00 percent incremental to 10.00 percent; then finally dividend will grow at minimal rate of 3.00 percent per year forever. SPG has 18.6250 percent required return. Compute the dividend yield and capital gain yield for first year investment of SPG common stock.
14. Suppose a company's expected dividend pattern for three years is as follows: $D_1 = \text{US\$}1.00$, $D_2 = \text{US\$} 2.00$, $D_3 = \text{US\$} 3.00$. After three years, the dividends are expected to grow at a constant rate of 6.00 percent a year. What should the current price of the firm's stock be if the required rate of return demanded by investors is 15.00 percent?
15. Yusuf & Sons is experiencing rapid growth. Dividends are expected to grow at 30.00 percent per year during the next three years, 18.00 percent over the following year, and then 8.00 percent per year indefinitely. The required return on this stock is 14.00 percent, and the stock currently sells for PKR 70.00 per share. What is the projected dividend for the coming year?
16. Pasqually Mineral Water, Inc., will pay a quarterly dividends per share of ¥1,000 at the end of each of the next 12 quarters. Thereafter the dividend will grow at a quarterly rate of 0.50 percent forever. The appropriate rate of return on the stock is 10.00 percent, compounded quarterly. What is the current stock price?
17. Allen, Inc., is expected to pay equal dividends at the end of each of the next two years. Thereafter, the dividend will grow at a constant annual rate of 4.00 percent forever. The current stock price is \$30.00. What is next year's dividend payment if the required rate of return is 13.00 percent?
18. Four years ago, Kuruman Diamond, Inc., paid a dividend of Zar 0.90 per share. Kuruman paid a dividend of ZAR 1.66 per share yesterday. Dividends will grow over the next five years at the same rate they grew over the last four years. Thereafter dividends will grow at 8.00 percent per year. The required return on the stock is 20.00 percent. What is the current stock price for Kuruman?
19. Storico Co. just paid a dividend of AUD 3.50 per share. The company will increase its dividend by 20.00 percent next year and will then reduce its dividend growth rate by 5.00 percentage points per year until it reaches the industry average of 5.00 percent dividend growth, after which the company will keep a constant growth rate forever. If the required return on Storico stock is 13.00 percent, what will a share of stock sell for today?

20. Consider four different stocks, all of which have a required return of 15.00 percent and a most recent dividend of \$4.50 per share. Stocks W, X, and Y are expected to maintain constant rates in dividends for the foreseeable future of 10.00 percent, 0.00 percent, and - 5.00 percent per year, respectively. Stock Z is a growth stock that will increase its dividend by 20.00 percent for the next two years and then maintain a constant 12.00 percent growth rate thereafter. What is the dividend yield for each of these four stocks? What is expected capital gain yields? Discuss the relationship among the various returns that you find for each of these stocks.