

## *Chapter 6 - Stock Valuation*

The price of any financial instrument is the present value of the future cash flows.

### Preferred Stock

There is a 6 percent preferred share outstanding. If investors have a required return of 7 percent on this stock, what is the price?

### Common stock

Assumption: The dividends grow at a constant rate forever.

$$P_0 = \frac{D_1}{R - g} = \frac{D_0(1+g)}{R - g}$$

Suppose a stock will pay a dividend of \$2.50 next year and the dividends will grow at 6 percent forever. If the required return is 13 percent, what is the price per share today?

Common stock price

Suppose that 10 years from today a company will pay its first dividend of \$13, and after that the dividends will increase at 7 percent forever. If the required return is 12 percent, what is the price per share today?

$$P_t = \frac{D_{t+1}}{R - g}$$

Common stock price

Suppose a company will pay dividends of \$8, \$10, and \$2 for the next three years. Afterward, the dividend will increase at 5 percent forever. If the required return is 12 percent, what is the current stock price?

Supernormal growth

A stock just paid a dividend of \$2.50. The dividends will grow at 25 percent for three years, before leveling off to 6.5 percent in perpetuity. If the required return is 11 percent, what is the current stock price?

Growing Perpetuities

You want to buy a song catalog. The royalties next year will be \$1 million, and are expected to decrease by 8 percent per year indefinitely. If you want a 13 percent return, what is the most you should pay for the catalog?

Where does  $g$  come from?

Net Present Value

$$NPV = PV_{\text{Outflows}} + PV_{\text{Inflows}}$$

Suppose you invest \$100 today and receive \$120 in one year. If the interest rate is 10 percent, what is the NPV?

A Cash Cow

$$P = \frac{\text{EPS}}{R} = \frac{\text{Div}}{R}$$

Suppose a firm is expected to have earnings per share of \$6 per year indefinitely. If the required return on the stock is 12 percent, what is the value of the firm as a cash cow?

Growth Opportunities and Stock Price

The firm in the previous problem (the cash cow) has an opportunity to invest \$500,000 in a project that will increase earnings by \$250,000 per year indefinitely. If there are 100,000 shares of stock outstanding, what is the value per share now?

$$P = \frac{\text{EPS}}{R} + \text{NPVGO}$$

Suppose the same investment will only create perpetual cash flows of \$60,000 per year. What is the new stock price now?

Back to the same firm. The current EPS is \$6 and the firm has an opportunity to invest \$500,000 in a project that will increase earnings by \$250,000 per year indefinitely. If there are 100,000 shares of stock outstanding, what is the value per share using the dividend growth model?

NPVGO and Multiple Growth Opportunities

Suppose a company will have EPS of \$8 in one year. The company will earn 18 percent on retained earnings and has a payout ratio of 20 percent. The required return on the company's stock is 15 percent. What is the value per share of the stock?

Stock Price and PE Ratio

$$P = \frac{\text{EPS}}{R} + \text{NPVGO}$$

$$\frac{P}{\text{EPS}} = \frac{1}{R} + \frac{\text{NPVGO}}{\text{EPS}}$$

- 1) High growth, higher PE
- 2) Higher R, lower PE
- 3) Accounting differences can affect EPS. Can the market see through these differences?

Read Sections 6.6 and 6.7