FN 201: Lecture Note 7
Stock valuation

Dr. Winai Homsombat

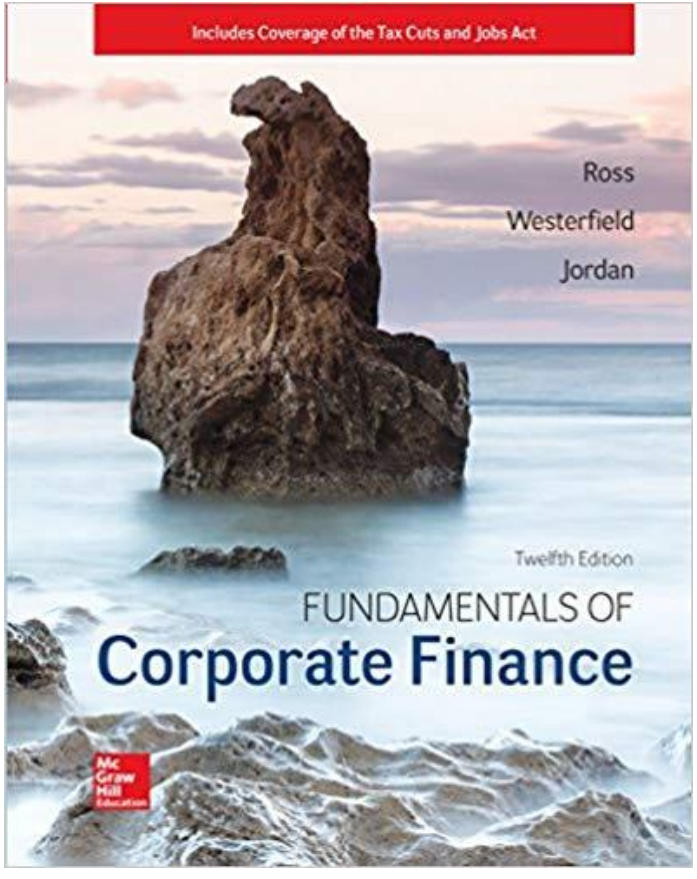
Bachelor of Economics, International Program

Thammasat University

Reading

- Ross, S.A., Westerfield, R.W., Jordan, B.D., (2012). Fundamentals of Corporate Finance. 10th Edition. New York: McGraw-Hill/Irwin.

Chapter 8



Key Concepts and Skills

- Explain how stock prices depend on future dividends and dividend growth
- Show how to value stocks using multiples

Outline

- Common Stock Valuation

- Preferred Stocks

Common Stock Valuation

Cash Flows for Stockholders

- If you buy a share of stock, you can receive cash in two ways:
  - The company pays dividends.
  - You sell your shares, either to another investor in the market or back to the company.

- As with bonds, the price of the stock is the present value of these expected cash flows.

Expected Return on Common Stocks

Expected Return - The percentage yield that an investor forecasts from a specific investment over a set period of time. Sometimes called the ***market capitalization rate***.

$$\text{Expected Return} = r = \frac{Div_1 + P_1 - P_0}{P_0}$$

The formula can be broken into two parts.

Dividend Yield + Capital Gain or Loss

$$\text{Expected Return} = r = \frac{Div_1}{P_0} + \frac{P_1 - P_0}{P_0}$$

Expected Return on Common Stocks

Example: If Fledgling Electronics is selling for $100 per share today and is expected to sell for $110 one year from now, what is the expected return if the dividend one year from now is forecasted to be $5.00?

$$\text{Expected Return} = \frac{5 + 110 - 100}{100} = .15$$

Example: You purchase an ownership share in the Indianapolis Colts for $50,000, who just won the Super Bowl. In one year you expect the Colts to repeat as Super Bowl champions and pay you a dividend of $3,000. You think you will be able to sell your share for $58,000 at that time. What is your expected return?

Valuing Common Stocks

- **Dividend discounted model**
- **Constant growth model (Gordon Growth Model)**
  - The firm will increase the dividend by a constant *percent* every period.
  - The price is computed using the growing perpetuity model.
- **Non-constant growth model**
  - Dividend growth is not consistent initially, but settles down to constant growth eventually.
  - The price is computed using a multistage model.

BANPU

4 March 2019

Company Update

BANPU | BUY
(maintain)

Opinion & Key Statistic

TARGET PRICE (Baht)	22.50
	(from 26.00)
MARKET PRICE (Baht)	16.10
Upside	39.8%
Bloomberg code	BANPU.TB
Valuation Method	PE
Corporate Gov. Rating	5
Paid-Up Capital (Bt mn)	5,162
Par Value (Bt/share)	1.00 Baht
Free Float (%)	91.04%
52w High/Low (Baht)	24.20 / 16.50
3m Avg. turnover (THBmn)	803.00
Market cap (THBmn)	64

AMATA

5 April 2019

Company Update

AMATA | BUY

Opinion & Key Statistic

TARGET PRICE (Baht)	25.00 (maintained)
MARKET PRICE (Baht)	21.70
Upside	+15.2%
Bloomberg code	AMATA.TB
Valuation Method	PER
Corporate Gov. Rating	5
Paid-Up Capital (Bt mn)	1,067
Par Value (Bt/share)	1.00 Baht
Free Float (%)	80.43%
52w High/Low (Baht)	25.25 / 18.10
3m Avg. turnover (THBmn)	343.00
Market cap (THBmn)	23,367

Valuing Common Stocks - Dividend Discount Model

Computation of today's stock price which states that share value equals the present value of all expected future dividends.

$$P_0 = \frac{Div_1}{(1+r)^1} + \frac{Div_2}{(1+r)^2} + \ldots + \frac{Div_H + P_H}{(1+r)^H}$$

H - Time horizon for your investment.

Valuing Common Stocks - Dividend Discount Model

Example

Current forecasts are for XYZ Company to pay dividends of $3, $3.24, and $3.50 over the next three years, respectively. At the end of three years you anticipate selling your stock at a market price of $94.48. What is the price of the stock given a 12% expected return?

$$PV = \frac{3.00}{(1+.12)^1} + \frac{3.24}{(1+.12)^2} + \frac{3.50 + 94.48}{(1+.12)^3}$$

$$PV = \$75.00$$

Valuing Common Stocks - Dividend Discount Model

Example:

- Mary Czech is considering the purchase of stock X at the beginning of the year. The dividend at year-end is expected to be $3.25, and the market price by the end of the year is expected to be $25. If she requires a rate of return of 12 percent, what is the value of the stock?
- The Ohm Company paid a $2.50 dividend per share at the end of the year. The dividend is expected to grow by 10 percent each year for the next 3 years, and the stock's market price per share is expected to be $50 at the end of the third year. Investors require a rate of return of 14 percent. At what price per share should the Ohm stock sell?

Valuing Common Stocks - Constant Growth DDM

Constant Growth DDM

A version of the dividend growth model in which dividends grow at a constant rate *(Gordon Growth Model)*.

$$
\begin{aligned}
P_0 &= \frac{Div_0(1+g)}{(1+r)^1} + \frac{Div_0(1+g)^2}{(1+r)^2} + \ldots + \frac{Div_0(1+g)^\infty}{(1+r)^\infty} \\
&= Div_0 \sum_{t=1}^{\infty} \frac{(1+g)^t}{(1+r)^t} \\
&= \frac{Div_0(1+g)}{r-g} \qquad = \frac{Div_1}{r-g}
\end{aligned}
$$

Valuing Common Stocks - Constant Growth DDM

- You believe that the Non-stick Gum Factory will pay a dividend of $2 on its common stock next year. Thereafter, you expect dividends to grow at a rate of 6 percent a year in perpetuity. If you require a return of 12 percent on your investment, how much should you be prepared to pay for the stock?
- The Brigapenski Co. has just paid a cash dividend of $2 per share. Investors require a 16 percent return from investments such as this. If the dividend is expected to grow at a steady 8 percent per year:
  - what is the current value of the stock?
  - What will the stock be worth in five years?
- Arts and Crafts, Inc., will pay a dividend of $5 per share in 1 year. It sells at $50 a share, and firms in the same industry provide an expected rate of return of 14 percent. What must be the expected growth rate of the company's dividends?

Valuing Common Stocks - Constant Growth DDM

Note for dividend growth (g):

g = return on equity x plowback ratio

= ROE x Retention ratio

Example: A stock sells for $40. The next dividend will be $4 per share. If the rate of return earned on reinvested funds is 15 percent and the company reinvests 40 percent of earnings in the firm, what must be the discount rate?

Valuing Common Stocks - Constant Growth DDM

Example: Here are data on two stocks, both of which have discount rates of 15 percent:

	Stock A	Stock B
Return on equity	15%	10%
Earnings per share	$2.00	$1.50
Dividends per share	$1.00	$1.00

a. What are the dividend payout ratios for each firm?

b. What are the expected dividend growth rates for each firm?

c. What is the proper stock price for each firm?

Valuing Common Stocks - Constant Growth DDM

Example: Metatrend's stock will generate earnings of $5 per share this year. The discount rate for the stock is 15 percent and the rate of return on reinvested earnings also is 15 percent.

a. Find both the growth rate of dividends and the price of the stock if the company reinvests in the firm 60 percent. What are the common stock's values?

b. What if we are now assuming that the rate of return on reinvested earnings is 20 percent?

Valuing Common Stocks – Non-constant Growth

The formula is:

$$P_0 = \frac{Div_1}{(1+r)^1} + \frac{Div_2}{(1+r)^2} + \ldots + \frac{Div_H}{(1+r)^H} + \frac{P_H}{(1+r)^H}$$

PV of dividends from Year 1 to horizon

PV of stock price at horizon

Valuing Common Stocks – Non-constant Growth

- North Side Corporation is expected to pay the following dividends over the next four years: $8, $7, $5, and $2. Afterward, the company pledges to maintain a constant 5 percent growth rate in dividends forever. If the required return on the stock is 11 percent, what is the current share price?
- Rizzi Co. is growing quickly. Dividends are expected to grow at a 25 percent rate for the next three years, with the growth rate falling off to a constant 7 percent thereafter. If the required return is 13 percent and the company just paid a $3.10 dividend, what is the current share price?
- Storico Co. just paid a dividend of $2.75 per share. The company will increase its dividend by 20 percent next year and will then reduce its dividend growth rate by 5 percentage points per year until it reaches the industry average of 5 percent dividend growth, after which the company will keep a constant growth rate forever. If the required return on Storico stock is 13 percent, what will a share of stock sell for today?

Valuing Common Stocks – Non-constant Growth

- A company currently pays a dividend of $2 per share (D0 = $2). It is estimated that the company's dividend will grow at a rate of 20% per year for the next 2 years, then at a constant rate of 7% thereafter. If investors require rate of return 12%, what is your estimate of the stock's current price?
- Assume that the average firm in your company's industry is expected to grow at a constant rate of 6% and that its dividend yield is 7%. Your company is about as risky as the average firm in the industry, but it has just successfully completed some R&D work that leads you to expect that its earnings and dividends will grow at a rate of 50% [D1 = D0(1 + g) = D0(1.50)] this year and 25% the following year, after which growth should return to the 6% industry average. If the last dividend paid (D0) was $1, what is the value per share of your firm's stock?

Preferred Stocks

Valuing Preferred Stocks

The formula is: $$P_{ps} = \frac{Div}{r}$$

Example:

(1) Several years ago, Rolen Riders issued preferred stock with a stated annual dividend of 10% of its $100 par value. Preferred stock of this type currently yields 8%. Assume dividends are paid annually.

a. What is the value of Rolen's preferred stock?

b. Suppose interest rate levels have risen to the point where the preferred stock now yields 12%. What would be the new value of Rolen's preferred stock?

(2) Nick's Enchiladas Incorporated has preferred stock outstanding that pays a dividend of $5 at the end of each year. The preferred sells for $50 a share. What is the stock's required rate of return?

Question?