

Chapter 9

Stocks and Their Valuation

Common Stock

Common Stock - Provides ownership in a corporation with resulting voting rights and residual claims.

Features of Common Stock:

- (1) No maturity
- (2) Voting rights
- (3) Residual claim on assets
- (4) Residual claim on income

Valuation Models

- (1) Zero Growth Model

$$P_0 = D / r_s$$

- (2) Constant Growth Model

$$P_0 = D_1 / (r_s - g)$$

- (3) Variable Growth Model

$$P_0 = \sum [D_t / (1 + r_s)^t]$$

Growth

g = growth rate = $RR * ROE$

RR = retention ratio

ROE = Return on Equity

EARNINGS:

- (1) paid out as dividends, or
- (2) plowback into company (Retained Earnings)

Example

Payout 40% of earnings as dividends and
ROE = 20%, What is g?

$$g = 0.60 \times 0.20 = 12\%$$

Problem

If Nevada WindPower Incorporated earned \$3.00 per share last year ($EPS_0 = \$3.00$), pays out 25 percent of earnings as dividends, has a return of equity of 10% ($ROE = 10\%$), and a required rate of return of 15% ($r = 15\%$), what is the expected growth rate for dividends of Nevada WindPower?

Answer

RR = 0.75
ROE = 0.10

$$g = 0.75 \times 0.10 = 7.5\%$$

Valuing Common Stock

No retention case

$EPS_1 = \$5$, $r_s = 10\%$

$g = RR \times ROE = 0\%$ (100% payout)

$D_0 = D_1 = D_2 = \dots = D_\infty = \5 , $g = 0\%$

$$P_0 = \frac{D}{r_s} = \frac{\$5}{.10} = \$50$$

Valuing Common Stock

Retention case

$EPS_1 = \$5$, $r_s = 10\%$, $RR=50\%$, $ROE=10\%$

$g = RR \times ROE = 0.50 \times 0.10 = 5\%$

$EPS_1 = \$5$

therefore dividend = \$2.50

retained earnings = \$2.50

Valuing Common Stock

Retention case (cont.)

$$P_0 = \frac{D_1}{r_s - g}$$

$$P_0 = \frac{2.50}{.10 - .05} = \$50$$

Valuing Common Stock

Case where retention rate = 100%

$EPS_1 = \$5$,
therefore dividend = \$0,
retained earnings = \$5.00

$g = 100\% \times 10\% = 10\%$

$P_0 = 0 / (.10 - .10) = \text{????}$

Valuing Common Stock

Case where retention rate = 100%

Alternative Model

$$P_0 = \frac{EPS_1}{r_s - g} + PVGO$$

Valuing Common Stock

Variable growth case

Supernormal Growth Example -

accelerated growth for a period of time,
then reverts to constant growth.

Examples: new product, new technology,
growth company

Variable growth case

$$g_1 \dots g_5 = 20\%$$

$$g_6 \rightarrow = 6\%$$

$$r_s = 10\%$$

$$D_0 = \$1.50$$

Calculate dividends up to the first dividend
that grows at the constant rate

Variable growth case

$$D_1 = D_0 (1+g) = \$1.50 (1.20) = \$1.80$$

$$D_2 = D_1 (1+g) = \$1.80 (1.20) = \$2.16$$

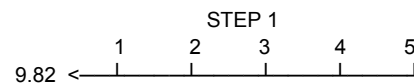
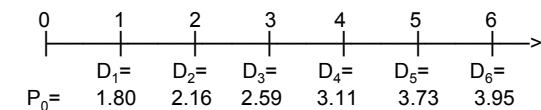
$$D_3 = D_2 (1+g) = \$2.16 (1.20) = \$2.592$$

$$D_4 = D_3 (1+g) = \$2.592 (1.20) = \$3.11$$

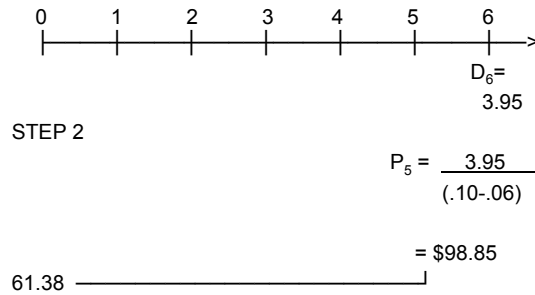
$$D_5 = D_4 (1+g) = \$3.11 (1.20) = \$3.733$$

$$D_6 = D_5 (1+g) = \$3.733 (1.06) = \$3.956$$

Variable growth case



Variable growth case (cont.)



Variable growth case (cont.)

$$P_0 = PV(D_1 \cdots D_5) + PV(D_6 \cdots D_\infty)$$

$$P_0 = \$9.82 + \$61.38$$

$$P_0 = \$71.20$$

Problem

Ethel M Incorporated had earnings of \$1.85 per share last year ($EPS_0 = \$1.85$), has a zero retention rate, an ROE of 14%, a debt ratio of 50% (debt divided by total assets), and investors require a 12% return on investments in Ethel stock. How much is Ethel M Inc. stock worth today?

Problem

Park Place Entertainment Incorporated is expected to grow at an exceptionally high rate over the next 3 years due to their forthcoming acquisition of the Montreal Expos Professional Baseball team and its relocation to Las Vegas.

(A) One Analyst estimates that this venture will result in a growth rate in dividends of 25% for the next 2 years and 15% for the third year, before reverting back to a constant rate of 5% that is expected to continue indefinitely afterwards. Assuming this scenario is correct, if Park Place paid a \$1.34 dividend yesterday ($D_0 = \$1.34$) and the stock is valued according to a required rate of return of 12%, what is the value of a share of Park Place stock today?

Problem (cont.)

(B) Another Analyst estimates that the venture will result in a 7% constant growth rate in dividends starting today that is expected to continue indefinitely into the future. Assuming this alternative scenario is correct, if Park Place paid a \$1.34 dividend yesterday ($D_0 = \$1.34$) and the stock is valued according to a required rate of return of 12%, what is the value of a share of Park Place stock today?

Stock price movement

$$P_0 = \frac{D_1}{r_s - g}$$

why ΔP_0

if ΔD_1 - - based on earnings, payout ratio

if Δr_s - - based on company risk, inflation

$$r_s = \text{real rate} + E(\text{inflation}) + \text{risk premiums}$$

if Δg - - based on earnings, future prospects

Stock Evaluation

Top-down - Start with looking at the "Big Picture".

Economy → Broad Sectors → Industry → Company

Look at interest rates, economic cycles, economic trends, etc.

Bottom-up - Selecting a stock based on the individual attributes of a company.

Find strong companies with good prospects

Look at PE Ratios, PEG Ratios, cash flow, cash position, debt, new products or contracts, etc.

Preferred Stock

A hybrid security that has some features similar to common stock and some similar to corporate bonds.

Stock-like Provisions: (1) no maturity, (2) If Dividends payments are missed may give Voting Rights.

note: If Dividends payments are missed often a cumulative feature,

Bond-like Provisions: (1) Offers a priority claim on assets to common stock, (2) Convertible, (3) Callable

Preferred Stock

Valuing:

$$V_p = D_p / r_p$$

Where

D_p = annual dividend

r_p = required rate of return on PS

Problem

What is the value of a share of Oasis Corporation **Preferred Stock** if it is contracted to pay a \$2.40 yearly dividend. Oasis had earnings of \$4.00 per share last year, pays out 35% of its earnings to common stockholders, its ROE is 15%, and the required rate of return on preferred stock is 10%?

The Stock Markets

Security issuance (terminology)

Preemptive rights - when the corporation issues additional shares must give current shareholders right to buy pro rata

Going public - IPO (Initial Public Offering) - when a firm goes from private to public

Issue additional shares – SEO (Secondary Equity Offerings)

The Stock Markets

- **Primary Market** - where common stock is sold for the first time - sold directly to investor
- **Secondary Market** - where previously traded shares are bought and sold (NYSE, AMEX, NASDAQ)

Primary Market Transaction - STEPS

(1) contact investment banker (advice)

(2) decide on whether to go with a private placement or public issue

private placement - sell block of stock to one or a few, minimal regulation

public issue - sell in market, more regulation

Who are the regulators - SEC, State (Blue Sky Laws)

Primary Market Transaction - STEPS

(3) file registration statement with SEC - spells out that corp has intent to issue securities - begins 20-day waiting period

(4) file preliminary prospectus with SEC (during 20-day waiting period) - known as a **Red Herring**, can give to potential buyers but corp needs approval from SEC before stock can be sold to the public

(5) once the preliminary prospectus is approved then corp can start marketing issue with final prospectus

Primary Market Transaction - STEPS

(6) there are different ways in which an investment banker can be used to market the issue.

(a) best efforts - investment banker does not guarantee price.

(b) underwrite - investment banker guarantees a price to issuing corporation, underwritten sales usually done through a syndicate (underwriting syndicate) where one investment banker acts as the lead (managing) underwriter. An underwriter assumes risk.

Secondary Market Transaction

(1) **exchanges** - organized markets where securities are bought and sold (NYSE, AMEX)

Specialist - acts as a dealer (market maker) on floor of exchange.

(2) **over-the-counter** - dealers buy and sell (NASDAQ)

Dealers - market makers post bid/ask prices for certain common stocks on computer network

Bid/Ask Spread - example

Wynn Resorts (WYNN)

Close Price = \$157.10

Bid = \$157.10

Ask = \$157.14

Spread = \$0.04

Problem

The bid-ask spread on Apple Corporation common stock is \$243.02 by \$243.05

- a. If you wish to purchase 100 shares at the market price, how much would you pay?
- b. How would you enter a limit order to purchase these 100 shares that would result in the narrowing of the bid-ask spread?