

Equity Valuation Models

Two types of equity securities

1. Preferred Equity
2. Common Equity

Preferred Equity

Characteristics

1. Carry fixed dividend per period over life
2. Generally indefinite maturity
3. No voting rights
4. No recourse if dividends are omitted
5. Can have conversion provision

Common Equity

Characteristics

1. Represents part ownership
2. Dividends not fixed; depends on earnings
3. Enjoys various rights
 1. Voting right
 2. Right to receive dividends
 3. Right to receive excess liquidated value
 4. Pre-emptive right

Cash flows

Preferred shares:

A series of same amount of dividend

Common shares

A infinite series of dividends

d_1, d_2, d_3, \dots

Valuation Models

Dividend Discounting Models

1. No growth model
2. Constant growth model
3. Multistage growth model

Valuation Models

Price Relative Models

1. Price to earnings multiple
2. Price to cash flow multiple
3. Price to EBITD multiple
4. Price to sales multiple

Dividend Discounting Models

Basic principle:

The sum of the discounted values of future expected dividends over the life of equity.

$$\hat{P}_0 = \frac{d_0(1+g)}{1+k_s} + \frac{d_0(1+g)^2}{(1+k_s)^2} + \dots + \frac{d_0(1+g)^\infty}{(1+k_s)^\infty}$$

Zero Growth Model

Assumption:

The growth rate of dividends in future will be zero. That means, the shareholders are expected to receive the same amount of dividend that is just paid every period for ever. The model becomes pretty simple as:

$$\hat{P}_0 = \frac{d_0}{k_s}$$

Zero Growth Model

Assuming that $g = 0\%$, $d_0 = \text{Tk. } 10$ and $k_s = 20\%$;

$$\hat{P}_0 = \frac{10}{.20} = \text{Tk. } 50$$

Constant Growth Model

Assumptions:

1. Future dividends will grow at a constant rate forever.
2. The required rate of return will be greater than the growth rate, g .

Constant Growth Model

The model would become:

$$\hat{P}_0 = \frac{d_0(1+g)}{k_s - g} = \frac{d_1}{k_s - g}$$

Constant Growth Model

Assuming again that $d_0 = \text{Tk. } 10$ and $k_s = 20\%$. Also assume that $g = 10\%$. Now the intrinsic value of the share should be:

$$\hat{P}_0 = \frac{\text{Tk.}10(1 + .10)}{.20 - .10} = \text{Tk.}110$$

Estimating Dividend Growth Rates

$$g = ROE \times b$$

g = growth rate in dividends

ROE = Return on Equity for the firm

b = plowback or retention percentage rate
(1- dividend payout percentage rate)

Dividend Growth for Two Earnings Reinvestment Policies

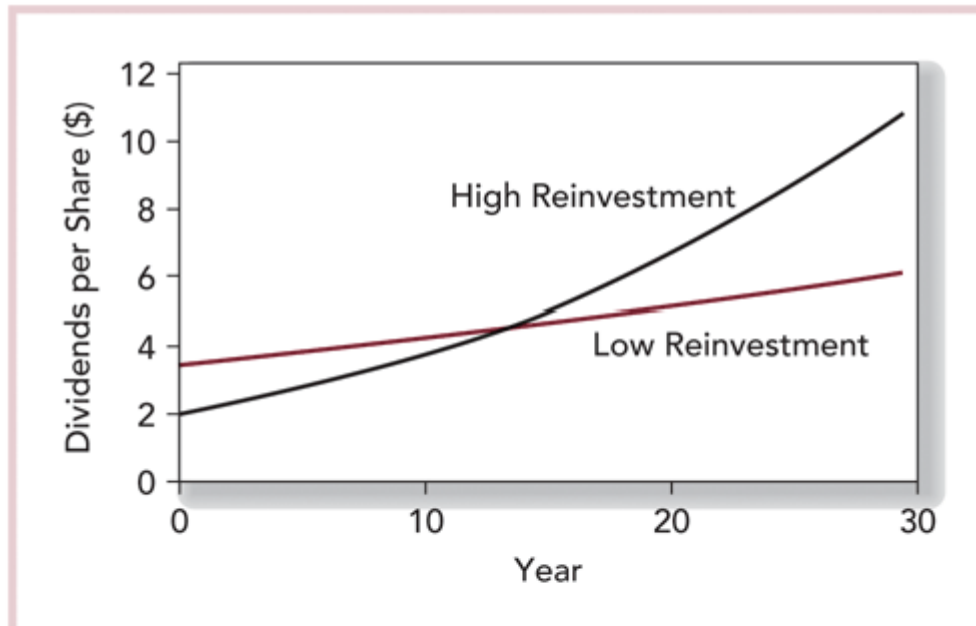


FIGURE 18.1 Dividend growth for two earnings reinvestment policies

Multistage Growth Models

Assumptions:

1. Dividends in immediate future periods will grow at different rates and then level off to a constant rate forever. The model would look like the following:

$$P_0 = D_0 \sum_{t=1}^T \frac{(1 + g_1)^t}{(1 + k)^t} + \frac{D_T (1 + g_2)}{(k - g_2)(1 + k)^T}$$

- g_1 = first growth rate
- g_2 = second growth rate
- T = number of periods of growth at g_1

Multistage Growth Rate Model: Example

$$D_0 = \$2.00 \quad g_1 = 20\% \quad g_2 = 5\%$$

$$k = 15\% \quad T = 3 \quad D_1 = 2.40$$

$$D_2 = 2.88 \quad D_3 = 3.46 \quad D_4 = 3.63$$

$$V_0 = D_1/(1.15) + D_2/(1.15)^2 + D_3/(1.15)^3 + \\ D_4 / (.15 - .05) ((1.15)^3$$

$$V_0 = 2.09 + 2.18 + 2.27 + 23.86 = \$30.40$$

Price Earnings Ratios

- P/E Ratios are a function of two factors
 - Required Rates of Return (k)
 - Expected growth in Dividends
- Uses
 - Relative valuation
 - Extensive Use in industry

Earnings Based Model

The model is pretty simple and looks like:

$$\hat{P}_0 = E_1 \times E(P/E)$$

- E1 stands for earnings per share in period 1 and
- E(P/E) is expected P/E ratio

Earnings Based Model

In case of constant growth earnings next period can be estimated by multiplying current earnings by $(1+g)$.

Depending on situation, expected P/E ratio can be estimated by industry average or be the average of the company's own previous P/E ratios

Cash Flow Based Model

- Find out the value of the company using future cash flow of the company
- Deduct the market value of debt of the company
- Then apply the following formula

$$\hat{P}_0 = \frac{\text{Vaule of equity}}{\text{no. of shares outstandin g}}$$

Cash Flow Based Model

Free cash flow of the company, FCFF at time t can be found out by using:

$$\text{FCF} = \text{EBIT}(1 - t_c) + \text{Depr.} - \text{Capital expenditure} - \text{Increase in NWC}$$