

TM 02

# Stocks and Their Valuation

- Features of common stock
- Determining common stock values
- Efficient markets
- Preferred stock

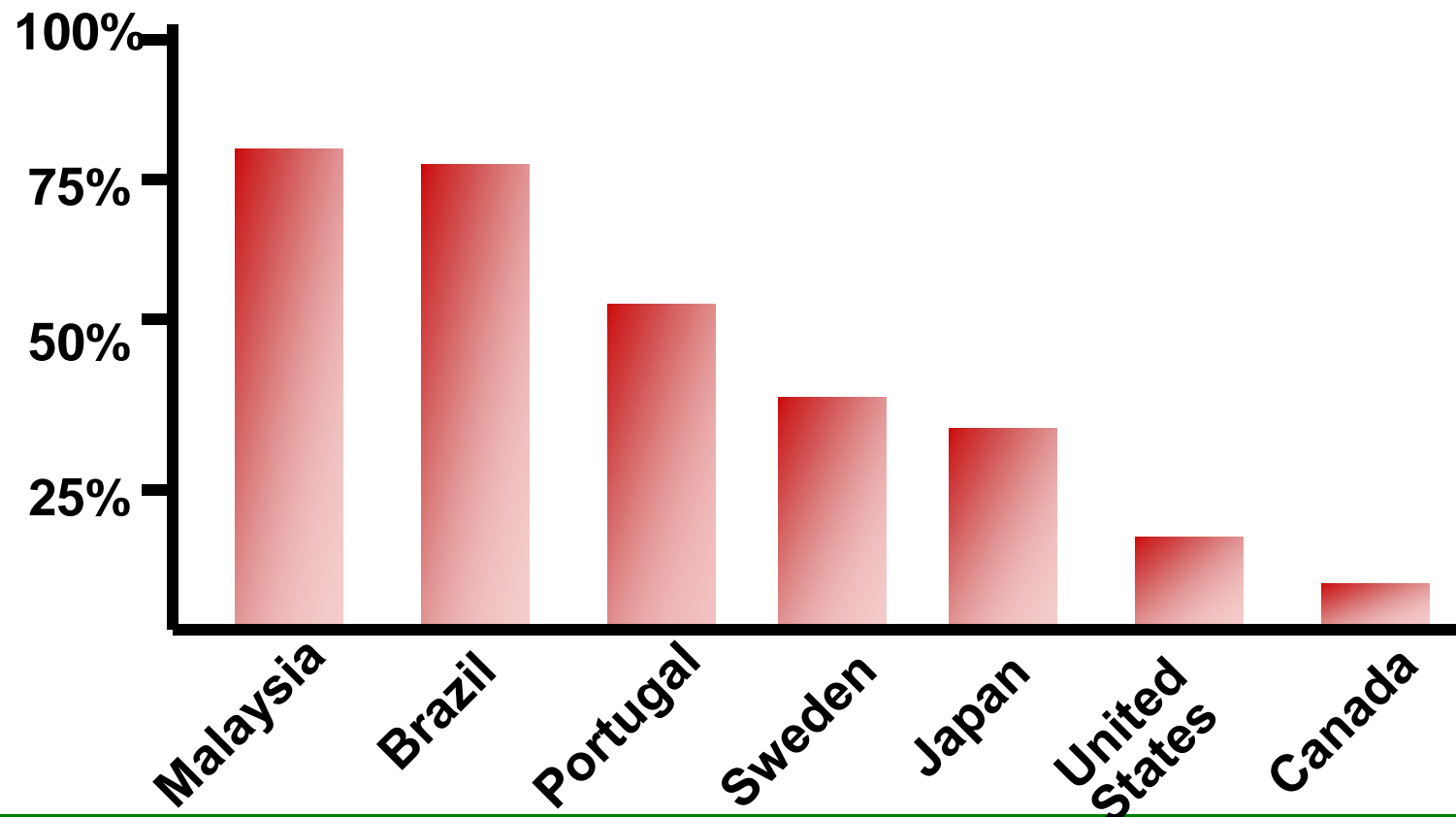
# Facts about Common Stock

- Represents ownership.
- Ownership implies control.
- Stockholders elect directors.
- Directors hire management.
- Management's goal: Maximize stock price.

# When is a stock sale an initial public offering (IPO)?

- A firm “goes public” through an IPO when the stock is first offered to the public.
- Prior to an IPO, shares are typically owned by the firm’s managers, key employees, and, in many situations, venture capital providers.

# Average Initial Returns on IPOs in Various Countries



# Value of Common Stock

- Book value (nilai buku)
- Market value (nilai pasar)
- Intrinsic value (nilai intrinsik)

- Market value  $>$  Intrinsic value  $\rightarrow$  Overvalued
- Market value  $<$  Intrinsic value  $\rightarrow$  Undervalued

# Book value of CS

- Paid in capital
  - Par value
  - Additional PIC *atau* PIC in excess of par *atau* agio
- Retained Earnings (Saldo Laba)
  
- **Book value per share =**
  - $\Sigma \text{ Equity} / \Sigma \text{ Outstanding CS}$

# Market Value

- Market value merupakan harga dari saham di bursa efek pada saat tertentu yang ditentukan oleh pelaku pasar (ditentukan oleh permintaan dan penawaran saham bersangkutan di bursa efek)

# Intrinsic Value

- Intrinsic Value = Fundamental value = nilai sebenarnya dari suatu saham biasa.
- Jenis analisis:
  1. Fundamental Securities Analysis atau Company Analysis: menggunakan data fundamental, yaitu data yang berasal dari keuangan perusahaan (laba, dividen, penjualan, dll) → digunakan oleh akademisi.
  2. Technical Analysis: menggunakan data pasar dari saham (misalnya: harga dan volume transaksi saham) → digunakan oleh praktisi.



# Fundamental Securities Analysis

- Dividend discount approach
- Using the multiples of comparable firms

# Dividend discount approach

**Stock Value = PV of Dividends**

$$\hat{P}_0 = \frac{D_1}{(1+k_s)^1} + \frac{D_2}{(1+k_s)^2} + \frac{D_3}{(1+k_s)^3} + \dots + \frac{D_\infty}{(1+k_s)^\infty}$$

**Dividend Konstan (tidak ada growth)**

$$\hat{P}_0 = \frac{D_0}{k}$$

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# What is a constant growth stock?

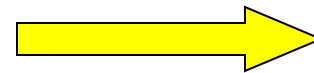
One whose dividends are expected to grow forever at a constant rate,  $g$ .

For a constant growth stock,

$$\begin{aligned}D_1 &= D_0(1 + g)^1 \\D_2 &= D_0(1 + g)^2 \\D_t &= D_0(1 + g)^t\end{aligned}$$

If  $g$  is constant, then:

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



Asumsi:

1.  $k \neq g$

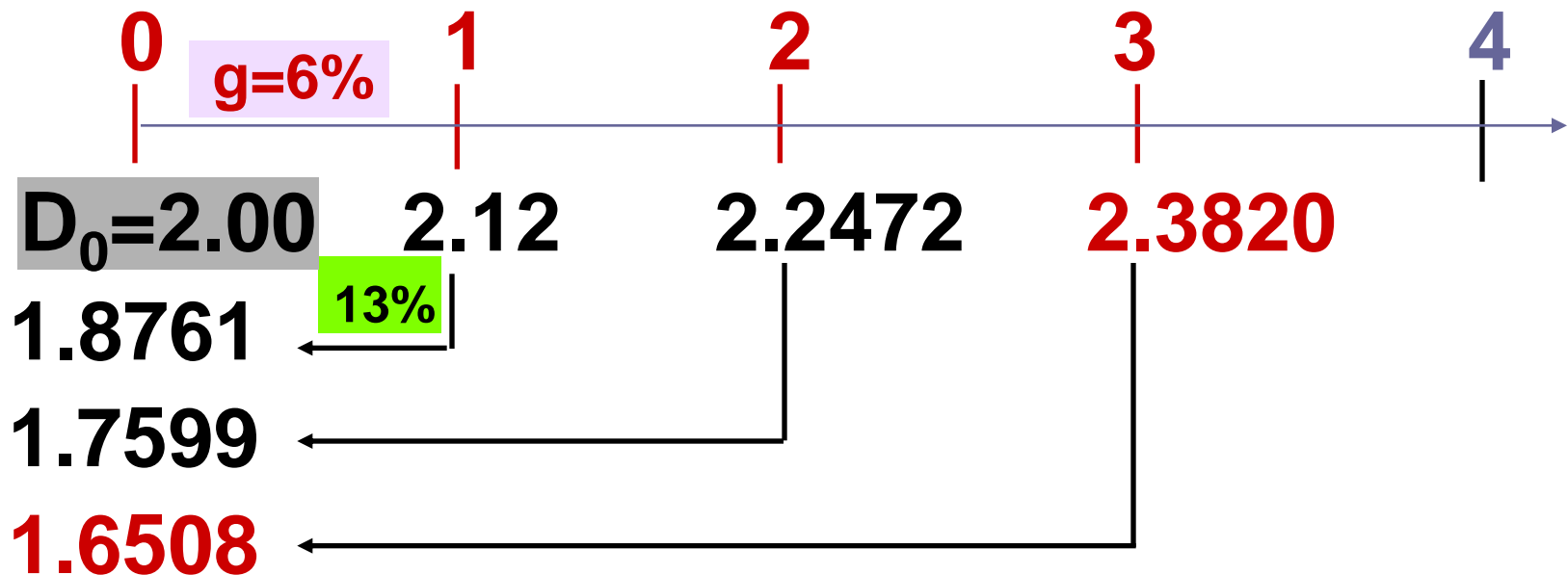
2.  $k > g$

What happens if  $g > k_s$ ?

$$\hat{P}_0 = \frac{D_1}{k_s - g} \text{ requires } k_s > g.$$

- If  $k_s < g$ , get negative stock price, which is nonsense.
- We can't use model unless (1)  $g < k_s$  and (2)  $g$  is expected to be constant forever. Because  $g$  must be a long-term growth rate, it cannot be greater than  $k_s$ .

$D_0$  was \$2.00 and  $g$  is a constant 6%.  
Find the expected dividends for the next 3 years, and their PVs.  $k_s = 13\%$ .



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What's the stock's market value?

$D_0 = 2.00$ ,  $k_s = 13\%$ ,  $g = 6\%$ .

**Constant growth model:**

$$\begin{aligned}\hat{P}_0 &= \frac{D_0(1+g)}{k_s - g} = \frac{D_1}{k_s - g} \\ &= \frac{\$2.12}{0.13 - 0.06} = \frac{\$2.12}{0.07} = \$30.29.\end{aligned}$$

What is the stock's market value one year from now,  $\hat{P}_1$ ?

- $D_1$  will have been paid, so expected dividends are  $D_2, D_3, D_4$  and so on. Thus,

$$\begin{aligned}\hat{P}_1 &= \frac{D_2}{k_s - g} \\ &= \frac{\$2.2472}{0.07} = \$32.10.\end{aligned}$$



Find the expected dividend yield and capital gains yield during the first year.

$$\text{Dividend yield} = \frac{D_1}{P_0} = \frac{\$2.12}{\$30.29} = 7.0\%.$$

$$\begin{aligned} \text{CG Yield} &= \frac{\hat{P}_1 - P_0}{P_0} = \frac{\$32.10 - \$30.29}{\$30.29} \\ &= 6.0\%. \end{aligned}$$

Find the total return during the first year.

- Total return = Dividend yield +  
Capital gains yield.
- Total return = 7% + 6% = 13%.
- Total return = 13% =  $k_s$ .
- For constant growth stock:  
Capital gains yield = 6% =  $g$ .

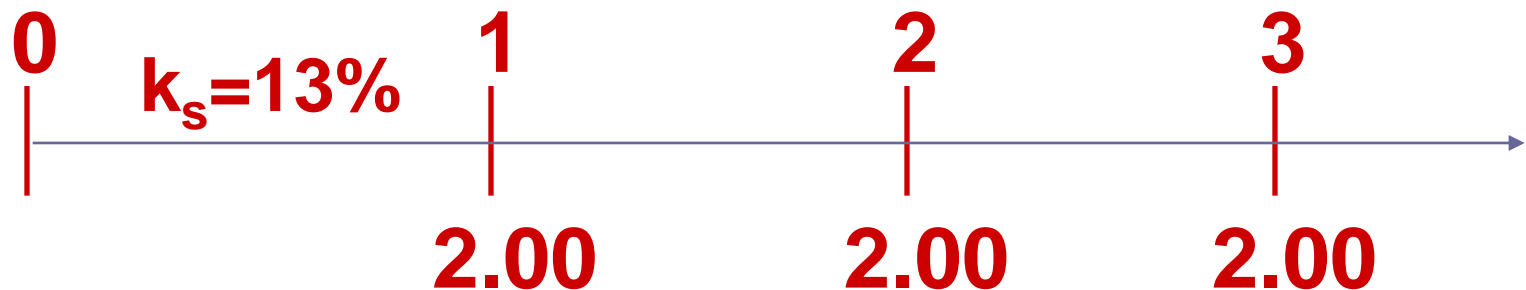
Rearrange model to rate of return form:

$$\hat{P}_0 = \frac{D_1}{k_s - g} \text{ to } \hat{k}_s = \frac{D_1}{P_0} + g.$$

$$\begin{aligned} \text{Then, } \hat{k}_s &= \$2.12/\$30.29 + 0.06 \\ &= 0.07 + 0.06 = 13\%. \end{aligned}$$

What would  $P_0$  be if  $g = 0$ ?

The dividend stream would be a perpetuity.

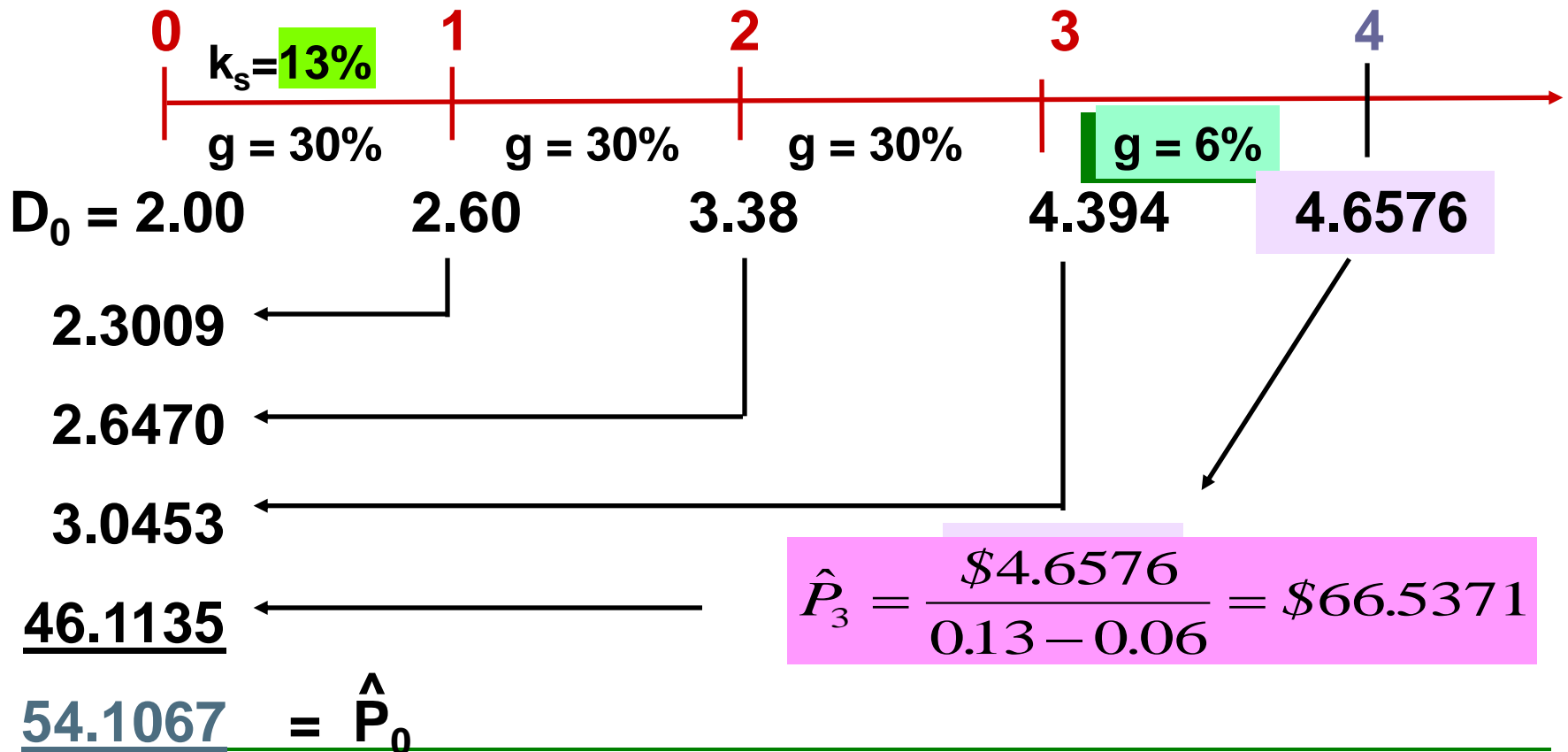


$$\hat{P}_0 = \frac{\text{PMT}}{k} = \frac{\$2.00}{0.13} = \$15.38.$$

If we have supernormal growth of 30% for 3 years, then a long-run constant  $g = 6\%$ , what is  $\hat{P}_0$ ?  $k$  is still 13%.

- Can no longer use constant growth model.
- However, growth becomes constant after 3 years.

# Nonconstant growth followed by constant growth:



What is the expected dividend yield and capital gains yield at  $t = 0$ ? At  $t = 4$ ?

At  $t = 0$ :

$$\text{Dividend yield} = \frac{D_1}{P_0} = \frac{\$2.60}{\$54.11} = 4.8\%.$$

$$\text{CG Yield} = 13.0\% - 4.8\% = 8.2\%.$$

(More...)

- During nonconstant growth, dividend yield and capital gains yield are **not constant**.
- If current growth is **greater than  $g$** , current capital gains yield is **greater than  $g$** .
- After  $t = 3$ ,  $g = \text{constant} = 6\%$ , so the  $t = 4$  capital gains yield =  **$6\%$** .
- Because  $k_s = 13\%$ , the  $t = 4$  dividend yield =  **$13\% - 6\% = 7\%$** .



# Is the stock price based on short-term growth?

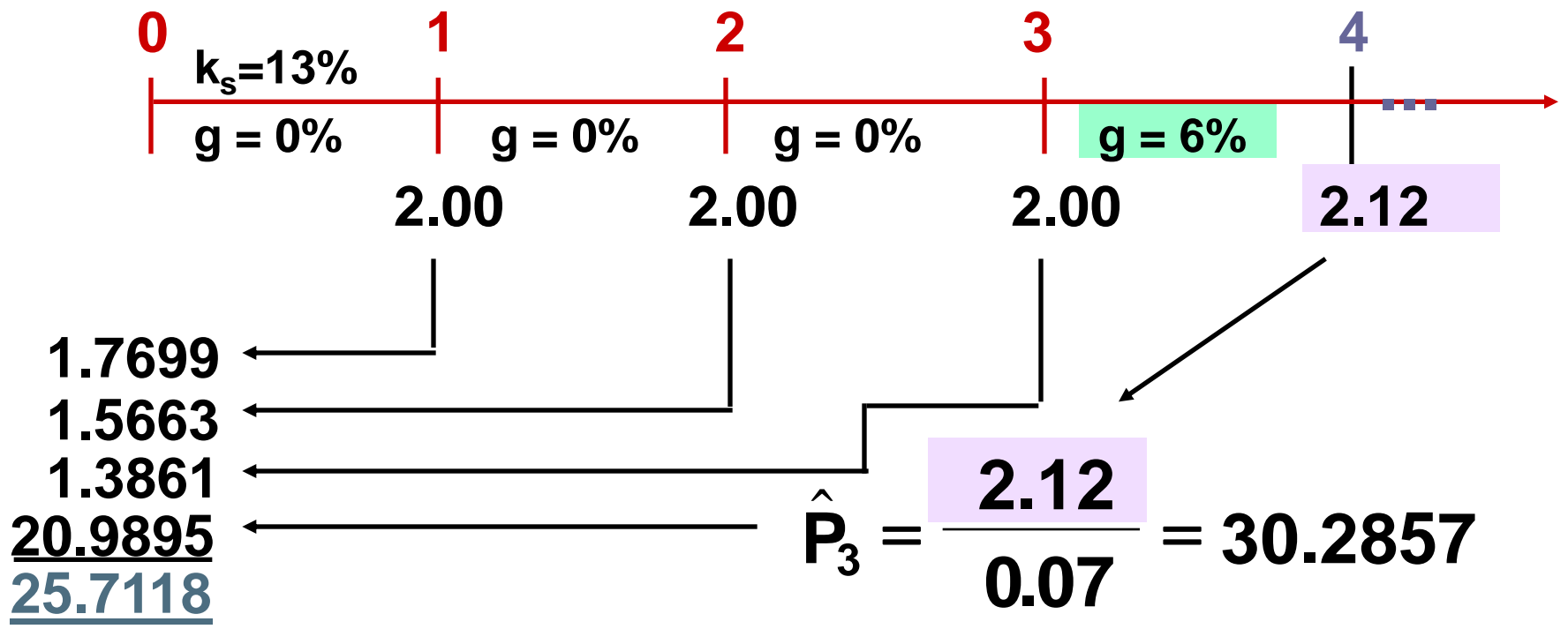
- The current stock price is \$54.11.
- The PV of dividends beyond year 3 is \$46.11 ( $P_3$  discounted back to  $t = 0$ ).
- The percentage of stock price due to “long-term” dividends is:

$$\frac{\$46.11}{\$54.11} = 85.2\%.$$

If most of a stock's value is due to long-term cash flows, why do so many managers focus on quarterly earnings?

- Sometimes changes in quarterly earnings are a signal of future changes in cash flows. This would affect the current stock price.
- Sometimes managers have bonuses tied to quarterly earnings.

Suppose  $g = 0$  for  $t = 1$  to  $3$ , and then  $g$  is a constant 6%. What is  $\hat{P}_0$ ?



What is dividend yield and capital gains yield at  $t = 0$  and at  $t = 3$ ?

**t = 0:**

$$\text{Div Y} = \frac{D_1}{P_0} = \frac{2.00}{\$25.72} = 7.8\%.$$

$$\text{CGY} = 13.0\% - 7.8\% = 5.2\%.$$

**t = 3:** Now have constant growth with  $g =$  capital gains yield = 6% and dividend yield = 7%.

If  $g = -6\%$ , would anyone buy the stock?  
If so, at what price?

Firm still has earnings and still pays dividends, so  $\hat{P}_0 > 0$ :

$$\begin{aligned}\hat{P}_0 &= \frac{D_0(1+g)}{k_s - g} = \frac{D_1}{k_s - g} \\ &= \frac{\$2.00(0.94)}{0.13 - (-0.06)} = \frac{\$1.88}{0.19} = \$9.89.\end{aligned}$$

# What are the annual dividend and capital gains yield?

**Capital gains yield =  $g = -6.0\%$ .**

**Dividend yield =  $13.0\% - (-6.0\%)$   
=  $19.0\%$ .**

**Both yields are constant over time, with the high dividend yield (19%) offsetting the negative capital gains yield.**

# Using the Multiples of Comparable Firms to Estimate Stock Price

- Analysts often use the following multiples to value stocks:
  - P/E
  - P/CF or P/EBIT
  - P/Sales
  - P/Customer
- Example: Based on comparable firms, estimate the appropriate P/E. Multiply this by expected earnings to back out an estimate of the stock price.

# What is market equilibrium?

- In equilibrium, stock prices are stable.
- There is no general tendency for people to buy versus to sell.
- The expected price,  $\hat{P}$ , must equal the actual price,  $P$ . In other words, the **fundamental value** must be the same as the price.

(More...)



In equilibrium, **expected returns** must equal **required returns**:

$$\hat{k}_s = D_1/P_0 + g = k_s = k_{RF} + (k_M - k_{RF})b.$$

# How is equilibrium established?

If  $\hat{k}_s = \frac{\hat{D}_1}{P_0} + g > k_s$ , then  $P_0$  is “too low.”

If the price is lower than the fundamental value, then the stock is a “bargain.”

Buy orders will exceed sell orders, the price will be bid up, and  $D_1/P_0$  falls until

$$D_1/P_0 + g = \hat{k}_s = k_s.$$

# Why do stock prices change?

$$\hat{P}_0 = \frac{D_1}{k_i - g}$$

- $k_i = k_{RF} + (k_M - k_{RF})b_i$  could change.
  - Inflation expectations
  - Risk aversion
  - Company risk
- $g$  could change.

# What's the Efficient Market Hypothesis (EMH)?

**Securities are normally in equilibrium and are “fairly priced.” One cannot “beat the market” except through good luck or inside information.**

## **1. Weak-form EMH:**

**Can't profit by looking at past trends. A recent decline is no reason to think stocks will go up (or down) in the future. Evidence supports weak-form EMH, but “technical analysis” is still used.**

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## **2. Semistrong-form EMH:**

**All publicly available information is reflected in stock prices, so it doesn't pay to pore over annual reports looking for undervalued stocks. Largely true.**

## **3. Strong-form EMH:**

**All information, even inside information, is embedded in stock prices. Not true--insiders can gain by trading on the basis of insider information, but that's illegal.**

# Markets are generally efficient because:

- 1. 100,000 or so trained analysts work for firms like Fidelity, Merrill, Morgan, and Prudential.**
- 2. These analysts have similar access to data and megabucks to invest.**
- 3. Thus, news is reflected in  $P_0$  almost instantaneously.**

# Preferred Stock

- Hybrid security.
- Similar to bonds in that preferred stockholders receive a fixed dividend which must be paid before dividends can be paid on common stock.
- However, unlike bonds, preferred stock dividends can be omitted without fear of pushing the firm into bankruptcy.

What's the expected return on preferred stock with  $V_{ps} = \$50$  and annual dividend = \$5?

$$V_{ps} = \$50 = \frac{\$5}{\hat{k}_{ps}}$$

$$\hat{k}_{ps} = \frac{\$5}{\$50} = 0.10 = 10.0\%$$