Chapter 17

Payout Policy

Chapter Synopsis

17.1 Distributions to Shareholders

A corporation’s payout policy determines if and when it will distribute cash to its shareholders by issuing a dividend or undertaking a stock repurchase.

To issue a dividend, the firm’s board of directors must authorize the amount per share that will be paid on the declaration date. The firm pays the dividend to all shareholders of record on the record date. Because it takes three business days for shares to be registered, only shareholders who purchase the stock at least three days prior to the record date receive the dividend. As a result, the date two business days prior to the record date is known as the ex-dividend date; anyone who purchases the stock on or after the ex-dividend date will not receive the dividend. Finally, on the payable (or distribution) date, which is generally about a month after the record date, the firm pays the dividend.

Just before the ex-dividend date, the stock is said to trade cum-dividend. After the stock goes ex-dividend, new buyers will not receive the current dividend, and the share price will reflect only the dividends in subsequent years. In a perfect capital market, when a dividend is paid, the share price drops by the amount of the dividend when the stock begins to trade ex-dividend.

Most dividend-paying corporations pay them at quarterly intervals. Companies typically increase the amount of their dividends gradually, with little variation. Occasionally, a firm may pay a one-time, special dividend that is usually much larger than a regular dividend.

An alternative way to pay cash to investors is through a share repurchase, in which a firm uses cash to buy shares of its own outstanding stock. These shares are generally held in the corporate treasury and can be resold in the future.

An open market repurchase, in which a firm buys its own shares in the open market, is the most common way that firms repurchase shares.
A firm can also use a **tender offer repurchase** in which it offers to buy shares at a pre-specified price during a short time period at typically a 10% to 20% premium.

In a **Dutch auction repurchase**, a firm lists different prices at which it is prepared to buy shares, and shareholders indicate how many shares they are willing to sell at each price. The firm then pays the lowest price at which it can buy back the desired number of shares.

A firm may also negotiate a purchase of shares directly from a major shareholder in a **targeted repurchase**.

### 17.2 Comparison of Dividends and Share Repurchases

In perfect capital markets, a stock’s price will fall by the amount of the dividend when a dividend is paid, and a share repurchase has no effect on the stock price. In addition, by selling shares or reinvesting dividends, an investor can effectively create any cash dividend desired and can sell stock in the open market without a share repurchase. As a result, investors are indifferent between the various payout methods the firm might employ.

The Modigliani and Miller dividend irrelevance proposition states that in perfect capital markets, holding the investment policy of a firm fixed, the firm’s choice of dividend policy is irrelevant and does not affect share value.

### 17.3 The Tax Disadvantage of Dividends

Taxes are an important market imperfection that affects dividend policy.

- When the tax rate on dividend exceeds the tax rate on capital gains, the optimal dividend policy is for firms to pay no dividends and use share repurchases for all payouts.
- Recent changes to the tax code have equalized the tax rates on dividends and capital gains. However, long-term investors can defer the capital gains tax until they sell, so there is still a tax advantage for share repurchases over dividends for most investors.

The fact that firms continue to issue dividends despite their tax disadvantage is often referred to as the **dividend puzzle**.

### 17.4 Dividend Capture and Tax Clienteles

While many investors have a tax preference for share repurchases rather than dividends, the strength of that preference depends on the difference between the dividend tax rate and the capital gains tax rate that each investor faces. The effective dividend tax rate, $\tau_d^*$, which measures the net tax cost to the investor per dollar of dividend income received, is equal to:

$$\tau_d^* = \frac{\tau_d - \tau_g}{1 - \tau_g}$$

where $\tau_d$ is the tax on dividend income and $\tau_g$ is the tax rate on capital gains. When $\tau_d^* > 0$, investors would be better off with a share repurchase instead of dividends.

The effective dividend tax rate varies across investors for several reasons such as income level, investment horizon, tax jurisdiction, and type of investment account. Different investor tax rates create **clienteles effects**. For example, individuals in the highest tax brackets have a preference for stocks that pay low or no dividends, whereas corporations, which are only taxed on 30% of dividend income, generally have a preference for stocks with high dividends.

©2011 Pearson Education
17.5 Payout Versus Retention of Cash

With perfect capital markets, Modigliani and Miller payout policy irrelevance holds that as long as a firm without positive NPV projects invests excess cash flows in financial securities, the firm’s choice of payout versus retention is irrelevant and does not affect the value of the firm.

However, in the presence of corporate taxes, it is generally costly for a firm to retain excess cash because the interest is taxable income for the corporation. Stockholders are better off if the corporation pays the cash out so it can be invested by the investors before taxable interest is incurred. After accounting for investor taxes, there remains a substantial tax disadvantage for retaining excess cash.

Nevertheless, firms may want to hold cash balances in order to help minimize the transaction costs of raising new capital when they have future potential cash needs. However, there is no benefit to shareholders for firms to hold cash in excess of future investment needs.

In addition to the tax disadvantage of holding cash, agency costs may arise, as managers may be tempted to spend excess cash on inefficient investments and perks. Thus, dividends and share repurchases may help minimize the agency problem of wasteful spending when a firm has excess cash. Without pressure from shareholders, managers may also choose to horde cash in order to reduce the firm’s leverage and increase their job security.

17.6 Signaling with Payout Policy

When managers have better information than investors do regarding the future prospects of a firm, their payout decisions may signal this information.

Firms typically undertake dividend smoothing by maintaining relatively constant dividends, and they increase dividends much more frequently than they cut them. If a firm uses dividend smoothing, its dividend choice may contain information regarding management’s expectations of future earnings.

- When a firm increases its dividend, it sends a positive signal to investors that management expects to be able to afford the higher dividend for the foreseeable future.
- When a firm cuts its dividend, it may signal that there it is necessary to reduce the dividend to save cash.

The idea that dividend changes reflect managers’ views about a firm’s future earnings prospects is called the dividend signaling hypothesis.

Studies of the market’s reaction to dividend changes are consistent with this hypothesis. For example, during the period 1967–1993, firms that raised their dividend by 10% or more saw their stock prices rise by 1.3% after the announcement, while those that cut their dividend by 10% or more experienced a price decline of 23.71%.

17.7 Stock Dividends, Splits, and Spin-offs

In a stock split, shareholders receive additional shares in the firm and the stock price generally falls proportionally with the size of the split. For example, in a 2-for-1 stock split, the firm’s stock price will fall by half or 50%. The typical motivation for a stock split is to keep the share price in a range thought to be attractive to small investors. If the stock price is deemed too low, firms can use a reverse stock split, which decreases the number of shares outstanding and results in a higher share price.
Stock splits are generally accomplished using a stock dividend. When shareholders receive additional shares of stock in the firm itself, the stock dividend has the same effect as a stock split; when they receive shares of a subsidiary, it is called a spin-off.

Selected Concepts and Key Terms

Bird in the Hand Hypothesis
Paying higher current dividends will lead to a higher stock price because shareholders prefer current dividends to future ones with the same present value. However, with perfect capital markets, shareholders can generate an equivalent cash flow at any time by selling shares. Thus, the dividend choice of the firm should not matter, and this hypothesis is generally believed to be a fallacy.

Clientele Effect
Individuals in the highest tax brackets have a preference for stocks that pay low or no dividends, whereas tax-free investors and corporations have a stronger preference for stocks with high dividends. Thus, a firm's dividend policy may be optimized for the tax preference of its investor clientele.

Declaration Date
The date a corporation announces that it will pay dividends to all shareholders of record on the record date.

Dividend Puzzle
The fact that firms continue to issue dividends despite their general tax disadvantage.

Dividend Signaling Hypothesis
The idea that dividend changes reflect managers' views about a firm's future earnings prospects. When a firm increases its dividend, it sends a positive signal to investors that management expects to be able to afford the higher dividend for the foreseeable future. When a firm cuts its dividend, it may be signaling that it is necessary to reduce the dividend to save cash.

Dividend-Capture Theory
The theory that, absent transaction costs, investors can trade shares at the time of the dividend so that non-taxed investors receive the dividend. Thus, non-taxed investors need not hold the high-dividend-paying stocks all the time; it is only necessary that they hold them when the dividend is actually paid.

Dutch Auction Share Repurchase
A method of repurchasing shares in which a firm lists different prices at which it is prepared to buy shares, and shareholders indicate how many shares they are willing to sell at each price. The firm then pays the lowest price at which it can buy back its desired number of shares.
Ex-Dividend Date

The date two business days prior to the record date; anyone who purchases the stock on or after the ex-dividend date will not receive the dividend.

Greenmail

A targeted share repurchase from an investor threatening a takeover.

Payable Date, Distribution Date

The date the firm mails dividend checks to the registered shareholders. Generally about a month after the record date.

Payout Policy

The procedure a firm uses to distribute cash to its shareholders by either issuing a dividend or undertaking a stock repurchase.

Record Date

The date a stockholder must own a stock in order receive the dividend.

Special Dividend

A one-time dividend that is usually much larger than a regular dividend.

Spin-Off

The distribution of shares of stock in a subsidiary to existing shareholders on a pro rata basis as a stock dividend.

Stock Dividend

A payment to shareholders in which each shareholder that owns the stock before it goes ex-dividend receives additional shares of stock of the firm itself (a stock split) or of a subsidiary (a spin-off).

Stock Split

A transaction in which shareholders receive additional shares in the firm. The stock price generally falls proportionally with the size of the split. For example, in a 2-for-1 stock split, the firm’s stock price will fall by 50%. The typical motivation for a stock split is to keep the share price in a range thought to be attractive to small investors. If the stock price is deemed too low, firms can use a reverse stock split, which decreases the number of shares outstanding resulting in a higher share price.

Concept Check Questions and Answers

17.1.1. How is a stock’s ex-dividend date determined, and what is its significance?

Because it takes three business days for shares to be registered, only shareholders who purchase the stock at least three days prior to the record date receive the dividend. As a result, the date two business days prior to the record date is known as the ex-dividend date; anyone who purchases the stock on or after the ex-dividend date will not receive the dividend.
17.1.2. What is a Dutch auction share repurchase?
In the Dutch auction share repurchase, a firm lists different prices at which it is prepared to buy and shareholders indicate how many shares they are willing to sell at each price. The firm then pays the lowest price at which it can buy back its desired number of shares.

17.2.1. True or False: When a firm repurchases its own shares, the price rises due to the decrease in the supply of shares outstanding.
False. When a firm repurchases its own shares, the supply of shares is reduced, but the value of the firm's assets declines when it spends its cash to buy the shares. If the firm repurchases its shares at their market prices, these two effects offset each other, and the share price is unchanged.

17.2.2. In a perfect capital market, how important is the firm's decision to pay dividends versus repurchase shares?
As Modigliani and Miller make clear, the value of a firm ultimately derives from its underlying free cash flow. A firm's free cash flow determines the level of payouts that it can make to its investors. In a perfect capital market, whether these payouts are made through dividends or share repurchases does not matter.

17.3.1. What is the optimal dividend policy when the dividend tax rate exceeds the capital gain tax rate?
The optimal dividend policy when the dividend tax rate exceeds the capital gain tax rate is to pay no dividends at all.

17.3.2. What is the dividend puzzle?
The dividend puzzle refers to the fact that firms continue to pay dividends despite their tax disadvantage.

17.4.1. Under what conditions will investors have a tax preference for share repurchases rather than dividends?
While many investors have a tax preference for share repurchases rather than dividends, the strength of that preference depends on the difference between the dividend tax rate and the capital gains tax rate that they face. Tax rates vary across investors for several reasons, including income level, investment horizon, tax jurisdiction, and type of investment account.

17.4.2. What does the dividend-capture theory imply about the volume of trade in a stock around the ex-dividend day?
The dividend-capture theory states that absent transaction costs, investors can trade shares at the time of the dividend so that non-taxed investors receive the dividend. An implication of this theory is that we should see large volumes of trade in a stock around the ex-dividend day, as high-tax investors sell and low tax-investors buy the stock in anticipation of the dividend, and then reverse those trades just after the ex-dividend date.

17.5.1. Is there an advantage for a firm to retain its cash instead of paying it out to shareholders in perfect capital markets?
No. In perfect capital markets, if a firm invests excess cash flows in financial securities, the firm's choice of payout versus retention is irrelevant and does not affect the initial share price.
17.5.2. How do corporate taxes affect the decision of a firm to retain excess cash?

Corporate taxes make it costly for a firm to retain excess cash. When the firm receives interest from its investment in financial securities, it owes taxes on the interest. Thus, cash is equivalent to negative leverage, and the tax advantage of leverage implies a tax disadvantage to holding cash.

17.6.1. What possible signals does a firm give when it cuts its dividend?

According to the dividend signaling hypothesis, when a firm cuts the dividend, it gives a negative signal to investors that the firm does not expect that earnings will rebound in the near term and so it needs to reduce the dividend to save cash. Also, a firm might cut its dividend to exploit new positive-NPV investment opportunities. In this case, the dividend decrease might lead to a positive stock price reaction.

17.6.2. Would managers acting in the interests of long-term shareholders be more likely to repurchase shares if they believe the stock is undervalued or overvalued?

If managers believe the stock is currently undervalued, a share repurchase is a positive-NPV investment. Managers will clearly be more likely to repurchase shares if they believe the stock to be undervalued.

17.7.1. What is the difference between a stock dividend and a stock split?

Stock dividends of 50% or higher are generally referred to as stock splits. In both cases, a firm does not pay out any cash to shareholders.

17.7.2. What is the main purpose of a reverse split?

The main purpose of a reverse split is to increase the stock price by reducing the number of shares outstanding. If the price of the stock falls too low, a company can use a reverse split to bring the price in any range the company desires.

Examples with Step-by-Step Solutions

Solving Problems

Problems in this chapter may involve determining the effects of a dividend payment or a share repurchase on the value of a corporation’s shares in perfect capital markets. They may also require determining the effects for different types of investors (or clientele) when personal taxes are considered. You should also understand why there is generally a tax disadvantage to holding excess cash and be able to account for the effects of a stock split on share values.

Examples

1. Arizona Public Service Corporation (APS) expects to generate $50 million in free cash flow next year, and this amount is expected to grow by 3% indefinitely. APS has no debt and has accumulated $200 million of excess cash on its balance sheet. The firm’s unlevered cost of equity is 8%, and it has 40 million shares outstanding. Would shareholders be better off if the cash was paid out as a dividend or if the cash was used to repurchase shares? There are no taxes or other market imperfections.

Step 1. The value per share before a dividend or repurchase must be determined.
Since there is no debt, the value per share equals:

\[
P = \frac{\text{Enterprise value}}{40 \text{ million shares}} = \frac{\text{PV(} F \text{ FCFs)} + \text{Excess Cash}}{40 \text{ million}} = 30
\]

**Step 2.** Determine the value to an investor that holds a share until the ex-dividend date.

They could pay a \( \frac{200 \text{ million}}{40 \text{ million}} = 5 \) dividend.

The ex-dividend price equals \( \frac{\text{PV(} F \text{ FCFs)}}{40 \text{ million shares}} = \frac{50 \text{ million}}{(0.08 - 0.03)} = 25 \). So the value to an investor that holds a share until the ex-dividend date is \( 5 + 25 = 30 \).

**Step 2.** Determine the value per share after the proposed repurchase.

Assuming the shares are repurchased at the current value of \$30, the firm can repurchase:

\[
\frac{200 \text{ million}}{30} = 6.666 \text{ million shares.}
\]

The post-repurchase price equals \( \frac{\text{PV(} F \text{ FCFs)}}{33.333 \text{ million}} = \frac{50 \text{ million}}{(0.08 - 0.03)} = 30 \).

**Step 4.** Determine what the firm should do.

Since capital markets are perfect, the stock price falls by the amount of the dividend when a dividend is paid and a share repurchase has no effect on the stock price. Thus, the firm’s choice of dividend policy is irrelevant, and the value per share is \$30 in any case.

2. Arizona Public Service Corporation (APS) expects to generate \$50 million in free cash flow next year, and this amount is expected to grow by 3% indefinitely. APS has no debt and has accumulated \$200 million of excess cash on its balance sheet. The firm’s unlevered cost of equity is 8%, and it has 40 million shares outstanding. Would shareholders be better off if the cash was paid out as a dividend or if the cash was used to repurchase shares? The only market imperfections are personal taxes on dividends (at 15%) and capital gains (also at 15%). The average investor bought the shares at the initial public offering price of \$15.

**Step 1.** The value per share before a dividend or repurchase must be determined.

Since there is no debt, the value per share equals:

\[
P = \frac{\text{Enterprise value}}{40 \text{ million shares}} = \frac{\text{PV(} F \text{ FCFs)} + \text{Excess Cash}}{40 \text{ million}} = 30
\]
Step 2. Determine the value to an investor that holds a share until the ex-dividend date.

They could pay a dividend of $200 million divided by 40 million shares, so $5 dividend, with an after-tax value of $5(1 – 0.15) = $4.25.

The ex-dividend price equals \( \frac{\text{Enterprise value}}{40 \text{ million shares}} = \frac{\text{PV(Future FCFs)}}{40 \text{ million}} = $25. \)

So, the value to an investor that holds a share until the ex-dividend date is:

\[
$4.25 + $25 = $29.25 \text{ and total taxes paid is } 40 \text{ million} \times $5 \times 0.15 = $30 \text{ million.}
\]

Step 3. Determine the value per share after the repurchase.

Assuming the shares are repurchased at the current value of $30, the firm can repurchase:

\[
\frac{$200 \text{ million}}{$30} = 6.666 \text{ million shares.}
\]

The post-repurchase price equals \( \frac{\text{Enterprise value}}{33.333 \text{ million shares}} = \frac{\text{PV(Future FCFs)}}{33.333 \text{ million}} = $30. \)

However, the value to the 6.666 million investors that sold is:

\[
$30 – ($30 – $15)0.15 = $27.75, \text{ and total taxes paid is } 6.666 \times ($30 – $15)0.15 = $15 \text{ million.}
\]

Step 4. Determine what the firm should do.

The optimal payout policy is to neither pay dividends nor repurchase shares. However, repurchasing shares is preferred to paying dividends because investors are only taxed on the capital gain and incur $15 million less in taxes.

3. Microsoft has $30 billion in excess cash, which is invested in Treasury bills paying 5% interest. The board of directors is considering either paying a dividend immediately or paying a dividend in one year.

[A] In a perfect capital market, which option will shareholders prefer?

[B] If the corporate tax rate on interest is 35%, individual investors pay a tax rate on dividends of 15% and a tax rate of 30% on interest income, and institutional investors pay no taxes, which option will shareholders prefer?

Step 1. Determine the value of each option to shareholders in perfect markets.

If Microsoft pays an immediate dividend, the shareholders receive $30 billion today.

If it pays the dividend in one year, it will be able to pay:

\[
$30 \text{ billion} \times (1.05) = $31.5 \text{ billion.}
\]

This is the same value as if shareholders had received a $30 billion dividend and invested the $30 billion in Treasury bills themselves.
Thus, shareholders are indifferent about whether the firm pays the dividend immediately or retains the cash.

**Step 2.** Determine the value of each option with taxes if all investors are individual investors.

If Microsoft pays an immediate dividend, shareholders receive $30 billion today, but they only receive $30 billion \( \times (1 - 0.15) = $25.50\) billion after taxes.

If it invests the cash for one year, it will earn \(0.05(1 - 0.35) = 3.25\%\) and it will be able to pay:

\[ $30 \text{ billion} \times (1.0325) = $30.975 \text{ billion} \] and shareholders would receive:

\[ $30.975 \text{ billion} \times (1 - 0.15) = $26.33 \text{ billion} \text{ in a year 1 dividend after taxes.} \]

Investors would have been able to earn \(0.05(1 - 0.3) = 3.5\%\) on their $25.5 after-tax dividend payment and thus have $25.5(1.035) = $26.39 billion.

Thus, individual investors would be slightly better off with the immediate dividend.

**Step 3.** Determine the value of each option with taxes if all investors are institutional investors.

If Microsoft pays an immediate dividend, shareholders receive $30 billion today.

If it invests the cash for one year, it will earn \(0.05(1 - 0.35) = 3.25\%\) and it will be able to pay:

\[ $30 \text{ billion} \times (1.0325) = $30.975 \text{ billion} \text{ in a year 1 dividend.} \]

Investors would have been able to earn 5% on their $30 dividend payment and thus have $30(1.05) = $31.5 billion.

Thus, institutional investors would be better off by $525 million with the immediate dividend.

Questions and Problems

1. Below are the current tax rates for different investors: an individual investor who holds stocks for one year; a pension fund; and a corporation, which can exclude 70% of dividend income from taxes.

<table>
<thead>
<tr>
<th>Investor</th>
<th>Dividend Tax Rate</th>
<th>Capital Gain Tax Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual investors</td>
<td>15%</td>
<td>15%</td>
</tr>
<tr>
<td>Pension funds</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Corporations</td>
<td>0.35%(1 - 0.7)=10.5%</td>
<td>35%</td>
</tr>
</tbody>
</table>

   Calculate the effective dividend tax rates each type of investor, and explain what this means for each investor’s preference for dividends.

2. Suppose that Apple computer, which is currently trading for $90 per share, has the following types of stock splits.
   [A] A 3-for-1 stock split.
   [C] A 50% stock dividend.

   Calculate the value of 1,000 shares before and after the split.
3. An unlevered corporation has $100 million of excess cash and 50 million shares outstanding with a current market price of $20 per share. The board of directors has declared a special dividend of $100 million.

[A] What is the ex-dividend price of a share in a perfect capital market?

[B] If the board instead decided to use the cash to do a one-time share repurchase, what is the price of the shares once the repurchase is complete in a perfect capital market?

[C] What do stockholders want the firm to do?

4. Southwest Natural Gas is expected to pay a constant dividend of $4 per share per year in perpetuity. All investors require an 8% return on the stock. Individual investors pay a 20% tax on dividends, but there is no capital gains tax. Institutional investors pay no taxes on dividends or capital gains.

[A] What is the value of a share of the stock?

[B] What kinds of investors would be expected to hold the stock?

5. How can firms use dividends to signal information about the firm’s value?

Solutions to Questions and Problems

1. Individual investor \( \tau_d' = \left( \frac{\tau_d - \tau_g}{1 - \tau_g} \right) = \frac{0.15 - 0.15}{1 - 0.15} = 0\% \)

Thus, they are indifferent between receiving dividends or capital gains. However, paying dividends forces all stockholders to pay taxes on the income—even if they do not want the income now. In addition, long-term investors can defer the capital gains tax until they sell, so there is still a tax advantage for share repurchases over dividends for most investors. Thus, stockholders would still generally prefer selling shares to recognize taxable income on their own.

Pension fund \( \tau_d^* = \left( \frac{\tau_d - \tau_g}{1 - \tau_g} \right) = \frac{0}{1 - 0} = 0\% \)

So pension funds are indifferent between receiving dividends or capital gains.

Corporation \( \tau_d^* = \left( \frac{\tau_d - \tau_g}{1 - \tau_g} \right) = \frac{0.105 - 0.35}{1 - 0.35} = -38\% \)

Thus, corporations prefer to receive dividends due to their advantageous taxation.

2. The value is \( 1,000 \times 90 = 90,000 \) before the splits.

[A] Since the number of shares increases threefold, the value per share must be one-third its pre-split value.

\[ P = \left( \frac{1}{3} \right) \times 90 = 30 \]

There are now 3,000 shares, so \( V = 3,000 \times 30 = 90,000 \).

[B] Since the number of shares decreases by one-fourth, the value per share must be four times its pre-split value.

\[ P = 4 \times 90 = 360 \]

There are now 250 shares, so \( V = 250 \times 360 = 90,000 \).
[C] Since the number of shares increases by 50%, the value per share must be $1/1.5 = 2/3$ its pre-split value.

\[ P = \left( \frac{2}{3} \right) \times 90 = 60 \]

There are now 1,500 shares, so \( V = 1,500 \times 60 = 90,000 \).

3. [A] They could pay a \( \frac{100 \text{ million}}{50 \text{ million}} = $2 \) dividend

\[ P = \frac{\text{Excess Cash}}{50 \text{ million}} = \frac{\text{PV}(\text{Future cash flows}) + 100 \text{ million}}{50 \text{ million}} = 20 \Rightarrow \text{PV}(\text{Future cash flows}) = 900 \text{ million} \]

The ex-dividend price is:

\[ P = \frac{\text{PV}(\text{Future cash flows})}{50 \text{ million}} = \frac{900 \text{ million}}{50 \text{ million}} = 18 \]

Since \( 20 = 18 + 2 \), the shareholders are no better off.

[B] Assuming the shares are repurchased at the current value of $20, the firm can repurchase:

\[ \frac{100 \text{ million}}{20} = 5 \text{ million shares} \]

The post-repurchase price equals \( \frac{\text{Enterprise value}}{45 \text{ million shares}} = \frac{900 \text{ million}}{45 \text{ million}} = 20 \).

So shareholders are no better off.

[C] The firm’s choice of dividend policy is irrelevant, and the value per share is $20 in any case.

4. [A] \( P_{\text{Individual Investors}} = \frac{4(1 - 0.20)}{0.08} = 40 \)

\( P_{\text{Institutional Investors}} = \frac{4}{0.08} = 50 \)

[B] The clientele for the stock is likely to be institutional investors such as pension funds, insurance companies, and endowments.

5. The idea that dividend changes reflect managers’ views about a firm’s future earnings prospects is called the dividend signaling hypothesis.

- When a firm increases its dividend, it sends a positive signal to investors that management expects to be able to afford the higher dividend for the foreseeable future.
- When a firm cuts its dividend, it may signal that there is no need to reduce the dividend to save cash.

Studies of the market’s reaction to dividend changes are consistent with this hypothesis. For example, during the period 1967–1993, firms that raised their dividend by 10% or more saw their stock prices rise by 1.34% after the announcement, while those that cut their dividend by 10% or more experienced a price decline of 23.71%.