LEARNING GOALS

LG1 Understand cash dividend payment procedures and the role of dividend reinvestment plans.

LG2 Describe the residual theory of dividends and the key arguments with regard to dividend irrelevance and relevance.

LG3 Discuss the key factors involved in formulating a dividend policy.

LG4 Review and evaluate the three basic types of dividend policies.

LG5 Evaluate stock dividends from accounting, shareholder, and company points of view.

LG6 Explain stock splits and stock repurchases and the firm’s motivation for undertaking each of them.

Across the Disciplines  WHY THIS CHAPTER MATTERS TO YOU

Accounting: You need to understand the types of dividends and payment procedures for them because you will need to record and report the declaration and payment of dividends; you also will provide the financial data that management must have to make dividend decisions.

Information systems: You need to understand types of dividends, payment procedures, and the financial data that the firm must have to make and implement dividend decisions.

Management: In order to make appropriate dividend decisions for the firm, you need to understand types of dividends, the factors that affect dividend policy, types of dividend policies, and arguments about the relevance of dividends.

Marketing: You need to understand factors affecting dividend policy because you may want to argue that the firm would be better off keeping funds for the development of new products, rather than paying them out as dividends.

Operations: You need to understand factors affecting dividend policy because you may find that the firm’s dividend policy imposes limitations on expansion.
General Electric Co., the world’s largest firm in terms of market capitalization, has paid dividends to its shareholders continually since 1899. In mid-December 2001, a time when many companies were cutting or eliminating dividends to save cash, the company announced its 26th consecutive dividend increase. GE raised its quarterly dividend from 16 cents to 18 cents and also increased its stock repurchase program from $22 billion to $30 billion. “Today’s increases, in both our dividend and our share repurchase program, signal our confidence in our ability to extend this track record of returning value to shareowners,” Jeff Immelt, chairman and CEO, said in a prepared statement.

This was quite an accomplishment during a most challenging year. “GE is built to outperform,” said Immelt in September 2001, shortly after the World Trade Center attacks. “I was chairman for two days, and then I had jets with my engines hit a building I insured, which was covered by a network I owned, and we still grew (2001) earnings by 11 percent. I think we’re in pretty good shape.” He attributes the company’s strong position to its diversified business model, which includes financial services, broadcasting, appliances, aerospace, industrial products, and power systems. Despite a weak economy, GE was able to increase net profits 9 percent during the fourth quarter of 2001 to meet analysts’ expectations. The company also told analysts that it expected to achieve double-digit growth and meet its financial targets for 2002.

Because the size and pattern of dividends provide information about the firm’s current and future performance, the dividend increase sent strong signals to investors that GE is confident of its future financial health. Management believes that the company has enough cash to invest in its growth, pay even higher dividends, and buy back its stock. Over time, GE—like other companies with long histories of dividend increases—has maintained the steady earnings growth to support higher payouts.

This chapter addresses the issue of whether dividends matter to stockholders. Some stockholders want and expect to receive dividends, whereas others would rather see those funds invested in the company to increase its stock price. We’ll also describe the key factors involved in setting a firm’s dividend policy, the different types of dividend policies (constant-payout-ratio, regular, and low-regular-and-extra), and other forms of dividends such as stock dividends and stock repurchases.
13.1 Dividend Fundamentals

Expected cash dividends are the key return variable from which owners and investors determine share value. They represent a source of cash flow to stockholders and provide information about the firm’s current and future performance. Because retained earnings, earnings not distributed to owners as dividends, are a form of internal financing, the dividend decision can significantly affect the firm’s external financing requirements. In other words, if the firm needs financing, the larger the cash dividend paid, the greater the amount of financing that must be raised externally through borrowing or through the sale of common or preferred stock. (Remember that although dividends are charged to retained earnings, they are actually paid out of cash.) The first thing to know about cash dividends is the procedures for paying them.

Cash Dividend Payment Procedures

Whether and in what amount to pay cash dividends to corporate stockholders is decided by the firm’s board of directors at quarterly or semiannual meetings. The past period’s financial performance and future outlook, as well as recent dividends paid, are key inputs to the dividend decision. The payment date of the cash dividend, if one is declared, must also be established.

Amount of Dividends

Whether dividends should be paid, and if so, in what amount, are important decisions that depend primarily on the firm’s dividend policy. Most firms have a set policy with respect to the periodic dividend, but the firm’s directors can change this amount, largely on the basis of significant increases or decreases in earnings.

Relevant Dates

If the directors of the firm declare a dividend, they also typically issue a statement indicating the dividend decision, the record date, and the payment date. This statement is generally quoted in the Wall Street Journal and other financial news media.

*Record Date* All persons whose names are recorded as stockholders on the date of record set by the directors receive a declared dividend at a specified future time. These stockholders are often referred to as holders of record.

Because of the time needed to make bookkeeping entries when a stock is traded, the stock begins selling ex dividend 2 business days prior to the date of record. Purchasers of a stock selling ex dividend do not receive the current dividend. A simple way to determine the first day on which the stock sells ex dividend is to subtract 2 days from the date of record; if a weekend intervenes, subtract 4 days. Ignoring general market fluctuations, the stock’s price is expected to drop by the amount of the declared dividend on the ex dividend date.
**Payment Date** The payment date, also set by the directors, is the actual date on which the firm mails the dividend payment to the holders of record. It is generally a few weeks after the record date. An example will clarify the various dates and the accounting effects.

At the quarterly dividend meeting of Rudolf Company, a distributor of office products, held on June 10, the directors declared an $0.80-per-share cash dividend for holders of record on Monday, July 1. The firm had 100,000 shares of common stock outstanding. The payment date for the dividend was August 1. Before the dividend was declared, the key accounts of the firm were as follows:

- Cash $200,000
- Dividends payable $0
- Retained earnings 1,000,000

When the dividend was announced by the directors, $80,000 of the retained earnings ($0.80 per share × 100,000 shares) was transferred to the dividends payable account. The key accounts thus became:

- Cash $200,000
- Dividends payable $80,000
- Retained earnings 920,000

Rudolf Company’s stock began selling ex dividend 2 business days prior to the date of record, which was June 27. This date was found by subtracting 4 days (a weekend intervened) from the July 1 date of record. Purchasers of Rudolf’s stock on June 26 or earlier received the rights to the dividends; those who purchased the stock on or after June 27 did not. Assuming a stable market, Rudolf’s stock price was expected to drop by approximately $0.80 per share when it began selling ex dividend on June 27. On August 1 the firm mailed dividend checks to the holders of record as of July 1. This produced the following balances in the key accounts of the firm:

- Cash $120,000
- Dividends payable $0
- Retained earnings 920,000

The net effect of declaring and paying the dividend was to reduce the firm’s total assets (and stockholders’ equity) by $80,000.

**Dividend Reinvestment Plans**

Today many firms offer dividend reinvestment plans (DRIPs), which enable stockholders to use dividends received on the firm’s stock to acquire additional shares—even fractional shares—at little or no transaction cost. Some companies even allow investors to make their initial purchases of the firm’s stock directly from the company without going through a broker. With DRIPs, plan participants typically can acquire shares at about 5 percent below the prevailing market price. From its point of view, the firm can issue new shares to participants more economically, avoiding the underpricing and flotation costs that would accompany the public sale of new shares. Clearly, the existence of a DRIP may enhance the market appeal of a firm’s shares.
PART 4 Long-Term Financial Decisions

The Residual Theory of Dividends

The residual theory of dividends is a school of thought that suggests that the dividend paid by a firm should be viewed as a residual—the amount left over after all acceptable investment opportunities have been undertaken. Using this approach, the firm would treat the dividend decision in three steps, as follows:

Step 1 Determine its optimal level of capital expenditures, which would be the level generated by the point of intersection of the investment opportunities schedule (IOS) and weighted marginal cost of capital (WMCC) schedule (see Chapter 11).

Step 2 Using the optimal capital structure proportions (see Chapter 12), estimate the total amount of equity financing needed to support the expenditures generated in Step 1.

Step 3 Because the cost of retained earnings, $k_r$, is less than the cost of new common stock, $k_n$, use retained earnings to meet the equity requirement determined in Step 2. If retained earnings are inadequate to meet this need, sell new common stock. If the available retained earnings are in excess of this need, distribute the surplus amount—the residual—as dividends.

According to this approach, as long as the firm’s equity need exceeds the amount of retained earnings, no cash dividend is paid. The argument for this approach is
that it is sound management to be certain that the company has the money it needs to compete effectively. This view of dividends suggests that the required return of investors, $k_s$, is not influenced by the firm’s dividend policy—a premise that in turn implies that dividend policy is irrelevant.

**EXAMPLE**

Overbrook Industries, a manufacturer of canoes and other small watercraft, has available from the current period’s operations $1.8$ million that can be retained or paid out in dividends. The firm’s optimal capital structure is at a debt ratio of 30%, which represents 30% debt and 70% equity. Figure 13.1 depicts the firm’s weighted marginal cost of capital (WMCC) schedule along with three investment opportunities schedules. For each IOS, the level of total new financing or investment determined by the point of intersection of the IOS and the WMCC has been noted. For IOS$_1$, it is $1.5$ million, for IOS$_2$ $2.4$ million, and for IOS$_3$ $3.2$ million. Although only one IOS will exist in practice, it is useful to look at the possible dividend decisions generated by applying the residual theory in each of the three cases. Table 13.1 summarizes this analysis.

Table 13.1 shows that if IOS$_1$ exists, the firm will pay out $750,000 in dividends, because only $1,050,000 of the $1,800,000 of available earnings is needed. A 41.7% payout ratio results. For IOS$_2$, dividends of $120,000 (a payout ratio of 6.7%) result. Should IOS$_3$ exist, the firm would pay no dividends (a 0% payout ratio), because its retained earnings of $1,800,000 would be less than the $2,240,000 of equity needed. In this case, the firm would have to obtain additional new common stock financing to meet the new requirements generated by the intersection of the IOS$_3$ and WMCC. Depending on which IOS exists, the firm’s dividend would in effect be the residual, if any, remaining after all acceptable investments had been financed.

**FIGURE 13.1**

WMCC and IOSs
WMCC and IOSs for Overbrook Industries
Miller and Modigliani’s theory put forth by Merton H. Miller and Franco Modigliani (M and M).¹ They argue that the firm’s value is determined solely by the earning power and risk of its assets (investments) and that the manner in which it splits its earnings stream between dividends and internally retained (and reinvested) funds does not affect this value. Such a view is consistent with the dividend irrelevance theory that in a perfect world, the firm’s value is determined solely by the earning power and risk of its assets (investments) and that the manner in which it splits its earnings stream between dividends and internally retained (and reinvested) funds does not affect this value. M and M’s theory suggests that in a perfect world (certainty, no taxes, no transactions costs, and no other market imperfections), the value of the firm is unaffected by the distribution of dividends.

Arguments for Dividend Irrelevance

The residual theory of dividends implies that if the firm cannot invest its earnings to earn a return (IRR) that is in excess of cost (WMCC), it should distribute the earnings by paying dividends to stockholders. This approach suggests that dividends represent an earnings residual rather than an active decision variable that affects the firm’s value. However, studies have shown that large changes in dividends do affect share price. Increases in dividends result in increased share price, and decreases in dividends result in decreased share price. In response, M and M argue that these effects are attributable not to the dividend itself but rather to the informational content of dividends with respect to future earnings. In other words, say M and M, it is not the preference of shareholders for current dividends (rather than future capital gains) that is responsible for this behavior. Instead, investors view a change in dividends, up or down, as a signal that management expects future earnings to change in the same direction. An increase in dividends is viewed as a positive signal, and investors bid up the share price; a decrease in dividends is a negative signal that causes a decrease in share price as investors sell their shares.

M and M further argue that a clientele effect exists: A firm attracts shareholders whose preferences for the payment and stability of dividends correspond to the payment pattern and stability of the firm itself. Investors who desire stable dividends as a source of income hold the stock of firms that pay about the same

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dividend amount each period. Investors who prefer to earn capital gains are more attracted to growing firms that reinvest a large portion of their earnings, favoring growth over a stable pattern of dividends. Because the shareholders get what they expect, M and M argue, the value of their firm’s stock is unaffected by dividend policy.

In summary, M and M and other proponents of dividend irrelevance argue that, all else being equal, an investor’s required return—and therefore the value of the firm—is unaffected by dividend policy for three reasons:

1. The firm’s value is determined solely by the earning power and risk of its assets.
2. If dividends do affect value, they do so solely because of their informational content, which signals management’s earnings expectations.
3. A clientele effect exists that causes a firm’s shareholders to receive the dividends they expect.

These views of M and M with respect to dividend irrelevance are consistent with the residual theory, which focuses on making the best investment decisions to maximize share value. The proponents of dividend irrelevance conclude that because dividends are irrelevant to a firm’s value, the firm does not need to have a dividend policy. Although many research studies have been performed to validate or refute the dividend irrelevance theory, none has been successful in providing irrefutable evidence.

Arguments for Dividend Relevance

The key argument in support of dividend relevance theory is attributed to Myron J. Gordon and John Lintner, who suggest that there is, in fact, a direct relationship between the firm’s dividend policy and its market value. Fundamental to this proposition is their bird-in-the-hand argument, which suggests that investors see current dividends as less risky than future dividends or capital gains. “A bird in the hand is worth two in the bush.” Gordon and Lintner argue that current dividend payments reduce investor uncertainty, causing investors to discount the firm’s earnings at a lower rate and, all else being equal, to place a higher value on the firm’s stock. Conversely, if dividends are reduced or are not paid, investor uncertainty will increase, raising the required return and lowering the stock’s value.

Although many other arguments related to dividend relevance have been put forward, empirical studies fail to provide conclusive evidence in support of the intuitively appealing dividend relevance argument. In practice, however, the actions of both financial managers and stockholders tend to support the belief that dividend policy does affect stock value. Because we focus on the day-to-day behavior of firms, the remainder of this chapter is consistent with the belief that


3. A common exception is small firms, because they frequently treat dividends as a residual remaining after all acceptable investments have been initiated. Small firms follow this course of action because they usually do not have ready access to capital markets. The use of retained earnings therefore is a key source of financing for growth, which is generally an important goal of a small firm.
dividends are relevant—that each firm must develop a dividend policy that fulfills the goals of its owners and maximizes their wealth as reflected in the firm’s share price.

Review Questions

13–3 Does following the residual theory of dividends lead to a stable dividend? Is this approach consistent with dividend relevance?

13–4 Contrast the basic arguments about dividend policy advanced by Miller and Modigliani (M and M) and by Gordon and Lintner.

13.3 Factors Affecting Dividend Policy

The firm’s dividend policy represents a plan of action to be followed whenever the dividend decision is made. Firms develop policies consistent with their goals. Before we review some of the popular types of dividend policies, we discuss the factors that are considered in establishing a dividend policy. These include legal constraints, contractual constraints, internal constraints, the firm’s growth prospects, owner considerations, and market considerations.

Legal Constraints

Most states prohibit corporations from paying out as cash dividends any portion of the firm’s “legal capital,” which is typically measured by the par value of common stock. Other states define legal capital to include not only the par value of the common stock, but also any paid-in capital in excess of par. These capital impairment restrictions are generally established to provide a sufficient equity base to protect creditors’ claims. An example will clarify the differing definitions of capital.

EXAMPLE

The stockholders’ equity account of Miller Flour Company, a large grain processor, is presented in the following table.

<table>
<thead>
<tr>
<th>Miller Flour Company Stockholders’ Equity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common stock at par</td>
</tr>
<tr>
<td>Paid-in capital in excess of par</td>
</tr>
<tr>
<td>Retained earnings</td>
</tr>
<tr>
<td>Total stockholders’ equity</td>
</tr>
</tbody>
</table>

In states where the firm’s legal capital is defined as the par value of its common stock, the firm could pay out $340,000 ($200,000 + $140,000) in cash dividends without impairing its capital. In states where the firm’s legal capital includes all paid-in capital, the firm could pay out only $140,000 in cash dividends.
An earnings requirement limiting the amount of dividends is sometimes imposed. With this restriction, the firm cannot pay more in cash dividends than the sum of its most recent and past retained earnings. However, the firm is not prohibited from paying more in dividends than its current earnings.\(^4\)

Assume that Miller Flour Company, from the preceding example, in the year just ended has $30,000 in earnings available for common stock dividends. As the preceding table indicates, the firm has past retained earnings of $140,000. Thus it can legally pay dividends of up to $170,000.

If a firm has overdue liabilities or is legally insolvent or bankrupt, most states prohibit its payment of cash dividends. In addition, the Internal Revenue Service prohibits firms from accumulating earnings to reduce the owners’ taxes. If the IRS can determine that a firm has accumulated an excess of earnings to allow owners to delay paying ordinary income taxes on dividends received, it may levy an excess earnings accumulation tax on any retained earnings above $250,000.

**Contractual Constraints**

Often the firm’s ability to pay cash dividends is constrained by restrictive provisions in a loan agreement. Generally, these constraints prohibit the payment of cash dividends until a certain level of earnings has been achieved, or they may limit dividends to a certain dollar amount or percentage of earnings. Constraints on dividends help to protect creditors from losses due to the firm’s insolvency.

**Internal Constraints**

The firm’s ability to pay cash dividends is generally constrained by the amount of liquid assets (cash and marketable securities) available. Although it is possible for a firm to borrow funds to pay dividends, lenders are generally reluctant to make such loans because they produce no tangible or operating benefits that will help the firm repay the loan.

Miller Flour Company’s stockholders’ equity account presented earlier indicates that if the firm’s legal capital is defined as all paid-in capital, the firm can pay $140,000 in dividends. If the firm has total liquid assets of $50,000 ($20,000 in cash plus marketable securities worth $30,000) and $35,000 of this is needed for operations, the maximum cash dividend the firm can pay is $15,000 ($50,000 – $35,000).

**Growth Prospects**

The firm’s financial requirements are directly related to how much it expects to grow and what assets it will need to acquire. It must evaluate its profitability and risk to develop insight into its ability to raise capital externally. In addition, the

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\(^4\) A firm that has an operating loss in the current period can still pay cash dividends as long as sufficient retained earnings against which to charge the dividend are available and, of course, as long as it has the cash with which to make the payments.
firm must determine the cost and speed with which it can obtain financing. Generally, a large, mature firm has adequate access to new capital, whereas a rapidly growing firm may not have sufficient funds available to support its acceptable projects. A growth firm is likely to have to depend heavily on internal financing through retained earnings, and so it is likely to pay out only a very small percentage of its earnings as dividends. A more established firm is in a better position to pay out a large proportion of its earnings, particularly if it has ready sources of financing.

**Owner Considerations**

The firm must establish a policy that has a favorable effect on the wealth of the majority of owners. One consideration is the tax status of a firm’s owners. If a firm has a large percentage of wealthy stockholders who are in a high tax bracket, it may decide to pay out a lower percentage of its earnings to allow the owners to delay the payment of taxes until they sell the stock. Of course, when the stock is sold, if the proceeds are in excess of the original purchase price, the capital gain will be taxed, possibly at a more favorable rate than the one applied to ordinary income. Lower-income shareholders, however, who need dividend income, will prefer a higher payout of earnings.

A second consideration is the owners’ investment opportunities. A firm should not retain funds for investment in projects yielding lower returns than the owners could obtain from external investments of equal risk. If it appears that the owners have better opportunities externally, the firm should pay out a higher percentage of its earnings. If the firm’s investment opportunities are at least as good as similar-risk external investments, a lower payout is justifiable.

A final consideration is the potential dilution of ownership. If a firm pays out a high percentage of earnings, new equity capital will have to be raised with common stock. The result of a new stock issue may be dilution of both control and earnings for the existing owners. By paying out a low percentage of its earnings, the firm can minimize the possibility of such dilution.

**Market Considerations**

An awareness of the market’s probable response to certain types of policies is also helpful in formulating dividend policy. Stockholders are believed to value a fixed or increasing level of dividends as opposed to a fluctuating pattern of dividends. This belief is supported by the research of John Lintner, who found that corpo-
FOCUS ON ETHICS  Were Ford Managers Hoarding Cash?

When managers don’t pay dividends or pay only minimal dividends, they open themselves up to the charge that they are hoarding cash unnecessarily. Shareholders may believe this is unethical if they are convinced that managers are simply playing it too safe in order to protect their jobs and (by reducing the number of new stock or bond issues) to keep from having to answer to external funding sources. Some of these companies sell products in slow-growth markets and cannot point to future asset-funding requirements to justify their cash buildup. “Empire-building” behavior, whether investing in negative-NPV projects or hoarding cash, reminds us once again that shareholder wealth maximization has to be ethically constrained.

But this lesson can be taken too far. Automakers such as Chrysler and Ford have come under fire for investing too much in cash and short-term securities. Investor Kirk Kerkorian successfully forced Chrysler to make a one-time $1 billion payout to stockholders in 1996. Ford held the largest cash and security balances in corporate America: In 1999, when Jacques Nasser became CEO, its cash and securities totaled $14 billion more than its entire debt. Nasser invested chunks of that cash when acquiring Volvo and Land Rover, and he also initiated a combined $5.7 billion cash dividend and share repurchase. But maybe he went too far—or maybe his timing was bad. (Did you hear about the $3.5 billion tire replacement project?) In 2001, not only did Ford have to cut its normal quarterly dividend, but its debt was downgraded because investment bankers decided Ford was now in a “cash crisis.” The Wall Street Journal stated that in hindsight, Ford management was wise to hoard cash against hard times, and investors were unwise to clamor for bigger payouts of cash to shareholders.

Caution and prudence are virtues—and these virtues provide ethical justification for managers accused of putting self-interest ahead of shareholder interests. “Virtue theory” focuses on the character of the decision maker, over and above merely doing one’s duty. This area of ethics is now getting more attention, thanks to business guru Steven Covey and to ethicists such as Scott Rae, Kenneth Wong, and Thomas Whetstone. In cases such as Ford’s, it is probably wisest to give managers the benefit of the doubt.

Hint  The risk–return concept also applies to the firm’s dividend policy. A firm that lets its dividends fluctuate from period to period will be viewed as risky, and investors will require a higher rate of return, which will increase the firm’s cost of capital.

rate managers are averse to changing the dollar amount of dividends in response to changes in earnings, particularly when earnings decline. In addition, stockholders are believed to value a policy of continuous dividend payment. Because regularly paying a fixed or increasing dividend eliminates uncertainty about the frequency and magnitude of dividends, the returns of the firm are likely to be discounted at a lower rate. This should result in an increase in the market value of the stock and therefore an increase in the owners’ wealth.

A final market consideration is informational content. As noted earlier, shareholders often view a dividend payment as a signal of the firm’s future success. A stable and continuous dividend is a positive signal, conveying the firm’s good financial health. Shareholders are likely to interpret a passed dividend payment due to a loss or to very low earnings as a negative signal. The nonpayment of the dividend creates uncertainty about the future, which is likely to result in lower stock value. Owners and investors generally construe a dividend payment during a period of losses as an indication that the loss is merely temporary.

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13–5 What are the six factors that affect dividend policy? Briefly describe each of them.

13.4 Types of Dividend Policies

The firm’s dividend policy must be formulated with two basic objectives in mind: providing for sufficient financing and maximizing the wealth of the firm’s owners. Three of the more commonly used dividend policies are described in the following sections. A particular firm’s cash dividend policy may incorporate elements of each.

**Constant-Payout-Ratio Dividend Policy**

One type of dividend policy involves use of a constant payout ratio. The dividend payout ratio indicates the percentage of each dollar earned that is distributed to the owners in the form of cash. It is calculated by dividing the firm’s cash dividend per share by its earnings per share. With a constant-payout-ratio dividend policy, the firm establishes that a certain percentage of earnings is paid to owners in each dividend period.

The problem with this policy is that if the firm’s earnings drop or if a loss occurs in a given period, the dividends may be low or even nonexistent. Because dividends are often considered an indicator of the firm’s future condition and status, the firm’s stock price may thus be adversely affected.

**EXAMPLE**

Peachtree Industries, a miner of potassium, has a policy of paying out 40% of earnings in cash dividends. In periods when a loss occurs, the firm’s policy is to pay no cash dividends. Data on Peachtree’s earnings, dividends, and average stock prices for the past 6 years follow.

<table>
<thead>
<tr>
<th>Year</th>
<th>Earnings/share</th>
<th>Dividends/share</th>
<th>Average price/share</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>$0.50</td>
<td>$0.00</td>
<td>$42.00</td>
</tr>
<tr>
<td>2002</td>
<td>3.00</td>
<td>1.20</td>
<td>52.00</td>
</tr>
<tr>
<td>2001</td>
<td>1.75</td>
<td>0.70</td>
<td>48.00</td>
</tr>
<tr>
<td>2000</td>
<td>$1.50</td>
<td>$0.00</td>
<td>38.00</td>
</tr>
<tr>
<td>1999</td>
<td>2.00</td>
<td>0.80</td>
<td>46.00</td>
</tr>
<tr>
<td>1998</td>
<td>4.50</td>
<td>1.80</td>
<td>50.00</td>
</tr>
</tbody>
</table>

Dividends increased in 2001 and in 2002 but decreased in the other years. In years of decreasing dividends, the firm’s stock price dropped; when dividends increased, the price of the stock increased. Peachtree’s sporadic dividend payments appear to make its owners uncertain about the returns they can expect.
CHAPTER 13  Dividend Policy

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A dividend policy based on the payment of a fixed-dollar dividend in each period. This policy provides the owners with generally positive information, thereby minimizing their uncertainty. Often, firms that use this policy increase the regular dividend once a proven increase in earnings has occurred. Under this policy, dividends are almost never decreased.

The dividend policy of Woodward Laboratories, a producer of a popular artificial sweetener, is to pay annual dividends of $1.00 per share until per-share earnings have exceeded $4.00 for three consecutive years. At that point, the annual dividend is raised to $1.50 per share, and a new earnings plateau is established. The firm does not anticipate decreasing its dividend unless its liquidity is in jeopardy. Data for Woodward’s earnings, dividends, and average stock prices for the past 12 years follow.

<table>
<thead>
<tr>
<th>Year</th>
<th>Earnings/share</th>
<th>Dividends/share</th>
<th>Average price/share</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>$4.50</td>
<td>$1.50</td>
<td>$47.50</td>
</tr>
<tr>
<td>2002</td>
<td>3.90</td>
<td>1.50</td>
<td>46.50</td>
</tr>
<tr>
<td>2001</td>
<td>4.60</td>
<td>1.50</td>
<td>45.00</td>
</tr>
<tr>
<td>2000</td>
<td>4.20</td>
<td>1.00</td>
<td>43.00</td>
</tr>
<tr>
<td>1999</td>
<td>5.00</td>
<td>1.00</td>
<td>42.00</td>
</tr>
<tr>
<td>1998</td>
<td>2.00</td>
<td>1.00</td>
<td>38.50</td>
</tr>
<tr>
<td>1997</td>
<td>6.00</td>
<td>1.00</td>
<td>38.00</td>
</tr>
<tr>
<td>1996</td>
<td>3.00</td>
<td>1.00</td>
<td>36.00</td>
</tr>
<tr>
<td>1995</td>
<td>0.75</td>
<td>1.00</td>
<td>33.00</td>
</tr>
<tr>
<td>1994</td>
<td>0.50</td>
<td>1.00</td>
<td>33.00</td>
</tr>
<tr>
<td>1993</td>
<td>2.70</td>
<td>1.00</td>
<td>33.50</td>
</tr>
<tr>
<td>1992</td>
<td>2.85</td>
<td>1.00</td>
<td>35.00</td>
</tr>
</tbody>
</table>

Whatever the level of earnings, Woodward Laboratories paid dividends of $1.00 per share through 2000. In 2001, the dividend increased to $1.50 per share because earnings in excess of $4.00 per share had been achieved for 3 years. In 2001, the firm also had to establish a new earnings plateau for further dividend increases. Woodward Laboratories’ average price per share exhibited a stable, increasing behavior in spite of a somewhat volatile pattern of earnings.

Often a regular dividend policy is built around a target dividend-payout ratio. Under this policy, the firm attempts to pay out a certain percentage of earnings, but rather than let dividends fluctuate, it pays a stated dollar dividend and adjusts that dividend toward the target payout as proven earnings increases occur. For instance, Woodward Laboratories appears to have a target payout ratio of around 35 percent. The payout was about 35 percent ($1.00 ÷ $2.85).
when the dividend policy was set in 1992, and when the dividend was raised to $1.50 in 2001, the payout ratio was about 33 percent ($1.50 ÷ $4.60).

Low-Regular-and-Extra Dividend Policy

Some firms establish a low-regular-and-extra dividend policy, paying a low regular dividend, supplemented by an additional dividend when earnings are higher than normal in a given period. By calling the additional dividend an extra dividend, the firm avoids giving shareholders false hopes. This policy is especially common among companies that experience cyclical shifts in earnings.

By establishing a low regular dividend that is paid each period, the firm gives investors the stable income necessary to build confidence in the firm, and the extra dividend permits them to share in the earnings from an especially good period. Firms using this policy must raise the level of the regular dividend once proven increases in earnings have been achieved. The extra dividend should not be a regular event; otherwise, it becomes meaningless. The use of a target dividend-payout ratio in establishing the regular dividend level is advisable.

Review Question

13–6 Describe a constant-payout-ratio dividend policy, a regular dividend policy, and a low-regular-and-extra dividend policy. What are the effects of these policies?

13.5 Other Forms of Dividends

Dividends can be paid in forms other than cash. Here we discuss two other methods of paying dividends—stock dividends and stock repurchases—as well as a closely related topic, stock splits.

Stock Dividends

A stock dividend is the payment, to existing owners, of a dividend in the form of stock. Often firms pay stock dividends as a replacement for or a supplement to cash dividends. Although stock dividends do not have a real value, stockholders may perceive them to represent something they did not have before.

Accounting Aspects

In an accounting sense, the payment of a stock dividend is a shifting of funds between stockholders’ equity accounts rather than a use of funds. When a firm declares a stock dividend, the procedures for announcement and distribution are the same as those described earlier for a cash dividend. The accounting entries associated with the payment of a stock dividend vary depending on its size. A
**Small (ordinary) stock dividend** is a stock dividend that represents less than 20 to 25 percent of the common stock outstanding when the dividend is declared. Small stock dividends are most common.

The current stockholders’ equity on the balance sheet of Garrison Corporation, a distributor of prefabricated cabinets, is as shown in the following accounts.

- Preferred stock $300,000
- Common stock (100,000 shares at $4 par) 400,000
- Paid-in capital in excess of par 600,000
- Retained earnings 700,000
- **Total stockholders’ equity $2,000,000**

Garrison, which has 100,000 shares outstanding, declares a 10% stock dividend when the market price of its stock is $15 per share. Because 10,000 new shares (10% of 100,000) are issued at the prevailing market price of $15 per share, $150,000 ($15 per share × 10,000 shares) is shifted from retained earnings to the common stock and paid-in capital accounts. A total of $40,000 ($4 par × 10,000 shares) is added to common stock, and the remaining $110,000 [(15 − $4) × 10,000 shares] is added to the paid-in capital in excess of par. The resulting account balances are as follows:

- Preferred stock $300,000
- Common stock (110,000 shares at $4 par) 440,000
- Paid-in capital in excess of par 710,000
- Retained earnings 550,000
- **Total stockholders’ equity $2,000,000**

The firm’s total stockholders’ equity has not changed; funds have merely been **shifted** among stockholders’ equity accounts.

**The Shareholder’s Viewpoint**

The shareholder receiving a stock dividend typically receives nothing of value. After the dividend is paid, the per-share value of the shareholder’s stock decreases in proportion to the dividend in such a way that the market value of his or her total holdings in the firm remains unchanged. The shareholder’s proportion of ownership in the firm also remains the same, and **as long as the firm’s earnings remain unchanged**, so does his or her share of total earnings. (However, if the firm’s earnings and cash dividends increase when the stock dividend is issued, an increase in share value is likely to result.)

**Example**

Ms. X owned 10,000 shares of Garrison Corporation’s stock. The company’s most recent earnings were $220,000, and earnings are not expected to change in the near future. Before the stock dividend, Ms. X owned 10% (10,000 shares ÷ 100,000 shares) of the firm’s stock, which was selling for $15 per share. Earnings per share were $2.20 ($220,000 ÷ 100,000 shares). Because Ms. X owned
PART 4 Long-Term Financial Decisions

10,000 shares, her earnings were $22,000 ($2.20 per share \times 10,000 shares). After receiving the 10% stock dividend, Ms. X has 11,000 shares, which again is 10% of the ownership (11,000 shares \div 110,000 shares). The market price of the stock can be expected to drop to $13.64 per share [$15 \times (1.00 \div 1.10)]\), which means that the market value of Ms. X’s holdings is $150,000 (11,000 shares \times $13.64 per share). This is the same as the initial value of her holdings (10,000 shares \times $15 per share). The future earnings per share drops to $2 ($220,000 \div 110,000 shares) because the same $220,000 in earnings must now be divided among 110,000 shares. Because Ms. X still owns 10% of the stock, her share of total earnings is still $22,000 ($2 per share \times 11,000 shares).

In summary, if the firm’s earnings remain constant and total cash dividends do not increase, a stock dividend results in a lower per-share market value for the firm’s stock.

The Company’s Viewpoint

Stock dividends are more costly to issue than cash dividends, but certain advantages may outweigh these costs. Firms find the stock dividend a way to give owners something without having to use cash. Generally, when a firm needs to preserve cash to finance rapid growth, a stock dividend is used. When the stockholders recognize that the firm is reinvesting the cash flow so as to maximize future earnings, the market value of the firm should at least remain unchanged. However, if the stock dividend is paid so that cash can be retained to satisfy past-due bills, a decline in market value may result.

Stock Splits

Although not a type of dividend, stock splits have an effect on a firm’s share price similar to that of stock dividends. A stock split is a method commonly used to lower the market price of a firm’s stock by increasing the number of shares belonging to each shareholder. In a 2-for-1 split, for example, two new shares are exchanged for each old share, with each new share worth half the value of each old share. A stock split has no effect on the firm’s capital structure.

Quite often, a firm believes that its stock is priced too high and that lowering the market price will enhance trading activity. Stock splits are often made prior to issuing additional stock to enhance that stock’s marketability and stimulate market activity. It is not unusual for a stock split to cause a slight increase in the market value of the stock, attributable to its informational content and to the fact that total dividends paid commonly increase slightly after a split.\(^8\)

EXAMPLE

Delphi Company, a forest products concern, had 200,000 shares of $2-par-value common stock and no preferred stock outstanding. Because the stock is selling at a high market price, the firm has declared a 2-for-1 stock split. The total before- and after-split stockholders’ equity is shown in the following table.

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\(^8\) Eugene F. Fama, Lawrence Fisher, Michael C. Jensen, and Richard Roll, “The Adjustment of Stock Prices to New Information,” *International Economic Review* 10 (February 1969), pp. 1–21, found that the stock price increases before the split announcement and that the increase in stock price is maintained if dividends per share are increased, but is lost if dividends per share are not increased, following the split.
The insignificant effect of the stock split on the firm’s books is obvious.

Stock can be split in any way desired. Sometimes a reverse stock split is made: A certain number of outstanding shares are exchanged for one new share. For example, in a 1-for-3 split, one new share is exchanged for three old shares. Reverse stock splits are initiated to raise the market price of a firm’s stock when it is selling at too low a price to appear respectable.9

**Stock Repurchases**

In recent years, firms have increased their repurchasing of outstanding common stock in the marketplace. The practical motives for stock repurchases include obtaining shares to be used in acquisitions, having shares available for employee stock option plans, and retiring shares. The recent increase in frequency and importance of stock repurchases is due to the fact that they either enhance shareholder value or help to discourage an unfriendly takeover. Stock repurchases enhance shareholder value by (1) reducing the number of shares outstanding and thereby raising earnings per share, (2) sending a positive signal to investors in the marketplace that management believes that the stock is under-valued, and (3) providing a temporary floor for the stock price, which may have been declining. The use of repurchases to discourage unfriendly takeovers is predicated on the belief that a corporate raider is less likely to gain control of the firm if there are fewer publicly traded shares available. Here we focus on retiring shares through repurchase, because this motive for repurchase is similar to the payment of cash dividends.

**Stock Repurchases Viewed as a Cash Dividend**

When common stock is repurchased for retirement, the underlying motive is to distribute excess cash to the owners. Generally, as long as earnings remain constant, the repurchase reduces the number of outstanding shares, raising the

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9. If a firm’s stock is selling at a low price—possibly less than a few dollars—many investors are hesitant to purchase it because they believe it is “cheap.” These somewhat unsophisticated investors correlate cheapness and quality, and they feel that a low-priced stock is a low-quality investment. A reverse stock split raises the stock price and increases per-share earnings.


**FOCUS ON PRACTICE  Boosting Value with Stock Buybacks**

In September 2001, the Securities and Exchange Commission temporarily lifted restrictions on stock buybacks in an effort to shore up the downward-sliding stock market. Share repurchases could send a signal to investors that companies considered their shares undervalued. Hundreds of companies, including Allstate, Bank One, and BF Goodrich, soon announced plans to buy back their stock. Many others, such as Boeing, Caterpillar, and General Motors, still had multiyear buyback programs in progress.

Many corporations regularly repurchase their shares when prices are down and/or cash flow exceeds suitable investment opportunities. Others move in and out of the market steadily, not just when the price is low. Buybacks give companies flexibility in returning cash to investors. (Dividend increases also return cash to investors, but they create an ongoing expense, and future dividend cuts may adversely affect stock price.) Other benefits include boosting stock price and optimizing capital structure. One survey showed that between 1991 and 1996, companies with buyback programs outperformed similar companies that did not repurchase shares by an average of 23 percentage points for the 4 years following announcement of the program.

Companies that repurchased shares to reduce the number of shares outstanding can realize a significant improvement in stock price. In 2000 such companies earned returns that exceeded the Russell 1000 index by an average of 12.5 percentage points. Combining buybacks with higher dividends boosted stock prices even more. For example, homebuilder KB Home paid out 9 percent of its market capitalization to shareholders and saw its stock price jump over 46 percent for the 12-month period ending April 30, 2001.

Not all buyback programs are considered successful. Moody's Investors Service cited stock repurchases as having contributed to the debt downgrades of Nordstrom, Campbell Soup, and Hasbro Companies. "Taking money out of a business during a period of economic weakness is risky," says John Puchalla, an economist for Moody’s.


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**EXAMPLE**

Benton Company, a national sportswear chain, has released the following financial data:

- Earnings available for common stockholders $1,000,000
- Number of shares of common stock outstanding 400,000
- Earnings per share ($1,000,000 ÷ 400,000) $2.50
- Market price per share $50
- Price/earnings (P/E) ratio ($50 ÷ $2.50) 20

The firm wants to use $800,000 of its earnings either to pay cash dividends or to repurchase shares. If the firm paid cash dividends, the amount of the dividend would be $2 per share ($800,000 ÷ 400,000 shares). If the firm paid $52 per share to repurchase stock, it could repurchase approximately 15,385 shares ($800,000 ÷ $52 per share). As a result of this repurchase, 384,615 shares
(400,000 shares − 15,385 shares) of common stock would remain outstanding. Earnings per share (EPS) would rise to $2.60 ($1,000,000 ÷ 384,615). If the stock still sold at 20 times earnings (P/E = 20), its market price could be estimated by multiplying the new EPS by this P/E ratio (the price/earnings multiple approach presented in Chapter 7). The price would therefore rise to $52 per share ($2.60 × 20). In both cases, the stockholders would receive $2 per share: a $2 cash dividend in the dividend case or a $2 increase in share price ($50 per share to $52 per share) in the repurchase case.

Besides the advantage of an increase in per-share earnings, certain owner tax benefits also result. If the cash dividend were paid, the owners would have to pay ordinary income taxes on it, whereas the $2 increase in the market value of the stock that resulted from the repurchase would not be taxed until the owner sold the stock. Of course, when the stock is sold, the capital gain is taxed, but possibly at a more favorable rate than the one applied to ordinary income. The IRS is alleged to monitor firms that regularly repurchase stock and levies a penalty when it believes repurchases have been made to delay the payment of taxes by stockholders.

**Accounting Entries**

The accounting entries that result when common stock is repurchased are a reduction in cash and the establishment of a contra capital account called “treasury stock,” which is shown as a deduction from stockholders’ equity. The label *treasury stock* is used on the balance sheet to indicate the presence of repurchased shares.

**The Repurchase Process**

When a company intends to repurchase a block of outstanding shares, it should make shareholders aware of its intentions. Specifically, it should advise them of the purpose of the repurchase (acquisition, stock options, retirement) and the disposition (if any) planned for the repurchased shares (traded for shares of another firm, distribution to executives, or held in the treasury).

Three basic methods of repurchase are commonly used. One is to purchase shares on the *open market*. This places upward pressure on the price of shares if the number of shares being repurchased is reasonably large in comparison with the total number outstanding. The second method is through tender offers. A *tender offer* is a formal offer to purchase a given number of shares of a firm’s stock at a specified price. The price at which a tender offer is made is set above the current market price to attract sellers. If the number of shares desired cannot be repurchased through the tender offer, open-market purchases can be used to obtain the additional shares. Tender offers are preferred when large numbers of shares are repurchased, because the company’s intentions are clearly stated and each stockholder has an opportunity to sell shares at the tendered price. A third method that is sometimes used involves the purchase, on a *negotiated basis*, of a large block of shares from one or more major stockholders. Again, in this case, the firm has to state its intentions and make certain that the purchase price is fair and equitable in view of the interests and opportunities of the remaining shareholders.
PART 4 Long-Term Financial Decisions

**Summary**

**FOCUS ON VALUE**

Cash dividends are the cash flows that a firm distributes to its common stockholders. As noted in Chapter 7, a share of common stock gives its owner the right to receive all future dividends. The present value of all those future dividends expected over a firm’s assumed infinite life determines the firm’s stock value.

Dividends not only represent cash flows to shareholders but also contain useful information with regard to the firm’s current and future performance. Such information affects the shareholders’ perception of the firm’s risk. A firm can also pay stock dividends, initiate stock splits, or repurchase stock. Each of these dividend-related actions can affect the firm’s risk, return, and value as a result of their cash flows and informational content.

Although the theory with regard to the relevance of dividends is still evolving, the behavior of most firms and stockholders suggests that dividend policy affects share prices. It is therefore believed to be important for the financial manager to develop and implement a dividend policy that is consistent with the firm’s goal of maximizing stock price.

**Review of Learning Goals**

1. Understand cash dividend payment procedures and the role of dividend reinvestment plans.
   The cash dividend decision is normally made by the board of directors, which establishes the record and payment dates. Generally, the larger the dividend charged to retained earnings and paid in cash, the greater the amount of financing that must be raised externally. Some firms offer dividend reinvestment plans that allow stockholders to acquire shares in lieu of cash dividends.

2. Describe the residual theory of dividends and the key arguments with regard to dividend irrelevance and relevance. The residual theory suggests that dividends should be viewed as the earnings left after all acceptable investment opportunities have been undertaken. Miller and Modigliani argue in favor of dividend irrelevance, using a perfect world wherein information content and clientele effects exist. Gordon and Lintner advance the theory of dividend relevance, basing their argument on the uncertainty-reducing effect of dividends, supported by their bird-in-the-hand argument. Although the idea is intuitively appealing, empirical studies fail to provide clear support of dividend relevance. Even so, the actions of financial managers and stockholders tend to support the belief that dividend policy does affect stock value.

**Review Questions**

13-7 Why do firms issue stock dividends? Comment on the following statement: “I have a stock that promises to pay a 20 percent stock dividend every year, and therefore it guarantees that I will break even in 5 years.”

13-8 Compare a stock split with a stock dividend.

13-9 What is the logic behind repurchasing shares of common stock to distribute excess cash to the firm’s owners?
Discuss the key factors involved in formulating a dividend policy. A firm’s dividend policy should provide for sufficient financing and maximize the wealth of the firm’s owners. Dividend policy is affected by certain legal, contractual, and internal constraints, as well as by growth prospects, owner considerations, and market considerations. Legal constraints prohibit corporations from paying out as cash dividends any portion of the firm’s “legal capital”; they also constrain firms with overdue liabilities and legally insolvent or bankrupt firms from paying cash dividends. Contractual constraints result from restrictive provisions in the firm’s loan agreements. Internal constraints tend to result from a firm’s limited availability of excess cash. Growth prospects affect the relative importance of retaining earnings rather than paying them out in dividends. The tax status of owners, the owners’ investment opportunities, and the potential dilution of ownership are important owner considerations. Finally, market considerations are related to the stockholders’ preference for the continuous payment of fixed or increasing streams of dividends and the perceived informational content of dividends.

Review and evaluate the three basic types of dividend policies. With a constant-payout-ratio dividend policy, the firm pays a fixed percentage of earnings to the owners each period; dividends move up and down with earnings, and no dividend is paid when a loss occurs. Under a regular dividend policy, the firm pays a fixed-dollar dividend each period; it increases the amount of dividends only after a proven increase in earnings has occurred. The low-regular-and-extra dividend policy is similar to the regular dividend policy, except that it pays an “extra dividend” in periods when the firm’s earnings are higher than normal. The regular and the low-regular-and-extra dividend policies are generally preferred because their stable patterns of dividends reduce uncertainty.

Evaluate stock dividends from accounting, shareholder, and company points of view. Occasionally, firms pay stock dividends as a replacement for or supplement to cash dividends. The payment of stock dividends involves a shifting of funds between capital accounts rather than a use of funds. Shareholders receiving stock dividends receive nothing of value; the market value of their holdings, their proportion of ownership, and their share of total earnings remain unchanged. However, the firm may use stock dividends to satisfy owners and preserve its market value without having to use cash.

Explain stock splits and stock repurchases and the firm’s motivation for undertaking each of them. Stock splits are used to enhance trading activity of a firm’s shares by lowering or raising their market price. A stock split merely involves accounting adjustments; it has no effect on the firm’s cash or on its capital structure. Stock repurchases can be made in lieu of cash dividend payments to retire outstanding shares. They reduce the number of outstanding shares and thereby increase earnings per share and the market price per share. They also delay the tax burden of shareholders.

SELF-TEST PROBLEM (Solution in Appendix B)

ST 13–1 Stock repurchase The Off-Shore Steel Company has earnings available for common stockholders of $2 million and has 500,000 shares of common stock outstanding at $60 per share. The firm is currently contemplating the payment of $2 per share in cash dividends.

a. Calculate the firm’s current earnings per share (EPS) and price/earnings (P/E) ratio.

b. If the firm can repurchase stock at $62 per share, how many shares can be purchased in lieu of making the proposed cash dividend payment?

c. How much will the EPS be after the proposed repurchase? Why?

d. If the stock sells at the old P/E ratio, what will the market price be after repurchase?
e. Compare and contrast the earnings per share before and after the proposed repurchase.
f. Compare and contrast the stockholders’ position under the dividend and repurchase alternatives.

PROBLEMS

13–1 Dividend payment procedures  At the quarterly dividend meeting, Wood Shoes declared a cash dividend of $1.10 per share for holders of record on Monday, July 10. The firm has 300,000 shares of common stock outstanding and has set a payment date of July 31. Prior to the dividend declaration, the firm’s key accounts were as follows:

\[
\begin{array}{ll}
\text{Cash} & \$500,000 \\
\text{Dividends payable} & 0 \\
\text{Retained earnings} & 2,500,000
\end{array}
\]

a. Show the entries after the meeting adjourned.
b. When is the \textit{ex dividend} date?
c. What values would the key accounts have after the July 31 payment date?
d. What effect, if any, will the dividend have on the firm’s total assets?
e. Ignoring general market fluctuations, what effect, if any, will the dividend have on the firm’s stock price on the \textit{ex dividend} date?

13–2 Dividend payment  Kathy Snow wishes to purchase shares of Countdown Computing, Inc. The company’s board of directors has declared a cash dividend of $0.80 to be paid to holders of record on Wednesday, May 12.

a. What is the last day that Kathy can purchase the stock (trade date) in order to receive the dividend?
b. What day does this stock begin trading “ex dividend”?
c. What change, if any, would you expect in the price per share when the stock begins trading on the \textit{ex dividend} day?
d. If Kathy held the stock for less than one quarter and then sold it for $39 per share, would she achieve a higher investment return by (1) buying the stock \textit{prior to} the \textit{ex dividend} date at $35 per share and collecting the $0.80 dividend, or (2) buying it \textit{on} the \textit{ex dividend} date at $34.20 per share but not receiving the dividend?

13–3 Residual dividend policy  As president of Young’s of California, a large clothing chain, you have just received a letter from a major stockholder. The stockholder asks about the company’s dividend policy. In fact, the stockholder has asked you to estimate the amount of the dividend that you are likely to pay next year. You have not yet collected all the information about the expected dividend payment, but you do know the following:

(1) The company follows a residual dividend policy.
(2) The total capital budget for next year is likely to be one of three amounts, depending on the results of capital budgeting studies that are currently under way. The capital expenditure amounts are $2 million, $3 million, and $4 million.
(3) The forecasted level of potential retained earnings next year is $2 million.

(4) The target or optimal capital structure is a debt ratio of 40%.

You have decided to respond by sending the stockholder the best information available to you.

a. Describe a residual dividend policy.

b. Compute the amount of the dividend (or the amount of new common stock needed) and the dividend payout ratio for each of the three capital expenditure amounts.

c. Compare, contrast, and discuss the amount of dividends (calculated in part b) associated with each of the three capital expenditure amounts.

13–4 Dividend constraints  The Howe Company’s stockholders’ equity account is as follows:

<table>
<thead>
<tr>
<th>Account</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common stock (400,000 shares at $4 par)</td>
<td>$1,600,000</td>
</tr>
<tr>
<td>Paid-in capital in excess of par</td>
<td>1,000,000</td>
</tr>
<tr>
<td>Retained earnings</td>
<td>1,900,000</td>
</tr>
<tr>
<td>Total stockholders’ equity</td>
<td>$4,500,000</td>
</tr>
</tbody>
</table>

The earnings available for common stockholders from this period’s operations are $100,000, which have been included as part of the $1.9 million retained earnings.

a. What is the maximum dividend per share that the firm can pay? (Assume that legal capital includes all paid-in capital.)

b. If the firm has $160,000 in cash, what is the largest per-share dividend it can pay without borrowing?

c. Indicate the accounts and changes, if any, that will result if the firm pays the dividends indicated in parts a and b.

d. Indicate the effects of an $80,000 cash dividend on stockholders’ equity.

13–5 Dividend constraints  A firm has $800,000 in paid-in capital, retained earnings of $40,000 (including the current year’s earnings), and 25,000 shares of common stock outstanding. In the current year, it has $29,000 of earnings available for the common stockholders.

a. What is the most the firm can pay in cash dividends to each common stockholder? (Assume that legal capital includes all paid-in capital.)

b. What effect would a cash dividend of $0.80 per share have on the firm’s balance sheet entries?

c. If the firm cannot raise any new funds from external sources, what do you consider the key constraint with respect to the magnitude of the firm’s dividend payments? Why?

13–6 Low-regular-and-extra dividend policy  Bennett Farm Equipment Sales, Inc., is in a highly cyclic business. Although the firm has a target payout ratio of 25%, its board realizes that strict adherence to that ratio would result in a fluctuating dividend and create uncertainty for the firm’s stockholders. Therefore, the firm has declared a regular dividend of $0.50 per share per year with extra cash dividends
to be paid when earnings justify them. Earnings per share for the last several years are as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>EPS</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>$3.00</td>
</tr>
<tr>
<td>2002</td>
<td>2.40</td>
</tr>
<tr>
<td>2001</td>
<td>2.20</td>
</tr>
<tr>
<td>2000</td>
<td>2.80</td>
</tr>
<tr>
<td>1999</td>
<td>2.15</td>
</tr>
<tr>
<td>1998</td>
<td>1.97</td>
</tr>
</tbody>
</table>

a. Calculate the payout ratio for each year on the basis of the regular $0.50 dividend and the cited EPS.
b. Calculate the difference between the regular $0.50 dividend and a 25% payout for each year.
c. Bennett has established a policy of paying an extra dividend only when the difference between the regular dividend and a 25% payout amounts to $1.00 or more. Show the regular and extra dividends in those years when an extra dividend would be paid. What would be done with the “extra” in years when an extra dividend is not paid?
d. The firm expects that future earnings per share will continue to cycle but will remain above $2.20 per share in most years. What factors should be considered in making a revision to the amount paid as a regular dividend? If the firm revises the regular dividend, what new amount should it pay?

13–7 Alternative dividend policies  Over the last 10 years, a firm has had the earnings per share shown in the following table.

<table>
<thead>
<tr>
<th>Year</th>
<th>Earnings per share</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>$4.00</td>
</tr>
<tr>
<td>2002</td>
<td>3.80</td>
</tr>
<tr>
<td>2001</td>
<td>3.20</td>
</tr>
<tr>
<td>2000</td>
<td>2.80</td>
</tr>
<tr>
<td>1999</td>
<td>3.20</td>
</tr>
<tr>
<td>1998</td>
<td>2.40</td>
</tr>
<tr>
<td>1997</td>
<td>1.20</td>
</tr>
<tr>
<td>1996</td>
<td>1.80</td>
</tr>
<tr>
<td>1995</td>
<td>– 0.50</td>
</tr>
<tr>
<td>1994</td>
<td>0.25</td>
</tr>
</tbody>
</table>

a. If the firm’s dividend policy were based on a constant payout ratio of 40% for all years with positive earnings and 0% otherwise, what would be the annual dividend for each year?
b. If the firm had a dividend payout of $1.00 per share, increasing by $0.10 per share whenever the dividend payout fell below 50% for two consecutive years, what annual dividend would the firm pay each year?

c. If the firm’s policy were to pay $0.50 per share each period except when earnings per share exceed $3.00, when an extra dividend equal to 80% of earnings beyond $3.00 would be paid, what annual dividend would the firm pay each year?

d. Discuss the pros and cons of each dividend policy described in parts a through c.

13–8 Alternative dividend policies  Given the earnings per share over the period 1996–2003 shown in the following table, determine the annual dividend per share under each of the policies set forth in parts a through d.

<table>
<thead>
<tr>
<th>Year</th>
<th>Earnings per share</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>$1.40</td>
</tr>
<tr>
<td>2002</td>
<td>1.56</td>
</tr>
<tr>
<td>2001</td>
<td>1.20</td>
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<td>2000</td>
<td>0.85</td>
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<td>1999</td>
<td>1.05</td>
</tr>
<tr>
<td>1998</td>
<td>0.60</td>
</tr>
<tr>
<td>1997</td>
<td>1.00</td>
</tr>
<tr>
<td>1996</td>
<td>0.44</td>
</tr>
</tbody>
</table>

a. Pay out 50% of earnings in all years with positive earnings.
b. Pay $0.50 per share and increase to $0.60 per share whenever earnings per share rise above $0.90 per share for two consecutive years.
c. Pay $0.50 per share except when earnings exceed $1.00 per share, in which case pay an extra dividend of 60% of earnings above $1.00 per share.
d. Combine policies in parts b and c. When the dividend is raised (in part b), raise the excess dividend base (in part c) from $1.00 to $1.10 per share.
e. Compare and contrast each of the dividend policies described in parts a through d.

13–9 Stock dividend—Firm  Columbia Paper has the following stockholders’ equity account. The firm’s common stock has a current market price of $30 per share.

- Preferred stock: $100,000
- Common stock (10,000 shares at $2 par): 20,000
- Paid-in capital in excess of par: 280,000
- Retained earnings: 100,000
- Total stockholders’ equity: $500,000

a. Show the effects on Columbia of a 5% stock dividend.
b. Show the effects of (1) a 10% and (2) a 20% stock dividend.
PART 4 Long-Term Financial Decisions

In light of your answers to parts a and b, discuss the effects of stock dividends on stockholders’ equity.

13–10 Cash versus stock dividend Milwaukee Tool has the following stockholders’ equity account. The firm’s common stock currently sells for $4 per share.

<table>
<thead>
<tr>
<th>Account</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preferred stock</td>
<td>$100,000</td>
</tr>
<tr>
<td>Common stock (400,000 shares at $1 par)</td>
<td>400,000</td>
</tr>
<tr>
<td>Paid-in capital in excess of par</td>
<td>200,000</td>
</tr>
<tr>
<td>Retained earnings</td>
<td>320,000</td>
</tr>
<tr>
<td>Total stockholders’ equity</td>
<td>$1,020,000</td>
</tr>
</tbody>
</table>

a. Show the effects on the firm of a cash dividend of $0.01, $0.05, $0.10, and $0.20 per share.
b. Show the effects on the firm of a 1%, 5%, 10%, and 20% stock dividend.
c. Compare the effects in parts a and b. What are the significant differences between the two methods of paying dividends?

13–11 Stock dividend—Investor Sarah Warren currently holds 400 shares of Nutri-Foods. The firm has 40,000 shares outstanding. The firm most recently had earnings available for common stockholders of $80,000, and its stock has been selling for $22 per share. The firm intends to retain its earnings and pay a 10% stock dividend.

a. How much does the firm currently earn per share?
b. What proportion of the firm does Sarah Warren currently own?
c. What proportion of the firm will Ms. Warren own after the stock dividend? Explain your answer.
d. At what market price would you expect the stock to sell after the stock dividend?
e. Discuss what effect, if any, the payment of stock dividends will have on Ms. Warren’s share of the ownership and earnings of Nutri-Foods.

13–12 Stock dividend—Investor Security Data Company has outstanding 50,000 shares of common stock currently selling at $40 per share. The firm most recently had earnings available for common stockholders of $120,000, but it has decided to retain these funds and is considering either a 5% or a 10% stock dividend in lieu of a cash dividend.

a. Determine the firm’s current earnings per share.
b. If Sam Waller currently owns 500 shares of the firm’s stock, determine his proportion of ownership currently and under each of the proposed stock dividend plans. Explain your findings.
c. Calculate and explain the market price per share under each of the stock dividend plans.
d. For each of the proposed stock dividends, calculate the earnings per share after payment of the stock dividend.
e. What is the value of Sam Waller’s holdings under each of the plans? Explain.
f. Should Mr. Waller have any preference with respect to the proposed stock dividends? Why or why not?

13–13 Stock split—Firm  Growth Industries’ current stockholders’ equity account is as follows:

- Preferred stock: $400,000
- Common stock (600,000 shares at $3 par): 1,800,000
- Paid-in capital in excess of par: 200,000
- Retained earnings: 800,000
- Total stockholders’ equity: $3,200,000

a. Indicate the change, if any, expected if the firm declares a 2-for-1 stock split.
b. Indicate the change, if any, expected if the firm declares a 1-for-11/2 reverse stock split.
c. Indicate the change, if any, expected if the firm declares a 3-for-1 stock split.
d. Indicate the change, if any, expected if the firm declares a 6-for-1 stock split.
e. Indicate the change, if any, expected if the firm declares a 1-for-4 reverse stock split.

13–14 Stock split versus stock dividend—Firm  Mammoth Corporation is considering a 3-for-2 stock split. It currently has the stockholders’ equity position shown. The current stock price is $120 per share. The most recent period’s earnings available for common stock is included in retained earnings.

- Preferred stock: $1,000,000
- Common stock (100,000 shares at $3 par): 300,000
- Paid-in capital in excess of par: 1,700,000
- Retained earnings: 10,000,000
- Total stockholders’ equity: $13,000,000

a. What effects on Mammoth would result from the stock split?
b. What change in stock price would you expect to result from the stock split?
c. What is the maximum cash dividend per share that the firm could pay on common stock before and after the stock split? (Assume that legal capital includes all paid-in capital.)
d. Contrast your answers to parts a through c with the circumstances surrounding a 50% stock dividend.
e. Explain the differences between stock splits and stock dividends.

13–15 Stock dividend versus stock split—Firm  The board of Wicker Home Health Care, Inc., is exploring ways to expand the number of shares outstanding in order to reduce the market price per share to a level that the firm considers more
appealing to investors. The options under consideration are a 20% stock dividend and, alternatively, a 5-for-4 stock split. At the present time, the firm’s equity account and other per share information are as follows:

- Preferred stock: $0
- Common stock (100,000 shares at $1 par): 100,000
- Paid-in capital in excess of par: 900,000
- Retained earnings: 700,000
- Total stockholders’ equity: $1,700,000
- Price per share: $30.00
- Earnings per share: $3.60
- Dividend per share: $1.08

a. Show the effect on the equity accounts and per-share data of a 20% stock dividend.
b. Show the effect on the equity accounts and per-share data of a 5-for-4 stock split.
c. Which option will accomplish Wicker’s goal of reducing the current stock price while maintaining a stable level of retained earnings?
d. What legal constraints might encourage the firm to choose a split over a stock dividend?

13–16 **Stock repurchase** The following financial data on the Bond Recording Company are available:

- Earnings available for common stockholders: $800,000
- Number of shares of common stock outstanding: 400,000
- Earnings per share ($800,000 ÷ 400,000): $2
- Market price per share: $20
- Price/earnings (P/E) ratio ($20 ÷ $2): 10

The firm is currently considering whether it should use $400,000 of its earnings to pay cash dividends of $1 per share or to repurchase stock at $21 per share.

a. Approximately how many shares of stock can the firm repurchase at the $21-per-share price, using the funds that would have gone to pay the cash dividend?
b. Calculate the EPS after the repurchase. Explain your calculations.
c. If the stock still sells at 10 times earnings, what will the market price be after the repurchase?
d. Compare the pre- and post-repurchase earnings per share.
e. Compare and contrast the stockholders’ positions under the dividend and repurchase alternatives. What are the tax implications under each alternative?

13–17 **Stock repurchase** Harte Textiles, Inc., a maker of custom upholstery fabrics, is concerned about preserving the wealth of its stockholders during a cyclic down-
turn in the home furnishings business. The company has maintained a constant dividend payout of $2.00 tied to a target payout ratio of 40%. Management is preparing a share repurchase recommendation to present to the firm’s board of directors. The following data have been gathered from the last two years:

<table>
<thead>
<tr>
<th></th>
<th>2002</th>
<th>2003</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earnings available for common stockholders</td>
<td>$1,260,000</td>
<td>$1,200,000</td>
</tr>
<tr>
<td>Number of shares outstanding</td>
<td>300,000</td>
<td>300,000</td>
</tr>
<tr>
<td>Earnings per share</td>
<td>$4.20</td>
<td>$4.00</td>
</tr>
<tr>
<td>Market price per share</td>
<td>$23.50</td>
<td>$20.00</td>
</tr>
<tr>
<td>Price/earnings ratio</td>
<td>5.6</td>
<td>5.0</td>
</tr>
</tbody>
</table>

a. How many shares should the company have outstanding in order to combine the earnings available for common stockholders of $1,200,000 in the year 2003 and a dividend of $2.00 to produce the desired payout ratio of 40%?
b. How many shares would Harte have to repurchase to have the level of shares outstanding calculated in part a?

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**CHAPTER 13 CASE Establishing General Access Company’s Dividend Policy and Initial Dividend**

General Access Company (GAC) is a fast-growing Internet access provider that initially went public in early 1997. Its revenue growth and profitability have steadily risen since the firm’s inception in late 1995. GAC’s growth has been financed through the initial common stock offering, the sale of bonds in 2000, and the retention of all earnings. Because of its rapid growth in revenue and profits, with only short-term earnings declines, GAC’s common stockholders have been content to let the firm reinvest earnings to expand capacity to meet the growing demand for its services. This strategy has benefited most stockholders in terms of stock splits and capital gains. Since the company’s initial public offering in 1997, GAC’s stock twice has been split 2-for-1. In terms of total growth, the market price of GAC’s stock, after adjustment for stock splits, has increased by 800 percent during the seven-year period 1997–2003.

Because GAC’s rapid growth is beginning to slow, the firm’s CEO, Marilyn McNeely, believes that its shares are becoming less attractive to investors. Ms. McNeely has had discussions with her CFO, Bobby Joe Rook, who believes that the firm must begin to pay cash dividends. He argues that many investors value regular dividends and that by beginning to pay them, GAC would increase the demand—and therefore the price—for its shares. Ms. McNeely decided that at the next board meeting she would propose that the firm begin to pay dividends on a regular basis.

Ms. McNeely realized that if the board approved her recommendation, it would have to (1) establish a dividend policy and (2) set the amount of the initial
annual dividend. She had Mr. Rook prepare a summary of the firm’s annual EPS. It is given in the following table.

<table>
<thead>
<tr>
<th>Year</th>
<th>EPS</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>$3.70</td>
</tr>
<tr>
<td>2002</td>
<td>4.10</td>
</tr>
<tr>
<td>2001</td>
<td>3.90</td>
</tr>
<tr>
<td>2000</td>
<td>3.30</td>
</tr>
<tr>
<td>1999</td>
<td>2.20</td>
</tr>
<tr>
<td>1998</td>
<td>0.83</td>
</tr>
<tr>
<td>1997</td>
<td>0.55</td>
</tr>
</tbody>
</table>

Mr. Rook indicated that he expects EPS to remain within 10% (plus or minus) of the most recent (2003) value during the next three years. His most likely estimate is an annual increase of about 5%.

After much discussion, Ms. McNeely and Mr. Rook agreed that she would recommend to the board one of the following types of dividend policies:

1. Constant-payout-ratio dividend policy
2. Regular dividend policy
3. Low-regular-and-extra dividend policy

Ms. McNeely realizes that her dividend proposal would significantly affect future financing opportunities and costs and the firm’s share price. She also knows that she must be sure her proposal is complete and that it fully educates the board with regard to the long-term implications of each policy.

**Required**

a. Analyze each of the three dividend policies in light of GAC’s financial position.
b. Which dividend policy would you recommend? Justify your recommendation.
c. What are the key factors to consider when setting the amount of a firm’s initial annual dividend?
d. How should Ms. McNeely go about deciding what initial annual dividend she will recommend to the board?
e. In view of your dividend policy recommendation in part b, how large an initial dividend would you recommend? Justify your recommendation.

**WEB EXERCISE**

Go to the Web site *www.smartmoney.com*. In the column on the right under *Quotes & Research* enter the symbol Dis; click on *Stock Snapshot*; and then click on Go.

1. What is the name of the company?
Enter those data into the matrix below. Then click on the **Key Ratios** tab and enter the current ROE. Enter the next stock symbol into the box on the bottom of the page under **Stock Search** and then click on **Submit**. Complete the following matrix in that manner.

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Company name</th>
<th>$ Amount</th>
<th>Dividend frequency</th>
<th>Yield %</th>
<th>ROE</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIS</td>
<td>___________</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>AIT</td>
<td>___________</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>MRK</td>
<td>___________</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>LG</td>
<td>___________</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>LUV</td>
<td>___________</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>IBM</td>
<td>___________</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>GE</td>
<td>___________</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>BUD</td>
<td>___________</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>PFE</td>
<td>___________</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>INTC</td>
<td>___________</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
</tbody>
</table>

3. Which of the companies have the lowest dividend yields?
4. Which of the companies have the highest dividend yields?
5. Looking at return on equity, can you draw any conclusions about the relationship between dividends and ROE?
O’Grady Apparel Company was founded nearly 150 years ago when an Irish merchant named Garrett O’Grady landed in Los Angeles with an inventory of heavy canvas, which he hoped to sell for tents and wagon covers to miners headed for the California goldfields. Instead, he turned to the sale of harder-wearing clothing.

Today, the O’Grady Apparel Company is a small manufacturer of fabrics and clothing whose stock is traded on the over-the-counter exchange. In 2003, the Los Angeles-based company experienced sharp increases in both domestic and European markets resulting in record earnings. Sales rose from $15.9 million in 2002 to $18.3 million in 2003 with earnings per share of $3.28 and $3.84, respectively.

The European sales represented 29% of total sales in 2003, up from 24% the year before and only 3% in 1998, 1 year after foreign operations were launched. Although foreign sales represent nearly one-third of total sales, the growth in the domestic market is expected to affect the company most markedly. Management expects sales to surpass $21 million in 2004, and earnings per share are expected to rise to $4.40. (Selected income statement items are presented in Table 1.)

Because of the recent growth, Margaret Jennings, the corporate treasurer, is concerned that available funds are not being used to their fullest. The projected $1,300,000 of internally generated 2004 funds are expected to be insufficient to meet the company’s expansion needs. Management has set a policy of maintaining the current capital structure.

Table 1

<table>
<thead>
<tr>
<th>Selected Income Statement Items</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>Projected 2004</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net sales</td>
<td>$13,860,000</td>
<td>$15,940,000</td>
<td>$18,330,000</td>
<td>$21,080,000</td>
</tr>
<tr>
<td>Net profits after taxes</td>
<td>1,520,000</td>
<td>1,750,000</td>
<td>2,020,000</td>
<td>2,323,000</td>
</tr>
<tr>
<td>Earnings per share (EPS)</td>
<td>2.88</td>
<td>3.28</td>
<td>3.84</td>
<td>4.40</td>
</tr>
<tr>
<td>Dividends per share</td>
<td>1.15</td>
<td>1.31</td>
<td>1.54</td>
<td>1.76</td>
</tr>
</tbody>
</table>
proportions of 25% long-term debt, 10% preferred stock, and 65% common stock equity for at least the next 3 years. In addition, it plans to continue paying out 40% of its earnings as dividends. Total capital expenditures are yet to be determined.

Ms. Jennings has been presented with several competing investment opportunities by division and product managers. However, because funds are limited, choices of which projects to accept must be made. The investment opportunities schedule (IOS) is shown in Table 2. To analyze the effect of the increased financing requirements on the weighted average cost of capital (WACC), Ms. Jennings contacted a leading investment banking firm that provided the financing cost data given in Table 3. O’Grady is in the 40% tax bracket.

### Table 2

<table>
<thead>
<tr>
<th>Investment opportunity</th>
<th>Internal rate of return (IRR)</th>
<th>Initial investment</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>21%</td>
<td>$400,000</td>
</tr>
<tr>
<td>B</td>
<td>19</td>
<td>200,000</td>
</tr>
<tr>
<td>C</td>
<td>24</td>
<td>700,000</td>
</tr>
<tr>
<td>D</td>
<td>27</td>
<td>500,000</td>
</tr>
<tr>
<td>E</td>
<td>18</td>
<td>300,000</td>
</tr>
<tr>
<td>F</td>
<td>22</td>
<td>600,000</td>
</tr>
<tr>
<td>G</td>
<td>17</td>
<td>500,000</td>
</tr>
</tbody>
</table>

### Table 3

**Financing Cost Data**

- **Long-term debt**: The firm can raise $700,000 of additional debt by selling 10-year, $1,000, 12% annual interest rate bonds to net $970 after flotation costs. Any debt in excess of $700,000 will have a before-tax cost, $k_d$, of 18%.

- **Preferred stock**: Preferred stock, regardless of the amount sold, can be issued with a $60 par value and a 17% annual dividend rate. It will net $57 per share after flotation costs.

- **Common stock equity**: The firm expects its dividends and earnings to continue to grow at a constant rate of 15% per year. The firm’s stock is currently selling for $20 per share. The firm expects to have $1,300,000 of available retained earnings. Once the retained earnings have been exhausted, the firm can raise additional funds by selling new common stock, netting $16 per share after underpricing and flotation costs.
Required

a. Over the relevant ranges noted in the following table, calculate the after-tax cost of each source of financing needed to complete the table.

<table>
<thead>
<tr>
<th>Source of capital</th>
<th>Range of new financing</th>
<th>After-tax cost (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long-term debt</td>
<td>$0–$700,000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$700,000 and above</td>
<td></td>
</tr>
<tr>
<td>Preferred stock</td>
<td>$0 and above</td>
<td></td>
</tr>
<tr>
<td>Common stock equity</td>
<td>$0–$1,300,000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$1,300,000 and above</td>
<td></td>
</tr>
</tbody>
</table>

b. (1) Determine the break points associated with each source of capital.
   (2) Using the break points developed in part (1), determine each of the ranges of total new financing over which the firm’s weighted average cost of capital (WACC) remains constant.
   (3) Calculate the weighted average cost of capital for each range of total new financing.

c. (1) Using your findings in part b(3) with the investment opportunities schedule (IOS), draw the firm’s weighted marginal cost of capital (WMCC) schedule and the IOS on the same set of axes, with total new financing or investment on the x axis and weighted average cost of capital and IRR on the y axis.
   (2) Which, if any, of the available investments would you recommend that the firm accept? Explain your answer.

d. (1) Assuming that the specific financing costs do not change, what effect would a shift to a more highly levered capital structure consisting of 50% long-term debt, 10% preferred stock, and 40% common stock have on your previous findings? (Note: Rework parts b and c using these capital structure weights.)
   (2) Which capital structure—the original one or this one—seems better? Why?
e. (1) What type of dividend policy does the firm appear to employ? Does it seem appropriate given the firm’s recent growth in sales and profits and given its current investment opportunities?
(2) Would you recommend an alternative dividend policy? Explain. How would this policy affect the investments recommended in part c (2)?