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15-1 Dividends Versus Capital Gains: What Do Investors Prefer?

When deciding how much cash to distribute, financial managers must keep in mind that the firm's objective is to maximize shareholder value. Consequently, the **target payout ratio**—defined as the percentage of net income to be paid out as cash dividends—should be based in large part on investors' preferences for dividends versus capital gains: Do investors prefer to receive dividends, or would they rather have the firm plow the cash back into the business, which presumably will produce capital gains? This preference can be considered in terms of the constant growth stock valuation model.

Target Payout Ratio
The target percentage of net income paid out as cash dividends.

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

If the company increases the payout ratio, this will raise D_1, which, taken alone, will cause the stock price to rise. However, if D_1 is raised, less money will be available for reinvestment, which will cause the expected growth rate to decline; and that will tend to lower the stock's price. Therefore, any change in the payout policy will have two opposing effects. As a result, the **optimal dividend policy** must strike the balance between current dividends and future growth that maximizes the stock price. In the following sections, we discuss the major theories that have been advanced to explain how investors regard current dividends versus future growth.

Optimal Dividend Policy
The dividend policy that strikes a balance between current dividends and future growth and maximizes the firm's stock price.

15-1A Dividend Irrelevance Theory

Professors Merton Miller and Franco Modigliani (MM) advanced the **dividend irrelevance theory**, which stated that dividend policy has no effect on either the price of a firm's stock or its cost of capital.[1] MM developed their theory under a stringent set of assumptions, and under those assumptions, they proved that a firm's value is determined only by its basic earning power and its business risk. In other words, the value of the firm depends only on the income produced by its assets, not on how that income is split between dividends and retained earnings. Note, though, that MM assumed, among other things, that no taxes are paid on dividends, that stocks can be bought and sold with no transactions costs, and that everyone—investors and managers alike—has the same information regarding firms' future earnings.

Dividend Irrelevance Theory
The theory that a firm's dividend policy has no effect on either its value or its cost of capital.

Given their assumptions, MM argued that each shareholder can construct his or her own dividend policy. For example, if a firm does not pay dividends, a shareholder who wants a 5% dividend can "create" it by selling 5% of his or her stock. Conversely, if a company pays a higher dividend than an investor wants, the investor can use the unwanted dividends to buy additional shares of the company's stock. Note, though, that in the real world, individual investors who want additional dividends would have to incur transactions costs to sell shares, and investors who do not want dividends would have to pay taxes on the unwanted dividends and then incur transactions costs to purchase shares with the after-tax dividends. Because taxes and transactions costs do exist, dividend policy may well be relevant, and investors may prefer policies that help them reduce taxes and transactions costs.

[1] Merton H. Miller and Franco Modigliani, "Dividend Policy, Growth, and the Valuation of Shares," *Journal of Business*, October 1961, pp. 411–433.

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In defense of their theory, MM noted that many stocks are owned by institutional investors who pay no taxes and who can buy and sell stocks with very low transactions costs. For such investors, dividend policy might well be irrelevant; and if these investors dominate the market and represent the "marginal investor," MM's theory could be valid in spite of its unrealistic assumptions. Note too that for tax-paying investors, the taxes and transactions costs depend on what the individual investor's income is and how long he or she plans to hold the stock. As a result, when it comes to investors' preferences for dividends, one size does not fit all. Next, we discuss why some investors prefer dividends whereas others prefer capital gains.

15-1B Reasons Some Investors Prefer Dividends

The principal conclusion of MM's dividend irrelevance theory is that dividend policy does not affect either stock prices or the required rate of return on equity, r_s. Early critics of MM's theory suggested that investors preferred a sure dividend today to an uncertain future capital gain. In particular, Myron Gordon and John Lintner argued that r_s declines as the dividend payout is increased because investors are less certain of receiving the capital gains that should result from retaining earnings than they are of receiving dividend payments.[2]

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MM disagreed. They argued that r_s is independent of dividend policy, which implies that investors are indifferent between dividends and capital gains, that is, between D_1/P_0 and g. MM called the Gordon–Lintner argument the **bird-in-the-hand fallacy** because in MM's view, most investors plan to reinvest their dividends in the stock of the same or similar firms and, in any event, the riskiness of the firm's cash flows to investors in the long run is determined by the riskiness of operating cash flows, not by dividend payout policy.

d-in-the-Hand Fallacy
's name for the don–Lintner theory a firm's value will be imized by setting a dividend payout

Keep in mind, however, that MM's theory relied on the assumption that there are no taxes or transactions costs, which means that investors who prefer dividends could simply create their own dividend policy by selling a percentage of their stock each year. In reality, most investors face transactions costs when they sell stock, so investors who are looking for a steady stream of income would logically prefer that companies pay regular dividends. For example, retirees who have accumulated wealth over time and now want annual income from their investments probably prefer dividend-paying stocks.

15-1C Reasons Some Investors Prefer Capital Gains

While dividends reduce transactions costs for investors who are looking for steady income from their investments, dividends increase transactions costs for other investors who are less interested in income and more interested in saving money for the long-term future. These long-term investors want to reinvest their dividends, and that creates transactions costs. Given this concern, a number of companies have established dividend reinvestment plans that help investors automatically reinvest their dividends. (We discuss dividend reinvestment plans in Section 15-4.)

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In addition (and perhaps more importantly), the Tax Code encourages many individual investors to prefer capital gains to dividends. One key advantage is that taxes must be paid on dividends the year they are received, but taxes on

[2]Myron J. Gordon, "Optimal Investment and Financing Policy," *Journal of Finance*, vol. 18, no. 2 (May 1963), pp. 264–272; and John Lintner, "Dividends, Earnings, Leverage, Stock Prices, and the Supply of Capital to Corporations," *Review of Economics and Statistics*, vol. 44, no. 3 (August 1962), pp. 243–269.

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capital gains are not paid until the stock is sold. Due to time value effects, a dollar of taxes paid in the future has a lower effective cost than a dollar of taxes paid today.[3] Apart from this advantage, the tax rate on dividends has often been higher than the tax rate on capital gains. For example, prior to 2003, dividends were taxed at the ordinary income tax rate, which went up to 38.6%, versus a rate of 20% on long-term capital gains. These differential rates were eliminated in 2003, when the maximum tax rate on dividends and long-term capital gains was set at 15%.[4] However, in early 2013, Congress increased the maximum tax rate on dividends and long-term capital gains to 20% for high-income taxpayers.[5]

SELF TEST

Explain briefly the ideas behind the dividend irrelevance theory.

What did Modigliani and Miller assume about taxes and brokerage costs when they developed their dividend irrelevance theory?

Why did MM refer to the Gordon–Lintner dividend argument as the bird-in-the-hand fallacy?

Why do some investors prefer high-dividend-paying stocks?

Why might other investors prefer low-dividend-paying stocks?

15-2 Other Dividend Policy Issues

Before we discuss how dividend policy is set in practice, we need to examine two other issues that affect dividend policy: (1) the *information content*, or *signaling, hypothesis* and (2) the *clientele effect*.

15-2a Information Content, or Signaling, Hypothesis

An increase in the dividend is often accompanied by an increase in the stock price, while a dividend cut generally leads to a stock price decline. This observation was used to refute MM's irrelevance theory—their opponents argued that stock price actions after changes in dividend payouts demonstrate that investors prefer dividends to capital gains. However, MM argued differently. They noted that corporations are reluctant to cut dividends and thus that corporations do not raise dividends unless they anticipate higher earnings in the future to support the higher dividends. Thus, MM argued that a higher than expected dividend increase

[3]Moreover, if a stock is held by someone until he or she dies, there is no capital gains tax at all—the beneficiaries who receive the stock can use the stock's value on the date of death as their cost basis, which permits them to escape the capital gains tax completely.

[4]However, long-term capital gains are classified as income subject to the Alternative Minimum Tax (AMT), and the AMT rate is 26% or 28%, depending on your income bracket. The AMT was supposed to hit only the very wealthy, but prior to 2013 it was not indexed for inflation. So by 2012, many not-so-wealthy individuals were being hit. However, Congress fixed this problem with new tax legislation, and beginning in 2013, the AMT exemption amounts are indexed to inflation.

[5]Effective January 1, 2013, long-term capital gains and dividend tax rates increased to 20% for high-income taxpayers in the top tax bracket (39.6% marginal tax rate). Short-term capital gains on assets held for one year or less are taxed as ordinary income. On January 1, 2014, the top tax bracket for single taxpayers started at a taxable income of $406,750, while the top tax bracket for married couples filing jointly started at a taxable income of $457,600.

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is a signal to investors that management forecasts good future earnings.[6] Conversely, a dividend reduction, or a smaller than expected increase, is a signal that management forecasts poor future earnings. If the MM position is correct, stock price changes after dividend increases or decreases do not demonstrate a preference for dividends over retained earnings. Rather, such price changes simply indicate that dividend announcements have **information (signaling) content** about future earnings.

Information (Signaling) Content
The theory that investors regard dividend changes as signals of management's earnings forecasts.

Managers often have better information about future prospects for dividends than public stockholders, so there is clearly some information content in dividend announcements. However, it is difficult to tell whether the stock price changes that follow dividend increases or decreases reflect only signaling effects (as MM argue) or both signaling and dividend preference. Still, a firm should consider signaling effects when it is contemplating a change in dividend policy. For example, if a firm has good long-term prospects but also has a need for cash to fund current investments, it might be tempted to cut the dividend to increase funds available for investment. However, this action might cause the stock price to decline because the dividend reduction is taken as a signal that future earnings are likely to decline, when just the reverse is actually true. So managers should consider signaling effects when they set dividend policy.

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15-2b Clientele Effect

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As we indicated earlier, different groups, or **clienteles**, of stockholders prefer different dividend payout policies. For example, retired individuals, pension funds, and university endowment funds generally prefer cash income, so they often want the firm to distribute a high percentage of its earnings. Such investors are frequently in low or even zero tax brackets, so taxes are of little concern. On the other hand, stockholders in their peak earning years might prefer reinvestment because they have less need for current investment income and simply reinvest dividends received after incurring income taxes and brokerage costs.

If a firm retains and reinvests income rather than paying dividends, those stockholders who need current income will be disadvantaged. The value of their stock might increase, but they will be forced to go to the trouble and expense of selling some of their shares to obtain cash. Also, some institutional investors (or trustees for individuals) might be legally precluded from selling stock and then "spending capital." On the other hand, stockholders who are saving rather than spending dividends favor the low-dividend policy: The less the firm pays out in dividends, the less these stockholders have to pay in current taxes and the less trouble and expense they must go through to reinvest their after-tax dividends. Therefore, investors who want current investment income should own shares in high-dividend-payout firms, while investors with no need for current investment income should own shares in low-dividend-payout firms. For example, investors seeking high cash income might invest in Duke Energy, an electric utility that paid a dividend of $3.12 for a dividend payout of 80% in mid-2014, while investors favoring growth could invest in Adobe Systems, a computer software company that had no dividend payout.

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All of this suggests that a **clientele effect** exists, which means that firms have different clienteles and that the clienteles have different preferences; hence, a

[6]Stephen Ross has suggested that managers can use capital structure as well as dividends to give signals concerning a firm's future prospects. For example, a firm with good earnings prospects can carry more debt than a similar firm with poor earnings prospects. This theory, called *incentive signaling*, rests on the premise that signals with cash-based variables (either debt interest or dividends) cannot be mimicked by unsuccessful firms because those firms do not have the future cash-generating power to maintain the announced interest or dividend payment. Thus, investors are more likely to believe a glowing verbal report when it is accompanied by a dividend increase or a debt-financed expansion program. See Stephen A. Ross, "The Determination of Financial Structure: The Incentive-Signaling Approach," *The Bell Journal of Economics*, vol. 8, no. 1 (Spring 1977), pp. 23–40.

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change in dividend policy might upset the majority clientele and have a negative effect on the stock's price.[7] This suggests that a company should follow a stable, dependable dividend policy so as to avoid upsetting its clientele.

Borrowing from the ideas of *behavioral finance*, some recent research suggests that investors' preferences for dividends vary over time. Malcolm Baker and Jeffrey Wurgler have proposed a **catering theory** for dividends where investors sometimes have strong preferences for safety and high-dividend-paying stocks, whereas at other times they are more aggressive and seek low-dividend-paying stocks with greater potential for capital gains. Baker and Wurgler argue that corporate managers accommodate the shifting preferences of investors, are more likely to initiate dividends when dividend-paying stocks are in favor with investors, and are more likely to omit dividends when investors demonstrate a greater preference for capital gains.[8]

Catering Theory
A theory that suggests investors' preferences for dividends vary over time and that corporations adapt their dividend policies to cater to the current desires of investors.

SELF TEST

Define (1) information content and (2) the clientele effect, and explain how they affect dividend policy.

What is "catering theory," and how does it impact a firm's dividend policy?

15-3 Establishing the Dividend Policy in Practice

Investors may or may not prefer dividends to capital gains; however, because of the clientele effect, they almost certainly prefer *predictable* dividends. Given this situation, how should firms set their basic dividend policies? In particular, how should a company establish the specific percentage of earnings it will distribute, the form of that distribution, and the stability of its distributions over time? In this section, we describe how most firms answer those questions.

15-3a Setting the Target Payout Ratio: The Residual Dividend Model[9]

When a firm is deciding how much cash to distribute to stockholders, it should consider two points: (1) The overriding objective is to maximize shareholder value; and (2) the firm's cash flows really belong to its shareholders, so management should not retain income unless they can reinvest those earnings at higher rates of return than shareholders can earn themselves. On the other hand, recall from Chapter 10 that internal equity (retained earnings) is less expensive than external equity (new common stock), so if good investments are available, it is better to finance them with retained earnings than with new stock.

[7]For example, see R. Richardson Pettit, "Taxes, Transactions Costs and the Clientele Effect of Dividends," *The Journal of Financial Economics*, vol. 5, no. 3 (December 1977), pp. 419–436.

[8]See Malcolm Baker and Jeffrey Wurgler, "A Catering Theory of Dividends," *The Journal of Finance*, vol. 59, no. 3 (June 2004), pp. 1125–1165.

[9]The term *payout ratio* can be interpreted two ways: (1) in the conventional way, as the percentage of net income paid out as *cash dividends* or (2) as the percentage of net income distributed to stockholders *through dividends and share repurchases*. In this section, we assume that no repurchases occur. Increasingly, though, firms are using the residual model to determine "distributions to shareholders" and then making a separate decision as to the form of those distributions. Further, over time, an increasing percentage of the total distribution has been in the form of share repurchases.

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When a dividend policy is established, one size does not fit all. Some firms produce a large amount of cash but have limited investment opportunities—this is true for firms in profitable but mature industries where few growth opportunities exist. Such firms typically distribute a large percentage of their cash to shareholders, thereby attracting investor clienteles who prefer high dividends. Other firms have many good investment opportunities but currently generate little or no excess cash. Such firms generally distribute few or no cash dividends but enjoy rising earnings and stock prices, thereby attracting investors who prefer capital gains.

The past few decades have seen increasing numbers of young, high-growth firms trading on the stock exchanges. A study by Eugene Fama and Kenneth French showed that the proportion of firms paying dividends has fallen sharply over time. In 1978, 66.5% of firms on the major stock exchanges paid dividends. By 1999, that proportion had fallen to 20.8%. Fama and French's analysis suggested that part of this decline was due to the changing composition of firms on the exchanges. However, their analysis also indicated that all firms, new and old, have become less likely to pay dividends.[10]

As a result of the 2003 tax changes, which lowered the tax rate on dividends, many companies initiated dividends or increased their payouts. For example, in 2002, only 113 companies raised or initiated dividends; however, in 2003 that number doubled to 229. Previously, those companies would have been more inclined to repurchase shares. As of June 2014, 426 companies in the S&P 500 paid dividends.

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As Table 15.1 suggests, dividend payouts and dividend yields for large corporations vary considerably. Generally, firms in stable, cash-producing industries such as utilities, food, and tobacco pay relatively high dividends, whereas companies in rapidly growing industries such as computer software and biotechnology tend to pay lower dividends. Average dividends also differ significantly across countries. Higher payout ratios in some countries can be partially explained by lower tax rates on earnings distributed as cash dividends relative to applicable rates on reinvested income. This biases the dividend policy toward higher payouts.

For a given firm, the optimal payout ratio is a function of four factors: (1) management's opinion about its investors' preferences for dividends versus

15.1 Dividend Payouts in 2014

Company	Industry	Dividend Payout	Dividend Yield
I. Companies That Pay High Dividends			
Windstream	Telecommunications	297.07%	10.45%
Great Northern Iron Ore	Metals	102.24	57.26
TECO Energy	Electric Utilities	93.15	5.10
Reynolds American	Tobacco	89.85	4.29
Weyerhauser	Lumber & Wood	86.28	2.80
II. Companies That Pay No Dividends			
Adobe Systems	Computer Software	0.00%	0.00%
Amazon.com	Online Retail	"	"
Biogen Idec Inc	Biotechnology	"	"
eBay	Internet Services	"	"
Unisys Corp.	Computers	"	"

Source: *MSN Money* (money.msn.com), June 2, 2014.

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[10]Eugene F. Fama and Kenneth R. French, "Disappearing Dividends: Changing Firm Characteristics or Lower Propensity to Pay?" *Journal of Applied Corporate Finance*, vol. 14, no. 1 (Spring 2001), pp. 67–79; and "Disappearing Dividends: Changing Firm Characteristics or Lower Propensity to Pay?" *Journal of*

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capital gains, (2) the firm's investment opportunities, (3) the firm's target capital structure, and (4) the availability and cost of external capital. These factors are combined in what we call the **residual dividend model**. First, under this model, we assume that investors are indifferent between dividends and capital gains. Then the firm follows these four steps to establish its target payout ratio: (1) It determines the optimal capital budget; (2) given its target capital structure, it determines the amount of equity needed to finance that budget; (3) it uses retained earnings to meet equity requirements to the extent possible; and (4) it pays dividends only if more earnings are available than are needed to support the optimal capital budget. The word *residual* implies "leftover," and the residual policy implies that dividends are paid out of "leftover" earnings.

Residual Dividend Model
A model in which the dividend paid is set equal to net income minus the amount of retained earnings necessary to finance the firm's optimal capital budget.

If a firm rigidly follows the residual dividend policy, dividends paid in any given year can be expressed in the following equation:

$$\text{Dividends} = \text{Net income} - \text{Retained earnings required to help finance new investments}$$
$$= \text{Net income} - [(\text{Target equity ratio})(\text{Total capital budget})]$$

For example, suppose the company has $100 million of earnings, it has a target equity ratio of 60%, and it plans to spend $50 million on capital projects. In that case, it would need $\$50(0.6) = \$30$ million of common equity plus $20 million of new debt to finance the capital budget. That would leave $\$100 - \$30 = \$70$ million available for dividends, which would result in a 70% payout ratio.

Note that the amount of equity needed to finance the capital budget might exceed net income. In the preceding example, if the capital budget was $\$100/\text{Equity percentage} = \$100/0.6 = \$166.67$ million, no dividends would be paid. If the capital budget exceeded $166.67 million, the company would have to issue new common stock in order to maintain its target capital structure.

Most firms have a target capital structure that calls for at least some debt, so new financing is done partly with debt and partly with equity. As long as a firm finances with the optimal mix of debt and equity and uses only internally generated equity (retained earnings), the marginal cost of each new dollar of capital will be minimized. So internally generated equity is available for financing a certain amount of new investment; but beyond that amount, the firm must turn to more expensive new common stock. At the point where new stock must be sold, the cost of equity (and consequently the marginal cost of capital) rises.

To illustrate these points, consider the case of Texas and Western (T&W) Transport Company. T&W's overall composite cost of capital is 10%. However, this cost assumes that all new equity comes from retained earnings. If the company must issue new stock, its cost of capital will be higher. T&W has $60 million of net income and a target capital structure with 60% equity and 40% debt. Provided it does not pay any cash dividends, T&W could make net investments (investments in addition to asset replacements from depreciation) of $100 million, consisting of $60 million from retained earnings plus $40 million of new debt supported by the retained earnings, at a 10% marginal cost of capital. If the capital budget exceeded $100 million, the required equity component would exceed net income, which is, of course, the maximum possible amount of retained earnings. In this case, T&W would have to issue new common stock, thereby pushing its cost of capital above 10%.[11]

[11] If T&W does not retain all of its earnings, its cost of capital will rise above 10% before its capital budget reaches $100 million. For example, if T&W chose to retain $36 million, its cost of capital would increase once the capital budget exceeded $36/0.6 = $60 million. To understand this point, note that a capital budget of $60 million would require $36 million of equity. If the capital budget rose above $60 million, the company's required equity capital would exceed its retained earnings, thereby

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At the beginning of its planning period, T&W's financial staff considers all proposed projects for the upcoming period. All independent projects are accepted if their estimated IRRs exceed their risk-adjusted costs of capital. In choosing among mutually exclusive projects, the project with the highest positive NPV is accepted. The capital budget represents the amount of capital that is required to finance all accepted projects. If T&W follows a strict residual dividend policy, we can see from Table 15.2 that the estimated capital budget will have a profound effect on its dividend payout ratio. If investment opportunities are poor, the capital budget will be only $40 million. To maintain the target capital structure, 0.6($40) = $24 million must be equity, with the remaining $16 million as debt. If T&W followed a strict residual policy, it would pay out $60 − $24 = $36 million as dividends; hence, its payout ratio would be $36/$60 = 0.6 = 60%.

If the company's investment opportunities were average, its capital budget would be $70 million. This would require $42 million of equity; so dividends would be $60 − $42 = $18 million, for a payout of $18/$60 = 30%. Finally, if investment opportunities were good, the capital budget would be $150 million and 0.6($150) = $90 million of equity would be required. Therefore, all of the net income would be retained, dividends would be zero, and the company would have to issue some new common stock to maintain the target capital structure.

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We see then that under the residual model, dividends and the payout ratio would vary with investment opportunities. Dividend variations would also occur if earnings fluctuated. Because investment opportunities and earnings vary from year to year, strict adherence to the residual dividend policy would result in unstable dividends. One year the firm might pay zero dividends because it needed the money to finance good investment opportunities, but the next year it might pay high dividends because investment opportunities were poor and it didn't need to retain as much. Similarly, fluctuating earnings would also lead to variable dividends, even if investment opportunities were stable. *Therefore, following the residual dividend policy would almost certainly lead to fluctuating, unstable dividends.* This would not be bad if investors were not bothered by fluctuating dividends; but because investors prefer stable, dependable dividends, it would not be optimal to strictly follow the residual model each year. One possible strategy that firms could use to balance these concerns is to:

1. Estimate earnings and investment opportunities, on average, over the next 5 or so years.

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T&W's Dividend Payout Ratio with $60 Million of Net Income When Faced with Different Investment Opportunities (Dollars in Millions)

	Investment Opportunities		
	Poor	**Average**	**Good**
Capital budget	$40	$70	$150
Net income (NI)	60	60	60
Required equity (0.6 × Capital budget)	24	42	90
Dividends paid (NI − Required equity)	$36	$18	($ 30)[a]
Dividend payout ratio (Dividends/NI)	60%	30%	0%

Note:

[a]With a $150 million capital budget, T&W would retain all of its earnings and also issue

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2. Use the forecasted information to find the average dividends that would be paid using the residual model (and the corresponding payout ratio) during the planning period.
3. Set a target payout policy based on the projected data.

Thus, firms should use the residual policy to help set their long-run target payout ratios, but not as a guide to the payout in any one year.

Most large companies use the residual dividend model in a conceptual sense and then implement it with a computerized financial forecasting model. Information on projected capital expenditures and working capital requirements is entered into the model, along with sales forecasts, profit margins, depreciation, and the other elements required to forecast cash flows. The target capital structure is also specified; the model then generates the amount of debt and equity that will be required to meet the capital budgeting requirements while maintaining the target capital structure.

Dividend payments are introduced; and the higher the payout ratio, the greater the required external equity. Most companies use the model to find a dividend payout over the forecast period (generally 5 years) that will provide sufficient equity to support the capital budget without having to sell new common stock or taking the capital structure ratios outside the optimal range. This chapter's Excel model includes an illustration of this process. In addition, Web Appendix 15A discusses this approach in more detail. The end result might be a memo such as the following from the CFO to the chairperson of the board:

We forecasted the total market demand for our products, what our share of the market is likely to be, and our required investments in capital assets and working capital. Using this information, we developed projected balance sheets and income statements for the period 2016–2020.

Our 2015 dividends totaled $50 million, or $2.00 per share. On the basis of projected earnings, cash flows, and capital requirements, we can increase the dividend by 6% per year. This would be consistent with a payout ratio of 42%, on average, over the forecast period. Any faster dividend growth rate would require us to sell common stock, cut the capital budget, or raise the debt ratio. Any slower growth rate would lead to increases in the common equity ratio. Therefore, I recommend that the Board increase the dividend for 2016 by 6%, to $2.12, and that it plan for similar increases in the future.

Events over the next 5 years will undoubtedly lead to differences between our forecasts and actual results. If and when such events occur, we should reexamine our position. However, I am confident that we can meet random cash shortfalls by increasing our borrowings—we have unused debt capacity that gives us flexibility in this regard.

We ran the corporate model under several scenarios. If the economy totally collapses, our earnings will not cover the dividend. However, in all likely scenarios our cash flows would cover the recommended dividend. I know the Board does not want to push the dividend up to a level where we would have to cut it under poor economic conditions. Our model runs indicate, though, that the $2.12 dividend could be maintained under any reasonable set of forecasts. Only if we increased the dividend to more than $3.00 would we be seriously exposed to the danger of having to reduce it.

I might also note that most analysts' reports are forecasting that our dividends will grow in the 5% to 6% range. Thus, if we go to $2.12, we will be at the high end of the forecast range, which should give our stock a boost. With takeover rumors so widespread, getting the stock price up a bit would make us all breathe a little easier.

Finally, we considered distributing cash to shareholders through a stock repurchase program. Here we would reduce the dividend payout ratio and use the funds generated to buy our stock on the open market. Such a program has several advantages, but it would also have drawbacks. I do not recommend that we institute a stock repurchase program at this time. However, if our free cash flows exceed our forecasts, I would recommend that we use these surpluses to buy back stock. Also, I plan to continue looking into a regular repurchase program, and I may recommend such a program in the future.

This company has very stable operations, so it can plan its dividends with a fairly high degree of confidence. Other companies, especially those in cyclical industries, have difficulty maintaining a dividend in bad times that would be too low in good times. Such companies often set a very low "regular" dividend

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GLOBAL PERSPECTIVES

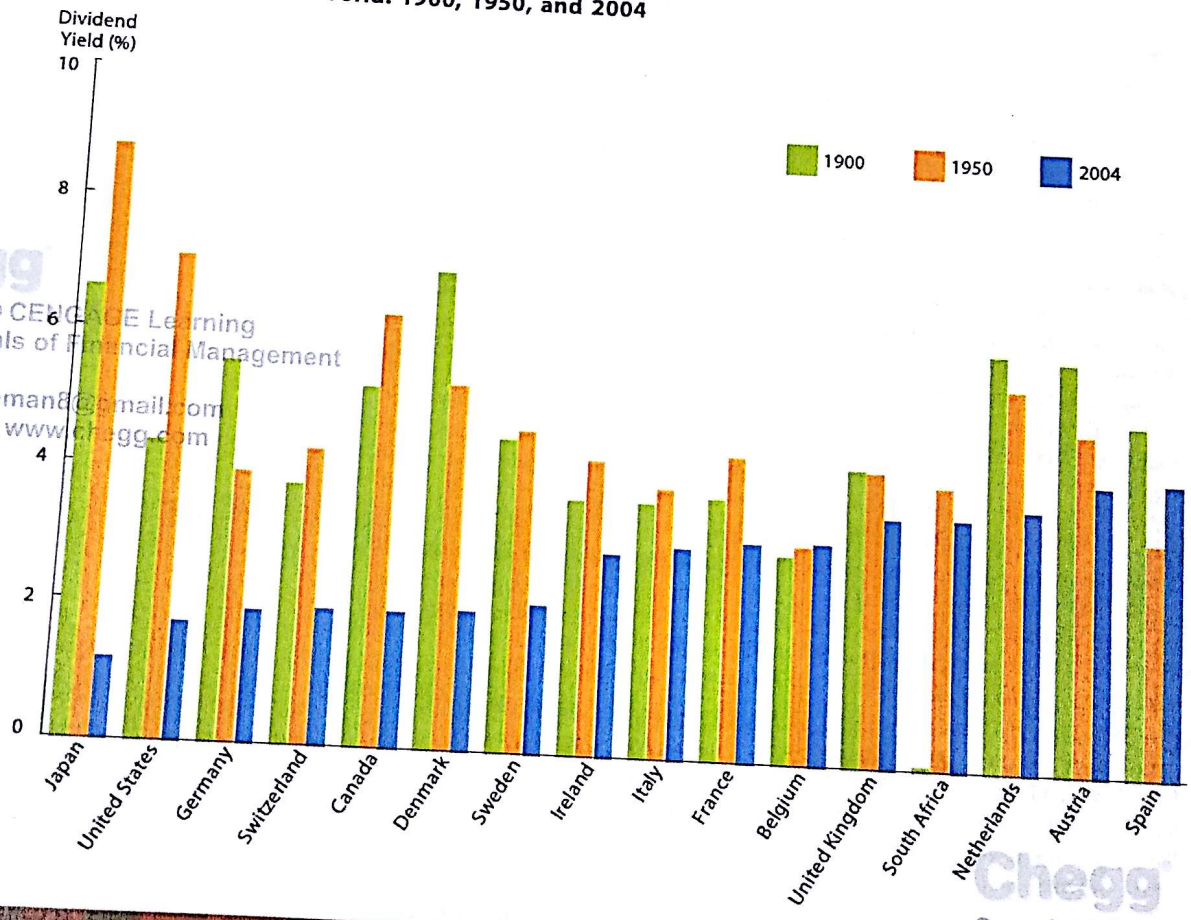
Dividend Yields Around the World

Average dividend yields have varied over time, and they vary considerably in different countries around the world. The accompanying graph, obtained from a study by Elroy Dimson, Paul Marsh, and Mike Staunton of the London Business School, shows how the average dividend yield for 16 different countries has changed over the past century. In both 1900 and 1950, dividend yields varied from nation to nation, but the average around the world was about 5%. However, by 2004, the yield in most countries had declined significantly and the average had fallen to about 3%. For the United States, the average dividend yield was 4.3% in 1900, 7.2% in 1950, and 1.7% in 2004. Thus, U.S. stocks went from having one of the highest yields in 1900 to the second lowest in 2004. Since then, the average dividend yield for U.S. stocks has increased somewhat. In June 2014, the dividend yield on the S&P 500 was 2.29%, a level that is still below the average yield found in many other countries.

This study also demonstrates that dividends generate a significant portion of shareholders' total returns over time. Recognizing this point, a 2010 article in *The Economist* began with the following observation:

> *Dividends do not get the respect they deserve. Over the long run they provide the bulk of equity investors' returns. Work by Elroy Dimson, Paul Marsh, and Mike Staunton of the London Business School found that over the period from 1900 to 2005, the real return from global equities averaged 5%. The mean dividend yield over that period was 4.5%.*
>
> *Despite this, stockmarkets devote a lot more time to forecasting and analyzing profits than they do to thinking about payouts. Profits can be easily manipulated and come in a bewildering variety of forms (operating, reported, post-tax, pre-exceptional, etc.) Dividends are (mostly) paid in cash and so are hard to fake.*

Dividend Yields Around the World: 1900, 1950, and 2004



Sources: "Divvying Up Returns," *The Economist* (www.economist.com), September 2, 2010; and Elroy Dimson, Paul Marsh, and Mike Staunton, *Triumph of the Optimists*, (Princeton, NJ: Princeton University Press, 2002). Reprinted with permission of the authors.

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and then supplement it with an "extra" dividend when times are good, which is known as a **low-regular-dividend-plus-extras** dividend policy. The company announces a low regular dividend that it is confident it can maintain "come hell or high water," one that stockholders could count on under all conditions. Then when times are good and profits and cash flows are high, the company pays a clearly designated extra dividend. Because investors recognize that the extras might not be maintained in the future, they don't interpret them as a signal that the companies' earnings are permanently higher, nor do they take the elimination of the extra as a negative signal.

Low-Regular-Dividend-Plus-Extras
The policy of announcing a low, regular dividend that can be maintained no matter what and then, when times are good, paying a designated "extra" dividend.

Alternately, companies may temporarily suspend paying dividends because of a short-run need for cash, but the hope is that they will be able to restore the dividend when its situation returns to normal. For example, during the Deepwater Horizon oil spill crisis, BP bowed to political pressure and suspended a series of dividend payments for the first three quarters of 2010, using the cash to pay for part of its clean-up operations. BP resumed paying dividends in the fourth quarter of 2010 (although at a smaller amount than it had been paying prior to the oil spill).

15-3B Earnings, Cash Flows, and Dividends

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We normally think of earnings as being the primary determinant of dividends, but cash flows are actually more important. This is demonstrated in Figure 15.1, which plots data for Chevron Corporation from 1985 through 2013. Panel a shows that Chevron's dividends per share (DPS) rose slowly but steadily from 1985 to 2013. Earnings per share (EPS) also grew slowly; but they were more volatile, rising and falling with the price of oil. The earnings payout ratio (defined as DPS/EPS) averaged 62% over the entire 29 years, but it exceeded 100% on several occasions.

Cash flow per share (CFPS) tracked EPS very closely—the two were correlated at 0.99. However, CFPS was always higher than EPS, and it always exceeded the dividend by a substantial margin. Moreover, cash dividends are paid in cash, so even when earnings were insufficient to cover the dividend, cash flows took up the slack and enabled the company to maintain a stable dividend policy.

Now look at Panel b. Here we see that the earnings payout is extremely volatile, but the cash flow payout (defined as DPS/CFPS) is relatively stable and always below 100%. Those stable (and high) cash flows indicate that Chevron's dividend is relatively safe, and investors can count on receiving it going forward. Indeed, given the very high cash flows per share, continued substantial dividend increases (or large share repurchases) are likely—provided something bad doesn't happen in the oil market.

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Chevron is typical of most large, strong companies. Its dividend is dependable, and it grows at a steady rate. Earnings are relatively volatile, but cash flows are more stable, and those stable cash flows are responsible for the steady dividends. When earnings change dramatically, either up or down, dividends are likely to follow with a lag while management determines whether the earnings change is likely to continue. Thus, the dip in Chevron's earnings in 2001 and 2002 turned out to be temporary, so the dividend was maintained and even increased during those years. The huge earnings and cash flow gains after 2002 continued into 2008. Earnings and cash flows declined in 2009 during the economic slowdown and returned to even higher levels during 2010 through 2012, but declined in 2013. However, Chevron's DPS is still well below its CFPS and EPS, which suggests that dividends, repurchases, and profitable new investments will continue on into the future. But Chevron does deal with oil, and with that commodity, strange things can happen!

15-3C Payment Procedures

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Companies normally pay dividends quarterly, and if conditions permit, the dividend is increased once each year. For example, Katz Corporation paid $0.50 per quarter in 2015, an annual rate of $2.00. In common financial parlance, we say that Katz's 2015 *regular quarterly dividend* was $0.50 and its *annual dividend* was $2.00. In late 2015,

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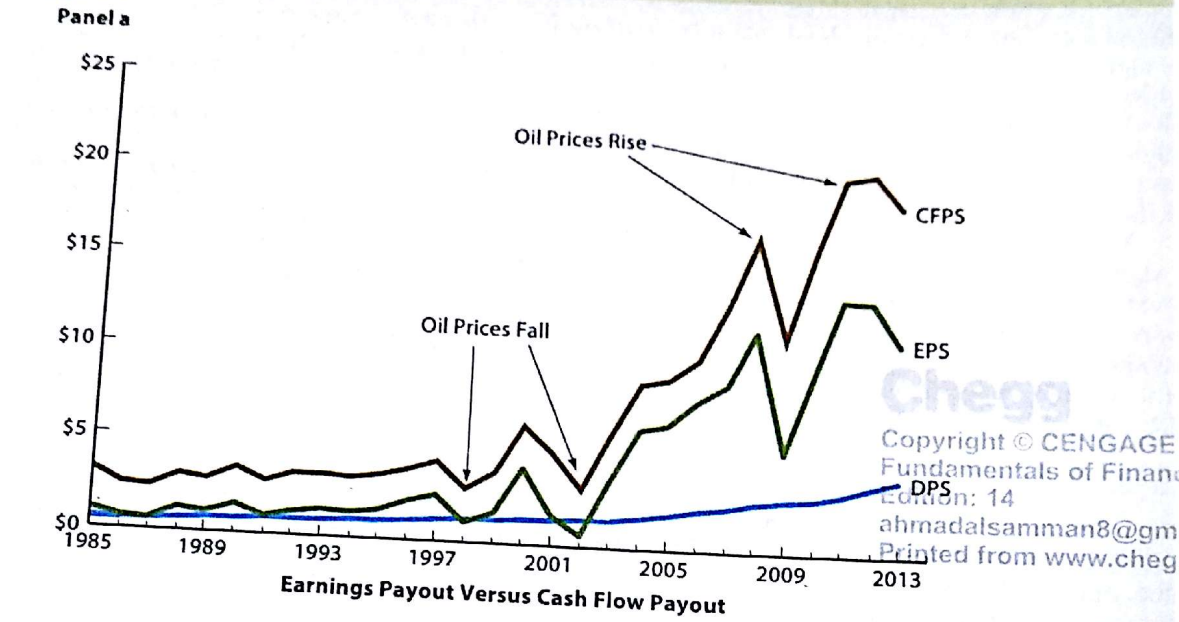
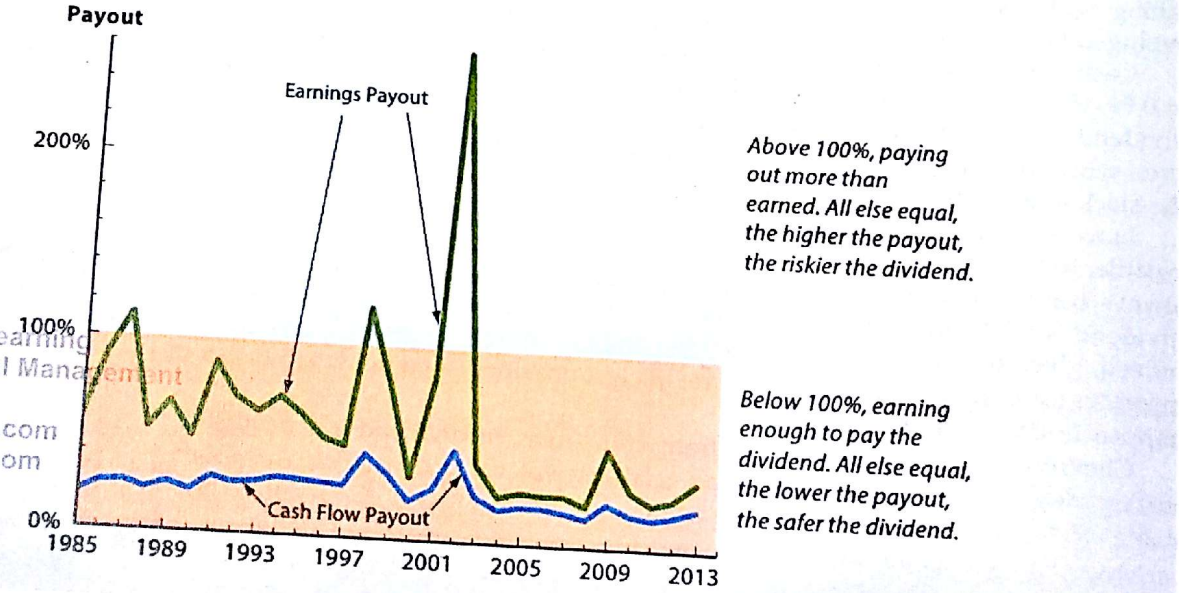
FIGURE 15.1 Chevron Corp.: Earnings, Cash Flows, and Dividends, 1985–2013





e: For consistency, data have been adjusted for two-for-one splits in 1994 and 2004.
ce: Adapted from *Value Line Investment Survey*, various issues.

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Declaration Date
The date on which a firm's directors issue a statement declaring a dividend.

Katz's board of directors met, reviewed projections for 2016, and decided to keep the 2016 dividend at $2.00. The directors announced the $2.00 rate, so stockholders can count on receiving it unless unanticipated operating problems arise.

The actual payment procedure is as follows:

1. *Declaration date.* On the **declaration date**—say, November 6—the directors meet and declare the regular dividend, issuing a statement similar to the following: "On November 6, 2015, the directors of Katz Corporation met and

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declared the regular quarterly dividend of 50 cents per share, payable to holders of record at the close of business on December 10, payment to be made on January 4, 2016." For accounting purposes, the declared dividend becomes an actual liability on the declaration date. If a balance sheet was constructed, the amount ($0.50 × Number of shares outstanding) would appear as a current liability and retained earnings would be reduced by a like amount.

2. *Holder-of-record date.* At the close of business on the **holder-of-record date**, December 10, the company closes its stock transfer books and makes up a list of shareholders as of that date. If Katz Corporation is notified of the sale before the close of business on December 10, the new owner will receive the dividend. However, if notification is received on or after December 11, the previous owner will receive the dividend check.

Holder-of-Record Date
If the company lists the stockholder as an owner on this date, then the stockholder receives the dividend.

3. *Ex-dividend date.* Suppose Jean Buyer buys 100 shares of stock from John Seller on December 7. Will the company be notified of the transfer in time to list Buyer as the new owner and thus pay the dividend to her? To avoid conflict, the securities industry has set up a convention under which the right to the dividend remains with the stock until two business days prior to the holder-of-record date; on the second business day before that date, the right to the dividend no longer goes with the shares. The date when the right to the dividend leaves the stock is called the **ex-dividend date**. In this case, the ex-dividend date is two business days prior to December 10, or December 8:

Ex-Dividend Date
The date on which the right to the current dividend no longer accompanies a stock; it is usually two business days prior to the holder-of-record date.

Dividend goes with stock if it is bought on or before this date	December 7
Ex-dividend date: Buyer does not receive the dividend	December 8
Buyer does not receive the dividend	December 9
Holder-of-record date; not normally of concern to stockholder	December 10

Therefore, if Buyer is to receive the dividend, Buyer must buy the stock on or before December 7. If Buyer buys it on December 8 or later, Seller will receive the dividend because he or she will be the official holder of record.

Katz's dividend amounts to $0.50, so the ex-dividend date is important. Barring fluctuations in the stock market, we would normally expect the price of a stock to drop by approximately the amount of the dividend on the ex-dividend date. Thus, if Katz closed at $30.50 on December 7, it would probably open at about $30 on December 8.[12]

4. *Payment date.* The company actually mails the checks to the holders of record on January 4, the **payment date**.

Payment Date
The date on which a firm actually mails dividend checks.

[12] Tax effects cause the price decline, on average, to be less than the full amount of the dividend. If you bought Katz's stock on December 7, you would receive the dividend, but you would almost immediately pay 15% (20% if you were a high-income bracket taxpayer) of it in taxes. Thus, you would want to wait until December 8 to buy the stock if you thought you could get it for $0.50 less per share. Your reaction (and that of others) would influence stock prices around dividend payment dates. Here is what would happen:

1. Other things held constant, a stock's price should rise during the quarter, with the daily price increase (for Katz) equal to $0.50/90 = $0.005556. Therefore, if the price started at $30 just after its last ex-dividend date, it would rise to $30.50 on December 7.
2. In the absence of taxes, the stock's price would fall to $30 on December 8 and then start up as the next dividend accrual period began. Thus, over time, if everything else was held constant, the stock's price would follow a sawtooth pattern if it was plotted on a graph.
3. Because of taxes, the stock's price would neither rise by the full amount of the dividend nor fall by the full dividend amount when it goes ex-dividend.
4. The amount of the rise and subsequent fall would be the Dividend (1 – T), where generally T = 15%, the tax rate on individual dividends (unless you are a high-income bracket taxpayer then T = 20%).

See Edwin J. Elton and Martin J. Gruber, "Marginal Stockholder Tax Rates and the Clientele Effect," *Review of Economics and Statistics*, vol. 5, no. 3 (February 1970), pp. 68–74, for an interesting discussion of the subject.

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SELF TEST

Explain the logic of the residual dividend model, the steps a firm would take to implement it, and the reason it is more likely to be used to establish a long-run payout target than to set the actual year-by-year payout ratio.

How do firms use long-run planning models to help set dividend policy?

Which are more critical to the dividend decision, earnings or cash flow? Explain.

Explain the procedures used to actually pay the dividend.

What is the ex-dividend date, and why is it important to investors?

A firm has a capital budget of $30 million, net income of $35 million, and a target capital structure of 45% debt and 55% equity. If the residual dividend policy is used, what is the firm's dividend payout ratio? **(52.86%)**

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15-4 Dividend Reinvestment Plans

Dividend Reinvestment Plans (DRIPs)
Plans that enable stockholders to automatically reinvest dividends received back into the stocks of the paying firms..

During the 1970s, most large companies instituted **dividend reinvestment plans (DRIPs)**, under which stockholders can automatically reinvest their dividends in the stock of the paying corporation.[13] Today most large companies offer DRIPs, but participation rates vary considerably. There are two types of DRIPs: (1) plans that involve only old, already-outstanding stock and (2) plans that involve newly issued stock. In either case, the stockholder must pay taxes on the amount of the dividends even though stock rather than cash is received.

Under both types of DRIPs, stockholders choose between continuing to receive dividend checks versus having the company use the dividends to buy more stock in the corporation for the investor. Under an "old stock" plan, the company gives the money that stockholders who elect to use the DRIP would have received to a bank, which acts as a trustee. The bank then uses the money to purchase the corporation's stock on the open market and allocates the shares purchased to the participating stockholders' accounts on a pro rata basis. The transactions costs of buying shares (brokerage costs) are low because of volume purchases, so these plans benefit small stockholders who do not need current cash dividends.

A "new stock" DRIP invests the dividends in newly issued stock; hence, these plans raise new capital for the firm. AT&T, Xerox, and many other companies have used new stock plans to raise substantial amounts of equity. No fees are charged to stockholders, and some companies have offered stock at discounts of 1% to 10% below the actual market price. The companies offer discounts because they would have incurred flotation costs if the new stock had been raised through investment banks.

One interesting aspect of DRIPs is that they are forcing corporations to reexamine their basic dividend policies. A high participation rate in a DRIP suggests that stockholders might be better served if the firm simply reduced cash dividends, which would save stockholders some personal income taxes. Quite a few firms have surveyed their stockholders to learn more about their preferences and to find out how they would react to a change in dividend policy. A more rational approach to basic dividend policy decisions may emerge from this

[13]See Richard H. Pettway and R. Phil Malone, "Automatic Dividend Reinvestment Plans," *Financial Management*, vol. 2, no. 4 (Winter 1973), pp. 11–18, for an old but still excellent discussion of the subject.

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research. Companies switch from old stock to new stock DRIPs depending on their need for equity capital.

Many companies offering DRIPs have expanded their programs by moving to "open enrollment," whereby anyone can purchase the firm's stock directly and thus bypass brokers' commissions. Exxon Mobil not only allows investors to buy their initial shares at no fee but also lets them pick up additional shares through automatic bank account withdrawals. Several plans, including Exxon Mobil's, offer dividend reinvestment for individual retirement accounts, and some allow participants to invest weekly or monthly rather than on the quarterly dividend schedule. With all of these plans (and many others), stockholders can invest more than the dividends they are forgoing—they simply send a check to the company and buy shares without a brokerage commission.

SELF TEST

What are dividend reinvestment plans?

What are their advantages and disadvantages from both stockholders' and firms' perspectives?

15-5 Summary of Factors Influencing Dividend Policy

In earlier sections, we described the theories of investors' preferences for dividends and the potential effects of dividend policy on the value of a firm. We also discussed the residual dividend model for setting a firm's long-run target payout ratio. In this section, we discuss several other factors that affect the dividend decision. These factors may be grouped into four broad categories: (1) constraints on dividend payments, (2) investment opportunities, (3) availability and cost of alternative sources of capital, and (4) effects of dividend policy on r_s. We discuss these factors next.

15-5A Constraints

1. *Bond indentures.* Debt contracts often limit dividend payments to earnings generated after the loan was granted. Also, debt contracts often stipulate that no dividends can be paid unless the current ratio, times-interest-earned ratio, and other safety ratios exceed stated minimums.
2. *Preferred stock restrictions.* Typically, common dividends cannot be paid if the company has omitted its preferred dividend. The preferred arrearages must be satisfied before common dividends can be resumed.
3. *Impairment of capital rule.* Dividend payments cannot exceed the balance sheet item "retained earnings." This legal restriction, known as the impairment of capital rule, is designed to protect creditors. Without the rule, a company that is in trouble might distribute most of its assets to stockholders and leave its debtholders out in the cold. (Liquidating dividends can be paid out of capital; but they must be indicated as such, and they must not reduce capital below the limits stated in debt contracts.)
4. *Availability of cash.* Cash dividends can be paid only with cash. Thus, a shortage of cash in the bank can restrict dividend payments. However, the ability to borrow can offset this factor.

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5. *Penalty tax on improperly accumulated earnings.* To prevent wealthy individuals from using corporations to avoid personal taxes, the Tax Code provides for a special surtax on improperly accumulated income. Thus, if the IRS can demonstrate that a firm's dividend payout ratio is deliberately being held down to help its stockholders avoid personal taxes, the firm is subject to heavy penalties. This factor is relevant primarily to privately owned firms.

15-5B Investment Opportunities

1. *Number of profitable investment opportunities.* As we saw in our discussion of the residual dividend model, if a firm has a large number of profitable investment opportunities, this will tend to produce a low target payout ratio and vice versa if the firm has few good investment opportunities.
2. *Possibility of accelerating or delaying projects.* The ability to accelerate or postpone projects permits a firm to adhere more closely to a stable dividend policy.

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15-5C Alternative Sources of Capital

1. *Cost of selling new stock.* If a firm needs to finance a given level of investment, it can obtain equity by retaining earnings or by issuing new common stock. If flotation costs (including any negative signaling effects of a stock offering) are high, r_e will be well above r_s, making it better to set a low payout ratio and to finance through retention rather than through the sale of new common stock. On the other hand, a high dividend payout ratio is more feasible for a firm whose flotation costs are low. Flotation costs differ among firms—for example, the flotation percentage is especially high for small firms, so they tend to set low payout ratios.
2. *Ability to substitute debt for equity.* A firm can finance a given level of investment with debt or equity. As noted, low stock flotation costs permit a more flexible dividend policy because equity can be raised by retaining earnings or by selling new stock. A similar situation holds for debt policy: If the firm can adjust its debt ratio without raising its WACC sharply, it can pay the expected dividend, even if earnings fluctuate, by additional borrowing.
3. *Control.* If management is concerned about maintaining control, it may be reluctant to sell new stock; hence, the company may retain more earnings than it otherwise would. However, if stockholders want higher dividends and a proxy fight looms, the dividend might be increased.

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15-5D Effects of Dividend Policy on r_s

The effects of dividend policy on r_s may be considered in terms of four factors: (1) stockholders' desire for current versus future income, (2) the perceived riskiness of dividends versus capital gains, (3) the tax advantage of capital gains, and (4) the information (signaling) content of dividends. We discussed each of those factors earlier, so we only note here that the importance of each factor varies from firm to firm depending on the makeup of its current and possible future stockholders.

It should be apparent that dividend policy decisions are based more on informed judgment than on quantitative analysis. Even so, to make rational dividend decisions, financial managers must take into account all the points discussed in the preceding sections.

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SELF TEST

Identify the four broad sets of factors that affect dividend policy.

What constraints affect dividend policy?

How do investment opportunities affect dividend policy?

How does the availability and cost of outside capital affect dividend policy?

15-6 Stock Dividends and Stock Splits

Stock dividends were originally used in lieu of regular cash dividends by firms that were short of cash. Today, though, the primary purpose of stock dividends is to increase the number of shares outstanding and thus to lower the stock's price in the market. Stock splits have a similar purpose.

Up-to-date information about changes in stock splits and stock buybacks is now just a few clicks away. A good place to get started is The Online Investor at theonlineinvestor.com.

Stock dividends and splits can be explained best through an example. We use Porter Electronic Controls Inc., a $700 million electronic components manufacturer, for this purpose. Since its inception, Porter's markets have been expanding and the company has enjoyed growth in sales and earnings. Some of its earnings have been paid out in dividends, but some also were retained each year, causing its earnings per share and the stock price to grow. The company began its life with only a few thousand shares outstanding, and, after some years of growth, each of Porter's shares had a very high EPS and DPS. When a "normal" P/E ratio was applied, the resulting market price was so high that few people could afford to buy a "round lot" of 100 shares. This limited demand for the stock and thus kept the firm's total market value below what it would have been if more shares at a lower price had been outstanding. To correct this situation, Porter "split its stock," as described in the next section.

15-6a Stock Splits

Although there is little empirical evidence to support the contention, there is nevertheless a widespread belief in financial circles that an *optimal price range* exists for stocks. *Optimal* means that if the price is within this range, the price/earnings ratio (and hence the firm's value) will be maximized. Many observers, including Porter's management, believe that the best range for most stocks is from $20 to $80 per share. Accordingly, if the price of Porter's stock rose to $80, management would probably declare a two-for-one **stock split**, thus doubling the number of shares outstanding, halving the earnings and dividends per share, and thereby lowering the stock price. Each stockholder would have more shares, but each share would be worth less. In Yogi Berra's terms (refer to the feature box "Yogi Berra on the MM Proposition" in Chapter 14), a stock split just divides the corporate value pie into more slices. If the post-split price was $40, Porter's stockholders would be exactly as well off as they were before the split. However, if the stock price stabilized above $40, stockholders would be better off. Stock splits can be split in varying proportions—for example, the stock can be split two-for-one, three-for-one, one-and-a-half-for-one, or any other way.[14]

Stock Split
An action taken by a firm to increase the number of shares outstanding, such as doubling the number of shares outstanding by giving each stockholder two new shares for each one formerly held.

15-6b Stock Dividends

Stock dividends are similar to stock splits because they "divide the pie into smaller slices" without affecting the fundamental position of the current stockholders. On a 5% stock dividend, the holder of 100 shares would receive an additional 5 shares

Stock Dividends
A dividend paid in the form of additional shares of stock rather than in cash.

[14] *Reverse splits*, which reduce the shares outstanding, also can be used. For example, a company whose stock sells for $5 might employ a one-for-five reverse split, exchanging one new share for five old ones and raising the value of the shares to about $25, which is within the optimal price range. LTV Corporation did this after several years of losses had driven its stock price below the optimal range.

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(without cost); on a 20% stock dividend, the same holder would receive 20 new shares; and so forth. Again, the total number of shares is increased; so, holding all other things constant, earnings, dividends, and price per share all decline.

If a firm wants to reduce its stock price, should it use a stock split or a stock dividend? Stock splits are generally used after a sharp price run-up to produce a large price reduction. Stock dividends used on a regular annual basis keep the stock price more or less constrained. For example, if a firm's earnings and dividends were growing at about 10% per year, its stock price would tend to increase at about that same rate, and it would soon be outside the desired trading range. A 10% annual stock dividend would maintain the stock price within the optimal trading range. Note, however, that because small stock dividends create bookkeeping problems and unnecessary expenses, firms use stock splits far more often than stock dividends.[15]

15-6c Effect on Stock Prices

If a company splits its stock or declares a stock dividend, will this increase the market value of its stock? Several empirical studies have addressed this question. Here is a summary of their findings.[16]

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1. On average, the price of a company's stock rises shortly after it announces a stock split or dividend.
2. One reason that stock splits and stock dividends may lead to higher prices is that investors often take stock splits and dividends as signals of higher future earnings. Because only companies whose managements believe that things look good tend to split their stocks, the announcement of a stock split is taken as a signal that earnings and cash dividends are likely to rise. Thus, the price increases associated with stock splits and dividends may be the result of a favorable signal for earnings and dividends.
3. If a company announces a stock split or dividend, its price will tend to rise. However, if during the next few months it does not announce an increase in earnings and dividends, the stock price generally will drop back to the earlier level. This supports the signaling effect discussed earlier.
4. By creating more shares and lowering the stock price, stock splits may also increase the stock's liquidity. This tends to increase the firm's value.
5. There is evidence that stock splits change the mix of shareholders. The proportion of trades made by individual investors tends to increase after a stock split, whereas the proportion of trades made by institutional investors tends to fall. We are not sure how this affects the stock's value.

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[15]Accountants treat stock splits and stock dividends somewhat differently. For example, in a two-for-one stock split, the number of shares outstanding is doubled and the par value is halved, and that is about all there is to it. With a stock dividend, a bookkeeping entry is made transferring "retained earnings" to "common stock." For example, if a firm had 1,000,000 shares outstanding, if the stock price was $10, and if it wanted to pay a 10% stock dividend, (1) each stockholder would be given 1 new share of stock for each 10 shares held, and (2) the accounting entries would involve showing 100,000 more shares outstanding and transferring 100,000($10) = $1,000,000 from "retained earnings" to "common stock." The retained earnings transfer limits the size of stock dividends, but that is not important because companies can split their stock any way they choose.

[16]See Eugene F. Fama, Lawrence Fisher, Michael C. Jensen, and Richard Roll, "The Adjustment of Stock Prices to New Information," *International Economic Review*, vol. 10, no. 1 (February 1969), pp. 1–21; Mark S. Grinblatt, Ronald M. Masulis, and Sheridan Titman, "The Valuation Effects of Stock Splits and Stock Dividends," *Journal of Financial Economics*, vol. 13, no. 4 (December 1984), pp. 461–490; Ravi Dahr, William N. Goetzmann, and Ning Zhu, "The Impact of Clientele Changes: Evidence from Stock Splits," Yale International Center for Finance Working Paper No. 03-14, European Finance Association 2005 Moscow Meetings Paper, American Finance Association 2005 Philadelphia Meetings Paper (a copy is available at Social Science Research Network: papers.ssrn.com/abstract=410104); and Thomas E. Copeland, "Liquidity Changes Following Stock Splits," *Journal of Finance*, vol. 34, no. 1 (March 1979), pp. 115–141.

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What do we conclude from these findings? From a pure economic standpoint, stock dividends and splits are just additional pieces of paper. However, they provide management with a relatively low-cost way of signaling that the firm's prospects look good. Further, we should note that few large, publicly owned stocks sell at prices above several hundred dollars; therefore, we simply do not know what the effect would be if, for example, Chevron, Microsoft, Xerox, Hewlett-Packard, and other highly successful firms had never split their stocks and consequently sold at prices in the thousands or even millions of dollars per share.

A recent *Bloomberg Businessweek* article notes that stock splits have become a lot less popular in recent years. The article suggests that one possible reason for this shift is that individual investors have increasingly moved from buying shares of individual companies and have instead navigated toward mutual funds. Consequently, institutional investors (such as mutual funds) have become relatively more important. These institutional investors are less concerned about whether a stock's price is above or below a particular range, and they are less likely to value stock splits.[17] Similarly, a recent article in *The Wall Street Journal* reports that "S&P 500 companies have been splitting around a dozen times annually in recent years, down from 100 or more at the heights of the 1980s and 1990s stock bull markets, according to Howard Silverblatt of S&P Dow Jones Indices."[18]

Despite the drop in the frequency of stock splits, a number of high profile firms continue to employ stock splits. In 2014, Apple announced a seven-for-one stock split. It is also worth pointing out that Warren Buffett, Chairman and CEO of Berkshire Hathaway, had long resisted the use of stock splits, but he shifted gears in early 2010. After Berkshire Hathaway acquired Burlington Northern Santa Fe, the company announced a 50-for-one split for its Class B shares. Prior to the announcement, the stock traded around $3,500 per share. After the split, the stock traded around $70 per share.

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SELF TEST

What are stock dividends and stock splits?

How do stock dividends and splits affect stock prices?

In what situation should a firm pay a stock dividend?

In what situation should a firm split its stock?

Suppose you have 100 common shares of Tillman Industries. The EPS is $4.00; the DPS is $2.00; and the stock sells for $60 per share. Now Tillman announces a two-for-one split. Immediately after the split, how many shares will you have; what will be the adjusted EPS and DPS; and what would you expect the stock price to be? **(200 shares, $2.00, $1.00, probably a little over $30)**

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15-7 Stock Repurchases

Several years ago, a *Fortune* article entitled "Beating the Market by Buying Back Stock" reported that during a one-year period, more than 600 major corporations repurchased significant amounts of their own stock. It also gave illustrations of some specific companies' repurchase programs and the effects of these programs

[17]Refer to Whitney Kisling and Alex Barinka, "Stock Splits Lose Their Allure for Companies Trading Above $100," *Bloomberg Businessweek* (businessweek.com), August 22, 2013.

[18]Daisuke Wakabayashi, "Apple Boosts Buyback, Splits Stock to Reward Investors," *The Wall Street Journal* (online.wsj.com), April 23, 2014.

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on stock prices. The article's conclusion was that "buybacks have made a mint for shareholders who stay with the companies carrying them out."

More recently, as we noted in the opening vignette, Apple Inc. has established a quarterly dividend and has repurchased shares of its common stock. Apple's recent actions are part of a larger trend in which many leading companies have repurchased stock. In just the first quarter of 2014 alone, companies in the S&P 500 increased share repurchases by 29% from the prior year.[19] How do stock repurchase programs work, and why have they become so prevalent over the past several years? We discuss these questions in the remainder of this section.

Stock Repurchases
Transactions in which a firm buys back shares of its own stock, thereby decreasing shares outstanding, increasing EPS, and, often, increasing the stock price.

There are three principal types of **stock repurchases**: (1) situations where the firm has cash available for distribution to its stockholders, and it distributes this cash by repurchasing shares rather than by paying cash dividends; (2) situations where the firm concludes that its capital structure is too heavily weighted with equity, and it sells debt and uses the proceeds to buy back its stock; and (3) situations where the firm has issued options to employees, and it uses open market repurchases to obtain stock for use when the options are exercised.

Stock that has been repurchased by a firm is called *treasury stock*. If some of the outstanding stock is repurchased, fewer shares will remain outstanding. Assuming that the repurchase does not adversely affect the firm's future earnings, the earnings per share on the remaining shares will increase, resulting in a higher market price per share. As a result, capital gains will have been substituted for dividends.

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15-7A The Effects of Stock Repurchases

Many companies have been repurchasing their stock in recent years. As mentioned in the opening vignette, in 2013, Apple announced plans for a $60 billion stock repurchase that would take place over a number of years, and then in 2014 increased the stock repurchase to $90 billion. *The Wall Street Journal* recently reported that between 2006 and early 2013, DirecTV has repurchased 57% of its shares, which is the highest proportion of shares repurchased among the stocks in the S&P 500 over this time period.[20] In the past, other large repurchases have been made by Procter & Gamble, Dell, Home Depot, Texas Instruments, IBM, Coca-Cola, Teledyne, Atlantic Richfield, Goodyear, and Xerox. In fact, share repurchases in 2013 totaled $478 billion for S&P 500 companies.

The effects of a repurchase can be illustrated with data on American Development Corporation (ADC). The company expects to earn $4.4 million in 2015, and it plans to use 50% of this amount (or $2.2 million) to repurchase shares of its common stock. There are 1.1 million shares outstanding, and the market price is $20 a share. ADC believes that it can use the $2.2 million to repurchase 110,000 of its shares at the current price of $20 per share.[21]

The effect of the repurchase on the EPS and market price per share of the remaining stock can be analyzed as follows:

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[19]Spencer Jakab, "Stock Buybacks Abound, But Come at a Price," *The Wall Street Journal* (online.wsj.com), April 6, 2014.

[20]Refer to Vipal Monga, "DirecTV Tops in Buying Back Stock Since 2006," *The Wall Street Journal* (online.wsj.com), May 9, 2013.

[21]Stock repurchases are generally made in one of three ways: (1) A publicly owned firm can simply buy its own stock through a broker on the open market. (2) It can make a *tender offer*, under which it permits stockholders to send in (i.e., "tender") their shares to the firm in exchange for a specified price per share. In this case, the firm generally indicates that it will buy up to a specified number of shares within a particular time period (usually about 2 weeks); if more shares are tendered than the company wants to purchase, purchases are made on a pro rata basis. (3) The firm can purchase a block of shares from one large holder on a negotiated basis. If a negotiated purchase is employed, care must be taken to ensure that this one stockholder does not receive preferential treatment over other stockholders, or that any preference given can be justified by "sound business reasons." A number of years ago Texaco's management was sued by stockholders who were unhappy over the company's repurchase of about $600 million of stock from the Bass Brothers at a substantial premium over the market price. The suit charged that Texaco's management, afraid the Bass Brothers would attempt a takeover, used the buyback to "get them off its back." Such payments have been dubbed *greenmail*.

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1. Current EPS $= \frac{\text{Total earnings}}{\text{Number of shares}} = \frac{\$4.4 \text{ million}}{1.1 \text{ million}} = \$4.00 \text{ per share}$
2. P/E ratio $= \frac{\$20}{\$4} = 5\times$
3. EPS after repurchasing 110,000 shares $= \frac{\$4.4 \text{ million}}{0.99 \text{ million}} = \$4.44 \text{ per share}$
4. P/E ratio after repurchase $= \frac{\$20}{\$4.44} = 4.50\times$

It should be noted from this example that we assumed that the shares were repurchased at the current stock price of $20 per share. In this example, the company's EPS increased, but there was a corresponding drop in its P/E ratio. One reason the P/E ratio may drop is that the repurchase works to increase the company's debt ratio (as there are now fewer shares of stock outstanding). Because of the higher debt ratio, shareholders may consider the stock to be riskier. As a result, the future earnings are discounted at a higher rate, which reduces the P/E ratio.

In reality, companies often have to pay a premium in order to get shareholders to sell their shares back to the company. If instead, ADC had to pay $22 per share to repurchase the stock, it would only be able to repurchase 100,000 shares. In this case, the EPS would be somewhat lower ($4.40 = $4.4 million/1 million shares), and the P/E ratio would again be 5.0×. (This assumes that the market price of the stock remains at $22 following the repurchase.)

For a variety of reasons, the stock's price might change as a result of the repurchase operation, rising if investors viewed it favorably and falling if they viewed it unfavorably. Some of these factors are considered next.

15-7b Advantages of Repurchases

The advantages of repurchases are as follows:

1. A repurchase announcement may be viewed as a positive signal by investors because repurchases are often motivated by managements' belief that their firms' shares are undervalued.
2. The stockholders have a choice when the firm distributes cash by repurchasing stock—they can sell or not sell. With a cash dividend, on the other hand, stockholders must accept a dividend payment and pay the tax. Thus, those stockholders who need cash can sell back some of their shares, while those who do not want additional cash can simply retain their stock. From a tax standpoint, a repurchase permits both types of stockholders to get what they want.
3. A repurchase can remove a large block of stock that is "overhanging" the market and keeping the price per share down.
4. Dividends are "sticky" in the short run because managements are reluctant to raise the dividend if the increase cannot be maintained in the future—managements dislike cutting cash dividends because of the negative signal a cut gives. Therefore, if excess cash flows are expected to be temporary, managements may prefer to make distributions as share repurchases rather than to declare increased cash dividends that cannot be maintained.
5. Companies can use the residual dividend model to set a target cash distribution level, then divide the distribution into a *dividend component* and a *repurchase component*. The dividend payout ratio will be relatively low, but the dividend itself will be relatively secure, and it will grow as a result of the declining number of shares outstanding. This gives the company more flexibility in adjusting the total distribution than if the entire distribution were in the form of cash dividends because repurchases can be varied from year to year without sending adverse signals. This procedure has much to recommend it, and it is an important reason for the dramatic increase in the

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volume of share repurchases. IBM, NextEra Energy (formerly FPL Group), Walmart, and most other large companies use repurchases in this manner.

6. Repurchases can be used to produce large-scale changes in capital structure. For example, a number of years ago Consolidated Edison decided that its debt ratio was so low that it was not minimizing its WACC. It then borrowed $400 million and used the funds to repurchase shares of its common stock. This resulted in an immediate shift from a nonoptimal to an optimal capital structure.
7. Companies that use stock options as an important component of employee compensation can repurchase shares and then reissue those shares when employees exercise their options. This avoids having to issue new shares, which dilutes earnings per share. Microsoft and other high-tech companies have used this procedure in recent years.

15-7c Disadvantages of Repurchases

Disadvantages of repurchases include the following:

1. Stockholders may not be indifferent between dividends and capital gains, and the stock price might benefit more from cash dividends than from repurchases. Cash dividends are generally dependable, but repurchases are not.
2. The *selling* stockholders may not be fully aware of all the implications of a repurchase, or they may not have all the pertinent information about the corporation's present and future activities. This is especially true in situations where management has good reason to believe that the stock price is well below its intrinsic value. However, firms generally announce repurchase programs before embarking on them to avoid potential stockholder suits.
3. The corporation may pay too high a price for the repurchased stock, to the disadvantage of remaining stockholders. If its shares are not actively traded and if the firm seeks to acquire a relatively large number of shares of its stock, the price may be bid above its intrinsic value and then fall after the firm ceases its repurchase operations.

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15-7d Conclusions on Stock Repurchases

When all the pros and cons on stock repurchases have been totaled, where do we stand? Our conclusions may be summarized as follows:

1. Because of the deferred tax on capital gains, repurchases have a tax advantage over dividends as a way to distribute income to stockholders. This advantage is reinforced by the fact that repurchases provide cash to stockholders who want cash but also allow those who do not need current cash to delay its receipt. On the other hand, dividends are more dependable and are thus better suited for those who need a steady source of income.
2. Because of signaling effects, companies should not pay fluctuating dividends—that would lower investors' confidence in the company and adversely affect its cost of equity and its stock price. However, cash flows vary over time, as do investment opportunities; so the "proper" dividend in the residual dividend model sense varies. To get around this problem, a company can set its dividend at a level low enough to keep dividend payments from constraining operations and then use repurchases on a more or less regular basis to distribute excess cash. Such a procedure would provide regular, dependable dividends in addition to supplemental cash flows to those stockholders who want it.
3. Repurchases are also useful when a firm wants to make a large, rapid shift in its capital structure, to distribute cash from a one-time event such as the sale of a division, or to obtain shares for use in an employee stock option plan.

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In earlier editions of this book, we argued that companies ought to be doing more repurchasing and distributing less cash as dividends. Increases in the size and frequency of repurchases in recent years suggest that companies have finally reached this same conclusion.

SELF TEST

Explain how repurchases can (1) help stockholders limit taxes and (2) help firms change their capital structures.

What is treasury stock?

What are three procedures a firm can use to repurchase its stock?

What are some advantages and disadvantages of stock repurchases?

How can stock repurchases help a company operate in accordance with the residual dividend model?

TYING IT ALL TOGETHER

Once a company becomes profitable, it must decide what to do with the cash it generates. It may choose to retain cash and use it to purchase additional operating assets, to repay outstanding debt, or to acquire other companies. Alternatively, it may choose to return cash to shareholders. Keep in mind that every dollar that management chooses to retain is a dollar that shareholders could have received and invested elsewhere. Therefore, managers should retain earnings if and only if they can invest the money within the firm, and earn more than stockholders can earn outside the firm. Consequently, high-growth companies with many good projects tend to retain a high percentage of their earnings, whereas mature companies with a great deal of cash but limited investment opportunities tend to have generous cash distribution policies.

SELF-TEST QUESTIONS AND PROBLEMS

(Solutions Appear in Appendix A)

ST-1 **KEY TERMS** Define each of the following terms:

a. Target payout ratio; optimal dividend policy

b. Dividend irrelevance theory; bird-in-the-hand fallacy

c. Information content (signaling) hypothesis; clienteles; clientele effect

d. Catering theory; residual dividend model

e. Low-regular-dividend-plus-extras

f. Declaration date; holder-of-record date; ex-dividend date; payment date

g. Dividend reinvestment plan (DRIP)

h. Stock split; stock dividend

i. Stock repurchase

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ST-2 ALTERNATIVE DIVIDEND POLICIES Components Manufacturing Corporation (CMC) has an all-common-equity capital structure. It has 200,000 shares of $2 par value common stock outstanding. When CMC's founder, who was also its research director and most successful inventor, retired unexpectedly to the South Pacific in late 2015, CMC was left suddenly and permanently with materially lower growth expectations and relatively few attractive new investment opportunities. Unfortunately, there was no way to replace the founder's contributions to the firm. Previously, CMC found it necessary to reinvest most of its earnings to finance growth, which averaged 12% per year. Future growth at a 6% rate is considered realistic, but that level would call for an increase in the dividend payout. Further, it now appears that new investment projects, with at least the 14% rate of return required by CMC's stockholders (r_s = 14%), would total only $800,000 for 2016, compared to a projected net income of $2,000,000. If the existing 20% dividend payout was continued, retained earnings would be $1.6 million in 2016; but as noted, only $800,000 of investments would yield the 14% cost of capital.

The one encouraging point is that the high earnings from existing assets are expected to continue, and net income of $2 million is still expected for 2016. Given the dramatically changed circumstances, CMC's management is reviewing the firm's dividend policy.

a. Assuming that the acceptable 2016 investment projects would be financed entirely by earnings retained during the year, and assuming that CMC uses the residual dividend model, calculate DPS in 2016.

b. What payout ratio does your answer to part a imply for 2016?

c. If a 60% payout ratio is maintained for the foreseeable future, what is your estimate of the present market price for the common stock? How does this compare with the market price that should have prevailed under the assumptions existing just before the news about the founder's retirement? If the two values of P_0 are different, comment on why they are different.

d. What would happen to the stock price if the old 20% payout was continued? Assume that if this payout is maintained, the average rate of return on the retained earnings will fall to 7.5% and the new growth rate will be as follows:

$$\begin{aligned} g &= (1.0 - \text{Payout ratio})(\text{ROE}) \\ &= (1.0 - 0.2)(7.5\%) \\ &= (0.8)(7.5\%) = 6.0\% \end{aligned}$$

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QUESTIONS

15-1 Discuss the pros and cons of having the directors formally announce a firm's future dividend policy.

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15-2 The cost of retained earnings is less than the cost of new outside equity capital. Consequently, it is totally irrational for a firm to sell a new issue of stock and to pay cash dividends during the same year. Discuss the meaning of those statements.

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15-3 Would it ever be rational for a firm to borrow money in order to pay cash dividends? Explain.

15-4 Modigliani and Miller (MM) on the one hand and Gordon and Lintner (GL) on the other hand have expressed strong views regarding the effect of dividend policy on a firm's cost of capital and value.

a. In essence, what are MM's and GL's views regarding the effect of dividend policy on the cost of capital and stock prices?

b. How could MM use the information content, or signaling, hypothesis to counter their opponents' arguments? If you were debating MM, how would you counter them?

c. How could MM use the clientele effect concept to counter their opponents' arguments? If you were debating MM, how would you counter them?

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15-5 How would each of the following changes tend to affect aggregate (i.e., the average for all corporations) payout ratios, other things held constant? Explain your answers.

a. An increase in the personal income tax rate
b. A liberalization of depreciation for federal income tax purposes—that is, faster tax write-offs
c. An increase in interest rates
d. An increase in corporate profits
e. A decline in investment opportunities
f. Permission for corporations to deduct dividends for tax purposes as they now deduct interest expense
g. A change in the Tax Code so that realized and unrealized long-term capital gains in any year are taxed at the same rate as ordinary income

15-6 One position expressed in the financial literature is that firms set their dividends as a residual after using income to support new investment.

a. Explain what a residual dividend policy implies, illustrating your answer with a table showing how different investment opportunities can lead to different dividend payout ratios.
b. Think back to Chapter 14 where we considered the relationship between capital structure and the cost of capital. If the WACC-versus-debt-ratio plot was shaped like a sharp V, would this have a different implication for the importance of setting dividends according to the residual policy than if the plot was shaped like a shallow bowl (a flattened U)?

15-7 Executive salaries have been shown to be more closely correlated to the size of the firm than to its profitability. If a firm's board of directors is controlled by management rather than outside directors, this might result in the firm's retaining more earnings than can be justified from the stockholders' point of view. Discuss those statements, being sure (1) to discuss the interrelationships among cost of capital, investment opportunities, and new investment and (2) to explain the implied relationship between dividend policy and stock prices.

15-8 What is the difference between a stock dividend and a stock split? As a stockholder, would you prefer to see your company declare a 100% stock dividend or a two-for-one split? Assume that either action is feasible.

15-9 Most firms like to have their stock selling at a high P/E ratio, and they also like to have extensive public ownership (many different shareholders). Explain how stock dividends or stock splits may help achieve those goals.

15-10 Indicate whether the following statements are true or false. If the statement is false, explain why.

a. If a firm repurchases its stock in the open market, the shareholders who tender the stock are subject to capital gains taxes.
b. If you own 100 shares in a company's stock and the company's stock splits two-for-one, you will own 200 shares in the company following the split.
c. Some dividend reinvestment plans increase the amount of equity capital available to the firm.
d. The Tax Code encourages companies to pay a large percentage of their net income in the form of dividends.
e. If your company has established a clientele of investors who prefer large dividends, the company is unlikely to adopt a residual dividend policy.
f. If a firm follows a residual dividend policy, holding all else constant, its dividend payout will tend to rise whenever the firm's investment opportunities improve.

15-11 What is meant by catering theory, and how might it impact a firm's dividend policy?

PROBLEMS

Easy Problems 1–3

15-1 **RESIDUAL DIVIDEND MODEL** Axel Telecommunications has a target capital structure that consists of 70% debt and 30% equity. The company anticipates that its capital budget for the upcoming year will be $3,000,000. If Axel reports net income of $2,000,000 and it follows a residual dividend payout policy, what will be its dividend payout ratio?

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15-2 **STOCK SPLIT** Gamma Medical's stock trades at $90 a share. The company is contemplating a 3-for-2 stock split. Assuming that the stock split will have no effect on the market value of its equity, what will be the company's stock price following the stock split?

15-3 **STOCK REPURCHASES** Beta Industries has net income of $2,000,000, and it has 1,000,000 shares of common stock outstanding. The company's stock currently trades at $32 a share. Beta is considering a plan in which it will use available cash to repurchase 20% of its shares in the open market. The repurchase is expected to have no effect on net income or its stock price. What will be Beta's EPS following the stock repurchase?

Intermediate Problems 4–6

15-4 **STOCK SPLIT** After a 5-for-1 stock split, Strasburg Company paid a dividend of $0.75 per new share, which represents a 9% increase over last year's pre-split dividend. What was last year's dividend per share?

15-5 **EXTERNAL EQUITY FINANCING** Northern Pacific Heating and Cooling Inc. has a 6-month backlog of orders for its patented solar heating system. To meet this demand, management plans to expand production capacity by 40% with a $10 million investment in plant and machinery. The firm wants to maintain a 40% debt level in its capital structure. It also wants to maintain its past dividend policy of distributing 45% of last year's net income. In 2015, net income was $5 million. How much external equity must Northern Pacific seek at the beginning of 2016 to expand capacity as desired? Assume that the firm uses only debt and common equity in its capital structure.

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15-6 **RESIDUAL DIVIDEND MODEL** Welch Company is considering three independent projects, each of which requires a $5 million investment. The estimated internal rate of return (IRR) and cost of capital for these projects are presented here:

Project H (high risk):	Cost of capital = 16%	IRR = 20%
Project M (medium risk):	Cost of capital = 12%	IRR = 10%
Project L (low risk):	Cost of capital = 8%	IRR = 9%

Note that the projects' costs of capital vary because the projects have different levels of risk. The company's optimal capital structure calls for 50% debt and 50% common equity, and it expects to have net income of $7,287,500. If Welch establishes its dividends from the residual dividend model, what will be its payout ratio?

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15-7 **DIVIDENDS** Bowles Sporting Inc. is prepared to report the following 2015 income statement (shown in thousands of dollars).

Sales	$15,200
Operating costs including depreciation	11,900
EBIT	$ 3,300
Interest	300
EBT	$ 3,000
Taxes (40%)	1,200
Net income	$ 1,800

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Prior to reporting this income statement, the company wants to determine its annual dividend. The company has 500,000 shares of common stock outstanding, and its stock trades at $48 per share.

a. The company had a 40% dividend payout ratio in 2014. If Bowles wants to maintain this payout ratio in 2015, what will be its per-share dividend in 2015?

b. If the company maintains this 40% payout ratio, what will be the current dividend yield on the company's stock?

c. The company reported net income of $1.5 million in 2014. Assume that the number of shares outstanding has remained constant. What was the company's per-share dividend in 2014?

d. As an alternative to maintaining the same dividend payout ratio, Bowles is considering maintaining the same per-share dividend in 2015 that it paid in 2014. If it chooses this policy, what will be the company's dividend payout ratio in 2015?

e. Assume that the company is interested in dramatically expanding its operations and that this expansion will require significant amounts of capital. The company would like to avoid transactions costs involved in issuing new equity. Given this scenario, would it make more sense for the company to maintain a constant dividend payout ratio or to maintain the same per-share dividend? Explain.

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