18 DIVIDENDS AND DIVIDEND POLICY

On February 16, 2006, Halliburton announced a broad plan to reward stockholders for the recent success of the firm's business. Under the plan, Halliburton would (1) boost its quarterly dividend by 20 percent from 12 cents per share to 15 cents per share; (2) undertake a two-for-one stock split, meaning each existing common share would be replaced with two new ones; and (3) continue its $1 billion buyback of its common stock. Investors cheered, bidding up the stock price by 3.8 percent on the day of the announcement. Why were investors so pleased? To find out, this chapter explores all three of these actions and their implications for shareholders.

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Dividend policy is an important subject in corporate finance, and dividends are a major cash outlay for many corporations. For example, S&P 500 companies were expected to pay about $225 billion in dividends in 2006, an increase from the record $202 billion in dividends in 2005. Citigroup and General Electric were the biggest payers. How much? Both companies pay out in excess of $8 billion annually. In contrast, about 25 percent of the companies in the S&P 500 pay no dividends at all.

At first glance, it may seem obvious that a firm would always want to give as much as possible back to its shareholders by paying dividends. It might seem equally obvious, however, that a firm could always invest the money for its shareholders instead of paying it out. The heart of the dividend policy question is just this: Should the firm pay out money to its shareholders, or should the firm take that money and invest it for its shareholders?

It may seem surprising, but much research and economic logic suggest that dividend policy doesn't matter. In fact, it turns out that the dividend policy issue is much like the capital structure question. The important elements are not difficult to identify; but the interactions between those elements are complex, and no easy answer exists.

Dividend policy is controversial. Many implausible reasons are given for why dividend policy might be important, and many of the claims made about dividend policy are economically illogical. Even so, in the real world of corporate finance, determining the most appropriate dividend policy is considered an important issue. It could be that financial managers who worry about dividend policy are wasting time, but perhaps we are missing something important in our discussions.

In part, all discussions of dividends are plagued by the "two-handed lawyer" problem. President Truman, while discussing the legal implications of a possible presidential decision, asked his staff to set up a meeting with a lawyer. Supposedly Mr. Truman said, "But I don't want one of those two-handed lawyers." When asked what a two-handed lawyer was, he replied, "You know, a lawyer who says, 'On the one hand I recommend you do so

and so because of the following reasons, but on the other hand I recommend that you don't do it because of these other reasons.' "

Unfortunately, any sensible treatment of dividend policy will appear to have been written by a two-handed lawyer (or, in fairness, several two-handed financial economists). On the one hand, there are many good reasons for corporations to pay high dividends; on the other hand, there are also many good reasons to pay low dividends.

In this chapter, we will cover three broad topics that relate to dividends and dividend policy. First, we describe the various kinds of dividends and how dividends are paid. Second, we consider an idealized case in which dividend policy doesn't matter. We then discuss the limitations of this case and present some real-world arguments for both high and low dividend payouts. Finally, we conclude the chapter by looking at some strategies that corporations might employ to implement a dividend policy, and we discuss share repurchases as an alternative to dividends.

18.1 Cash Dividends and Dividend Payment

The term **dividend** usually refers to cash paid out of earnings. If a payment is made from sources other than current or accumulated retained earnings, the term **distribution**, rather than *dividend*, is used. However, it is acceptable to refer to a distribution from earnings as a dividend and a distribution from capital as a liquidating dividend. More generally, any direct payment by the corporation to the shareholders may be considered a dividend or a part of dividend policy.

dividend
A payment made out of a firm's earnings to its owners, in the form of either cash or stock.

distribution
A payment made by a firm to its owners from sources other than current or accumulated retained earnings.

Dividends come in several different forms. The basic types of cash dividends are these:

1. Regular cash dividends.
2. Extra dividends.
3. Special dividends.
4. Liquidating dividends.

Later in the chapter, we discuss dividends paid in stock instead of cash. We also consider another alternative to cash dividends: stock repurchase.

CASH DIVIDENDS

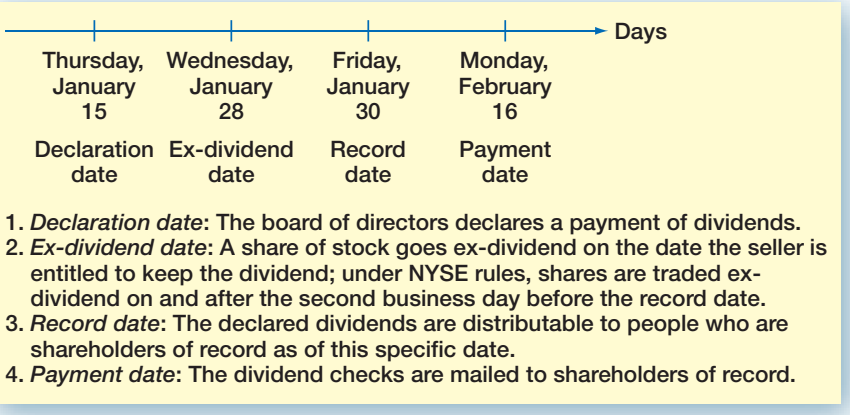
The most common type of dividend is a cash dividend. Commonly, public companies pay **regular cash dividends** four times a year. As the name suggests, these are cash payments made directly to shareholders, and they are made in the regular course of business. In other words, management sees nothing unusual about the dividend and no reason why it won't be continued.

regular cash dividend
A cash payment made by a firm to its owners in the normal course of business, usually paid four times a year.

Sometimes firms will pay a regular cash dividend and an *extra cash dividend*. By calling part of the payment "extra," management is indicating that the "extra" part may or may not be repeated in the future. A *special dividend* is similar, but the name usually indicates that this dividend is viewed as a truly unusual or one-time event and won't be repeated. For example, in December 2004, Microsoft paid a special dividend of $3 per share. The total payout of $32 billion was the largest one-time corporate dividend in history. Founder Bill Gates received about $3 *billion*, which he pledged to donate to charity. Finally, the payment of a *liquidating dividend* usually means that some or all of the business has been liquidated—that is, sold off.

However it is labeled, a cash dividend payment reduces corporate cash and retained earnings, except in the case of a liquidating dividend (which may reduce paid-in capital).

FIGURE 18.1
Example of Procedure for Dividend Payment



STANDARD METHOD OF CASH DIVIDEND PAYMENT

The decision to pay a dividend rests in the hands of the board of directors of the corporation. When a dividend has been declared, it becomes a debt of the firm and cannot be rescinded easily. Sometime after it has been declared, a dividend is distributed to all shareholders as of some specific date.

Commonly, the amount of the cash dividend is expressed in terms of dollars per share (*dividends per share*). As we have seen in other chapters, it is also expressed as a percentage of the market price (the *dividend yield*) or as a percentage of net income or earnings per share (the *dividend payout*).

DIVIDEND PAYMENT: A CHRONOLOGY

declaration date
The date on which the board of directors passes a resolution to pay a dividend.

ex-dividend date
The date two business days before the date of record, establishing those individuals entitled to a dividend.

date of record
The date by which a holder must be on record to be designated to receive a dividend.

date of payment
The date on which the dividend checks are mailed.

The mechanics of a cash dividend payment can be illustrated by the example in Figure 18.1 and the following description:

1. **Declaration date:** On January 15, the board of directors passes a resolution to pay a dividend of $1 per share on February 16 to all holders of record as of January 30.
2. **Ex-dividend date:** To make sure that dividend checks go to the right people, brokerage firms and stock exchanges establish an ex-dividend date. This date is two business days before the date of record (discussed next). If you buy the stock before this date, you are entitled to the dividend. If you buy on this date or after, the previous owner will get the dividend.

   In Figure 18.1, Wednesday, January 28, is the ex-dividend date. Before this date, the stock is said to trade "with dividend" or "cum dividend." Afterward, the stock trades "ex dividend."

   The ex-dividend date convention removes any ambiguity about who is entitled to the dividend. Because the dividend is valuable, the stock price will be affected when the stock goes "ex." We examine this effect in a moment.
3. **Date of record:** Based on its records, the corporation prepares a list on January 30 of all individuals believed to be stockholders. These are the *holders of record*, and January 30 is the date of record (or record date). The word *believed* is important here. If you buy the stock just before this date, the corporation's records may not reflect that fact because of mailing or other delays. Without some modification, some of the dividend checks will get mailed to the wrong people. This is the reason for the ex-dividend day convention.
4. **Date of payment:** The dividend checks are mailed on February 16.

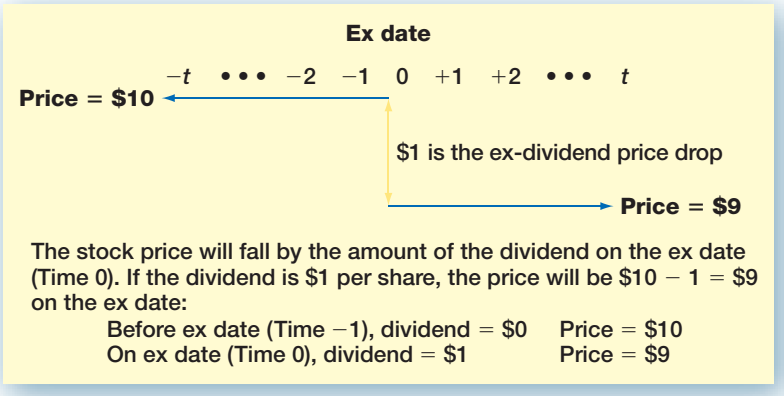


FIGURE 18.2

Price Behavior around the Ex-Dividend Date for a $1 Cash Dividend

MORE ABOUT THE EX-DIVIDEND DATE

The ex-dividend date is important and is a common source of confusion. We examine what happens to the stock when it goes ex, meaning that the ex-dividend date arrives. To illustrate, suppose we have a stock that sells for $10 per share. The board of directors declares a dividend of $1 per share, and the record date is set to be Tuesday, June 12. Based on our previous discussion, we know that the ex date will be two business (not calendar) days earlier, on Friday, June 8.

If you buy the stock on Thursday, June 7, just as the market closes, you'll get the $1 dividend because the stock is trading cum dividend. If you wait and buy it just as the market opens on Friday, you won't get the $1 dividend. What happens to the value of the stock overnight?

If you think about it, you will see that the stock is worth about $1 less on Friday morning, so its price will drop by this amount between close of business on Thursday and the Friday opening. In general, we expect that the value of a share of stock will go down by about the dividend amount when the stock goes ex dividend. The key word here is *about*. Because dividends are taxed, the actual price drop might be closer to some measure of the aftertax value of the dividend. Determining this value is complicated because of the different tax rates and tax rules that apply for different buyers.

The series of events described here is illustrated in Figure 18.2.

"Ex" Marks the Day — EXAMPLE 18.1

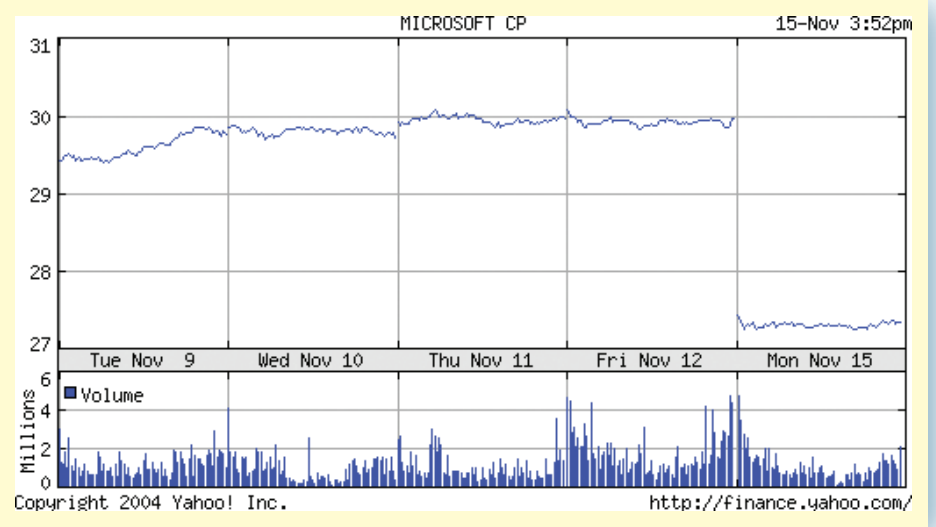
The board of directors of Divided Airlines has declared a dividend of $2.50 per share payable on Tuesday, May 30, to shareholders of record as of Tuesday, May 9. Cal Icon buys 100 shares of Divided on Tuesday, May 2, for $150 per share. What is the ex date? Describe the events that will occur with regard to the cash dividend and the stock price.

The ex date is two business days before the date of record, Tuesday, May 9; so the stock will go ex on Friday, May 5. Cal buys the stock on Tuesday, May 2, so Cal purchases the stock cum dividend. In other words, Cal will get $2.50 × 100 = $250 in dividends. The check will be mailed on Tuesday, May 30. Just before the stock does go ex on Friday, its value will drop overnight by about $2.50 per share.

As an example of the price drop on the ex-dividend date, consider the enormous dividend Microsoft paid in November 2004. The special dividend payment totaled a whopping $32.6 *billion*, the largest corporate cash disbursement in history. What makes the

Microsoft special dividend extraordinary is its sheer size. The total dividends paid by all the companies in the S&P 500 for the year totaled $213.6 billion, so Microsoft's special dividend amounted to about 15 percent of all dividends paid by S&P 500 companies for the year. To give you another idea of the size of the special dividend, consider that, in December, when the dividend was sent to investors, personal income in the United States rose 3.7 percent. Without the dividend, personal income rose only .3 percent; so the dividend payment accounted for about 3 percent of all personal income in the United States for the month!

The stock went ex-dividend on November 15, 2004, with a total dividend of $3.08 per share, consisting of a $3 special dividend and a $0.08 regular dividend. The stock price chart here shows the change in Microsoft stock four days prior to the ex-dividend date and on the ex-dividend date.



The stock closed at $29.97 on November 12 (a Friday) and opened at $27.34 on November 15—a drop of $2.63. With a 15 percent tax rate on dividends, we would have expected a drop of $2.62, so the actual price drop was almost exactly what we expected.

Concept Questions

18.1a What are the different types of cash dividends?

18.1b What are the mechanics of the cash dividend payment?

18.1c How should the price of a stock change when it goes ex dividend?

18.2 Does Dividend Policy Matter?

To decide whether or not dividend policy matters, we first have to define what we mean by dividend *policy*. All other things being the same, of course dividends matter. Dividends are paid in cash, and cash is something that everybody likes. The question we will be discussing here is whether the firm should pay out cash now or invest the cash and pay it out later.

Dividend policy, therefore, is the time pattern of dividend payout. In particular, should the firm pay out a large percentage of its earnings now or a small (or even zero) percentage? This is the dividend policy question.

AN ILLUSTRATION OF THE IRRELEVANCE OF DIVIDEND POLICY

A powerful argument can be made that dividend policy does not matter. We illustrate this by considering the simple case of Wharton Corporation. Wharton is an all-equity firm that has existed for 10 years. The current financial managers plan to dissolve the firm in two years. The total cash flows the firm will generate, including the proceeds from liquidation, will be $10,000 in each of the next two years.

Current Policy: Dividends Set Equal to Cash Flow At the present time, dividends at each date are set equal to the cash flow of $10,000. There are 100 shares outstanding, so the dividend per share is $100. In Chapter 6, we showed that the value of the stock is equal to the present value of the future dividends. Assuming a 10 percent required return, the value of a share of stock today, P_0, is:

$$P_0 = \frac{D_1}{(1+R)^1} + \frac{D_2}{(1+R)^2}$$
$$= \frac{\$100}{1.10} + \frac{100}{1.10^2} = \$173.55$$

The firm as a whole is thus worth $100 \times \$173.55 = \$17{,}355$.

Several members of the board of Wharton have expressed dissatisfaction with the current dividend policy and have asked you to analyze an alternative policy.

Alternative Policy: Initial Dividend Greater Than Cash Flow Another possible policy is for the firm to pay a dividend of $110 per share on the first date (Date 1), which is, of course, a total dividend of $11,000. Because the cash flow is only $10,000, an extra $1,000 must somehow be raised. One way to do this is to issue $1,000 worth of bonds or stock at Date 1. Assume that stock is issued. The new stockholders will desire enough cash flow at Date 2 so that they earn the required 10 percent return on their Date 1 investment.[1]

What is the value of the firm with this new dividend policy? The new stockholders invest $1,000. They require a 10 percent return, so they will demand $\$1{,}000 \times 1.10 = \$1{,}100$ of the Date 2 cash flow, leaving only $8,900 to the old stockholders. The dividends to the old stockholders will be as follows:

	Date 1	Date 2
Aggregate dividends to old stockholders	$11,000	$8,900
Dividends per share	110	89

The present value of the dividends per share is therefore:

$$P_0 = \frac{\$110}{1.10} + \frac{89}{1.10^2} = \$173.55$$

This is the same value we had before.

[1]The same results would occur after an issue of bonds, though the arguments would be less easily presented.

The value of the stock is not affected by this switch in dividend policy even though we have to sell some new stock just to finance the new dividend. In fact, no matter what pattern of dividend payout the firm chooses, the value of the stock will always be the same in this example. In other words, for the Wharton Corporation, dividend policy makes no difference. The reason is simple: Any increase in a dividend at some point in time is exactly offset by a decrease somewhere else; so the net effect, once we account for time value, is zero.

HOMEMADE DIVIDENDS

There is an alternative and perhaps more intuitively appealing explanation of why dividend policy doesn't matter in our example. Suppose individual investor X prefers dividends per share of $100 at both Dates 1 and 2. Would she be disappointed if informed that the firm's management was adopting the alternative dividend policy (dividends of $110 and $89 on the two dates, respectively)? Not necessarily: She could easily reinvest the $10 of unneeded funds received on Date 1 by buying more Wharton stock. At 10 percent, this investment would grow to $11 by Date 2. Thus, X would receive her desired net cash flow of $110 − 10 = $100 at Date 1 and $89 + 11 = $100 at Date 2.

homemade dividend policy
The tailored dividend policy created by individual investors who undo corporate dividend policy by reinvesting dividends or selling shares of stock.

Conversely, imagine that an investor Z, preferring $110 of cash flow at Date 1 and $89 of cash flow at Date 2, finds that management will pay dividends of $100 at both Dates 1 and 2. This investor can simply sell $10 worth of stock to boost his total cash at Date 1 to $110. Because this investment returns 10 percent, Investor Z gives up $11 at Date 2 ($10 × 1.1), leaving him with $100 − 11 = $89.

Our two investors are able to transform the corporation's dividend policy into a different policy by buying or selling on their own. The result is that investors are able to create a **homemade dividend policy**. This means that dissatisfied stockholders can alter the firm's dividend policy to suit themselves. As a result, there is no particular advantage to any one dividend policy the firm might choose.

Many corporations actually assist their stockholders in creating homemade dividend policies by offering *automatic dividend reinvestment plans* (ADRs or DRIPs). McDonald's, Wal-Mart, Sears, and Procter & Gamble, plus over 1,000 more companies, have set up such plans, so they are relatively common. As the name suggests, with such a plan, stockholders have the option of automatically reinvesting some or all of their cash dividend in shares of stock. In some cases, they actually receive a discount on the stock, which makes such a plan very attractive.

A TEST

Our discussion to this point can be summarized by considering the following true–false test questions:

1. True or false: Dividends are irrelevant.
2. True or false: Dividend policy is irrelevant.

The first statement is surely false, and the reason follows from common sense. Clearly, investors prefer higher dividends to lower dividends at any single date if the dividend level is held constant at every other date. To be more precise regarding the first question, if the dividend per share at a given date is raised while the dividend per share at every other date is held constant, the stock price will rise. The reason is that the present value of the future dividends must go up if this occurs. This action can be accomplished by management decisions that improve productivity, increase tax savings, strengthen product marketing, or otherwise improve cash flow.

The second statement is true, at least in the simple case we have been examining. Dividend policy by itself cannot raise the dividend at one date while keeping it the same at all other dates. Rather, dividend policy merely establishes the trade-off between dividends at one date and dividends at another date. Once we allow for time value, the present value of the dividend stream is unchanged. Thus, in this simple world, dividend policy does not matter because managers choosing either to raise or to lower the current dividend do not affect the current value of their firm. However, we have ignored several real-world factors that might lead us to change our minds; we pursue some of these in subsequent sections.

Concept Questions

18.2a How can an investor create a homemade dividend?

18.2b Are dividends irrelevant?

18.3 Real-World Factors Favoring a Low Payout

The example we used to illustrate the irrelevance of dividend policy ignored taxes and flotation costs. In this section, we will see that these factors might lead us to prefer a low dividend payout.

TAXES

U.S. tax laws are complex, and they affect dividend policy in a number of ways. The key tax feature has to do with the taxation of dividend income and capital gains. For individual shareholders, *effective* tax rates on dividend income are higher than the tax rates on capital gains. Historically, dividends received have been taxed as ordinary income. Capital gains have been taxed at somewhat lower rates, and the tax on a capital gain is deferred until the stock is sold. This second aspect of capital gains taxation makes the effective tax rate much lower because the present value of the tax is less.[2]

A firm that adopts a low dividend payout will reinvest the money instead of paying it out. This reinvestment increases the value of the firm and of the equity. All other things being equal, the net effect is that the expected capital gains portion of the return will be higher in the future. So, the fact that capital gains are taxed favorably may lead us to prefer this approach.

This tax disadvantage of dividends doesn't necessarily lead to a policy of paying no dividends. Suppose a firm has some excess cash after selecting all positive NPV projects (this type of excess cash is frequently referred to as *free cash flow*). The firm is considering two mutually exclusive uses of the excess cash: (1) Pay dividends or (2) retain the excess cash for investment in securities. The correct dividend policy will depend on the individual tax rate and the corporate tax rate.

To see why, suppose the Regional Electric Company has $1,000 in extra cash. It can retain the cash and invest it in Treasury bills yielding 10 percent, or it can pay the cash to

[2]In fact, capital gains taxes can sometimes be avoided altogether. Although we do not recommend this particular tax avoidance strategy, the capital gains tax may be avoided by dying. Your heirs are not considered to have a capital gain, so the tax liability dies when you do. In this instance, you can take it with you.

shareholders as a dividend. Shareholders can also invest in Treasury bills with the same yield. The corporate tax rate is 34 percent, and the individual tax rate is 28 percent. What is the amount of cash investors will have after five years under each policy?

If dividends are paid now, shareholders will receive $1,000 before taxes, or $1,000 × (1 − .28) = $720 after taxes. This is the amount they will invest. If the rate on T-bills is 10 percent, before taxes, then the aftertax return is 10% × (1 − .28) = 7.2% per year. Thus, in five years, the shareholders will have:

$$\$720 \times (1 + .072)^5 = \$1{,}019.31$$

If Regional Electric Company retains the cash, invests in Treasury bills, and pays out the proceeds five years from now, then $1,000 will be invested today. However, because the corporate tax rate is 34 percent, the aftertax return from the T-bills will be 10% × (1 − .34) = 6.6% per year. In five years, the investment will be worth:

$$\$1{,}000 \times (1 + .066)^5 = \$1{,}376.53$$

If this amount is then paid out as a dividend, the stockholders will receive (after tax):

$$\$1{,}376.53 \times (1 - .28) = \$991.10$$

In this case, dividends will be greater after taxes if the firm pays them now. The reason is that the firm simply cannot invest as profitably as the shareholders can on their own (on an aftertax basis).

This example shows that for a firm with extra cash, the dividend payout decision will depend on personal and corporate tax rates. All other things being the same, when personal tax rates are higher than corporate tax rates, a firm will have an incentive to reduce dividend payouts. However, if personal tax rates are lower than corporate tax rates, a firm will have an incentive to pay out any excess cash in dividends.

Recent tax law changes have led to a renewed interest in the effect of taxes on corporate dividend policies. As we previously noted, historically dividends have been taxed as ordinary income (at ordinary income tax rates). In 2003, this changed dramatically. Tax rates on dividends and long-term capital gains were lowered from a maximum in the 35–39 percent range to 15 percent. The new tax rate on dividends is therefore substantially less than the corporate tax rate, giving corporations a much larger tax incentive to pay dividends. However, note that capital gains are still taxed preferentially because of the deferment.

EXPECTED RETURN, DIVIDENDS, AND PERSONAL TAXES

We illustrate the effect of personal taxes by considering an extreme situation in which dividends are taxed as ordinary income and capital gains are not taxed at all. We show that a firm that provides more return in the form of dividends will have a lower value (or a higher pretax required return) than one whose return is in the form of untaxed capital gains.

Suppose every investor is in a 25 percent tax bracket and is considering the stocks of Firm G and Firm D. Firm G pays no dividend, and Firm D pays a dividend. The current price of the stock of Firm G is $100, and next year's price is expected to be $120. The shareholder in Firm G thus expects a $20 capital gain. With no dividend, the return is $20/100 = 20%. If capital gains are not taxed, the pretax and aftertax returns must be the same.

Suppose the stock of Firm D is expected to pay a $20 dividend next year, and the ex-dividend price will then be $100. If the stocks of Firm G and Firm D are equally risky, the market prices must be set so that the aftertax expected returns of these stocks are equal. The aftertax return on Firm D will therefore have to be 20 percent.

What will be the price of stock in Firm D? The aftertax dividend is $\$20 \times (1 - .25) = \$15$, so our investor will have a total of $115 after taxes. At a 20 percent required rate of return (after taxes), the present value of this aftertax amount is:

$$\text{Present value} = \$115/1.20 = \$95.83$$

The market price of the stock in Firm D thus must be $95.83.

What we see is that Firm D is worth less because of its dividend policy. Another way to see the same thing is to look at the pretax required return for Firm D:

$$\text{Pretax return} = (\$120 - 95.83)/95.83 = 25.2\%$$

Firm D effectively has a higher cost of equity (25.2 percent versus 20 percent) because of its dividend policy. Shareholders demand the higher return as compensation for the extra tax liability.

FLOTATION COSTS

In our example illustrating that dividend policy doesn't matter, we saw that the firm could sell some new stock if necessary to pay a dividend. As we mentioned in Chapter 16, selling new stock can be very expensive. If we include flotation costs in our argument, then we will find that the value of the stock decreases if we sell new stock.

More generally, imagine two firms identical in every way except that one pays out a greater percentage of its cash flow in the form of dividends. Because the other firm plows back more, its equity grows faster. If these two firms are to remain identical, then the one with the higher payout will have to periodically sell some stock to catch up. Because this is expensive, a firm might be inclined to have a low payout.

DIVIDEND RESTRICTIONS

In some cases, a corporation may face restrictions on its ability to pay dividends. For example, as we discussed in Chapter 7, a common feature of a bond indenture is a covenant prohibiting dividend payments above some level. Also, a corporation may be prohibited by state law from paying dividends if the dividend amount exceeds the firm's retained earnings.

Concept Questions

18.3a What are the tax benefits of low dividends?

18.3b Why do flotation costs favor a low payout?

18.4 Real-World Factors Favoring a High Payout

In this section, we consider reasons why a firm might pay its shareholders higher dividends even if it means the firm must issue more shares of stock to finance the dividend payments.

In a classic textbook, Benjamin Graham, David Dodd, and Sidney Cottle have argued that firms should generally have high dividend payouts because:

1. "The discounted value of near dividends is higher than the present worth of distant dividends."

2. Between "two companies with the same general earning power and same general position in an industry, the one paying the larger dividend will almost always sell at a higher price."[3]

Two additional factors favoring a high dividend payout have also been mentioned frequently by proponents of this view: the desire for current income and the resolution of uncertainty.

DESIRE FOR CURRENT INCOME

It has been argued that many individuals desire current income. The classic example is the group of retired people and others living on a fixed income (the proverbial widows and orphans). It is argued that this group is willing to pay a premium to get a higher dividend yield. If this is true, then it lends support to the second claim made by Graham, Dodd, and Cottle.

It is easy to see, however, that this argument is not relevant in our simple case. An individual preferring high current cash flow but holding low-dividend securities can easily sell off shares to provide the necessary funds. Similarly, an individual desiring a low current cash flow but holding high-dividend securities can just reinvest the dividend. This is just our homemade dividend argument again. Thus, in a world of no transaction costs, a policy of high current dividends would be of no value to the stockholder.

The current income argument may have relevance in the real world. Here the sale of low-dividend stocks would involve brokerage fees and other transaction costs. These direct cash expenses could be avoided by an investment in high-dividend securities. In addition, the expenditure of the stockholder's own time in selling securities and the natural (though not necessarily rational) fear of consuming out of principal might further lead many investors to buy high-dividend securities.

Even so, to put this argument in perspective, remember that financial intermediaries such as mutual funds can (and do) perform these "repackaging" transactions for individuals at very low cost. Such intermediaries could buy low-dividend stocks and, through a controlled policy of realizing gains, they could pay their investors at a higher rate.

UNCERTAINTY RESOLUTION

We have just pointed out that investors with substantial current consumption needs will prefer high current dividends. In another classic treatment, Myron Gordon has argued that a high-dividend policy also benefits stockholders because it resolves uncertainty.[4]

According to Gordon, investors price a security by forecasting and discounting future dividends. Gordon then argues that forecasts of dividends to be received in the distant future have greater uncertainty than do forecasts of near-term dividends. Because investors dislike uncertainty, the stock price should be low for those companies that pay small dividends now in order to remit higher, less certain dividends at later dates.

Gordon's argument is essentially a bird-in-hand story. A $1 dividend in a shareholder's pocket is somehow worth more than that same $1 in a bank account held by the corporation.

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[3]B. Graham, D. Dodd, and S. Cottle, *Security Analysis* (New York: McGraw-Hill, 1962).

[4]M. Gordon, *The Investment, Financing and Valuation of the Corporation* (Burr Ridge, IL: Richard D. Irwin, 1961).

By now, you should see the problem with this argument. A shareholder can create a bird in hand very easily just by selling some of the stock.

TAX AND LEGAL BENEFITS FROM HIGH DIVIDENDS

Earlier, we saw that dividends were taxed unfavorably for individual investors (at least until very recently). This fact is a powerful argument for a low payout. However, there are a number of other investors who do not receive unfavorable tax treatment from holding high–dividend yield, rather than low–dividend yield, securities.

Corporate Investors A significant tax break on dividends occurs when a corporation owns stock in another corporation. A corporate stockholder receiving either common or preferred dividends is granted a 70 percent (or more) dividend exclusion. Because the 70 percent exclusion does not apply to capital gains, this group is taxed unfavorably on capital gains.

As a result of the dividend exclusion, high-dividend, low-capital gains stocks may be more appropriate for corporations to hold. As we discuss elsewhere, this is why corporations hold a substantial percentage of the outstanding preferred stock in the economy. This tax advantage of dividends also leads some corporations to hold high-yielding stocks instead of long-term bonds because there is no similar tax exclusion of interest payments to corporate bondholders.

Tax-Exempt Investors We have pointed out both the tax advantages and the tax disadvantages of a low dividend payout. Of course, this discussion is irrelevant to those in zero tax brackets. This group includes some of the largest investors in the economy, such as pension funds, endowment funds, and trust funds.

There are some legal reasons for large institutions to favor high dividend yields. First, institutions such as pension funds and trust funds are often set up to manage money for the benefit of others. The managers of such institutions have a *fiduciary responsibility* to invest the money prudently. It has been considered imprudent in courts of law to buy stock in companies with no established dividend record.

Second, institutions such as university endowment funds and trust funds are frequently prohibited from spending any of the principal. Such institutions might therefore prefer to hold high–dividend yield stocks so they have some ability to spend. Like widows and orphans, this group thus prefers current income. However, unlike widows and orphans, this group is very large in terms of the amount of stock owned.

CONCLUSION

Overall, individual investors (for whatever reason) may have a desire for current income and may thus be willing to pay the dividend tax. In addition, some very large investors such as corporations and tax-free institutions may have a very strong preference for high dividend payouts.

Concept Questions

18.4a Why might some individual investors favor a high dividend payout?

18.4b Why might some nonindividual investors prefer a high dividend payout?

18.5 A Resolution of Real-World Factors?

In the previous sections, we presented some factors that favor a low-dividend policy and others that favor a high-dividend policy. In this section, we discuss two important concepts related to dividends and dividend policy: the information content of dividends and the clientele effect. The first topic illustrates both the importance of dividends in general and the importance of distinguishing between dividends and dividend policy. The second topic suggests that, despite the many real-world considerations we have discussed, the dividend payout ratio may not be as important as we originally imagined.

INFORMATION CONTENT OF DIVIDENDS

To begin, we quickly review some of our earlier discussion. Previously, we examined three different positions on dividends:

1. Based on the homemade dividend argument, dividend policy is irrelevant.
2. Because of tax effects for individual investors and new issues costs, a low-dividend policy is best.
3. Because of the desire for current income and related factors, a high-dividend policy is best.

If you wanted to decide which of these positions is the right one, an obvious way to get started would be to look at what happens to stock prices when companies announce dividend changes. You would find with some consistency that stock prices rise when the current dividend is unexpectedly increased, and they generally fall when the dividend is unexpectedly decreased. What does this imply about any of the three positions just stated?

At first glance, the behavior we describe seems consistent with the third position and inconsistent with the other two. In fact, many writers have argued this. If stock prices rise in response to dividend increases and fall in response to dividend decreases, then isn't the market saying that it approves of higher dividends?

Other authors have pointed out that this observation doesn't really tell us much about dividend policy. Everyone agrees that dividends are important, all other things being equal. Companies cut dividends only with great reluctance. Thus, a dividend cut is often a signal that the firm is in trouble.

More to the point, a dividend cut is usually not a voluntary, planned change in dividend policy. Instead, it usually signals that management does not think that the current dividend policy can be maintained. As a result, expectations of future dividends should generally be revised downward. The present value of expected future dividends falls, and so does the stock price.

In this case, the stock price declines following a dividend cut because future dividends are generally expected to be lower, not because the firm has changed the percentage of its earnings it will pay out in the form of dividends.

For a dramatic example, consider what happened to NUI Corporation when it announced that it would not pay a dividend. NUI is a diversified energy company that is engaged in the sale and distribution of natural gas, retail energy sales, and other activities. In May 2004, the company announced a loss of $2.82 per share, which was larger than expected. The company had a bond covenant that made it impossible to pay a dividend in any quarter in which its total capitalization was more than 60 percent debt. The big

loss put the company over this limit, so the company announced that no dividend would be paid.

The next day was not pleasant for NUI shareholders. On a typical day, fewer than 100,000 shares of NUI stock trade on the NYSE. On that day, however, over 1.8 million shares traded hands. The stock had closed at $15.65 the previous day. When the market opened, the stock fell to $14.90 per share but quickly dropped to $12.38 per share. At the end of the day, the stock closed at $12.80, a loss of about 18 percent. In other words, NUI lost almost 1/5 of its market value overnight. As this case illustrates, shareholders can react negatively to unanticipated cuts in dividends.

Of course, not all announcements of dividend cuts result in such sharp stock price declines. In February 2006, General Motors announced that it was cutting its dividend in half, but the stock price dropped only about 2 percent on the news. The reason is that investors had already expected such a move from the company.

In a similar vein, an unexpected increase in the dividend signals good news. Management will raise the dividend only when future earnings, cash flow, and general prospects are expected to rise to such an extent that the dividend will not have to be cut later. A dividend increase is management's signal to the market that the firm is expected to do well. The stock price reacts favorably because expectations of future dividends are revised upward, not because the firm has increased its payout.

In both of these cases, the stock price reacts to the dividend change. The reaction can be attributed to changes in the expected amount of future dividends, not necessarily a change in dividend payout policy. This reaction is called the **information content effect** of the dividend. The fact that dividend changes convey information about the firm to the market makes it difficult to interpret the effect of the dividend policy of the firm.

information content effect
The market's reaction to a change in corporate dividend payout.

THE CLIENTELE EFFECT

In our earlier discussion, we saw that some groups (wealthy individuals, for example) have an incentive to pursue low-payout (or zero-payout) stocks. Other groups (corporations, for example) have an incentive to pursue high-payout stocks. Companies with high payouts will thus attract one group, and low-payout companies will attract another.

These different groups are called *clienteles*, and what we have described is a **clientele effect**. The clientele effect argument states that different groups of investors desire different levels of dividends. When a firm chooses a particular dividend policy, the only effect is to attract a particular clientele. If a firm changes its dividend policy, then it just attracts a different clientele.

clientele effect
The observable fact that stocks attract particular groups based on dividend yield and the resulting tax effects.

What we are left with is a simple supply and demand argument. Suppose 40 percent of all investors prefer high dividends, but only 20 percent of the firms pay high dividends. Here the high-dividend firms will be in short supply; thus, their stock prices will rise. Consequently, low-dividend firms will find it advantageous to switch policies until 40 percent of all firms have high payouts. At this point, the *dividend market* is in equilibrium. Further changes in dividend policy are pointless because all of the clienteles are satisfied. The dividend policy for any individual firm is now irrelevant.

To see if you understand the clientele effect, consider the following statement: In spite of the theoretical argument that dividend policy is irrelevant or that firms should not pay dividends, many investors like high dividends; because of this fact, a firm can boost its share price by having a higher dividend payout ratio. True or false?

The answer is "false" if clienteles exist. As long as enough high-dividend firms satisfy the dividend-loving investors, a firm won't be able to boost its share price by paying high dividends. An unsatisfied clientele must exist for this to happen, and there is no evidence that this is the case.

Concept Questions

18.5a How does the market react to unexpected dividend changes? What does this tell us about dividends? About dividend policy?

18.5b What is a dividend clientele? All things considered, would you expect a risky firm with significant but highly uncertain growth prospects to have a low or high dividend payout?

18.6 Establishing a Dividend Policy

How do firms actually determine the level of dividends they will pay at a particular time? As we have seen, there are good reasons for firms to pay high dividends, and there are good reasons to pay low dividends.

We know some things about how dividends are paid in practice. Firms don't like to cut dividends. Consider the case of The Stanley Works, maker of Stanley tools and other building products. As of 2006, Stanley had paid dividends for 129 years, longer than any other industrial company listed on the NYSE. Furthermore, Stanley had boosted its dividend every year since 1968—a 38-year run of increases.

In the next section, we discuss a particular dividend policy strategy. In doing so, we emphasize the real-world features of dividend policy. We also analyze an increasingly important alternative to cash dividends: a stock repurchase.

RESIDUAL DIVIDEND APPROACH

Earlier, we noted that firms with higher dividend payouts will have to sell stock more often. As we have seen, such sales are not very common, and they can be very expensive. Consistent with this, we will assume that the firm wishes to minimize the need to sell new equity. We will also assume that the firm wishes to maintain its current capital structure.

If a firm wishes to avoid new equity sales, then it will have to rely on internally generated equity to finance new positive NPV projects.[5] Dividends can only be paid out of what is left over. This leftover is called the *residual*, and such a dividend policy is called a **residual dividend approach**.

residual dividend approach
A policy under which a firm pays dividends only after meeting its investment needs while maintaining a desired debt–equity ratio.

With a residual dividend policy, the firm's objective is to meet its investment needs and maintain its desired debt–equity ratio before paying dividends. To illustrate, imagine that a firm has $1,000 in earnings and a debt–equity ratio of .50. Notice that because the debt–equity ratio is .50, the firm has 50 cents in debt for every $1.50 in total value. The firm's capital structure is thus ⅓ debt and ⅔ equity.

The first step in implementing a residual dividend policy is to determine the amount of funds that can be generated without selling new equity. If the firm reinvests the entire $1,000 and pays no dividend, then equity will increase by $1,000. To keep the debt–equity ratio at .50, the firm must borrow an additional $500. The total amount of funds that can be generated without selling new equity is thus $1,000 + 500 = $1,500.

The second step is to decide whether or not a dividend will be paid. To do this, we compare the total amount that can be generated without selling new equity ($1,500 in this case)

[5]Our discussion of sustainable growth in Chapter 4 is relevant here. We assumed there that a firm has a fixed capital structure, profit margin, and capital intensity. If the firm raises no new external equity and wishes to grow at some target rate, then there is only one payout ratio consistent with these assumptions.

to planned capital spending. If funds needed exceed funds available, then no dividend will be paid. In addition, the firm will have to sell new equity to raise the needed financing or else (what is more likely) postpone some planned capital spending.

If funds needed are less than funds generated, then a dividend will be paid. The amount of the dividend will be the residual—that is, the portion of the earnings that is not needed to finance new projects. For example, suppose we have $900 in planned capital spending. To maintain the firm's capital structure, this $900 must be financed by ⅔ equity and ⅓ debt. So, the firm will actually borrow ⅓ × $900 = $300. The firm will spend ⅔ × $900 = $600 of the $1,000 in equity available. There is a $1,000 − 600 = $400 residual, so the dividend will be $400.

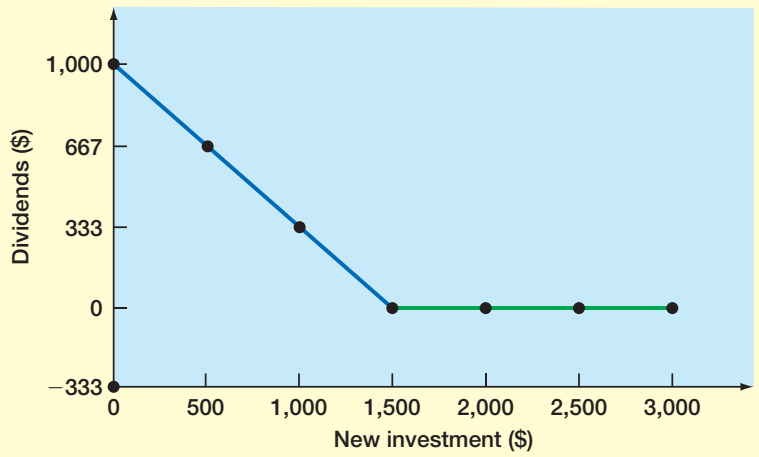
In sum, the firm has aftertax earnings of $1,000. Dividends paid are $400. Retained earnings are $600, and new borrowing totals $300. The firm's debt–equity ratio is unchanged at .50.

The relationship between physical investment and dividend payout is presented for six different levels of investment in Table 18.1 and illustrated in Figure 18.3. The first three rows of the table can be discussed together because in each of these cases no dividends are paid.

In Row 1, for example, note that new investment is $3,000. Additional debt of $1,000 and equity of $2,000 must be raised to keep the debt–equity ratio constant. Because this

Row	Aftertax Earnings	New Investment	Additional Debt	Retained Earnings	Additional Stock	Dividends
1	$1,000	$3,000	$1,000	$1,000	$1,000	$ 0
2	1,000	2,000	667	1,000	333	0
3	1,000	1,500	500	1,000	0	0
4	1,000	1,000	333	667	0	333
5	1,000	500	167	333	0	667
6	1,000	0	0	0	0	1,000

TABLE 18.1
Example of Dividend Policy under the Residual Approach



This figure illustrates that a firm with many investment opportunities will pay small amounts of dividends, and a firm with few investment opportunities will pay relatively large amounts of dividends.

FIGURE 18.3
Relationship between Dividends and Investment in the Example of Residual Dividend Policy

latter figure is greater than the $1,000 in earnings, all earnings are retained. Additional stock to be issued is also $1,000. In this example, because new stock is issued, dividends are not simultaneously paid out.

In Rows 2 and 3, investment drops. Additional debt needed goes down as well, because it is equal to ⅓ of investment. Because the amount of new equity needed is still greater than or equal to $1,000, all earnings are retained and no dividend is paid.

We finally find a situation in Row 4 in which a dividend is paid. Here, total investment is $1,000. To keep the debt–equity ratio constant, ⅓ of this investment, or $333, is financed by debt. The remaining ⅔, or $667, comes from internal funds, implying that the residual is $1,000 − 667 = $333. The dividend is equal to this $333 residual.

In this case, note that no additional stock is issued. Because the needed investment is even lower in Rows 5 and 6, new debt is reduced further, retained earnings drop, and dividends increase. Again, no additional stock is issued.

Given our discussion, we expect those firms with many investment opportunities to pay a small percentage of their earnings as dividends and other firms with fewer opportunities to pay a high percentage of their earnings as dividends. This result appears to occur in the real world. Young, fast-growing firms commonly employ a low payout ratio, whereas older, slower-growing firms in more mature industries use a higher ratio.

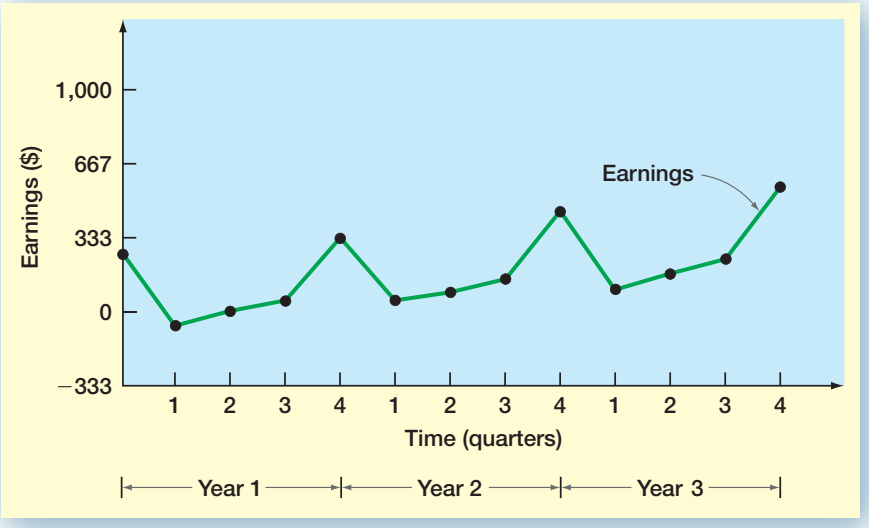
DIVIDEND STABILITY

The key point of the residual dividend approach is that dividends are paid only after all profitable investment opportunities are exhausted. Of course, a strict residual approach might lead to a very unstable dividend policy. If investment opportunities in one period are quite high, dividends will be low or zero. Conversely, dividends might be high in the next period if investment opportunities are considered less promising.

Consider the case of Big Department Stores, Inc., a retailer whose annual earnings are forecast to be equal from year to year, but whose quarterly earnings change throughout the year. The earnings are low in each year's first quarter because of the post-holiday business slump. Although earnings increase only slightly in the second and third quarters, they advance greatly in the fourth quarter as a result of the holiday season. A graph of this firm's earnings is presented in Figure 18.4.

FIGURE 18.4

Earnings for Big Department Stores, Inc.



IN THEIR OWN WORDS . . .

Fischer Black on Why Firms Pay Dividends

I think investors simply like dividends. They believe that dividends enhance stock value (given the firm's prospects), and they feel uncomfortable spending out of their capital.

We see evidence for this everywhere: Investment advisers and institutions treat a high-yield stock as both attractive and safe, financial analysts value a stock by predicting and discounting its dividends, financial economists study the relation between stock prices and actual dividends, and investors complain about dividend cuts.

What if investors were neutral toward dividends? Investment advisers would tell clients to spend indifferently from income and capital and, if taxable, to avoid income; financial analysts would ignore dividends in valuing stocks; financial economists would treat stock price and the discounted value of dividends as equal, even when stocks are mispriced; and a firm would apologize to its taxable investors when forced by an accumulated earnings tax to pay dividends. This is not what we observe.

Furthermore, changing dividends seems a poor way to tell the financial markets about a firm's prospects. Public statements can better detail the firm's prospects and have more impact on both the speaker's and the firm's reputations.

I predict that under current tax rules, dividends will gradually disappear.

The late Fischer Black was a partner at Goldman Sachs and Co., an investment banking firm. Before that, he was a professor of finance at MIT. He is one of the fathers of option pricing theory, and he is widely regarded as one of the preeminent financial scholars. He is well known for his creative ideas, many of which were dismissed at first only to become part of accepted lore when others finally came to understand them. He is sadly missed by his colleagues.

The firm can choose between at least two types of dividend policies. First, each quarter's dividend can be a fixed fraction of that quarter's earnings. This is a cyclical dividend policy in which dividends will vary throughout the year. Second, each quarter's dividend can be a fixed fraction of yearly earnings, implying that all dividend payments would be equal. This is a stable dividend policy. These two types of dividend policies are displayed in Figure 18.5. Corporate officials generally agree that a stable policy is in the interest of the firm and its stockholders, so the stable policy would be more common.

A COMPROMISE DIVIDEND POLICY

In practice, many firms appear to follow what amounts to a compromise dividend policy. Such a policy is based on five main goals:

1. Avoid cutting back on positive NPV projects to pay a dividend.
2. Avoid dividend cuts.
3. Avoid the need to sell equity.
4. Maintain a target debt–equity ratio.
5. Maintain a target dividend payout ratio.

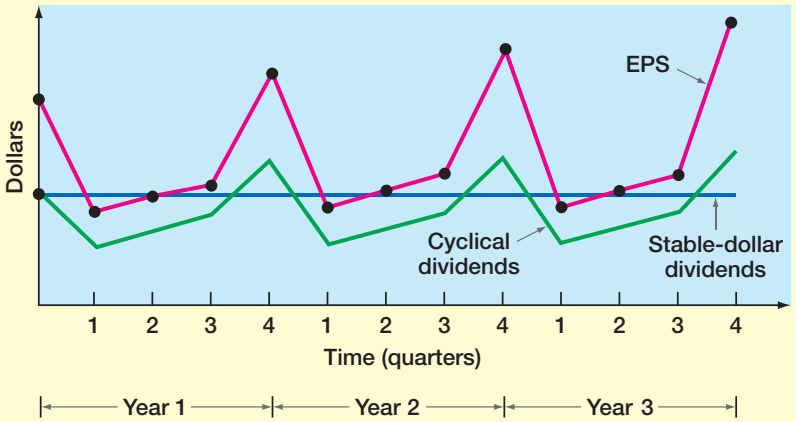
These goals are ranked more or less in order of their importance. In our strict residual approach, we assume that the firm maintains a fixed debt–equity ratio. Under the compromise approach, the debt–equity ratio is viewed as a long-range goal. It is allowed to vary in the short run if necessary to avoid a dividend cut or the need to sell new equity.

In addition to having a strong reluctance to cut dividends, financial managers tend to think of dividend payments in terms of a proportion of income, and they also tend to think investors are entitled to a "fair" share of corporate income. This share is the long-term **target payout ratio**, and it is the fraction of the earnings the firm expects to pay as dividends under ordinary circumstances. Again, this ratio is viewed as a long-range goal, so it might vary in the short run if this is necessary. As a result, in the long run, earnings growth is followed by dividend increases, but only with a lag.

target payout ratio
A firm's long-term desired dividend-to-earnings ratio.

FIGURE 18.5

Alternative Dividend Policies for Big Department Stores, Inc.



Cyclical dividend policy: Dividends are a constant proportion of earnings at each pay date. Stable dividend policy: Dividends are a constant proportion of earnings over an earnings cycle.

TABLE 18.2

Survey Responses on Dividend Decisions*

Policy Statements	Percentage Who Agree or Strongly Agree
1. We try to avoid reducing dividends per share.	93.8%
2. We try to maintain a smooth dividend from year to year.	89.6
3. We consider the level of dividends per share that we have paid in recent quarters.	88.2
4. We are reluctant to make dividend changes that might have to be reversed in the future.	77.9
5. We consider the change or growth in dividends per share.	66.7
6. We consider the cost of raising external capital to be smaller than the cost of cutting dividends.	42.8
7. We pay dividends to attract investors subject to "prudent man" investment restrictions.	41.7

*Survey respondents were asked the question, "Do these statements describe factors that affect your company's dividend decisions?"

SOURCE: Adapted from Table 4 of A. Brav, J.R. Graham, C.R. Harvey, and R. Michaely, "Payout Policy in the 21st Century," *Journal of Financial Economics,* September 2005, pp. 483–527.

One can minimize the problems of dividend instability by creating two types of dividends: regular and extra. For companies using this approach, the regular dividend would most likely be a relatively small fraction of permanent earnings, so that it could be sustained easily. Extra dividends would be granted when an increase in earnings was expected to be temporary.

Because investors look on an extra dividend as a bonus, there is relatively little disappointment when an extra dividend is not repeated. Although the extra dividend approach appears quite sensible, few companies use it in practice. One reason is that a share repurchase, which we discuss a little later, does much the same thing with some extra advantages.

SOME SURVEY EVIDENCE ON DIVIDENDS

A recent study surveyed a large number of financial executives regarding dividend policy. One of the questions asked was "Do these statements describe factors that affect your company's dividend decisions?" Table 18.2 shows some of the results.

TABLE 18.3
Survey Responses on Dividend Decisions*

Policy Statements	Percentage Who Think This Is Important or Very Important
1. Maintaining consistency with our historic dividend policy.	84.1%
2. Stability of future earnings.	71.9
3. A sustainable change in earnings.	67.1
4. Attracting institutional investors to purchase our stock.	52.5
5. The availability of good investment opportunities for our firm to pursue.	47.6
6. Attracting retail investors to purchase our stock.	44.5
7. Personal taxes our stockholders pay when receiving dividends.	21.1
8. Flotation costs to issuing new equity.	9.3

*Survey respondents were asked the question, "How important are the following factors to your company's dividend decision?"

SOURCE: Adapted from Table 5 of A. Brav, J.R. Graham, C.R. Harvey, and R. Michaely, "Payout Policy in the 21st Century," *Journal of Financial Economics,* September 2005, pp. 483–527.

As shown in Table 18.2, financial managers are very disinclined to cut dividends. Moreover, they are very conscious of their previous dividends and desire to maintain a relatively steady dividend. In contrast, the cost of external capital and the desire to attract "prudent man" investors (those with fiduciary duties) are less important.

Table 18.3 is drawn from the same survey, but here the responses are to the question, "How important are the following factors to your company's dividend decision?" Not surprisingly given the responses in Table 18.2 and our earlier discussion, the highest priority is maintaining a consistent dividend policy. The next several items are also consistent with our previous analysis. Financial managers are very concerned about earnings stability and future earnings levels in making dividend decisions, and they consider the availability of good investment opportunities. Survey respondents also believed that attracting both institutional and individual (retail) investors was relatively important.

In contrast to our discussion in the earlier part of this chapter about taxes and flotation costs, the financial managers in this survey did not think that personal taxes paid on dividends by shareholders are very important. And even fewer thought that equity flotation costs are relevant.

Concept Questions

18.6a What is a residual dividend policy?

18.6b What is the chief drawback to a strict residual policy? What do many firms do in practice?

18.7 Stock Repurchase: An Alternative to Cash Dividends

When a firm wants to pay cash to its shareholders, it normally pays a cash dividend. Another way is to **repurchase** its own stock. For example, in the first quarter of 2006, companies in the S&P 500 repurchased more than $100 billion of their own stock, which brought total stock repurchases for the previous 12 months to more than $267 billion. ExxonMobil, Microsoft, and Time Warner were the biggest repurchasers during the first quarter, with a combined $14 billion of stock bought back.

repurchase
Another method used to pay out a firm's earnings to its owners, which provides more preferable tax treatment than dividends.

In fact, net equity sales in the United States have actually been negative in some recent years. This has occurred because corporations have repurchased more stock than they have sold. Stock repurchasing has thus been a major financial activity, and it appears that it will continue to be one.

CASH DIVIDENDS VERSUS REPURCHASE

Imagine an all-equity company with excess cash of $300,000. The firm pays no dividends, and its net income for the year just ended is $49,000. The market value balance sheet at the end of the year is represented here:

Market Value Balance Sheet (before paying out excess cash)			
Excess cash	$ 300,000	Debt	$ 0
Other assets	700,000	Equity	1,000,000
Total	$1,000,000	Total	$1,000,000

There are 100,000 shares outstanding. The total market value of the equity is $1 million, so the stock sells for $10 per share. Earnings per share (EPS) are $49,000/100,000 = $.49, and the price–earnings ratio (PE) is $10/.49 = 20.4.

One option the company is considering is a $300,000/100,000 = $3 per share extra cash dividend. Alternatively, the company is thinking of using the money to repurchase $300,000/10 = 30,000 shares of stock.

If commissions, taxes, and other imperfections are ignored in our example, the stockholders shouldn't care which option is chosen. Does this seem surprising? It shouldn't, really. What is happening here is that the firm is paying out $300,000 in cash. The new balance sheet is represented here:

Market Value Balance Sheet (after paying out excess cash)			
Excess cash	$ 0	Debt	$ 0
Other assets	700,000	Equity	700,000
Total	$700,000	Total	$700,000

If the cash is paid out as a dividend, there are still 100,000 shares outstanding, so each is worth $7.

The fact that the per-share value fell from $10 to $7 is not a cause for concern. Consider a stockholder who owns 100 shares. At $10 per share before the dividend, the total value is $1,000.

After the $3 dividend, this same stockholder has 100 shares worth $7 each, for a total of $700, plus 100 × $3 = $300 in cash, for a combined total of $1,000. This just illustrates what we saw early on: A cash dividend doesn't affect a stockholder's wealth if there are no imperfections. In this case, the stock price simply fell by $3 when the stock went ex dividend.

Also, because total earnings and the number of shares outstanding haven't changed, EPS is still 49 cents. The price–earnings ratio, however, falls to $7/.49 = 14.3. Why we are looking at accounting earnings and PE ratios will be apparent in just a moment.

Alternatively, if the company repurchases 30,000 shares, there are 70,000 left outstanding. The balance sheet looks the same:

Market Value Balance Sheet (after share repurchase)			
Excess cash	$ 0	Debt	$ 0
Other assets	700,000	Equity	700,000
Total	$700,000	Total	$700,000

The company is worth $700,000 again, so each remaining share is worth $700,000/70,000 = $10. Our stockholder with 100 shares is obviously unaffected. For example, if she was so inclined, she could sell 30 shares and end up with $300 in cash and $700 in stock, just as she has if the firm pays the cash dividend. This is another example of a homemade dividend.

In this second case, EPS goes up because total earnings remain the same while the number of shares goes down. The new EPS is $49,000/70,000 = $.70. However, the important thing to notice is that the PE ratio is $10/.70 = 14.3, just as it was following the dividend.

This example illustrates the important point that, if there are no imperfections, a cash dividend and a share repurchase are essentially the same thing. This is just another illustration of dividend policy irrelevance when there are no taxes or other imperfections.

REAL-WORLD CONSIDERATIONS IN A REPURCHASE

The example we have just described shows that a repurchase and a cash dividend are the same thing in a world without taxes and transaction costs. In the real world, there are some accounting differences between a share repurchase and a cash dividend, but the most important difference is in the tax treatment.

Under current tax law, a repurchase has a significant tax advantage over a cash dividend. A dividend is fully taxed as ordinary income, and a shareholder has no choice about whether or not to receive the dividend. In a repurchase, a shareholder pays taxes only if (1) the shareholder actually chooses to sell and (2) the shareholder has a capital gain on the sale.

For example, suppose a dividend of $1 per share is taxed at ordinary rates. Investors in the 28 percent tax bracket who own 100 shares of the security pay as much as $100 × .28 = $28 in taxes. Selling shareholders would pay far lower taxes if $100 worth of stock were repurchased. This is because taxes are paid only on the profit from a sale. Thus, the gain on a sale would be only $40 if shares sold at $100 were originally purchased at $60. The capital gains tax would be .28 × $40 = $11.20. Note that the recent reductions in dividend and capital gains tax rates do not change the fact that a repurchase has a potentially large tax edge.

If this example strikes you as being too good to be true, you are quite likely right. The IRS does not allow a repurchase solely for the purpose of avoiding taxes. There must be some other business-related reason for repurchasing. Probably the most common reason is that "the stock is a good investment." The second most common is that "investing in the stock is a good use for the money" or that "the stock is undervalued," and so on.

However it is justified, some corporations have engaged in massive repurchases in recent years. For example, in June 2006, Cisco announced a $5 billion share repurchase program to follow a previous $35 billion buyback program it had initiated five years earlier. Tribune Co., publisher of the *Chicago Tribune* and the *Los Angeles Times*, announced plans to borrow as much as $2 billion to repurchase up to 25 percent of the company's outstanding stock. Cisco and Tribune Co. were not alone. Coca-Cola repurchased about $2 billion and $1.8 billion of its stock during 2004 and 2005, respectively. Since the inception

of its buyback program in 1984, Coca-Cola has spent almost $18 billion in stock repurchases. Not to be outdone, PepsiCo repurchased more than $3 billion in stock during 2004 and 2005, and it had announced plans to repurchase $8.5 billion more. IBM is well-known for its aggressive repurchasing policies. During 2004 and 2005, the company paid nearly $15 billion to repurchase about 130 million shares of its stock. In April 2006, IBM's board of directors increased the amount available to repurchase stock to $6.5 billion, which, given IBM's history, might not even last through the end of 2006.

One thing to note is that not all announced stock repurchase plans are completed. It is difficult to get accurate information on how much is actually repurchased, but it has been estimated that only about one-third of all share repurchases are ever completed.

SHARE REPURCHASE AND EPS

You may read in the popular financial press that a share repurchase is beneficial because it causes earnings per share to increase. As we have seen, this will happen. The reason is simply that a share repurchase reduces the number of outstanding shares, but it has no effect on total earnings. As a result, EPS rises.

However, the financial press may place undue emphasis on EPS figures in a repurchase agreement. In our preceding example, we saw that the value of the stock wasn't affected by the EPS change. In fact, the price–earnings ratio was exactly the same when we compared a cash dividend to a repurchase.

Because the increase in earnings per share is exactly tracked by the increase in the price per share, there is no net effect. Put another way, the increase in EPS is just an accounting adjustment that reflects (correctly) the change in the number of shares outstanding.

In the real world, to the extent that repurchases benefit the firm, we would argue that they do so primarily because of the tax considerations we discussed before.

Concept Questions

18.7a Why might a stock repurchase make more sense than an extra cash dividend?

18.7b Why don't all firms use stock repurchases instead of cash dividends?

18.8 Stock Dividends and Stock Splits

stock dividend
A payment made by a firm to its owners in the form of stock, diluting the value of each share outstanding.

stock split
An increase in a firm's shares outstanding without any change in owners' equity.

Another type of dividend is paid out in shares of stock. This type of dividend is called a **stock dividend**. A stock dividend is not a true dividend because it is not paid in cash. The effect of a stock dividend is to increase the number of shares that each owner holds. Because there are more shares outstanding, each is simply worth less.

A stock dividend is commonly expressed as a percentage; for example, a 20 percent stock dividend means that a shareholder receives one new share for every five currently owned (a 20 percent increase). Because every shareholder receives 20 percent more stock, the total number of shares outstanding rises by 20 percent. As we will see in a moment, the result is that each share of stock is worth about 20 percent less.

A **stock split** is essentially the same thing as a stock dividend, except that a split is expressed as a ratio instead of a percentage. When a split is declared, each share is split up to create additional shares. For example, in a three-for-one stock split, each old share is split into three new shares.

SOME DETAILS ABOUT STOCK SPLITS AND STOCK DIVIDENDS

Stock splits and stock dividends have essentially the same impacts on the corporation and the shareholder: They increase the number of shares outstanding and reduce the value per share. The accounting treatment is not the same, however, and it depends on two things: (1) whether the distribution is a stock split or a stock dividend and (2) the size of the stock dividend if it is called a dividend.

By convention, stock dividends of less than 20 to 25 percent are called *small stock dividends.* The accounting procedure for such a dividend is discussed next. A stock dividend greater than this value of 20 to 25 percent is called a *large stock dividend.* Large stock dividends are not uncommon. For example, in May 2006, Federated Department Stores, Anadarko Petroleum, and Kerr-McGee all announced 100 percent stock dividends, to name a few. Except for some relatively minor accounting differences, this has the same effect as a two-for-one stock split.

Example of a Small Stock Dividend The Peterson Co., a consulting firm specializing in difficult accounting problems, has 10,000 shares of stock outstanding, each selling at $66. The total market value of the equity is $66 × 10,000 = $660,000. With a 10 percent stock dividend, each stockholder receives one additional share for each 10 owned, and the total number of shares outstanding after the dividend is 11,000.

Before the stock dividend, the equity portion of Peterson's balance sheet might look like this:

Common stock ($1 par, 10,000 shares outstanding)	$ 10,000
Capital in excess of par value	200,000
Retained earnings	290,000
Total owners' equity	$500,000

A seemingly arbitrary accounting procedure is used to adjust the balance sheet after a small stock dividend. Because 1,000 new shares are issued, the common stock account is increased by $1,000 (1,000 shares at $1 par value each), for a total of $11,000. The market price of $66 is $65 greater than the par value, so the "excess" of $65 × 1,000 shares = $65,000 is added to the capital surplus account (capital in excess of par value), producing a total of $265,000.

Total owners' equity is unaffected by the stock dividend because no cash has come in or out, so retained earnings are reduced by the entire $66,000, leaving $224,000. The net effect of these machinations is that Peterson's equity accounts now look like this:

Common stock ($1 par, 11,000 shares outstanding)	$ 11,000
Capital in excess of par value	265,000
Retained earnings	224,000
Total owners' equity	$500,000

Example of a Stock Split A stock split is conceptually similar to a stock dividend, but it is commonly expressed as a ratio. For example, in a three-for-two split, each shareholder receives one additional share of stock for each two held originally, so a three-for-two split amounts to a 50 percent stock dividend. Again, no cash is paid out, and the percentage of the entire firm that each shareholder owns is unaffected.

The accounting treatment of a stock split is a little different from (and simpler than) that of a stock dividend. Suppose Peterson decides to declare a two-for-one stock split.

The number of shares outstanding will double to 20,000, and the par value will be halved to $.50 per share. The owners' equity after the split is represented as follows:

For a list of recent stock splits, try www.stocksplits.net.

Common stock ($.50 par, 20,000 shares outstanding)	$ 10,000
Capital in excess of par value	200,000
Retained earnings	290,000
Total owners' equity	$500,000

Note that, for all three of the categories, the figures on the right are completely unaffected by the split. The only changes are in the par value per share and the number of shares outstanding. Because the number of shares has doubled, the par value of each is cut in half.

Example of a Large Stock Dividend In our example, if a 100 percent stock dividend were declared, 10,000 new shares would be distributed, so 20,000 shares would be outstanding. At a $1 par value per share, the common stock account would rise by $10,000, for a total of $20,000. The retained earnings account would be reduced by $10,000, leaving $280,000. The result would be the following:

Common stock ($1 par, 20,000 shares outstanding)	$ 20,000
Capital in excess of par value	200,000
Retained earnings	280,000
Total owners' equity	$500,000

VALUE OF STOCK SPLITS AND STOCK DIVIDENDS

The laws of logic tell us that stock splits and stock dividends can (1) leave the value of the firm unaffected, (2) increase its value, or (3) decrease its value. Unfortunately, the issues are complex enough that we cannot easily determine which of the three relationships holds.

The Benchmark Case A strong case can be made that stock dividends and splits do not change either the wealth of any shareholder or the wealth of the firm as a whole. In our preceding example, the equity had a total market value of $660,000. With the small stock dividend, the number of shares increased to 11,000, so it seems that each would be worth $660,000/11,000 = $60.

For example, a shareholder who had 100 shares worth $66 each before the dividend would have 110 shares worth $60 each afterward. The total value of the stock is $6,600 either way; so the stock dividend doesn't really have any economic effect.

After the stock split, there are 20,000 shares outstanding, so each should be worth $660,000/20,000 = $33. In other words, the number of shares doubles and the price halves. From these calculations, it appears that stock dividends and splits are just paper transactions.

Although these results are relatively obvious, reasons are often given to suggest that there may be some benefits to these actions. The typical financial manager is aware of many real-world complexities; for that reason, the stock split or stock dividend decision is not treated lightly in practice.

trading range
The price range between the highest and lowest prices at which a stock is traded.

Popular Trading Range Proponents of stock dividends and stock splits frequently argue that a security has a proper **trading range**. When the security is priced above this level, many investors do not have the funds to buy the common trading unit of 100 shares, called a *round lot.* Although securities can be purchased in *odd-lot* form (fewer than 100 shares), the commissions are greater. Thus, firms will split the stock to keep the price in this trading range.

For example, Microsoft has split nine times since the company went public in 1986. The stock has split three-for-two on two occasions and two-for-one a total of seven times. So for every share of Microsoft you owned in 1986 when the company first went public, you would own 288 shares as of the most recent stock split. Similarly, since Wal-Mart went public in 1970, it has split its stock two-for-one 11 times, and Dell Computer has split three-for-two once and two-for-one six times since going public in 1988.

Although this argument is a popular one, its validity is questionable for a number of reasons. Mutual funds, pension funds, and other institutions have steadily increased their trading activity since World War II and now handle a sizable percentage of total trading volume (on the order of 80 percent of NYSE trading volume, for example). Because these institutions buy and sell in huge amounts, the individual share price is of little concern.

Furthermore, we sometimes observe share prices that are quite large that do not appear to cause problems. To take a well-known case, Berkshire-Hathaway, a widely respected company headed by legendary investor Warren Buffett, sold for as much as $93,700 per share in the first half of 2006.

Finally, there is evidence that stock splits may actually decrease the liquidity of the company's shares. Following a two-for-one split, the number of shares traded should more than double if liquidity is increased by the split. This doesn't appear to happen, and the reverse is sometimes observed.

REVERSE SPLITS

A less frequently encountered financial maneuver is the **reverse split**. For example, in June 2006, WiFi Wireless underwent a one-for-ten reverse stock split, and supercomputer maker Cray, Inc., underwent a one-for-four reverse stock split. In a one-for-four reverse split, each investor exchanges four old shares for one new share. The par value is quadrupled in the process. As with stock splits and stock dividends, a case can be made that a reverse split has no real effect.

reverse split
A stock split in which a firm's number of shares outstanding is reduced.

Given real-world imperfections, three related reasons are cited for reverse splits. First, transaction costs to shareholders may be less after the reverse split. Second, the liquidity and marketability of a company's stock might be improved when its price is raised to the popular trading range. Third, stocks selling at prices below a certain level are not considered respectable, meaning that investors underestimate these firms' earnings, cash flow, growth, and stability. Some financial analysts argue that a reverse split can achieve instant respectability. As was the case with stock splits, none of these reasons is particularly compelling, especially not the third one.

There are two other reasons for reverse splits. First, stock exchanges have minimum price per share requirements. A reverse split may bring the stock price up to such a minimum. In 2001–2002, in the wake of a bear market, this motive became an increasingly important one. In 2001, 106 companies asked their shareholders to approve reverse splits. There were 111 reverse splits in 2002 and 75 in 2003, but only 14 by mid-year 2004. The most common reason for these reverse splits is that NASDAQ delists companies whose stock price drops below $1 per share for 30 days. Many companies, particularly Internet-related technology companies, found themselves in danger of being delisted and used reverse splits to boost their stock prices. Second, companies sometimes perform reverse splits and, at the same time, buy out any stockholders who end up with less than a certain number of shares.

For example, in October 2005, Sagient Research Systems, a publisher of independent financial research, announced a 1-for-101 reverse stock split. At the same time the company would repurchase all shares held by shareholders with fewer than 100 shares. The purpose

of the reverse split was to allow the company to go dark. The reverse split and share repurchase meant the company would have fewer than 300 shareholders, so it would no longer be required to file periodic reports with the SEC. What made the proposal especially imaginative was that immediately after the reverse stock split, the company underwent a 101-for-1 split to restore the stock to its original cost!

Concept Questions

18.8a What is the effect of a stock split on stockholder wealth?

18.8b How does the accounting treatment of a stock split differ from that used with a small stock dividend?

18.9 Summary and Conclusions

In this chapter, we first discussed the types of dividends and how they are paid. We then defined dividend policy and examined whether or not dividend policy matters. Next, we illustrated how a firm might establish a dividend policy and described an important alternative to cash dividends, a share repurchase.

In covering these subjects, we saw these points:

1. Dividend policy is irrelevant when there are no taxes or other imperfections because shareholders can effectively undo the firm's dividend strategy. Shareholders who receive dividends greater than desired can reinvest the excess. Conversely, shareholders who receive dividends smaller than desired can sell off extra shares of stock.
2. Individual shareholder income taxes and new issue flotation costs are real-world considerations that favor a low dividend payout. With taxes and new issue costs, the firm should pay out dividends only after all positive NPV projects have been fully financed.
3. There are groups in the economy that may favor a high payout. These include many large institutions such as pension plans. Recognizing that some groups prefer a high payout and some prefer a low payout, the clientele effect argument supports the idea that dividend policy responds to the needs of stockholders. For example, if 40 percent of the stockholders prefer low dividends and 60 percent of the stockholders prefer high dividends, approximately 40 percent of companies will have a low dividend payout, and 60 percent will have a high payout. This sharply reduces the impact of any individual firm's dividend policy on its market price.
4. A firm wishing to pursue a strict residual dividend payout will have an unstable dividend. Dividend stability is usually viewed as highly desirable. We therefore discussed a compromise strategy that provides for a stable dividend and appears to be quite similar to the dividend policies many firms follow in practice.
5. A stock repurchase acts much like a cash dividend, but has a significant tax advantage. Stock repurchases are therefore a very useful part of overall dividend policy.

To close our discussion of dividends, we emphasize one last time the difference between dividends and dividend policy. Dividends are important because the value of a share of stock is ultimately determined by the dividends that will be paid. What is less clear is whether the time pattern of dividends (more now versus more later) matters. This is the dividend policy question, and it is not easy to give a definitive answer to it.

CHAPTER REVIEW AND SELF-TEST PROBLEMS

18.1 Residual Dividend Policy The Readata Corporation practices a strict residual dividend policy and maintains a capital structure of 60 percent debt, 40 percent equity. Earnings for the year are $5,000. What is the maximum amount of capital spending possible without selling new equity? Suppose that planned investment outlays for the coming year are $12,000. Will Readata be paying a dividend? If so, how much?

18.2 Repurchase versus Cash Dividend Gothic Corporation is deciding whether to pay out $500 in excess cash in the form of an extra dividend or a share repurchase. Current earnings are $2.50 per share, and the stock sells for $25. The market value balance sheet before paying out the $500 is as follows:

Market Value Balance Sheet (before paying out excess cash)

Excess cash	$ 500	Debt	$ 500
Other assets	2,500	Equity	2,500
Total	$3,000	Total	$3,000

Evaluate the two alternatives in terms of the effect on the price per share of the stock, the EPS, and the PE ratio.

ANSWERS TO CHAPTER REVIEW AND SELF-TEST PROBLEMS

18.1 Readata has a debt–equity ratio of .60/.40 = 1.50. If the entire $5,000 in earnings were reinvested, then $5,000 × 1.50 = $7,500 in new borrowing would be needed to keep the debt–equity ratio unchanged. Total new financing possible without external equity is thus $5,000 + 7,500 = $12,500.

If planned outlays are $12,000, then this amount will be financed with 40 percent equity. The needed equity is thus $12,000 × .40 = $4,800. This is less than the $5,000 in earnings, so a dividend of $5,000 − 4,800 = $200 will be paid.

18.2 The market value of the equity is $2,500. The price per share is $25, so there are 100 shares outstanding. The cash dividend would amount to $500/100 = $5 per share. When the stock goes ex dividend, the price will drop by $5 per share to $20. Put another way, the total assets decrease by $500, so the equity value goes down by this amount to $2,000. With 100 shares, the new stock price is $20 per share. After the dividend, EPS will be the same at $2.50; but the PE ratio will be $20/2.50 = 8 times.

With a repurchase, $500/25 = 20 shares will be bought up, leaving 80. The equity will again be worth $2,000 total. With 80 shares, this is $2,000/80 = $25 per share, so the price doesn't change. Total earnings for Gothic must be $2.50 × 100 = $250. After the repurchase, EPS will be higher at $250/80 = $3.125. The PE ratio, however, will be $25/3.125 = 8 times.

CONCEPTS REVIEW AND CRITICAL THINKING QUESTIONS

1. **Dividend Policy Irrelevance** How is it possible that dividends are so important, but at the same time, dividend policy is irrelevant?
2. **Stock Repurchases** What is the impact of a stock repurchase on a company's debt ratio? Does this suggest another use for excess cash?

3. **Dividend Policy** What is the chief drawback to a strict residual dividend policy? Why is this a problem? How does a compromise policy work? How does it differ from a strict residual policy?
4. **Dividend Chronology** On Tuesday, December 8, Hometown Power Co.'s board of directors declares a dividend of 75 cents per share payable on Wednesday, January 17, to shareholders of record as of Wednesday, January 3. When is the ex-dividend date? If a shareholder buys stock before that date, who gets the dividends on those shares, the buyer or the seller?
5. **Alternative Dividends** Some corporations, like one British company that offers its large shareholders free crematorium use, pay dividends in kind (that is, offer their services to shareholders at below-market cost). Should mutual funds invest in stocks that pay these dividends in kind? (The fundholders do not receive these services.)
6. **Dividends and Stock Price** If increases in dividends tend to be followed by (immediate) increases in share prices, how can it be said that dividend policy is irrelevant?
7. **Dividends and Stock Price** Last month, Central Virginia Power Company, which had been having trouble with cost overruns on a nuclear power plant that it had been building, announced that it was "temporarily suspending payments due to the cash flow crunch associated with its investment program." The company's stock price dropped from $28.50 to $25 when this announcement was made. How would you interpret this change in the stock price (that is, what would you say caused it)?
8. **Dividend Reinvestment Plans** The DRK Corporation has recently developed a dividend reinvestment plan, or DRIP. The plan allows investors to reinvest cash dividends automatically in DRK in exchange for new shares of stock. Over time, investors in DRK will be able to build their holdings by reinvesting dividends to purchase additional shares of the company.

   Over 1,000 companies offer dividend reinvestment plans. Most companies with DRIPs charge no brokerage or service fees. In fact, the shares of DRK will be purchased at a 10 percent discount from the market price.

   A consultant for DRK estimates that about 75 percent of DRK's shareholders will take part in this plan. This is somewhat higher than the average.

   Evaluate DRK's dividend reinvestment plan. Will it increase shareholder wealth? Discuss the advantages and disadvantages involved here.
9. **Dividend Policy** For initial public offerings of common stock, 2005 was a relatively slow year, with about $28.4 billion raised by the process. Relatively few of the 162 firms involved paid cash dividends. Why do you think that most chose not to pay cash dividends?
10. **Investment and Dividends** The Phew Charitable Trust pays no taxes on its capital gains or on its dividend income or interest income. Would it be irrational for it to have low-dividend, high-growth stocks in its portfolio? Would it be irrational for it to have municipal bonds in its portfolio? Explain.

    Use the following information to answer the next two questions:

    Historically, the U.S. tax code treated dividend payments made to shareholders as ordinary income. Thus, dividends were taxed at the investor's marginal tax rate, which was as high as 38.6 percent in 2002. Capital gains were taxed at a capital gains tax rate, which was the same for most investors and fluctuated through the years. In 2002, the capital gains tax rate stood at 20 percent. In an effort to stimulate

the economy, President George W. Bush presided over a tax plan overhaul that included changes in dividend and capital gains tax rates. The new tax plan, which was implemented in 2003, called for a 15 percent tax rate on both dividends and capital gains for investors in higher tax brackets. For lower–tax bracket investors, the tax rate on dividends and capital gains was set at 5 percent through 2007, dropping to zero in 2008.

11. **Ex-Dividend Stock Prices** How do you think this tax law change affects ex-dividend stock prices?
12. **Stock Repurchases** How do you think this tax law change affected the relative attractiveness of stock repurchases compared to dividend payments?

QUESTIONS AND PROBLEMS

BASIC
(Questions 1–13)

1. **Dividends and Taxes** Sharp Dress, Inc., has declared a $5.00 per share dividend. Suppose capital gains are not taxed, but dividends are taxed at 15 percent. New IRS regulations require that taxes be withheld at the time the dividend is paid. Sharp Dress sells for $90.25 per share, and the stock is about to go ex-dividend. What do you think the ex-dividend price will be?
2. **Stock Dividends** The owners' equity accounts for Quadrangle International are shown here:

Common stock ($1 par value)	$ 20,000
Capital surplus	195,000
Retained earnings	537,400
Total owners' equity	$752,400

   a. If Quadrangle stock currently sells for $25 per share and a 10 percent stock dividend is declared, how many new shares will be distributed? Show how the equity accounts would change.
   b. If Quadrangle declared a 25 percent stock dividend, how would the accounts change?
3. **Stock Splits** For the company in Problem 2, show how the equity accounts will change if:
   a. Quadrangle declares a four-for-one stock split. How many shares are outstanding now? What is the new par value per share?
   b. Quadrangle declares a one-for-five reverse stock split. How many shares are outstanding now? What is the new par value per share?
4. **Stock Splits and Stock Dividends** Red Rocks Corporation (RRC) currently has 250,000 shares of stock outstanding that sell for $75 per share. Assuming no market imperfections or tax effects exist, what will the share price be after:
   a. RRC has a five-for-three stock split?
   b. RRC has a 15 percent stock dividend?
   c. RRC has a 42.5 percent stock dividend?
   d. RRC has a four-for-seven reverse stock split?
   Determine the new number of shares outstanding in parts (a) through (d).

5. **Regular Dividends** The balance sheet for Apple Pie Corp. is shown here in market value terms. There are 5,000 shares of stock outstanding.

Market Value Balance Sheet			
Cash	$ 25,000	Equity	$215,000
Fixed assets	190,000		
Total	$215,000	Total	$215,000

The company has declared a dividend of $1.20 per share. The stock goes ex dividend tomorrow. Ignoring any tax effects, what is the stock selling for today? What will it sell for tomorrow? What will the balance sheet look like after the dividends are paid?

6. **Share Repurchase** In the previous problem, suppose Apple Pie has announced it is going to repurchase $6,000 worth of stock. What effect will this transaction have on the equity of the firm? How many shares will be outstanding? What will the price per share be after the repurchase? Ignoring tax effects, show how the share repurchase is effectively the same as a cash dividend.

7. **Stock Dividends** The market value balance sheet for Inbox Manufacturing is shown here. Inbox has declared a 25 percent stock dividend. The stock goes ex dividend tomorrow (the chronology for a stock dividend is similar to that for a cash dividend). There are 15,000 shares of stock outstanding. What will the ex-dividend price be?

Market Value Balance Sheet			
Cash	$ 85,000	Debt	$120,000
Fixed assets	475,000	Equity	440,000
Total	$560,000	Total	$560,000

8. **Stock Dividends** The company with the common equity accounts shown here has declared a 15 percent stock dividend when the market value of its stock is $20 per share. What effects on the equity accounts will the distribution of the stock dividend have?

Common stock ($1 par value)	$ 350,000
Capital surplus	1,650,000
Retained earnings	3,000,000
Total owners' equity	$5,000,000

9. **Stock Splits** In the previous problem, suppose the company instead decides on a five-for-one stock split. The firm's 90-cent per share cash dividend on the new (postsplit) shares represents an increase of 10 percent over last year's dividend on the presplit stock. What effect does this have on the equity accounts? What was last year's dividend per share?

10. **Residual Dividend Policy** Soprano, Inc., a litter recycling company, uses a residual dividend policy. A debt–equity ratio of 1.20 is considered optimal. Earnings for the period just ended were $1,500, and a dividend of $390 was declared. How much in new debt was borrowed? What were total capital outlays?

11. **Residual Dividend Policy** Mansker Station Corporation has declared an annual dividend of $0.80 per share. For the year just ended, earnings were $6.40 per share.
    a. What is Mansker Station's payout ratio?
    b. Suppose Mansker Station has 7 million shares outstanding. Borrowing for the coming year is planned at $18 million. What are planned investment outlays assuming a residual dividend policy? What target capital structure is implicit in these calculations?

12. **Residual Dividend Policy** Red Zeppelin Corporation follows a strict residual dividend policy. Its debt–equity ratio is 2.5.
    a. If earnings for the year are $190,000, what is the maximum amount of capital spending possible with no new equity?
    b. If planned investment outlays for the coming year are $760,000, will Red Zeppelin pay a dividend? If so, how much?
    c. Does Red Zeppelin maintain a constant dividend payout? Why or why not?

13. **Residual Dividend Policy** Rock N Roll (RNR), Inc., predicts that earnings in the coming year will be $75 million. There are 12 million shares, and RNR maintains a debt–equity ratio of 1.5.
    a. Calculate the maximum investment funds available without issuing new equity and the increase in borrowing that goes along with it.
    b. Suppose the firm uses a residual dividend policy. Planned capital expenditures total $72 million. Based on this information, what will the dividend per share be?
    c. In part (b), how much borrowing will take place? What is the addition to retained earnings?
    d. Suppose RNR plans no capital outlays for the coming year. What will the dividend be under a residual policy? What will new borrowing be?

INTERMEDIATE
(Questions 14–16)

14. **Homemade Dividends** You own 1,000 shares of stock in Avondale Corporation. You will receive a $1.50 per share dividend in one year. In two years, Avondale will pay a liquidating dividend of $45 per share. The required return on Avondale stock is 15 percent. What is the current share price of your stock (ignoring taxes)? If you would rather have equal dividends in each of the next two years, show how you can accomplish this by creating homemade dividends. *Hint:* Dividends will be in the form of an annuity.

15. **Homemade Dividends** In the previous problem, suppose you want only $200 total in dividends the first year. What will your homemade dividend be in two years?

16. **Stock Repurchase** Flychucker Corporation is evaluating an extra dividend versus a share repurchase. In either case, $15,000 would be spent. Current earnings are $1.20 per share, and the stock currently sells for $48 per share. There are 1,000 shares outstanding. Ignore taxes and other imperfections in answering the first two questions.
    a. Evaluate the two alternatives in terms of the effect on the price per share of the stock and shareholder wealth.
    b. What will be the effect on Flychucker's EPS and PE ratio under the two different scenarios?
    c. In the real world, which of these actions would you recommend? Why?

CHALLENGE
(Questions 17–18)

17. **Expected Return, Dividends, and Taxes** The Gecko Company and the Gordon Company are two firms whose business risk is the same but that have different dividend policies. Gecko pays no dividend, whereas Gordon has an expected dividend yield of 5 percent. Suppose the capital gains tax rate is zero, whereas the income tax

rate is 35 percent. Gecko has an expected earnings growth rate of 15 percent annually, and its stock price is expected to grow at this same rate. If the aftertax expected returns on the two stocks are equal (because they are in the same risk class), what is the pretax required return on Gordon's stock?

18. Dividends and Taxes As discussed in the text, in the absence of market imperfections and tax effects, we would expect the share price to decline by the amount of the dividend payment when the stock goes ex dividend. Once we consider the role of taxes, however, this is not necessarily true. One model has been proposed that incorporates tax effects into determining the ex-dividend price:[6]

$$(P_0 - P_X)/D = (1 - T_P)/(1 - T_G)$$

where P_0 is the price just before the stock goes ex, P_X is the ex-dividend share price, D is the amount of the dividend per share, T_P is the relevant marginal personal tax rate on dividends, and T_G is the effective marginal tax rate on capital gains.

a. If $T_P = T_G = 0$, how much will the share price fall when the stock goes ex?
b. If $T_P = 15$ percent and $T_G = 0$, how much will the share price fall?
c. If $T_P = 15$ percent and $T_G = 30$ percent, how much will the share price fall?
d. Suppose the only owners of stock are corporations. Recall that corporations get at least a 70 percent exemption from taxation on the dividend income they receive, but they do not get such an exemption on capital gains. If the corporation's income and capital gains tax rates are both 35 percent, what does this model predict the ex-dividend share price will be?
e. What does this problem tell you about real-world tax considerations and the dividend policy of the firm?

WEB EXERCISES

18.1 Dividend Reinvestment Plans As we mentioned in the chapter, dividend reinvestment plans (DRIPs) permit shareholders to automatically reinvest cash dividends in the company. To find out more about DRIPs go to www.fool.com, and follow the "Fool's School" link and then the "DRIP Investing" link. What are the advantages Motley Fool lists for DRIPs? What are the different types of DRIPs? What is a Direct Purchase Plan? How does a Direct Purchase Plan differ from a DRIP?

18.2 Dividends Go to www.companyboardroom.com and find how many companies went "ex" on this day. What is the largest declared dividend? For the stocks going "ex" today, what is the longest time until the payable date?

18.3 Stock Splits Go to www.companyboardroom.com and find how many stock splits are listed. How many are reverse splits? What is the largest split and the largest reverse split in terms of shares? Pick a company and follow the link. What type of information do you find?

18.4 Dividend Yields Which stock has the highest dividend yield? To answer this (and more), go to finance.yahoo.com and follow the "Screener" link. Use the minimum value box for the dividend yield on the Java version of the screener to find out how many stocks have a dividend yield above 3 percent and above 5 percent. Now use the dividend amount to find out how many stocks have an annual dividend above $2 and above $4.

[6] N. Elton and M. Gruber, "Marginal Stockholder Tax Rates and the Clientele Effect," *Review of Economics and Statistics* 52 (February 1970).

18.5 Stock Splits How many times has Procter & Gamble stock split? Go to the Web page at www.pg.com to find the answer to this question. When did Procter & Gamble stock first split? What was the split? When was the most recent stock split?

MINICASE

Electronic Timing, Inc.

Electronic Timing, Inc. (ETI), is a small company founded 15 years ago by electronics engineers Tom Miller and Jessica Kerr. ETI manufactures integrated circuits to capitalize on the complex mixed-signal design technology and has recently entered the market for frequency timing generators, or silicon timing devices, which provide the timing signals or "clocks" necessary to synchronize electronic systems. Its clock products originally were used in PC video graphics applications, but the market subsequently expanded to include motherboards, PC peripheral devices, and other digital consumer electronics, such as digital television boxes and game consoles. ETI also designs and markets custom application-specific integrated circuits (ASICs) for industrial customers. The ASIC's design combines analog and digital, or mixed-signal, technology. In addition to Tom and Jessica, Nolan Pittman, who provided capital for the company, is the third primary owner. Each owns 25 percent of the 1 million shares outstanding. The company has several other individuals, including current employees, who own the remaining shares.

Recently, the company designed a new computer motherboard. The company's design is both more efficient and less expensive to manufacture, and the ETI design is expected to become standard in many personal computers. After investigating the possibility of manufacturing the new motherboard, ETI determined that the costs involved in building a new plant would be prohibitive. The owners also decided that they were unwilling to bring in another large outside owner. Instead, ETI sold the design to an outside firm. The sale of the motherboard design was completed for an aftertax payment of $30 million.

1. Tom believes the company should use the extra cash to pay a special one-time dividend. How will this proposal affect the stock price? How will it affect the value of the company?
2. Jessica believes the company should use the extra cash to pay off debt and upgrade and expand its existing manufacturing capability. How would Jessica's proposals affect the company?
3. Nolan favors a share repurchase. He argues that a repurchase will increase the company's P/E ratio, return on assets, and return on equity. Are his arguments correct? How will a share repurchase affect the value of the company?
4. Another option discussed by Tom, Jessica, and Nolan would be to begin a regular dividend payment to shareholders. How would you evaluate this proposal?
5. One way to value a share of stock is the dividend growth, or growing perpetuity, model. Consider the following: The dividend payout ratio is 1 minus b, where b is the "retention" or "plowback" ratio. So, the dividend next year will be the earnings next year, E_1, times 1 minus the retention ratio. The most commonly used equation to calculate the sustainable growth rate is the return on equity times the retention ratio. Substituting these relationships into the dividend growth model, we get the following equation to calculate the price of a share of stock today:

$$P_0 = \frac{E_1(1 - b)}{R_s - \text{ROE} \times b}$$

What are the implications of this result in terms of whether the company should pay a dividend or upgrade and expand its manufacturing capability? Explain.
6. Does the question of whether the company should pay a dividend depend on whether the company is organized as a corporation or an LLC?