

# Dividend Policy and Retained Earnings

# 18

## chapter concepts

- 1 The board of directors and corporate management must decide what to do with the firm's annual earnings: pay them out in dividends or retain them for reinvestment in future projects.
- 2 Dividends may have a positive or negative information content for shareholders. Dividend policy can also provide information about where the firm is on its life cycle curve.
- 3 Many other factors also influence dividend policy, such as legal rules, the cash position of the firm, and the tax position of shareholders.
- 4 Stock dividends and stock splits provide common stockholders with new shares, but their value must be carefully assessed.
- 5 Some firms make a decision to repurchase their shares in the market rather than increase dividends.

One of the best performing companies in the stock market in the current decade is a cigarette company. Its stock even went up 20 percent in the six months after 9/11 as the stock market was falling apart. No way, you say! Guess again. It goes by an alias, but don't be confused. Altria Group, Inc., is the name for Philip Morris, the producer of Marlboro, Benson & Hedges, Merit, Virginia Slims, and other tobacco products. Fifty percent of the cigarettes sold in the United States are Philip Morris products.

It not only produces cigarettes for U.S. consumption, but exports them throughout the world. Twenty-five percent of the total world consumption of cigarettes is in China, with its population of over a billion people, and Philip Morris is happy to accommodate them. The firm is in the process of signing a licensing agreement with the Chinese government which will allow them to sell two billion (not million) Marlboro cigarettes annually in that country.

Of course, Philip Morris is constantly under attack by lawyers and state and federal regulators for selling a product that may cause cancer and heart disease. So, why the popularity of Philip Morris (i.e., the Altria Group) in the stock market? Well, for one reason, it's branching out beyond tobacco products. The firm owns a controlling interest in Kraft Foods and also sells such products as Jell-O, Kool-Aid, Oscar Mayer hot dogs, Miracle Whip salad dressing, and so on.

However, far more important than its diversification policy is the firm's dividend policy. It is one of the highest paying dividend stocks on the New York Stock Exchange. Its dividend per share was \$3.20 in 2006 for a dividend yield (dividends/stock price) of 4.7 percent. Of equal importance, it has raised its dividend every year for the last 35 years.

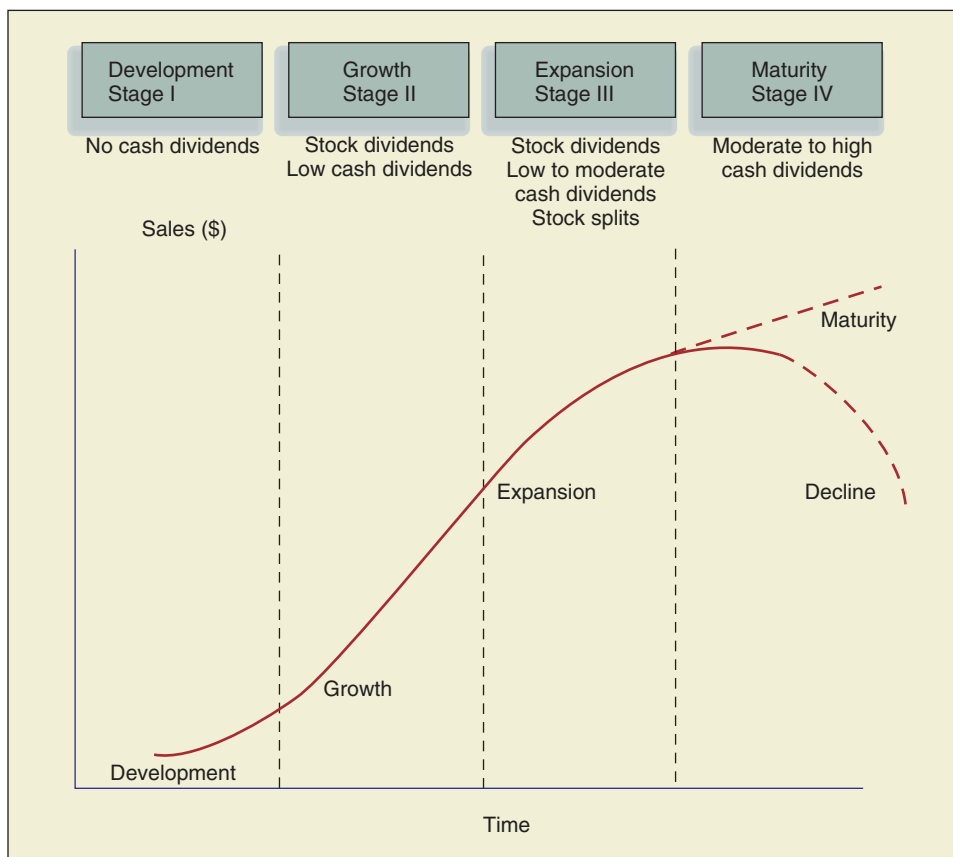
Of course, paying high dividends is not the right strategy for every company, particularly young, growth companies that need to retain the funds to create growth. Read on to find out more.

In theory, CEOs and board members concerned about dividends should ask, “How can the best use of the funds be made?” The rate of return that the corporation can achieve on retained earnings for the benefit of stockholders must be compared to what stockholders could earn if the funds were paid to them in dividends. This is known as the **marginal principle of retained earnings**. Each potential project to be financed by internally generated funds must provide a higher rate of return than the stockholder could achieve on other investments. We speak of this as the opportunity cost of using stockholder funds.

### The Marginal Principle of Retained Earnings

### Life Cycle Growth and Dividends

One of the major influences on dividends is the corporate growth rate in sales and the subsequent return on assets. Figure 18–1 shows a corporate **life cycle** and the corresponding dividend policy that is most likely to be found at each stage. A small firm in the initial stages of development (Stage I) pays no dividends because it needs all its profits (if there are any) for reinvestment in new productive assets. If the firm is successful in the marketplace, the demand for its products will create growth in



**Figure 18–1**

Life cycle growth and dividend policy

sales, earnings, and assets, and the firm will move into Stage II. At this stage sales and returns on assets will be growing at an increasing rate, and earnings will still be reinvested. In the early part of Stage II, stock dividends (distribution of additional shares) may be instituted and, in the latter part of Stage II, low cash dividends may be started to inform investors that the firm is profitable but cash is needed for internal investments.

After the growth period the firm enters Stage III. The expansion of sales continues, but at a decreasing rate, and returns on investment may decline as more competition enters the market and tries to take away the firm's market share. During this period the firm is more and more capable of paying cash dividends, as the asset expansion rate slows and external funds become more readily available. Stock dividends and stock splits are still common in the expansion phase, and the dividend payout ratio usually increases from a low level of 5 to 15 percent of earnings to a moderate level of 20 to 30 percent of earnings. Finally, at Stage IV, maturity, the firm maintains a stable growth rate in sales similar to that of the economy as a whole; and, when risk premiums are considered, its returns on assets level out to those of the industry and the economy. In unfortunate cases firms suffer declines in sales if product innovation and diversification have not occurred over the years. In Stage IV, assuming maturity rather than decline, dividends might range from 35 to 40 percent of earnings. These percentages will be different from industry to industry, depending on the individual characteristics of the company, such as operating and financial leverage and the volatility of sales and earnings over the business cycle.

As the chapter continues, more will be said about stock dividends, stock splits, the availability of external funds, and other variables that affect the dividend policy of the firm.

### Dividends as a Passive Variable

In the preceding analysis, dividends were used as a passive decision variable: They are to be paid out only if the corporation cannot make better use of the funds for the benefit of stockholders. The active decision variable is retained earnings. Management decides how much retained earnings will be spent for internal corporate needs, and the residual (the amount left after internal expenditures) is paid to the stockholders in cash dividends.

### An Incomplete Theory

The only problem with the **residual theory of dividends** is that we have not recognized how stockholders feel about receiving dividends. If the stockholders' only concern is achieving the highest return on their investment, either in the form of *corporate retained earnings remaining in the business or as current dividends paid out*, then there is no issue. But if stockholders have a preference for current funds, for example, over retained earnings, then our theory is incomplete. The issue is not only whether reinvestment of retained earnings or dividends provides the highest return, but also how stockholders react to the two alternatives.

While some researchers maintain that stockholders are indifferent to the division of funds between retained earnings and dividends<sup>1</sup> (holding investment opportunities constant), others disagree.<sup>2</sup> Though there is no conclusive proof one way or the other, the judgment of most researchers is that investors have some preference between dividends and retained earnings.

### Arguments for the Relevance of Dividends

A strong case can be made for the relevance of dividends because they resolve uncertainty in the minds of investors. Though retained earnings reinvested in the business theoretically belong to common stockholders, there is still an air of uncertainty about their eventual translation into dividends. Thus, it can be hypothesized that stockholders might apply a higher discount rate ( $K_e$ ) and assign a lower valuation to funds that are retained in the business as opposed to those that are paid out.<sup>3</sup>

It is also argued that dividends may be viewed more favorably than retained earnings because of the **information content of dividends**. In essence the corporation is telling the stockholder, “We are having a good year, and we wish to share the benefits with you.” If the dividend per share is raised, then the information content of the dividend increase is quite positive while a reduction in the dividend generally has negative information content. Even though the corporation may be able to generate the same or higher returns with the funds than the stockholder and perhaps provide even greater dividends in the future, some researchers find that “in an uncertain world in which verbal statements can be ignored or misinterpreted, dividend action does provide a clearcut means of making a statement that speaks louder than a thousand words.”<sup>4</sup>

The primary contention in arguing for the relevance of dividend policy is that stockholders’ needs and preferences go beyond the marginal principle of retained earnings. The issue is not only who can best utilize the funds (the corporation or the stockholder) but also what are the stockholders’ preferences. In practice it appears that most corporations adhere to the following logic. First investment opportunities relative to a required return (marginal analysis) are determined. This is then tempered by some subjective notion of stockholders’ desires. Corporations with unusual growth prospects and high rates of return on internal investments generally pay a relatively low dividend (or no dividend). For the more mature firm, an analysis of both investment opportunities and stockholder preferences may indicate that a higher rate of payout is necessary. Examples of dividend policies of selected major U.S. corporations are presented in Table 18–1 on page 558. Notice that the high-growth firms have a propensity to retain earnings rather than pay dividends, while the slow-growth firms have a rather large payout ratio. The normal payout has been approximately 35–40 percent of aftertax earnings in the post–World War II period.

<sup>1</sup>Merton H. Miller and Franco Modigliani, “Dividend Policy, Growth and Valuation of Shares,” *Journal of Business* 34 (October 1961), pp. 411–33. Under conditions of perfect capital markets with an absence of taxes and flotation costs, it is argued that the sum of discounted value per share after dividend payments equals the total valuation before dividend payments.

<sup>2</sup>Myron J. Gordon, “Optimum Investment and Financing Policy,” *Journal of Finance* 18 (May 1963), pp. 264–72; and John Lintner, “Dividends, Earnings, Leverage, Stock Prices, and the Supply of Capital to the Corporation,” *Review of Economics and Statistics* 44 (August 1962), pp. 243–69.

<sup>3</sup>Ibid.

<sup>4</sup>Ezra Solomon, *The Theory of Financial Management* (New York: Columbia University Press, 1963).

**Table 18-1**

Corporate dividend policy

**YAHOO!****Duke  
Energy®**

	Historical Growth in EPS (2001–2005)	Estimated Growth in EPS* (2008–2010)	Dividend Payment as a Percent of Aftertax Earnings (2005)
<b>Category 1—Rapid Growth</b>			
Oracle . . . . .	12%	15%	0%
Amgen . . . . .	20	16	0
DoubleClick, Inc. . . . .	25	34	0
Priceline.com . . . . .	35	32	0
Yahoo! Inc. . . . .	40	29	0
<b>Category 2—Slow Growth</b>			
CH Energy Group . . . . .	−3%	4%	83%
Cinergy . . . . .	1	5	71
Duke Energy . . . . .	0	5	41
Edison International . . . . .	7	3	45
Southern Co. . . . .	2	6	70

\*Estimated growth from various issues of *Value Line Investment Survey*.

## Dividend Stability

In considering stockholder desires in dividend policy, a primary factor is the maintenance of stability in dividend payments. Thus corporate management must not only ask, “How many profitable investments do we have this year?” It must also ask, “What has been the pattern of dividend payments in the last few years?” Though earnings may change from year to year, the dollar amount of cash dividends tends to be much more stable, increasing in value only as new permanent levels of income are achieved. Note in Figure 18–2 the considerably greater volatility of aftertax profits (earnings) compared to dividends for U.S. manufacturing corporations.

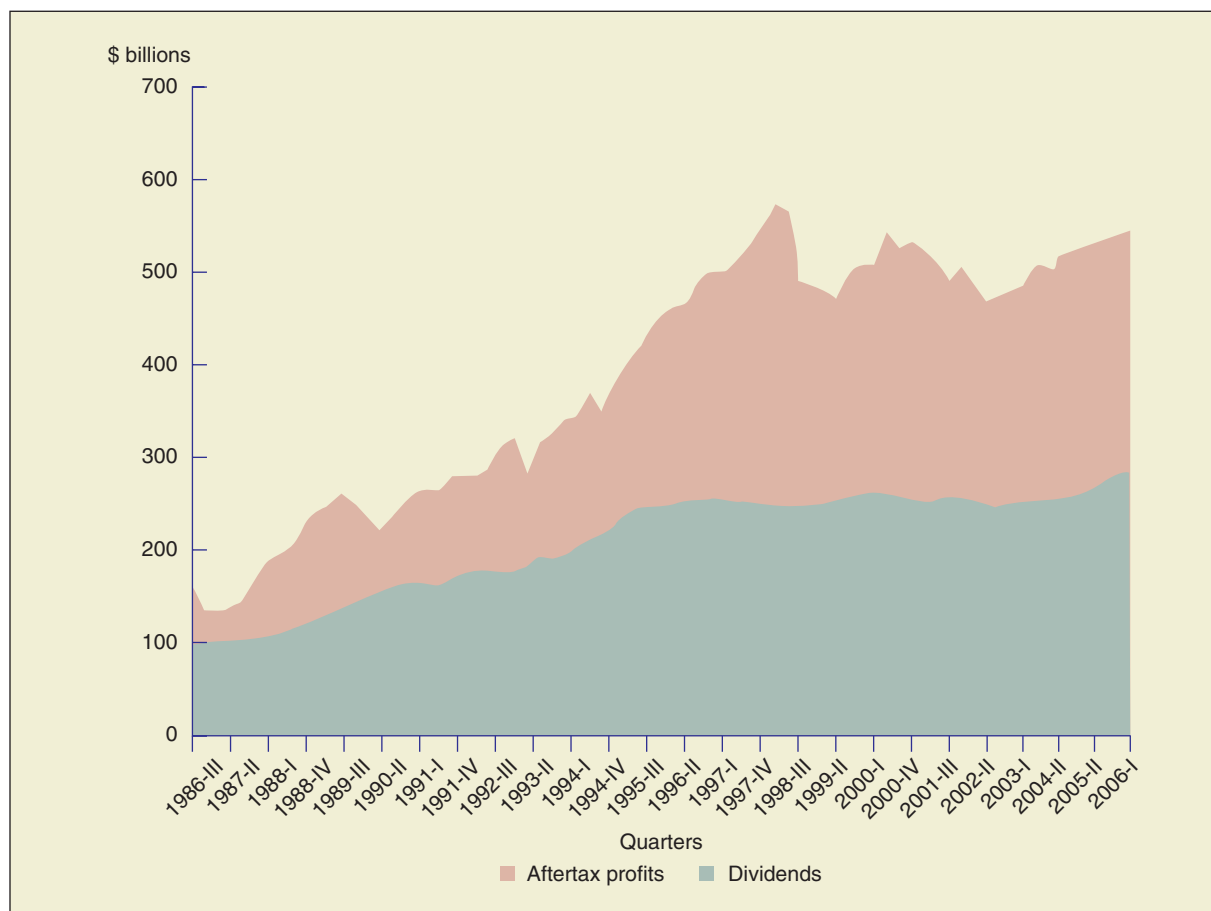
By maintaining a record of relatively stable dividends, corporate management hopes to lower the discount rate ( $K_e$ ) applied to future dividends of the firm, thus raising the value of the firm. The operative rule appears to be that a stockholder would much prefer to receive \$1 a year for three years, rather than 75 cents for the first year, \$1.50 for the second year, and 75 cents for the third year—for the same total of \$3. Once again, we temper our policy of marginal analysis of retained earnings to include a notion of stockholder preference, with the emphasis on stability of dividends.

## Other Factors Influencing Dividend Policy

Corporate management must also consider the legal basis of dividends, the cash flow position of the firm, and the corporation’s access to capital markets. Other factors that must be considered include management’s desire for control and the tax and financial positions of shareholders. Each is briefly discussed.

### Legal Rules

Most states forbid firms to pay dividends that would impair the initial capital contributions to the firm. For this reason dividends may be distributed only from past and current earnings. To pay dividends in excess of this amount would mean the corpora-

**Figure 18-2** Corporate profits and dividends for nonfinancial firms

tion is returning to investors their original capital contribution (raiding the capital). If the ABC Company has the following statement of net worth, the maximum dividend payment would be \$20 million.

Common stock (1 million shares at \$10 par value)* . . . . .	\$10,000,000
Retained earnings . . . . .	<u>20,000,000</u>
Net worth . . . . .	\$30,000,000

\*If there is a "paid-in capital in excess of par" account, some states will allow additional dividend payments while others will not. To simplify the problem for now, paid-in capital in excess of par is not considered.

Why all the concern about impairing permanent capital? Since the firm is going to pay dividends only to those who contributed capital in the first place, what is the problem? Clearly there is no abuse to the stockholders, but what about the creditors? They have extended credit on the assumption that a given capital base would remain intact throughout the life of the loan. While they may not object to the payment of

dividends from past and current earnings, they must have the protection of keeping contributed capital in place.<sup>5</sup>

Even the laws against having dividends exceed the total of past and current earnings (retained earnings) may be inadequate to protect creditors. Because retained earnings are merely an accounting concept and in no way certify the current liquidity of the firm, a company paying dividends equal to retained earnings may, in certain cases, jeopardize the operation of the firm. Let us examine Table 18–2.

**Table 18–2**

Dividend policy  
considerations

Cash .....	\$ 500,000	Debt .....	\$10,000,000
Accounts receivable .....	4,500,000	Common stock .....	10,000,000
Inventory .....	15,000,000	Retained earnings .....	<u>15,000,000</u>
Plant and equipment .....	<u>15,000,000</u>		\$35,000,000
	\$35,000,000		
	Current earnings .....	\$ 1,500,000	
	Potential dividends .....	\$15,000,000	

Theoretically, management could pay up to \$15,000,000 in dividends by selling assets even though current earnings are only \$1,500,000. In most cases such frivolous action would not be taken; but the mere possibility encourages creditors to closely watch the balance sheets of corporate debtors and, at times, to impose additional limits on dividend payments as a condition for the granting of credit.

### Cash Position of the Firm

Not only do retained earnings fail to portray the liquidity position of the firm, but there are also limitations to the use of current earnings as an indicator of liquidity. As described in Chapter 4, “Financial Forecasting,” a growth firm producing the greatest gains in earnings may be in the poorest cash position. As sales and earnings expand rapidly, there is an accompanying buildup in receivables and inventory that may far outstrip cash flow generated through earnings. Note that the cash balance of \$500,000 in Table 18–2 represents only one-third of the current earnings of \$1,500,000. A firm must do a complete funds flow analysis before establishing a dividend policy.

### Access to Capital Markets

The medium-to-large-size firm with a good record of performance may have relatively easy access to the financial markets. A company in such a position may be willing to pay dividends now, knowing it can sell new common stock or bonds in the future if funds are needed. Some corporations may even issue debt or stock now and use part of the proceeds to ensure the maintenance of current dividends. Though this policy seems at variance with the concept of a dividend as a reward, management may justify its action on the basis of maintaining stable dividends. In the era of the late 1990s and

<sup>5</sup>Of course, on liquidation of the corporation, the contributed capital to the firm may be returned to common stockholders after creditor obligations are met. Normally stockholders who need to recoup all or part of their contributed capital sell their shares to someone else.



2000s, only a relatively small percentage of firms had sufficient ease of entry to the capital markets to modify their dividend policy in this regard.

### Desire for Control

Management must also consider the effect of the dividend policy on its collective ability to maintain control. The directors and officers of a small, closely held firm may be hesitant to pay any dividends for fear of diluting the cash position of the firm.

A larger firm, with a broad base of shareholders, may face a different type of threat in regard to dividend policy. Stockholders, spoiled by a past record of dividend payments, may demand the ouster of management if dividends are withheld.

### Tax Position of Shareholders

The tax position of shareholders was once a major consideration, but it is no more. Prior to the Jobs and Growth Tax Relief Act of 2003, dividends were taxed at a maximum rate of 38.6 percent and capital gains (achieved from the increase in the value of a security) at a maximum rate of 20 percent. Wealthy, high income tax bracket investors had a preference for stocks that had the potential to generate capital gains rather than dividends because of the tax rate differential.

With the passage of the 2003 Tax Act, dividends and capital gains are now taxed at a maximum rate of 15 percent for high income taxpayers. It should be pointed out that only *long-term* capital gains (assets held over a year) are taxed at the maximum rate of 15 percent. Short-term capital gains are taxed at the taxpayer's normal rate (up to a maximum in the high 30 percent range). For our purposes, in this discussion and in the problems at the end of the chapter, we shall assume capital gains are long term.

Those in lower tax brackets are now taxed at five percent on both types of income (except in 2008 when lower income taxpayers will not be taxed at all on dividends or capital gains). The 2003 Tax Act provisions are intended to end after 2008, but are likely to be continued well into the future.

Clearly, the 2003 tax legislation makes high dividend paying stocks, such as public utilities, more attractive than they were in the past now that the tax rate differential has been eliminated.

Given that we have examined the many factors that influence dividend policy, let us track the actual procedures for announcing and paying a dividend. Though dividends are quoted on an annual basis, the payments actually take place over four quarters during the year. For example, in 2006 H.J. Heinz Corp. paid an annual cash dividend of \$1.20. This meant stockholders received \$0.30 in dividends each quarter. If we divide the annual dividend per share by the current stock price, the result is called the **dividend yield**, which is the percentage return provided by the cash dividend based on the current market price. Because Heinz's stock was selling \$36.00 per share in early 2006, the dividend yield at the time was 3.33 percent ( $\$1.20/\$36.00$ ). Also because Heinz had expected earnings per share of \$2.60 for 2006, the **dividend payout ratio** was 46.2 percent ( $\$1.20/\$2.60$ ).

Three key dates are associated with the declaration of a quarterly dividend: the ex-dividend date, the holder-of-record date, and the payment date.

### Dividend Payment Procedures





## finance in action

### Bill Gates: What Have You Done for Me Lately?

When Bill Gates, the founder and chairman of the board of Microsoft, walked out of a movie theater in December 2004, people stopped eating their popcorn long enough to give him a big thank you and pat on the back. At first the richest man on the face of the earth was surprised, but he quickly figured out that praise could be traced back to the \$3 per share special cash dividend his company was about to pay.\* With a \$28 stock price at the time, that translated into a 10.71 percent one time payout to stockholders. The company was intent on continuing its \$.32 regular annual dividend for an additional 1.14 percent yield or a total dividend yield of 11.85 percent for 2004.

There were two primary reasons for Bill Gates and Microsoft paying the huge \$3 per share special dividend. One was that Microsoft, the king of stock options for employees during the 1990s and early 2000s, had stopped granting them. This corporate policy can be traced to new accounting rules requiring that stock options be expensed at the time of issue, potentially sharply cutting into earnings for Microsoft and other options-granting companies. Instead of giving stock options to high performing individuals (most of whom are stockholders), the company decided to give them a very large cash dividend. Of course, all other stockholders benefited as well.

A second reason for the special \$3 cash dividend was the huge cash hoard that Microsoft had built up through a decade and a half of enormous profitability. At the time of the payout, Microsoft was sitting on \$64.6 billion in cash and marketable securities, which represented 70 percent of total assets. The firm had already undertaken all the profitable ventures it could possibly pursue and was being told by the U.S. Justice Department to slow down its anticompetitive activities. To a certain extent, breakneck future growth was not a legal option.

In order to reduce the cash hoard, the company paid out the \$3 special dividend on 10 billion shares or \$30 billion in extra dividends. This reduced the cash balance to \$34.4 billion. But by 2005, the cash balance was once again growing by \$1 billion a month due to the cash generating capacity of its Windows operating system and its Office productivity software.

A new cash balance of \$50 to \$60 billion was not out of the question in the not too distant future, and employees and stockholders were asking Bill Gates, "What have you done for me lately?" The question was particularly relevant because the stock had been stuck in the \$22–\$28 range for the last three years.

\*Jay Greene, "BusinessWeek Online," July 28, 2005.

We begin with the **holder-of-record date**. On this date the firm examines its books to determine who is entitled to a cash dividend. To have your name included on the corporate books, you must have bought or owned the stock before the **ex-dividend date**, which is two business days before the holder-of-record date. If you bought the stock on the ex-dividend date or later, your name will eventually be transferred to the corporate books, but you bought the stock without the current quarterly dividend privilege. Thus we say you bought the stock ex-dividend.<sup>6</sup> As an example, a stock with a holder-of-record date of March 4 will go ex-dividend on March 2. You must buy the stock by March 1 (three days before the holder-of-record date and a day before the ex-dividend date) to get the dividend. Investors are very conscious of the date on which the stock goes ex-dividend, and the value of the stock will go down by the value of the quarterly dividend on the ex-dividend date (all other things being equal). Finally, in our example, we might assume the **dividend payment date** is April 1 and checks will go out to entitled stockholders on or about this time.

<sup>6</sup>In this case the old stockholder will receive the dividend.

A **stock dividend** represents a distribution of additional shares to common stockholders. The typical size of such dividends is in the 10 percent range, so a stockholder with 10 shares might receive 1 new share in the form of a stock dividend. Larger distributions of 20 to 25 percent or more are usually considered to have the characteristics of a stock split, a topic to be discussed later in the chapter.

## Stock Dividend

### Accounting Considerations for a Stock Dividend

Assume that before the declaration of a stock dividend, the XYZ Corporation has the net worth position indicated in Table 18–3.

Capital accounts	{		Common stock (1,000,000 shares at \$10 par) . . . . .	\$10,000,000
			Capital in excess of par . . . . .	5,000,000
			Retained earnings . . . . .	15,000,000
			Net worth . . . . .	\$30,000,000

**Table 18–3**

XYZ Corporation's  
financial position before  
stock dividend

If a 10 percent stock dividend is declared, shares outstanding will increase by 100,000 (10 percent times 1 million shares). An accounting transfer will occur between retained earnings and the two capital stock accounts based on the market value of the stock dividend. If the stock is selling at \$15 a share, we will assign \$1 million to common stock (100,000 shares times \$10 par) and \$500,000 to capital in excess of par. The latter value is based on 100,000 new shares times (\$15 – \$10), or \$5. In the calculation in parentheses, we subtracted par value from market value. The net worth position of XYZ after the transfer is shown in Table 18–4.

Capital accounts	{		Common stock (1,100,000 shares at \$10 par) . . . . .	\$11,000,000
			Capital in excess of par . . . . .	5,500,000
			Retained earnings . . . . .	13,500,000
			Net worth . . . . .	\$30,000,000

**Table 18–4**

XYZ Corporation's  
financial position after  
stock dividend

### Value to the Investor

An appropriate question might be: Is a stock dividend of real value to the investor? Suppose your finance class collectively purchased \$1,000 worth of assets and issued 10 shares of stock to each class member. Three days later it is announced that each stockholder will receive an extra share. Has anyone benefited from the stock dividend? Of course not! The asset base remains the same (\$1,000), and your proportionate ownership in the business is unchanged (everyone got the same new share). You merely have more paper to tell you what you already knew.

The same logic is essentially true in the corporate setting. In the case of the XYZ Corporation, shown in Tables 18–3 and 18–4, we assumed 1 million shares were outstanding before the stock dividend and 1.1 million shares afterward. Now let

us assume the corporation had aftertax earnings of \$6.6 million. Without the stock dividend, earnings per share would be \$6.60, and with the dividend \$6.00.

$$\text{Earnings per share} = \frac{\text{Earnings after taxes}}{\text{Shares outstanding}}$$

*Without stock dividend:*

$$= \frac{\$6.6 \text{ million}}{1 \text{ million shares}} = \$6.60$$

*With stock dividend:*

$$= \frac{\$6.6 \text{ million}}{1.1 \text{ million shares}} = \$6.00$$

(10% decline)

Earnings per share have gone down by exactly the same percentage that shares outstanding increased. For further illustration, assuming that Stockholder A had 10 shares before the stock dividend and 11 afterward, what are his or her total claims to earnings? As expected, they remain the same, at \$66.

$$\text{Claim to earnings} = \text{Shares} \times \text{Earnings per share}$$

*Without stock dividend:*  $10 \times \$6.60 = \$66$

*With stock dividend:*  $11 \times \$6.00 = \$66$

Taking the analogy one step further, assuming the stock sold at 20 times earnings before and after the stock dividend, what is the total market value of the portfolio in each case?

$$\text{Total market value} = \text{Shares} \times (\text{Price-earnings ratio} \times \text{Earnings per share})$$

*Without stock dividend:*

$$10 \times (20 \times \$6.60)$$
$$10 \times \$132 = \$1,320$$

*With stock dividend:*

$$11 \times (20 \times \$6.00)$$
$$11 \times \$120 = \$1,320$$

The total market value is unchanged. Note that if the stockholder sells the 11th share to acquire cash, his or her stock portfolio will be worth \$120 less than it was before the stock dividend.

### Possible Value of Stock Dividends

There are limited circumstances under which a stock dividend may be more than a financial sleight of hand. If, at the time a stock dividend is declared, the cash dividend per share remains constant, the stockholder will receive greater total cash dividends. Assume the annual cash dividend for the XYZ Corporation will remain \$1 per share even though earnings per share decline from \$6.60 to \$6.00. In this instance a stockholder

going from 10 to 11 shares as the result of a stock dividend has a \$1 increase in total dividends. The overall value of his total shares may then increase in response to larger dividends.

### Use of Stock Dividends

Stock dividends are most frequently used by growth companies such as Oracle or eBay as a form of “informational content” in explaining the retention of funds for reinvestment purposes. This was indicated in the discussion of the life cycle of the firm earlier in the chapter. A corporation president may state, “Instead of doing more in the way of cash dividends, we are providing a stock dividend. The funds remaining in the corporation will be used for highly profitable investment opportunities.” The market reaction to such an approach may be neutral or slightly positive.



Another use of stock dividends may be to camouflage the inability of the corporation to pay cash dividends and to cover up the ineffectiveness of management in generating cash flow. The president may proclaim, “Though we are unable to pay cash dividends, we wish to reward you with a 15 percent stock dividend.” Well-informed investors are likely to react negatively.

A **stock split** is similar to a stock dividend, only more shares are distributed. For example, a two-for-one stock split would double the number of shares outstanding. In general, the rules of the New York Stock Exchange and the Financial Accounting Standards Board encourage distributions in excess of 20 to 25 percent to be handled as stock splits.

### Stock Splits

The accounting treatment for a stock split is somewhat different from that for a stock dividend, in that there is no transfer of funds from retained earnings to the capital accounts but merely a reduction in par value and a proportionate increase in the number of shares outstanding. For example, a two-for-one stock split for the XYZ Corporation would necessitate the accounting adjustments shown in Table 18–5.

In this case all adjustments are in the common stock account. Because the number of shares is doubled and the par value halved, the market price of the stock should drop proportionately. There has been much discussion in the financial literature about the

Before	
Common stock (1 million shares at \$10 par) . . . . .	\$10,000,000
Capital in excess of par . . . . .	5,000,000
Retained earnings . . . . .	15,000,000
	<u>\$30,000,000</u>
After	
Common stock (2 million shares at \$5 par) . . . . .	\$10,000,000
Capital in excess of par . . . . .	5,000,000
Retained earnings . . . . .	15,000,000
	<u>\$30,000,000</u>

**Table 18–5**

XYZ Corporation before  
and after stock split

impact of a split on overall stock value. While there might be some positive benefit, that benefit is virtually impossible to capture after the split has been announced. Perhaps a \$66 stock will drop only to \$36 after a two-for-one split, but one must act very early in the process to benefit.

The primary purpose of a stock split is to lower the price of a security into a more popular trading range. A stock selling for over \$100 per share may be excluded from consideration by many small investors. Splits are also popular because only stronger companies that have witnessed substantial growth in market price are in a position to participate in them.

### Reverse Stock Splits

In the bear market of the early 2000s, the **reverse stock split** became popular. In this case, a firm exchanges fewer shares for existing shares with the intent of increasing the stock price. An example might be a one-for-four reverse stock split in which you would get one new share in place of four old shares. A stockholder who held 100 shares would now own 25. With total earnings unaffected by the reverse stock split, earnings per share should increase fourfold because there would be only one-fourth as many shares outstanding.

It is also hoped that the stock price will increase fourfold. Perhaps, you originally had 100 shares at \$2 per share and now you have 25 shares at \$8. The stock price does not always increase by a commensurate amount. Keep in mind that a reverse stock split is normally used by firms whose stock has plummeted in value. The announcement of a reverse stock split may represent further evidence that the firm is having problems.

One useful purpose of a reverse stock split is to attempt to place a stock's value at a level that is acceptable to the New York Stock Exchange, the American Stock Exchange, or the NASDAQ for trading purposes. All three will delist a stock if its value remains under \$1 for an extended period of time (such as six months).

As an example, Lucent Technologies was in danger of being delisted from the New York Stock Exchange in late 2002 because its stock had been in a \$.40–.70 range for a number of months. After a 3-for-1 reverse stock split, the stock's price settled in at \$1.50. At least for a while, Lucent was out of danger of being delisted. Of course, if the stock price falls again, Lucent will have to try a second reverse split and may not be as fortunate the second time around.

Firms such as Millicom, Storage Access (now BluePoint Data Storage), Diversinet, and Total Entertainment also utilized reverse stock splits in an attempt to maintain their listing status in the current decade.

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### Repurchase of Stock as an Alternative to Dividends

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A firm with excess cash may choose to make a **corporate stock repurchase** of its own shares in the market, rather than pay a cash dividend. For this reason, the stock repurchase decision may be thought of as an alternative to the payment of cash dividends.

The benefits to the stockholder are equal under either alternative, at least in theory. For purposes of our study, the Morgan Corporation's financial position is described by the data in Table 18–6.

Earnings after taxes . . . . .	\$3,000,000
Shares . . . . .	1,000,000
Earnings per share . . . . .	\$3
Price-earnings ratio . . . . .	10
Market price per share . . . . .	\$30
Excess cash . . . . .	\$2,000,000

**Table 18-6**  
Financial data of  
Morgan Corporation

Assume the firm is considering a repurchase of its own shares in the market.

The firm has \$2 million in excess cash, and it wishes to compare the value to stockholders of a \$2 cash dividend (on the million shares outstanding) as opposed to spending the funds to repurchase shares in the market. If the cash dividend is paid, the shareholder will have \$30 in stock and the \$2 cash dividend. On the other hand, the \$2 million may be used to repurchase shares at slightly over market value (to induce sale).<sup>7</sup> The overall benefit to stockholders is that earnings per share will go up as the number of shares outstanding is decreased. If the price-earnings ratio of the stock remains constant, then the price of the stock should also go up. If a purchase price of \$32 is used to induce sale, then 62,500 shares will be purchased.

$$\frac{\text{Excess funds}}{\text{Purchase price per share}} = \frac{\$2,000,000}{\$32} = 62,500 \text{ shares}$$

Total shares outstanding are reduced to 937,500 (1,000,000 – 62,500). Revised earnings per share for the Morgan Corporation become:

$$\frac{\text{Earnings after taxes}}{\text{Shares}} = \frac{\$3,000,000}{937,500} = \$3.20$$

Since the price-earnings ratio for the stock is 10, the market value of the stock should go to \$32. Thus we see that the consequences of the two alternatives are presumed to be the same as shown in the following:

(1) Funds Used for Cash Dividend	(2) Funds Used to Repurchase Stock
Market value per share . . . . . \$30	
Cash dividend per share . . . . . <u>2</u>	
\$32	Market value per share . . . . . \$32

Prior to the Tax Act of 2003, the stock price increase of \$2 received preferential capital gains tax treatment over the \$2 cash dividend, but this is no longer the case. Both are now taxed at the same rate, though the capital gains tax can be deferred until the stock is sold.<sup>8</sup>

In either instance the total value is presumed to be \$32. Theoretically, the stockholder would be indifferent with respect to the two alternatives.

<sup>7</sup>To derive the desired equality between the two alternatives, the purchase price for the new shares should equal the current market price plus the proposed cash dividend under the first alternative (\$30 + \$2 = \$32).

<sup>8</sup>Some would argue that the capital gains tax can be completely avoided. If you hold the stock until you die, there is no capital gains tax on your estate. An estate tax will have to be paid on property valued over \$2 million, but that is different from a capital gains tax. (The \$2 million exemption will increase over time.)

### Other Reasons for Repurchase

In addition to using the repurchase decision as an alternative to cash dividends, corporate management may acquire its own shares in the market, because it believes they are selling at a low price. A corporation president who sees his firm's stock decline by 25 to 30 percent over a six-month period may determine the stock is the best investment available to the corporation.

By repurchasing shares the corporation can maintain a constant demand for its own securities and, perhaps, stave off further decline. Stock repurchases by corporations were partially credited with stabilizing the stock market after the 508-point crash on October 19, 1987.

In Table 18–7, we see some recent stock repurchases announced by major U.S. corporations. In many cases companies may take years to complete stock repurchases, and they may time the repurchase depending on stock price behavior.

**Table 18–7**

Recent examples of  
share repurchase  
announcements



Company	Amount (\$ billion)	Date Announced
Citigroup .....	15.0	4/12/05
IBM .....	5.0	4/26/05
Merrill Lynch .....	4.0	4/19/05
PepsiCo .....	3.0	2/28/05
Duke Energy .....	2.5	2/25/05
Genentech .....	2.0	6/15/05
Air Products .....	0.5	3/18/05
Liberty Mutual .....	0.2	6/22/05

Reacquired shares may also be used for employee stock options or as part of a tender offer in a merger. A firm may also reacquire part of its shares as a protective device against being taken over as a merger candidate.

### Dividend Reinvestment Plans

Years ago, many companies started **dividend reinvestment plans** for their shareholders. These plans take various forms, but basically they provide the investor with an opportunity to buy additional shares of stock with the cash dividend paid by the company. Some plans will sell treasury stock or authorized but unissued shares to the stockholders. With this type of plan, the company is the beneficiary of increased cash flow, since dividends paid are returned to the company for reinvestment in common stock. These types of plans have been very popular with cash-short public utilities, and often public utilities will allow shareholders a 5 percent discount from market value at the time of purchase. This is justified because no investment banking or underwriting fees need be paid.

Under a second popular dividend reinvestment plan, the company's transfer agent, usually a bank, buys shares of stock in the market for the stockholder. This plan provides no cash flow for the company; but it is a service to the shareholder, who benefits from much lower transaction costs, the right to own fractional shares, and more flexibility in choosing between cash and common stock. Usually a shareholder can also add cash payments of between \$500 and \$1,000 per month to his or her dividend payments and receive the same lower transaction costs. Shareholder accounts are kept at the bank, and quarterly statements are provided.



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## Summary

In choosing either to pay a dividend to stockholders or to reinvest the funds in the company, management's first consideration is whether the firm will be able to earn a higher return for the stockholders. However, we must temper this "highest return theory" with a consideration of stockholder preferences and the firm's need for earnings retention and growth as presented in the life cycle growth curve.

Dividends provide information content to shareholders. An increase in the dividend is generally interpreted as a positive signal while dividend cuts are negative, and shareholders generally prefer dividend stability. The dividend payout ratio (dividends/earnings) often signals where a firm is in its life cycle stage. During the initial stages, dividends will be small or nonexistent, while in the later stages, dividends normally increase.

Other factors influencing dividend policy are legal rules relating to maximum payments, the cash position of the firm, the firm's access to capital markets, and management's desire for control.

An alternative (or a supplement) to cash dividends may be the use of stock dividends and stock splits. While neither of these financing devices directly changes the intrinsic value of the stockholders' position, they may provide communication to stockholders and bring the stock price into a more acceptable trading range. A stock dividend may take on actual value when total cash dividends are allowed to increase. Nevertheless, the alert investor will watch for abuses of stock dividends—situations in which the corporation indicates that something of great value is occurring when, in fact, the new shares that are created merely represent the same proportionate interest for each shareholder.

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## List of Terms

<b>marginal principle of retained earnings</b>	555	<b>ex-dividend date</b>	562
<b>life cycle</b>	555	<b>dividend payment date</b>	562
<b>residual theory of dividends</b>	556	<b>stock dividend</b>	563
<b>information content of dividends</b>	557	<b>stock split</b>	565
<b>dividend yield</b>	561	<b>reverse stock split</b>	566
<b>dividend payout ratio</b>	561	<b>corporate stock repurchase</b>	566
<b>holder-of-record date</b>	562	<b>dividend reinvestment plans</b>	568

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## Discussion Questions

1. How does the marginal principle of retained earnings relate to the returns that a stockholder may make in other investments?
2. Discuss the difference between a passive and an active dividend policy.
3. How does the stockholder, in general, feel about the relevance of dividends?
4. Explain the relationship between a company's growth possibilities and its dividend policy.
5. Since initial contributed capital theoretically belongs to the stockholders, why are there legal restrictions on paying out the funds to the stockholders?

6. Discuss how desire for control may influence a firm's willingness to pay dividends.
7. If you buy stock on the ex-dividend date, will you receive the upcoming quarterly dividend?
8. How is a stock split (versus a stock dividend) treated on the financial statements of a corporation?
9. Why might a stock dividend or a stock split be of limited value to an investor?
10. Does it make sense for a corporation to repurchase its own stock? Explain.
11. What advantages to the corporation and the stockholder do dividend reinvestment plans offer?

## Practice Problems and Solutions

### Stock dividend

1. United Equipment Corp. shows the following capital accounts before a 10 percent stock dividend.

Common stock (200,000 shares at \$5 par) . . . . .	\$1,000,000
Capital in excess of par . . . . .	600,000
Retained earnings . . . . .	2,400,000
Net worth. . . . .	\$4,000,000

The firm's shares have a market price of \$20. Show the revised capital accounts after the 10 percent stock dividend.

2.
  - a. Assume United Equipment Corp. in the problem above had total earnings of \$400,000 before the stock dividend. It also had a P/E ratio of 10. What were the EPS and stock price before the stock dividend?
  - b. After the stock dividend, what will earnings per share and the stock price be? Assume the P/E ratio stays at 10.
  - c. Albert Gonzales owned 100 shares before and 110 after the stock dividend. What is the value of his portfolio (total holdings) before and after the stock dividend? Is he any better off as a result of the stock dividend?

## Solutions

1. Revised capital accounts after the 10 percent stock dividend.

*Common stock (220,000 shares at \$5 par) . . . . .	\$1,100,000
†Capital in excess of par. . . . .	900,000
*Retained earnings. . . . .	2,000,000
Net worth . . . . .	\$4,000,000

\*20,000 more shares are added to common stock.

†Added capital in excess of par is equal to the number of new shares times the (market price minus par value).

$$20,000 \times (\$20 - \$5) = 20,000 \times \$15 = \$300,000$$

This value is added to the initial value of capital in excess of par to arrive at total capital in excess of par.

$$\$300,000 + 600,000 = \$900,000$$

\*The retained earnings shown above is equal to the initial retained earnings value minus the addition to common stock of \$100,000 and the addition to 'capital in excess of par' of \$300,000.

$$\$2,400,000 - \$100,000 - \$300,000 = \$2,000,000$$

### Effect of stock dividend on the stockholders

2. a. EPS before the stock dividend = Earnings/Shares =  $\$400,000/200,000 = \$2$   
 Stock price before the stock dividend = P/E ratio  $\times$  EPS =  $10 \times \$2 = \$20$   
 b. EPS after the stock dividend = Earnings/Shares =  $\$400,000/220,000 = \$1.82$   
 Stock price after the stock dividend =  $10 \times \$1.82 = \$18.20$   
 c. Value of portfolio before the stock dividend:

$$100 \text{ shares} \times \$20 \text{ stock price} = \$2,000$$

Value of portfolio after the stock dividend:

$$110 \text{ shares} \times \$18.20 \text{ stock price} = \$2,002$$

The only difference between the before and after stock price is due to rounding (\$2,000 vs. \$2,002). Albert Gonzales is no better off.

All problems are available in Homework Manager. Please see the preface for more information.



## Problems

1. Neil Diamond Brokers, Inc., reported earnings per share of \$4.00 and paid \$.90 in dividends. What is the payout ratio? Payout ratio
2. Sewell Enterprises earned \$160 million last year and retained \$100 million. What is the payout ratio? Payout ratio
3. Biogen, Inc., earned \$850 million last year and had a 30 percent payout ratio. How much did the firm add to its retained earnings? Payout ratio
4. Polycom Systems earned \$480 million last year and paid out 20 percent of earnings in dividends. Dividends, retained earnings, and yield
  - a. By how much did the company's retained earnings increase?
  - b. With 100 million shares outstanding and stock price of \$80, what was the dividend yield? (Hint: First compute dividends per share.)
5. The following companies have different financial statistics. What dividend policies would you recommend for them? Explain your reasons. Growth and dividend policy

	Turtle Co.	Hare Corp.
Growth rate in sales and earnings . . . . .	5%	20%
Cash as a percentage of total assets . . . . .	15	2

6. Carnegie Mellon and Produce Co. has \$120,000,000 in stockholders' equity. Forty million dollars is listed as common stock and the balance is in retained earnings. The firm has \$250,000,000 in total assets and 3 percent of this value is in cash. Earnings for the year are \$20,000,000 and are included in retained earnings. Limits on dividends
  - a. What is the legal limit on current dividends?
  - b. What is the practical limit based on liquidity?
  - c. If the company pays out the amount in part b, what is the dividend payout ratio? (Compute this based on total dollars rather than on a per share basis because the number of shares is not given.)

$$\text{Payout ratio} = \text{Dividends/Earnings}$$

Life cycle growth  
and dividends

7. A financial analyst is attempting to assess the future dividend policy of Environmental Systems by examining its life cycle. She anticipates no payout of earnings in the form of cash dividends during the development stage (I). During the growth stage (II), she anticipates 10 percent of earnings will be distributed as dividends. As the firm progresses to the expansion stage (III), the payout ratio will go up to 30 percent, and eventually reach 50 percent during the maturity stage (IV).
- a. Assuming earnings per share will be as follows during each of the four stages, indicate the cash dividend per share (if any) during each stage.

Stage I	\$ .15
Stage II	1.80
Stage III	2.60
Stage IV	3.10

- b. Assume in Stage IV that an investor owns 275 shares and is in a 31 percent tax bracket; what will be the investor's aftertax income from the cash dividend?
- c. In what two stages is the firm most likely to utilize stock dividends or stock splits?

Stock split and  
stock dividend

8. Austin Power Company has the following balance sheet:

Assets	
Cash . . . . .	\$ 50,000
Accounts receivable . . . . .	250,000
Fixed assets . . . . .	700,000
Total assets . . . . .	\$1,000,000
Liabilities	
Accounts payable . . . . .	\$ 250,000
Notes payable . . . . .	50,000
Common stock 100,000 shares @ \$2 par . . . . .	200,000
Capital { Capital in excess of par . . . . .	100,000
accounts { Retained earnings . . . . .	400,000
	\$1,000,000

The firm has a market price of \$11 a share.

- a. Show the effect on the capital account(s) of a two-for-one stock split.
- b. Show the effect on the capital account of a 10 percent stock dividend. Part *b* is separate from part *a*. In part *b* do not assume the stock split has taken place.
- c. Based on the balance in retained earnings, which of the two dividend plans is more restrictive on future cash dividends?
9. In doing a five-year analysis of future dividends, the Dawson Corporation is considering the following two plans. The values represent dividends per share.

Year	Plan A	Plan B
1 . . . . .	\$1.50	\$ .50
2 . . . . .	1.50	2.00
3 . . . . .	1.50	.20
4 . . . . .	1.60	4.00
5 . . . . .	1.60	1.70

Policy on payout  
ratio

- a.* How much in total dividends per share will be paid under each plan over the five years?
- b.* Mr. Bright, the vice-president of finance, suggests that stockholders often prefer a stable dividend policy to a highly variable one. He will assume that stockholders apply a lower discount rate to dividends that are stable. The discount rate to be used for Plan A is 10 percent; the discount rate for plan B is 12 percent. Which plan will provide the higher present value for the future dividends? (Round to two places to the right of the decimal point.)
- ✂ 10. The stock of North American Dandruff Company is selling at \$80 per share. The firm pays a dividend of \$2.50 per share. Dividend yield
- a.* What is the dividend yield?
- b.* If the firm has a payout rate of 50 percent, what is the firm's P/E ratio?
11. The shares of Charles Darwin Fitness Centers sell for \$60. The firm has a P/E ratio of 20. Forty percent of earnings are paid out in dividends. What is the firm's dividend yield? Dividend yield
12. Ms. Reeves is in a 35 percent marginal tax bracket. If she receives \$2.40 in cash dividends, how much in taxes (per share) will she pay? (Recall the 15 percent rule.) Dividends and taxation
13. Chuck Wagon owns 200 shares of Western Transportation Company stock, which he bought for \$17 per share. He is in a 35 percent tax bracket. It is the first week in December, and he has already received the full cash dividend for the year of \$.90 per share. For his tax bracket, dividends are taxed at 15 percent. The stock is currently selling for  $32\frac{1}{8}$ . He has decided to sell the stock and after paying broker commissions, his net proceeds will be \$32 per share. His tax rate on capital gains is also 15 percent (the capital gains are long term). Dividends and taxation
- How much in total taxes will Chuck Wagon pay this year for his investment in Western Transportation Company? Consider dividend income as well as capital gains.
14. The Ohio Freight Company's common stock is selling for \$40 the day before the stock goes ex-dividend. The annual dividend yield is 6.7 percent, and dividends are distributed quarterly. Based solely on the impact of the cash dividend, by how much should the stock go down on the ex-dividend date? What will the new price of the stock be? Ex-dividends date and stock price
15. The Western Pipe Company has the following capital section in its balance sheet. Its stock is currently selling for \$5 per share. Stock dividend and cash dividend

Common stock (50,000 shares at \$1 par) . . . . .	\$ 50,000
Capital in excess of par . . . . .	50,000
Retained earnings . . . . .	<u>100,000</u>
	\$200,000

The firm intends to first declare a 10 percent stock dividend and then pay a 20-cent cash dividend (which also causes a reduction of retained earnings). Show the capital section of the balance sheet after the first transaction and then after the second transaction.

Cash dividend  
policy

16. Phillips Rock and Mud is trying to determine the maximum amount of cash dividends it can pay this year. Assume its balance sheet is as follows:

Assets	
Cash .....	\$ 312,500
Accounts receivable .....	800,000
Fixed assets .....	987,500
Total assets .....	<u>\$2,100,000</u>
Liabilities and Stockholders' Equity	
Accounts payable .....	\$ 445,000
Long term payable .....	280,000
Common stock (250,000 shares at \$2 par) .....	500,000
Retained earnings .....	875,000
Total liabilities and stockholders' equity .....	<u>\$2,100,000</u>

- From a legal perspective, what is the maximum amount of dividends per share the firm could pay? Is this realistic?
- In terms of cash availability, what is the maximum amount of dividends per share the firm could pay?
- Assume the firm earned 16 percent return on stockholders' equity last year. If the board wishes to pay out 60 percent of earnings in the form of dividends, how much will dividends per share be? (Round to two places to the right of the decimal point.)

Dividends and  
stockholder wealth  
maximization

17. The Warner Corporation has earnings of \$750,000 with 300,000 shares outstanding. Its P/E ratio is 16. The firm is holding \$400,000 of funds to invest or pay out in dividends. If the funds are retained, the aftertax return on investment will be 15 percent, and this will add to present earnings. The 15 percent is the normal return anticipated for the corporation and the P/E ratio would remain unchanged. If the funds are paid out in the form of dividends, the P/E ratio will increase by 10 percent because the stockholders have a preference for dividends over retained earnings. Which plan will maximize the market value of the stock?

Dividend valuation  
model and wealth  
maximization

18. Omni Telecom is trying to decide whether to increase its cash dividend immediately or use the funds to increase its future growth rate. It will use the dividend valuation model originally presented in Chapter 10 for purposes of analysis. The model was shown as Formula 10-9 on page 298 and is reproduced below (with a slight addition in definition of terms).

$$P_0 = \frac{D_1}{K_e - g}$$

$P_0$  = Price of the stock today

$D_1$  = Dividend at the end of the first year  
 $D_0 \times (1 + g)$

$D_0$  = Dividend today

$K_e$  = Required rate of return

$g$  = Constant growth rate in dividends

$D_0$  is currently \$2.00,  $K_e$  is 10 percent, and  $g$  is 5 percent.

Under Plan A,  $D_0$  would be *immediately* increased to \$2.20 and  $K_e$  and  $g$  will remain unchanged.

Under Plan B,  $D_0$  will remain at \$2.00 but  $g$  will go up to 6 percent and  $K_e$  will remain unchanged.

- a. Compute  $P_0$  (price of the stock today) under Plan A. Note  $D_1$  will be equal to  $D_0 \times (1 + g)$ , or \$2.20 (1.05).  $K_e$  will equal 10 percent and  $g$  will equal 5 percent.
  - b. Compute  $P_0$  (price of the stock today) under Plan B. Note  $D_1$  will be equal to  $D_0 \times (1 + g)$ , or \$2.00 (1.06).  $K_e$  will be equal to 10 percent and  $g$  will be equal to 6 percent.
  - c. Which plan will produce the higher value?
19. Wilson Pharmaceuticals' stock has done very well in the market during the last three years. It has risen from \$45 to \$70 per share. The firm's current statement of stockholders' equity is as follows:

Stock split and its  
effects

Common stock (4 million shares issued at par value of \$10 per share) . . . . .	\$ 40,000,000
Paid-in capital in excess of par . . . . .	15,000,000
Retained earnings . . . . .	45,000,000
Net worth . . . . .	\$100,000,000

- a. What changes would occur in the statement of stockholders' equity after a two-for-one stock split?
  - b. What changes would occur in the statement of stockholders' equity after a three-for-one stock split?
  - c. Assume that Wilson earned \$14 million. What would be its earnings per share before and after the two-for-one stock split? After the three-for-one stock split?
  - d. What would be the price per share after the two-for-one stock split? After the three-for-one stock split? (Assume that the price-earnings ratio of 20 stays the same.)
  - e. Should a stock split change the price-earnings ratio for Wilson?
20. Ace Products sells marked playing cards to blackjack dealers. It has not paid a dividend in many years, but is currently contemplating some kind of dividend. The capital accounts for the firm are as follows:

Stock dividend and  
its effect

Common stock (2,000,000 shares at \$5 par) . . . . .	\$10,000,000
Capital in excess of par* . . . . .	6,000,000
Retained earnings . . . . .	24,000,000
Net worth . . . . .	\$40,000,000

\*The increase in capital in excess of par as a result of a stock dividend is equal to the new shares created times (Market price – Par Value).

The company's stock is selling for \$20 per share. The company had total earnings of \$4,000,000 during the year. With 2,000,000 shares outstanding, earnings per share were \$2.00. The firm has a P/E ratio of 10.



Stock dividend and  
cash dividend

- a. What adjustments would have to be made to the capital accounts for a 10 percent stock dividend? Show the new capital accounts.
- b. What adjustments would be made to EPS and the stock price? (Assume the P/E ratio remains constant.)
- c. How many shares would an investor end up with if he or she originally had 100 shares?
- d. What is the investor's total investment worth before and after the stock dividend if the P/E ratio remains constant? (There may be a \$1 to \$2 difference due to rounding.)
- e. Has Ace Products pulled a magic trick, or has it given the investor something of value? Explain.

21. Health Systems, Inc. is considering a 15 percent stock dividend. The capital accounts are as follows:

Common stock (3,000,000 shares at \$10 par) . . . . .	\$30,000,000
Capital in excess of par* . . . . .	15,000,000
Retained earnings . . . . .	45,000,000
Net worth . . . . .	\$90,000,000

\*The increase in capital in excess of par as a result of a stock dividend is equal to the shares created times (Market price – Par value).

The company's stock is selling for \$35 per share. The company had total earnings of \$7,500,000 with 3,000,000 shares outstanding and earnings per share were \$2.50. The firm has a P/E ratio of 14.

- a. What adjustments would have to be made to the capital accounts for a 15 percent stock dividend? Show the new capital accounts.
- b. What adjustments would be made to EPS and the stock price? (Assume the P/E ratio remains constant.)
- c. How many shares would an investor have if he or she originally had 100?
- d. What is the investor's total investment worth before and after the stock dividend if the P/E ratio remains constant? (There may be a slight difference due to rounding.)
- e. Assume Mr. Heart, the president of Health Systems, wishes to benefit stockholders by keeping the cash dividend at a previous level of \$1.05 in spite of the fact that the stockholders now have 15 percent more shares. Because the cash dividend is not reduced, the stock price is assumed to remain at \$35. What is an investor's total investment worth after the stock dividend if he/she had 100 shares before the stock dividend?
- f. Under the scenario described in part e, is the investor better off?
- g. As a final question, what is the dividend yield on this stock under the scenario described in part e?

## Reverse stock split

22. Double Vision Optical Company has had a lot of complaints from customers of late and its stock price is now only \$2 per share. It is going to employ a one-for-six reverse stock split to increase the stock value. Assume Johnnie Walker owns 120 shares.

- a.* How many shares will he own after the reverse stock split?
- b.* What is the anticipated price of the stock after the reverse stock split?
- c.* Because investors often have a negative reaction to a reverse stock split, assume the stock only goes up to 80 percent of the value computed in part *b.* What will the stock's price be?
- d.* How has the total value of Johnnie Walker's holdings changed from before the reverse stock split to after the reverse stock split (based on the stock value computed in part *c*)? To get the total value before and after the split, multiply the shares held times the stock price.
23. The Carlton Corporation has \$4 million in earnings after taxes and 1 million shares outstanding. The stock trades at a P/E ratio of 20. The firm has \$3 million in excess cash.
- a.* Compute the current price of the stock.
- b.* If the \$3 million is used to pay dividends, how much will dividends per share be?
- c.* If the \$3 million is used to repurchase shares in the market at a price of \$83 per share, how many shares will be acquired? (Round to the nearest share.)
- d.* What will the new earnings per share be? (Round to two places to the right of the decimal.)
- e.* If the P/E ratio remains constant, what will the price of the securities be? By how much, in terms of dollars, did the repurchase increase the stock price?
- f.* Has the stockholder's total wealth changed as a result of the stock repurchase as opposed to receiving the cash dividends?
- g.* What are some reasons a corporation may wish to repurchase its own shares in the market?
24. The Hastings Sugar Corporation has the following pattern of net income each year, and associated capital expenditure projects. The firm can earn a higher return on the projects than the stockholders could earn if the funds were paid out in the form of dividends.

Cash dividend  
versus stock  
repurchase

Retaining funds  
versus paying  
them out

Year	Net Income	Profitable Capital Expenditure
1 . . . . .	\$10 million	\$ 7 million
2 . . . . .	15 million	11 million
3 . . . . .	9 million	6 million
4 . . . . .	12 million	7 million
5 . . . . .	14 million	8 million

The Hastings Corporation has 2 million shares outstanding (the following questions are separate from each other).

- a.* If the marginal principle of retained earnings is applied, how much in total cash dividends will be paid over the five years?
- b.* If the firm simply uses a payout ratio of 40 percent of net income, how much in total cash dividends will be paid?

- c. If the firm pays a 10 percent stock dividend in years 2 through 5, and also pays a cash dividend of \$2.40 per share for each of the five years, how much in total dividends will be paid?
- d. Assume the payout ratio in each year is to be 30 percent of net income and the firm will pay a 20 percent stock dividend in years 2 through 5; how much will dividends per share for each year be?

**COMPREHENSIVE PROBLEM****Modern Furniture  
Company  
(Dividend  
payments versus  
stock repurchases)**

Modern Furniture Company had finally arrived at the point where it had a sufficient excess cash flow of \$4.8 million to consider paying a dividend. It had 3 million shares of stock outstanding and was considering paying a cash dividend of \$1.60 per share. The firm's total earnings were \$12 million, providing \$4.00 in earnings per share. The stock traded in the market at \$88.00 per share.

However, Al Rosen, the chief financial officer, was not sure that paying a cash dividend was the best route to go. He had recently read a number of articles in *The Wall Street Journal* about the advantages of stock repurchases and before he made a recommendation to the CEO and board of directors, he decided to do a number of calculations.

- a. What is the firm's P/E ratio?
- b. If the firm paid the cash dividend, what would be its dividend yield and dividend payout ratio per share?
- c. If a stockholder held 100 shares of stock and received the cash dividend, what would be the total value of his portfolio (stock plus dividends)?
- d. Assume instead of paying the cash dividend, the firm used the \$4.8 million of excess funds to purchase shares at slightly over the current market value of \$88 at a price of \$89.60. How many shares could be repurchased? (Round to the nearest share.)
- e. What would the new earnings per share be under the stock repurchase alternative? (Round to three places to the right of the decimal point.)
- f. If the P/E ratio stayed the same under the stock repurchase alternative, what would be the stock value per share? If a stockholder owned 100 shares, what would now be the total value of his portfolio? (This answer should be approximately the same as the answer to part c.)

**WEB EXERCISE**

Oracle was referred to as a profitable, rapid-growth company in this chapter. This presumably justifies the firm not paying a cash dividend, but a stock dividend instead. Go to its Web site, [www.oracle.com](http://www.oracle.com), and follow the steps below:

- 1. Click on "Investors."
- 2. Click on "Detailed Financials" under "Investor Relations."

3. Select the most recent full year.
4. Scroll down and use the data to compute the following ratios for the most recent year, and compare them to the stock analysts' target numbers for the company.

	Target
a. Net income/Total revenue . . . . .	12%
b. Operating income/Total revenue . . . . .	25%
c. Cost of services/Total revenue (the lower the better) . . . . .	40%
d. Provision for income taxes/Income before provision for income taxes (the lower the better) . . . . .	32%

5. Write a one-paragraph summary about Oracle's ability to beat the analysts' targets in step 4. Do not automatically assume the firm will be able to beat the target numbers as Oracle is in a highly competitive environment. Some years it will beat the target numbers and other years it will not.

*Note:* From time to time, companies redesign their Web sites and occasionally a topic we have listed may have been deleted, updated, or moved into a different location. If you click on the site map or site index, you will be introduced to a table of contents which should aid you in finding the topic you are looking for.

## S & P P R O B L E M S

[www.mhhe.com/edumarketinsight](http://www.mhhe.com/edumarketinsight)

1. Log onto the S&P Market Insight Web site, [www.mhhe.com/edumarketinsight](http://www.mhhe.com/edumarketinsight).
2. Click on "Company," which is the first box below the Market Insight title.
3. Type the ExxonMobil ticker symbol "XOM" in the box and click on Go.
4. Scroll down the left margin and click on "Stock Reports" and then after the window reopens, click on the stock report on the first line.
5. Look at the quarterly dividends on the bottom right corner of the first page of the report. Notice the dividend payment process. Quarterly earnings statements and dividend payments are relatively consistent from year to year. Given the time of year right now, estimate when the next dividend will be declared, the exdividend date, the stockholder of record date, and the actual payment date.
6. Scroll down to the bottom of the second page and find the per share data section at the top of the 10-year table. If you were a stockholder, would you expect a higher or lower dividend in the next period or do you expect the dividend to stay the same? Why?
7. In the same section, examine the payout ratio over the 10-year time period. What is the payment pattern? Make an educated guess as to why the dividend payout ratio follows the pattern that it does.
8. Now repeat the exercise using Adobe Systems (ADBE).
9. What can you say about the dividend life cycle that might explain the difference between these two companies' dividend policies?

**STANDARD  
& POOR'S**