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# 15

## Common Stock

*“Where your treasure is, there will your heart be also.”*

*—Matthew 6:21*

### Vonage Tanks after Its IPO

Vonage Holdings Corporation issued 31.2 million shares of common stock on May 24, 2006, in its initial public offering (IPO). The issue price was \$17 per share. The price of this stock dropped by 30% on the first day of public trading.

Vonage is a provider of telephone service over the Internet. It uses VOIP (voice over Internet protocol) to deliver its service. The company likes to tout its lower cost telephone service but the company was surely not happy that the stock market viewed its common stock as cheap. The investment bankers involved in the underwriting of this new stock issue include Deutsche Bank Securities, Citigroup Global Markets, and UBS Securities.

Usually, stock sold in an initial public offering goes up in price when it begins trading in the stock market. As we see here, this is not always the case. Investors often try to get access to new shares from the investment bankers in an attempt to make a quick buck. As we can see here, you should be careful what you ask for. In this chapter we examine the use of common stock as a source of capital for a firm.

Sources: <http://www.macworld.com/news/2006/06/05/vonage/index.php?lsrc=mwrss,6/11/06>; <http://www.internetnews.com/bus-news/article.php/3611221,6/11/06>.

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## Chapter Overview

In this chapter we explore the characteristics and types of common stock, types of common stock owners, and the pros and cons of issuing stock to raise capital. Then we investigate how firms issue common stock. Finally, we examine rights and warrants, and their risk and return features.

## The Characteristics of Common Stock

As we learned in Chapter 2, **common stock** is a security that represents an equity claim on a firm. Having an equity claim means that the one holding the security (the common stockholder) is an owner of the firm, has voting rights, and has a claim on the residual income of the firm. **Residual income** is income left over after other claimants of the firm have been paid. Residual income can be paid out in the form of a cash dividend to common stockholders, or it can be reinvested in the firm. Reinvesting this residual income increases the market value of the common stock due to the new assets acquired or liabilities reduced.

Corporations sometimes have different classes of stockholders. For example, a corporation's charter may provide for a certain class of stockholders to have greater voting rights than other classes. Or one class of stock may receive its dividends based on the performance of only a certain part of the company.

### Learning Objectives

After reading this chapter, you should be able to:

1. Describe the characteristics of common stock.
2. Explain the disadvantages and advantages of equity financing.
3. Explain the process of issuing new common stock.
4. Describe the features of rights and warrants.



**Figure 15-1** Stock Certificate for 288 Shares of Central Jersey Bancorp Common Stock

Google, for example, has two different classes of stock. Class A shares are owned by the general public and have one vote for each share. Class B shares, available to the founders and top executives of the company, have ten votes per share. (There is no consistent standard about which designation, A or B, has the greater voting rights and which designation the lesser.)

A relatively new special class of stock is sometimes created when a company that has long been in one line of business expands into a new, often riskier line. The company will then issue a new class of common stock that represents a claim only on the new business. This stock is called **target stock** because its value is targeted toward specific (nontraditional) assets. In 1995, for example, Qwest Communications International (one of the Baby Bells spun off in the AT&T divestiture) issued target stock to finance its venture in cellular, cable, and other nontelephone businesses. The idea is that a different kind of stockholder is likely to be attracted to the newer, nontraditional businesses than the stockholder interested in “plain old telephone service” (POTS).

All classes of stock have values that are determined when those stocks are traded from one investor to another at the various stock exchanges and in the over-the-counter market, as was described in Chapter 2. The market takes into account the characteristics of a given class and values each class accordingly. Figure 15-1 shows a certificate of ownership for 288 shares of the common stock of Central Jersey Bancorp.

Common stockholders are paid dividends determined by the ability and willingness of the firm to pay. This dividend decision is made by the board of directors of the corporation. Residual income not paid out to the common stockholders in the form of dividends is reinvested in the firm. It benefits the common stockholders there as well (because they are the owners of the corporation).

All corporations issue stock reflecting the owners’ claims. But some corporations are privately owned, whereas others are owned by members of the general public. The rules for private and public corporations differ, as we see next.



### Interactive Module

Go to Downloadable Companion Material, chapter 15. Follow the instructions there. See how stockholders exercise their control over a company.

## Stock Issued by Private Corporations

**Private corporations** (also known as closely held corporations) are so called because their common stock is not traded openly in the marketplace. Private corporations do not report financial information to the government through the Securities and Exchange Commission. (Tax returns, of course, are filed with the IRS, but this information is confidential.) Privately held corporations are usually small, and the stockholders are often actively involved in the management of the firm. The corporate form of organization is attractive to many small firms because the owners face only limited liability.

## Stock Issued by Publicly Traded Corporations

AT&T. McDonald's. Motorola. These are just some examples of well-known publicly traded corporations. A **publicly traded corporation** is a corporation whose common stock can be bought by any interested party and that must release audited financial statements to the public. It is typically run by a professional management team, which likely owns only a tiny fraction of the outstanding shares of common stock.

The professional management team that handles the operations of the firm reports to a group called the **board of directors**. The board of directors, in turn, is elected by the common stockholders to represent their interests. The board is an especially important body for large public corporations because management typically owns such a small percentage of the firm. The agency problem discussed in Chapter 1 described the conflict of interest that can occur when those who run a firm own very little of it. The common stockholders elect the board members, and the board members oversee the management of the company.

Members of the board of directors have a fiduciary responsibility to the common stockholders who elected them. **Fiduciary responsibility** is the legal duty to act in the best interests of the person who entrusted you with property or power. When stockholders elect board members to represent them, they entrust the board members with the management of their company. Those board members owe it to common stockholders to act in the common stockholders' interest. Stockholders may vote directly on some major issues, such as a proposal to merge or liquidate the company.

## Institutional Ownership of Common Stock

Much of the common stock of publicly traded corporations is owned by **institutional investors**—financial institutions that invest in the securities of other companies. Money management firms handling pension fund money, bank trust departments, insurance companies, mutual funds, and the like are major common stockholders. The link between ownership and control is likely to be a loose one in such cases because the individual shareholder is several layers away from the corporation. For instance, a worker may have a claim on a pension fund that is managed by a money management firm that has invested funds in another company's common stock.

In recent years many institutional investors have begun to take a more active role in overseeing the companies in which they own common stock. Institutional investors usually have substantial amounts of funds, so they can buy a large number of shares of stock and become major shareholders. As a result, they can exercise more control than widely dispersed individual investors. Fidelity Investments, for example, a large mutual fund company, has been seeking seats on the board of directors of companies in which Fidelity is a major shareholder.

In this section, we investigated common stock characteristics, including classes of stock for stock issued by private and public corporations. We also looked at institutional ownership of common stock. Next, we examine the voting rights of common stockholders.

## Voting Rights of Common Stockholders

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Common stockholders have power to vote according to the number of shares they own. The general rule is “one vote per share.” A stockholder or stockholder group holding more than 50 percent of the voting shares has a majority interest in the firm. The stockholder or group of stockholders that owns enough voting shares to control the board and operations of the firm has a controlling interest in the firm. The stockholder or stockholder group gains control when it elects a majority of its supporters to the board of directors.

In practice, a group can gain control with much less than 50 percent of the voting shares. This can happen if the remaining voting shares are widely distributed among many thousands of stockholders (each of whom owns a tiny percentage of the outstanding voting shares) who do not act in concert with each other. Many firms are controlled by groups of common stockholders owning as little as 5 percent or 10 percent of the voting shares, sometimes less.

### Proxies

In large publicly traded corporations, the typical shareholder is likely to be uninterested in the details of the company’s operations. It is not worth going to the stockholders’ meeting in another part of the country if you hold only a few hundred shares. Such stockholders will typically allow others to vote their shares for them by proxy. This means that another group—usually the management of the company, but sometimes a group opposing management—will vote the shares for the stockholder who has given his or her proxy.

To give permission to another to vote your shares, you sign a card sent out by the group seeking this permission. In contested votes, in which several competing groups may solicit shareholder proxies, each group may send out a card of a different color.

### Board of Directors Elections

Corporate elections typically use one of two different sets of voting rules to fill seats on the board of directors. These are majority voting and cumulative voting rules. Under majority voting rules, a given number of seats are to be filled in a given election. The number of voting shares held, plus proxy votes held, represents the number of votes a person may cast for a given candidate. If multiple seats are contested—say, for example, five—then the five candidates receiving the most votes are awarded seats on the board. The person receiving the greatest number of votes wins that seat. With majority voting, whoever controls the majority of the votes will get their candidates elected to every seat to be filled.

Under cumulative voting rules, the votes cast by a given stockholder may be allocated differently among different candidates for the board. If there are five seats to be filled in the election, the top five vote getters among all the candidates win those seats. Votes are cast—one vote per share times the number of seats being contested—for as many or as few candidates as a voter wishes. For example, if there were five seats to be filled with cumulative voting rules, and if a person were voting 100 shares, that shareholder would cast 500 votes that could be allocated to one, two, three, four, or five board candidates. This means that stockholders with shares and proxies for less than a

majority of the number of voting shares can “accumulate” their votes by casting them all for only a few candidates (even casting all votes for one candidate).

Cumulative voting makes it more likely that those shareholders with less than a majority of the voting shares will get some representation on the board. With majority voting rules, minority stockholders would get outvoted by the majority stockholders in each of these separate elections.

Suppose Burgerworld Corporation has a ten-member board, and terms for three of the ten members are expiring. The firm uses cumulative voting rules. Seven candidates are competing for the right to fill these three seats. There are 100,000 voting shares of common stock outstanding for Burgerworld. This means that 300,000 total votes will be cast (100,000 shares  $\times$  3 contested seats = 300,000 total votes).

The stockholders are divided into two camps of differing corporate management philosophy. The majority group controls 60 percent of the voting shares, whereas the minority group of common stockholders controls the other 40 percent. One of the seven candidates was nominated by the minority group. The minority stockholder group knows that with only 40 percent of the votes, they have no hope of winning two or three of the three seats contested. Does the minority group of stockholders have enough voting power to get their one candidate on the board?

The majority stockholders would like to get three of their people elected to the three seats available. If they want to succeed, they will have to spread their 180,000 votes (60 percent of 300,000) among their three favorite candidates. Spreading the votes evenly among their preferred candidates, each candidate supported by the majority group would receive 60,000 votes (180,000  $\div$  3 = 60,000). If the minority stockholders cast all their votes for their candidate, that person will receive 120,000 (300,000 total – 180,000 majority votes = 120,000 minority votes) votes and win a seat on the board.

The formula for determining the number of directors that a stockholder group could elect, given the number of voting shares they control, is shown next in Equation 15-1.

#### The Number of Directors Who Can Be Elected under Cumulative Voting Rules

$$\text{NUM DIR} = \frac{(\text{SHARES CONTROLLED} - 1) \text{ ¥ } (\text{TOT NUM DIR T.B.E.} + 1)}{\text{TOT NUM VOTING SHARES}} \quad (15-1)$$

where: NUM DIR = Number of directors who can be elected by a given group

SHARES CONTROLLED = The number of voting shares controlled by a given group

TOT NUM DIR T.B.E. = Total number of directors to be elected

TOT NUM VOTING SHARES = Total number of voting shares in the election

Using the number of shares owned by the minority stockholders described in our Burgerworld example (40,000 of 100,000 shares outstanding), we can calculate the number of directors that this minority group could elect. Recall that the number of directors to be elected is three. The calculations follow:

$$\begin{aligned} \text{NUM DIR} &= \frac{(40,000 - 1) \text{ ¥ } (3 + 1)}{100,000} \\ &= 1.60 \end{aligned}$$



This group can elect one of their people to the board out of the three to be elected. Note that we rounded down to get the answer. Because people cannot be divided, the minority group can't elect .6 (60 percent) of a person to the board.

The formula for determining the number of shares needed by a given group to elect a given number of directors is shown next in Equation 15-2.

The Number of Shares Needed to Elect a Given  
Number of Directors under Cumulative Voting Rules

$$\text{NUM VOTING SHARES NEEDED} = \frac{\text{NUM DIR DESIRED} \times \text{TOT NUM VOTING SHARES}}{\text{TOT NUM DIR T.B.E.} + 1} + 1 \quad (15-2)$$

where: NUM DIR DESIRED = Number of directors a given group of stockholders desires to elect

TOT NUM VOTING SHARES = Total number of voting shares in the election

TOT NUM DIR T.B.E. = Total number of directors to be elected in the election

For example, to calculate the number of voting shares needed to elect two of the three directors in the election described earlier, we could plug in the appropriate numbers into Equation 15-2. The calculation is shown next:

$$\begin{aligned} \text{NUM VOTING SHARES NEEDED} &= \frac{2 \times 100,000}{3 + 1} + 1 \\ &= 50,001 \end{aligned}$$

We find that a group would need control of 50,001 voting shares to guarantee the election of two of the three directors in this election. This number is equivalent to 150,003 votes spread evenly between two director candidates. This would be 75,001.5 votes per candidate (50,001 voting shares  $\times$  3 total directors to be elected  $\div$  2 directors sought to be elected). The other shareholders, holding 49,999 voting shares, would have the remaining 149,997 votes (49,999 voting shares  $\times$  3 total directors to be elected). If these 149,997 votes were divided between two candidates, that would be only 74,998.5 votes per candidate.

In this section, we reviewed the voting rights of common stockholders. We examine the advantages and disadvantages of equity financing next.

## The Pros and Cons of Equity Financing

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Selling new common stock has advantages and disadvantages for a corporation. Some disadvantages include dilution of power and earnings per share of existing stockholders, flotation costs, and possible unfavorable market perceptions about the firm's financial prospects. The advantages of a new stock issue include additional capital for the firm, lower risk, and the potential to borrow more in the future.

## Disadvantages of Equity Financing

Selling new common stock is like taking in new partners (although we are referring to a corporation rather than to a partnership). When you sell new common stock, you must share the profits and the power with the new stockholders. When new common stock is issued, the ownership position of the existing common stockholders is diluted because the number of shares outstanding increases.

The dilution may result in a lower earnings per share for a profitable company. Losses, of course, would be shared, too, resulting in a lower negative earnings per share figure for a money-losing company. The voting power of the existing common stockholders would also be diluted. Firms concerned with losing control through diluted voting power, often avoid raising funds through a stock issue.

Also, when new common stock is sold, flotation costs are incurred. As we discussed in Chapter 9, **flotation costs** are fees paid to investment bankers, lawyers, and others when new securities are issued. The flotation costs associated with new common stock issues are normally much higher than those associated with debt.

Another reason that common stock issues are often a last resort for many corporations is because of signaling effects. **Signaling** is a message a firm sends, or investors infer, about a financial decision.

It is reasonable to suggest that the internal corporate managers have better insight about a firm's future business prospects than the average outside investor. If we accept this proposition as true, then we would not expect a company to sell additional shares of common stock to the general public unless its managers know that the future prospects for the company are worse than is generally believed. How do we know this? Equity financing is expensive and often used as a last resort. The inference drawn by investors who agree with this view is that a corporation issuing new stock wants more "partners" with whom to share future bad times. A company that expected good times would attempt to preserve the benefits for the current owners alone. Instead of issuing new stock, then, the firm would issue more debt securities.

Management may issue new common stock even though the future financial prospects for the firm are bright. However, if the market believes otherwise, the price of the common stock will drop when the new common stock is issued.

## Advantages of Equity Financing

Why would any corporation issue new stock? One big reason is that corporations do not pay interest (and are not legally obligated to pay any dividends) to common stockholders. Unlike interest payments on debt, dividends can be skipped without incurring legal penalties. Interest payments on debt reduce a firm's earnings, whereas dividend payments to stockholders do not.

Some firms choose equity financing because they do not like borrowing. Some business people view being "in debt" as undesirable. They avoid it if possible and pay off unavoidable debts as soon as possible. Companies whose managers and owners hold this view will tend to favor equity financing.

A final reason that firms choose equity instead of debt financing is that the firm may have so much debt that borrowing more may be difficult or too expensive. Suppose, for example, that the "normal" ratio of debt to assets in your firm's industry is 20 percent, and your firm's debt to assets ratio is 40 percent. If this is the case, lenders may be reluctant to lend your firm any more money at an affordable interest rate; your firm

might be forced to issue stock to raise funds. In this situation a new stock issue could bring the firm's debt ratios down to more normal industry levels. This would make it easier for the firm to borrow in the future.

In this section we described the pros and cons of a new stock issue. We turn to the process of issuing common stock next.

## Issuing Common Stock

When a firm wishes to raise new equity capital, it must first decide whether to try to raise the capital from the firm's existing stockholders or to seek new investors. Private companies usually raise additional equity capital by selling new shares to existing common stockholders. This generally satisfies these stockholders because they continue to exercise complete control over the firm. However, when a large amount of equity capital must be raised, the existing stockholders may find that their only recourse is to sell shares of the firm's stock to the general public. A firm that sells its private shares of stock to the general public "goes public." The issuance of common stock to the public for the first time is known as an **initial public offering (IPO)**. Figure 15-2 describes the VeraSun Energy Corporation IPO.

Institutional investors are major buyers of new equity issues. Investment bankers who try to sell initial shares typically prefer to sell large blocks of shares to institutional investors, as opposed to selling many small blocks of shares to individual investors. The institutional investors do well because a new issue is generally sold for 10 percent to 20 percent below value to ensure that the new shares are sold.

### The Function of Investment Bankers

When a corporation does decide to sell stock to the public, its first step is to contact an investment bank to handle the issue. Some of the names of investment banking firms that a corporation might contact would include J.P. Morgan, Morgan Stanley Dean Witter, Merrill Lynch, Goldman Sachs, and Credit Suisse First Boston, to mention only a few.


Investment bankers handle all the details associated with pricing the stock and marketing it to the public. A potential investor in a new security must be given a prospectus. A **prospectus** is a disclosure document that describes the security and the

**Figure 15-2** IPO of VeraSun Energy Corporation

In June 2006 VeraSun Energy Corporation, the second largest producer of ethanol in the United States, went public by offering 18.3 million shares of common stock at \$23 a share. The company trades on the New York Stock Exchange with the ticker symbol VSE. Morgan Stanley and Lehman Brothers were the lead managers

for the IPO. The company planned to use the proceeds from the IPO to significantly expand its production of ethanol, which is used as a gasoline additive. Investors were apparently eager to buy the stock, as its price instantly went to \$28 when the market opened, and it finished the trading day at \$30, up 30% from its initial offering price.

5,462,00 Shares



**Common Stock**  
(par value \$0.001 per share)

—————  
**Price \$17 Per Share**  
—————

Upon request, a copy of the Prospectus describing these securities and the business of the Company may be obtained within any State from any Underwriter who may legally distribute it within such State. The securities are offered only by means of the Prospectus and this announcement is neither an offer to sell nor solicitation of an offer to buy.

**Goldman, Sachs & Co.**

**Donaldson, Lufkin & Jenrette**

**Hambrecht & Quist**

**BancBost Robertson Stephens Inc. BT Alex, BrownEveren Securities, Inc.**

**Merrill Lynch & Co. Dain Rauscher Wessels E\* Trade Securities**  
a division of Dain Rauscher Incorporated

**Edward D. Jones & Co., L.P. Needham & Company, Inc.**

**Sutro & Co. Incorporated Tucker Anthony Volpe Brown Whelan & Company**  
Incorporated

**Figure 15-3**  
Tombstone Ad for  
Geocities Corporation  
Common Stock

issuing company. Investment bankers typically announce a new issue and the availability of the prospectus in a large boxed-in ad called a tombstone ad. It is so named because the large box with large print identifying the new issue looks like a tombstone. Figure 15-3 shows a tombstone ad for 5,462,500 shares of Geocities Corporation common stock.

**Underwriting versus Best Efforts** Investment bankers take on the job of marketing a firm's stock to the public on one of two bases: underwriting or best efforts. When an investment banker underwrites a stock issue, it means the investment banker agrees to

buy a certain number of shares from the issuing company at a certain price. Usually, a group of investment bankers will form a temporary alliance called a syndicate when underwriting a new security issue. The head of the investment banking syndicate is known as the manager. The manager has the primary responsibility for advising the security issuer. Extra fees are collected for this advice. It is up to the syndicate to sell the shares to the public at whatever price it can get. An underwriting poses the least risk to the firm whose stock is being issued. This is because the firm gets the stock issue proceeds from the investment bankers all at once, up front. However, because the investment bankers bear the risk that they might not be able to sell the firm's shares at the price they expect, they charge a rather substantial fee for underwriting.

A cheaper alternative to underwriting is called a *best efforts offering*. In this arrangement, the investment banker agrees to use its "best efforts" to sell the issuing company's shares at the desired price, but it makes no firm promises to do so. If the shares can only be sold at a lower price than was expected, then the issuing firm must either issue more shares to make up the difference or be satisfied with lower proceeds from the stock issue. Not surprisingly, the fees investment bankers charge for marketing stock on a best efforts basis are considerably less than those they charge for underwriting.

### Pricing New Issues of Stock

When new shares of stock in a company are to be sold to the public, someone must decide at what price to offer them for sale. This is not a significant problem when the company's shares are already publicly traded. The new shares are simply sold at the same price as the old shares, or perhaps a little lower.<sup>1</sup> However, if the company is going public, there is no previous market activity to establish what the shares are worth. In this situation the investment banker, in conjunction with the issuing company's managers, must put a price on the shares and hope that the market will agree that the price represents fair value. This is a daunting task indeed, and frequently investment bankers and firm managers miss the mark. Often an IPO stock will fluctuate wildly in price after it is issued. Table 15-1 shows five initial public offerings and stock prices after the IPO.

The figures in Table 15-1 show the differing fortunes of these five new public offering stocks.

**Valuing the Stock of a Company That Is Not Publicly Traded** Before investment bankers offer a company's stock for sale to the public, they must have some idea of how the public will value the stock to predict the new issue market price. The trouble is, when a company's stock has not been sold to anyone before, it is perilously difficult to say how much it is worth.

Suppose you have been creating oil paintings for a few years and have become pretty good at it. One day the art club you belong to has a show, and one of your paintings is included. When you deliver the painting to the gallery, you are asked what sale price you wish posted on the painting. Now you face the same question firms and investment bankers face. How much is the painting worth? How much can you get for it?

Naturally, you want to sell the painting for as high a price as possible, but the potential buyers want to pay as low a price as possible. If you post too high an asking price, no one will buy your painting and you will leave empty handed. If you post too low a price, however, someone will snatch it up and may well resell it to someone else

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<sup>1</sup>There is usually a little dilution (downward movement) in the price of a company's common stock when new shares are sold.

**Table 15-1** Recent Prices of Five Initial Public Offerings (IPOs)

IPO Date	Stock	Initial Price	Price on June 16, 2006
June 2006	VeraSun Energy Corporation	\$ 23	\$25.25
May 2006	Vonage Holdings Corporation	\$17	\$ 9.60
May 2006	Corel Corporation	\$16	\$11.06
May 2006	Burger King Holdings, Inc.	\$17	\$17.40
March 2006	Sealy Corp	\$16	\$12.44

Sources: Gaskins ipo desktop.com (<http://gaskinsco.com>), Hoover's ([www.hoovers.com](http://www.hoovers.com)), Yahoo.com (<http://finance.yahoo.com>)

for a substantial profit. You can see that if you had previously sold a number of similar paintings you would have an idea of what to ask for this one. The first painting you try to sell is the one that presents the pricing problem.

In Chapter 12, we presented some of the methods that companies and investment bankers use to estimate the market value of a company's stock. These methods include calculating the present value of expected cash flows, multiplying earnings per share by the appropriate P/E ratio, the book value approach, and the liquidation value approach.

## Rights and Warrants

Rights and warrants are securities issued by a corporation that allow investors to buy new common stock. They originate in different ways and have somewhat different characteristics, as explained in the following sections.

### Preemptive Rights

When some companies plan to issue new stock, they establish procedures to protect the ownership interest of the original stockholders. The existing stockholders are given securities that allow them to preempt other investors in the purchase of new shares. This security is called a preemptive right. A **preemptive right**, sometimes referred to simply as a *right*, gives the holder the option to buy additional shares of common stock at a specified price (the *subscription price*) until a given expiration date. Current stockholders who do not wish to exercise their rights can sell them in the open market.

**The Number of Rights Required to Buy a New Share** Suppose that Right Stuff Corporation has 100,000 shares of common stock currently outstanding. An additional 20,000 shares of common stock are to be sold to existing shareholders by means of a rights offering. Because one right is sent out to existing shareholders for each share held, 100,000 rights must be sent out. There are five shares of common stock outstanding for each new share to be sold ( $100,000/20,000 = 5$ ). Five rights are therefore needed, along with the payment of the subscription price, to purchase a new share of common stock through the rights offering.

**The Value of a Right** We know that five rights are required to buy a new share of Right Stuff Corporation's common stock through the rights offering. To determine the value of each right, we must also know the subscription price and the market price of Right Stuff's common stock.

This information, along with our knowledge of the number of rights required to buy a new share, will allow us to estimate the value of one of these rights.<sup>2</sup>

Suppose that the current market price of Right Stuff Corporation's common stock is \$65 and that the subscription price is set at \$50. This means that you are saving \$15 ( $\$65 - \$50 = \$15$ ) when you send in your five rights to receive one of the new shares (known as "exercising your rights"). This means that each right would be worth \$3 ( $\$15 \div 5 = \$3$ ) before dilution effects are considered.

The approximate value of a right can be determined by two formulas. The formula used depends on the status of the stock as it trades in the marketplace, relative to the timing of the issuance of the rights. Timing is the key to determining which approximation formula to use.

Rights are generally sent out several weeks after the announcement of the rights offering is made. This initial period is called the **rights-on** period, and the stock is said to *trade rights-on* during this time. This means that if the common stock is purchased during the rights-on period, the investor will receive the forthcoming rights.

At the opening of trading on the day following the rights-on period, the stock is said to be trading **ex-rights**. This means that the purchaser buys the stock without (*ex* is Latin for "without") receiving the entitlement to the preemptive rights if the purchase is on or after the ex-rights date.

*Trading Rights-On* If the stock is trading rights-on, then we calculate the approximate market value of the right as depicted in Equation 15-3:

Approximate Value of a Right, Stock Trading Rights-On

$$R = \frac{M_0 - S}{N + 1} \quad (15-3)$$

where: R = Approximate market value of a right

$M_0$  = Market price of the common stock, selling rights-on

S = Subscription price

N = Number of rights needed to purchase one of the new shares of common stock

We call R the approximate market value of the right because rights are securities that can be traded just like stock and bonds. Once the rights are sent to the existing common stockholders (those who bought the stock before it "went ex-rights"), the rights can be traded in the marketplace at the option of the owner. The actual market price of the right may be slightly different than shown in the formulas presented here because of the option characteristics of the rights, which are discussed later.

<sup>2</sup>The actual pricing of a right is somewhat more complicated than what we are presenting here. A right is an option to buy the new stock at the specified subscription price. Option pricing is discussed in the following section on warrants. The rights valuation presented here should be considered an approximation only.

**Table 15-2** Right Valuation with Stock Selling Rights-On

M0, Market Price of the Common Stock, Rights-On	\$65
S, Subscription Price	\$50
N, Number of Rights Required to Purchase One New Share	5
R, Approximate Market Price of One Right:	$R = \frac{\$65 - \$50}{5 + 1}$ $= \frac{\$15}{6}$ $= \$2.50$

Table 15-2 shows the calculation of the approximate market value of a Right Stuff Corporation right. This is the value of the right as determined by the rights-on formula, Equation 15-3.

We see from the calculations in Table 15-2 that the market value of the Right Stuff right is \$2.50, given a market price of common stock of \$65, a subscription price of \$50, and five rights required to purchase one new share.

*Selling Ex-Rights* To find the approximate value of the right when the stock is selling ex-rights, the ex-rights formula must be used. This formula is presented as follows in Equation 15-4:

Approximate Value of a Right, Stock Trading Ex-Rights

$$R = \frac{M_x - S}{N} \quad (15-4)$$

where: R = Approximate market value of a right

$M_x$  = Market price of the common stock, selling ex-rights

S = Subscription price

N = Number of rights needed to purchase one of the new shares of common stock

When the common stock begins trading ex-rights, the entitlement to the forthcoming rights is lost. Thus, the price of the common stock in the marketplace will drop by the value of the right now lost on the ex-rights date (other factors held constant).

Suppose Right Stuff Corporation common stock begins selling ex-rights today. When the opening bell rings on the exchange, the price of Right Stuff common stock will drop by the amount of the value of the right that has been lost. Holding other factors constant (no news overnight to otherwise affect the value of the common stock), the price of the common stock will drop by \$2.50 from \$65 to \$62.50.

Table 15-3 shows the calculation of the approximate market value of the right when the common stock is selling ex-rights, using Equation 15-4.

When the common stock is selling ex-rights, Equation 15-4 gives the approximate market value of a right. The equation reflects the loss of the entitlement of the rights, \$2.50 in our example.



**Table 15-3** Right Valuation with Stock Selling Ex-Rights

Mx, Market Price of the Common Stock, Ex-Rights	\$62.50
S, Subscription Price	\$50
N, Number of Rights Required to Purchase One New Share	5
R, Approximate Market Price of One Right:	$R = \frac{\$62.50 - \$50}{5}$
	$= \frac{\$12.50}{5}$
	$= \$2.50$

### Warrants

A **warrant** is a security that gives its owner the option to buy a certain number of shares of common stock from the issuing company, at a certain exercise price, until a specified expiration date. The corporation benefits from issuing warrants because the issue raises funds. It also creates the possibility of a future increase in the company's number of common stock shares. The investor values warrants because of the option to buy the company's stock.

Warrants are similar to rights except they are sold to investors instead of given away to existing shareholders. They typically have longer maturities than rights and are often issued with bonds as part of a security package.

**Warrant Valuation** Warrants have value only until the expiration date, at which time they become worthless. Before a warrant expires, its value depends on how the price of the common stock compares to the warrant's exercise price—the price the firm sets for exercising the right to buy common stock shares—and on other factors, described next.

To value warrants, investors must be able to find the exercise value. The exercise value is the amount saved by purchasing the common stock by exercising the warrant rather than buying the common stock directly in the open market. If there is no saving, the exercise value is zero.

The formula for calculating the exercise value of a warrant is described in Equation 15-5 as follows:

#### The Exercise Value of a Warrant

$$XV = (M - XP) \times \# \quad (15-5)$$

where: XV = Exercise value of a warrant

M = Market price of the stock

XP = Exercise price of a warrant

# = Number of shares that may be purchased if the warrant is exercised

Suppose that the McGuffin Corporation warrant entitles the investor to purchase four shares of common stock, at an exercise price of \$50 per share, during the next three years. If the current common stock price is \$60, the exercise value according to Equation 15-5 follows:

$$\begin{aligned}XV &= (M - XP) \times \# \\ &= (\$60 - \$50) \times 4 \\ &= \$40\end{aligned}$$

Our calculations show that the exercise value is \$40.

If the market price of the common stock price were \$50 or less, the exercise value of the warrant would be zero. This is because you would have an option to buy the common stock at a price that is no better than the regular market price of the stock. You would have no reason to exercise the warrant, and a rational investor would not do so.

Note that the time remaining until the expiration of the warrant does not affect the exercise value. For the McGuffin Corporation warrants, the investor saves \$10/share on four shares of common stock, creating an exercise value of \$40.

As long as there is still time remaining until expiration, the actual market price of a warrant will be greater than the exercise value. The difference between the market price and the exercise value is called the warrant's time value. Warrants have time value because if the price of the common stock goes up, the exercise value increases with leverage and without limit (because of the fixed exercise price). If, on the other hand, the price of the common stock falls, the exercise value cannot dip below zero. Once the common stock price is at or below the exercise price, no further damage can be done to the exercise value.

The exercise value is zero if the common stock price is at or below the exercise value, but it can never be negative. Table 15-4 shows the exercise value for a McGuffin Corporation warrant for different possible stock values.

No matter how much below \$50 the market price of the common stock goes, the exercise value stays at zero. As the stock value goes above \$50, however, the exercise value increases at a much faster rate than the corresponding increase in the stock price. The difference between the potential benefit if the stock price increases (unlimited and leveraged) and the potential loss (limited) is what gives a warrant its time value.

Because of this time value, warrants are seldom exercised until they near maturity, even when the exercise value is high. This is because if a warrant is exercised, only the exercise value is realized. If the warrant is sold to another investor, the seller realizes the exercise value plus the time value. The time value approaches zero as the expiration date nears. A warrant approaching its expiration date, having a positive exercise value, would be exercised by the investor before the value goes to zero on the expiration date.

The greater the volatility of the stock price, and the greater the time to expiration, the greater the market value of the warrant. If the stock price is volatile, the stock price could easily increase. This would give the warrant owner the benefit of an even greater increase due to leverage. If the common stock price decreases, no more than the price paid can be lost. The more time left before expiration, the better the chance for a major stock price change, up or down. Again, the warrant value upside is substantial if the stock price moves up, and the downside potential is limited if the stock price decreases. The asymmetry of the warrant's upside and downside potential gives the warrant greater value.

**Table 15-4** McGuffin Corporation Warrant Exercise Value

Market Price of Common Stock	Exercise Price	Number of Shares	Exercise Value
\$100	\$50	4	\$200
\$ 90	\$50	4	\$160
\$ 80	\$50	4	\$120
\$ 70	\$50	4	\$ 80
\$ 60	\$50	4	\$ 40
\$ 50	\$50	4	\$ 0
\$ 40	\$50	4	\$ 0
\$ 30	\$50	4	\$ 0
\$ 20	\$50	4	\$ 0

Option pricing has many applications in finance. We can apply the principles described here for warrant pricing to certain types of capital budgeting and even common stock valuation. What if a proposed capital budgeting project gives us an option to undertake future projects that are tied to the first? Common stock has unlimited upside price potential, coupled with limited downside risk, just like a warrant. These are issues you may explore further in other finance courses.

## What's Next

In this chapter we examined types and traits of common stock, and the advantages and disadvantages of issuing common stock. We also explored rights and warrants. In Chapter 16, we will look at how a corporation determines the amount of cash dividends to pay and the timing of those dividend payments.

## Summary

1. Describe the characteristics of common stock.

Common stock is a security that represents an ownership claim on a corporation. The shareholders are entitled to the residual income of the firm, resulting in a high-risk position relative to other claimants and a relatively high-return potential. Common stock may come in different classes with different voting rights or dividend payments.

The professional management team that handles the operations of the firm reports to the board of directors. The board of directors, in turn, is elected by the common stockholders to represent their interests. Because the stockholders have entrusted the board to represent their interests, board members have a fiduciary duty to act on stockholders' behalf. Stockholders usually vote according to the number of shares held. The two main types of voting rules are the majority voting rules, under which candidates run for specific seats, and the cumulative voting rules, under which all the candidates run against each other but do not run for a particular seat.

2. Explain the disadvantages and advantages of equity financing.

Disadvantages of equity financing include the dilution of existing shareholder power and control, flotation costs incurred when new common stock is sold, and the negative signal investors often perceive (rightly or wrongly) when new common stock is sold. Equity financing has several advantages. It reduces the risk of a firm because common stockholders, as opposed to debtors, have no contractual entitlement to dividends. Equity financing can also increase the ability to borrow in the future.

3. Explain the process of issuing new common stock.

Once a firm decides that the benefits outweigh the costs of issuing stock, the firm almost always seeks the help of an investment banking firm. The investment banker usually underwrites the new issue, which means that it purchases the entire issue for resale to investors. Sometimes the investment banker will try to find investors for the new common stock without a guarantee to the issuing company that the stock will be sold. This arrangement is known as a best efforts offering.

4. Describe the features of rights and warrants.

Rights are securities given to existing common stockholders that allow them to purchase additional shares of stock at a price below market value. Corporations issue rights to safeguard the power and control of existing shareholders in the event of a new stock issue. Warrants are securities that give the holder the option to buy a certain number of shares of common stock of the issuing company at a certain price for a specified period of time. Warrants have high-return potential because if the stock price increases, the value of the warrant increases at a much higher rate due to leverage. The downside risk of a warrant is limited because the maximum loss potential is the price of the warrant. As a result of the high-return and low-risk potential, warrants have time value that is greatest when the stock price is volatile and the time to maturity is great.

## Equations Introduced in This Chapter

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**Equation 15-1.** The Number of Directors Who Can Be Elected under Cumulative Voting Rules:

$$\text{NUM DIR} = \frac{(\text{SHARES CONTROLLED} - 1) \times (\text{TOT NUM DIR T.B.E.} + 1)}{\text{TOT NUM VOTING SHARES}}$$

where: NUM DIR = Number of directors who can be elected by a given group

SHARES CONTROLLED = The number of voting shares controlled by a given group

TOT NUM DIR T.B.E. = Total number of directors to be elected

TOT NUM VOTING SHARES = Total number of voting shares in the election

**Equation 15-2.** The Number of Shares Needed to Elect a Given Number of Directors under Cumulative Voting Rules:

$$\text{NUM VOTING SHARES NEEDED} = \frac{\text{NUM DIR DESIRED} \times \text{TOT NUM VOTING SHARES}}{\text{TOT NUM DIR T.B.E.} + 1} + 1$$

where: NUM DIR DESIRED = Number of directors a given group of stockholders desires to elect

TOT NUM VOTING SHARES = Total number of voting shares in the election

TOT NUM DIR T.B.E. = Total number of directors to be elected in the election

**Equation 15-3.** Approximate Value of a Right, Stock Trading Rights-On:

$$R = \frac{M_0 - S}{N + 1}$$

where: R = Approximate market value of a right

$M_0$  = Market price of the common stock, selling rights-on

S = Subscription price

N = Number of rights needed to purchase one of the new shares of common stock

**Equation 15-4.** Approximate Value of a Right, Stock Trading Ex-Rights:

$$R = \frac{M_x - S}{N}$$

where: R = Approximate market value of a right

$M_x$  = Market price of the common stock, selling ex-rights

S = Subscription price

N = Number of rights needed to purchase one of the new shares of common stock

**Equation 15-5.** The Exercise Value of a Warrant:

$$XV = (M - XP) \times \#$$

where: XV = Exercise value of a warrant

M = Market price of the stock

XP = Exercise price of a warrant

# = Number of shares that may be purchased if the warrant is exercised

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## Self-Test

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- ST-1.** What is residual income and who has a claim on it?
- ST-2.** Is a new common stock issue usually perceived as a good or bad signal by the market? Explain.
- ST-3.** What does it mean when a company's common stock is said to be trading ex-rights?
- ST-4.** If a company's common stock is selling at \$80 per share and the exercise price is \$60 per share, what would be the exercise value of a warrant that gives its holder the right to buy 10 shares at the exercise price?

## Review Questions

---

1. What are some of the government requirements imposed on a public corporation that are not imposed on a private, closely held corporation?
2. How are the members of the board of directors of a corporation chosen and to whom do these board members owe their primary allegiance?
3. What are the advantages and the disadvantages of a new stock issue?
4. What does an investment banker do when underwriting a new security issue for a corporation?
5. How does a preemptive right protect the interests of existing stockholders?
6. Explain why warrants are rarely exercised unless the time to maturity is small.
7. Under what circumstances is a warrant's value high? Explain.

## Build Your Communication Skills

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- CS-1.** Review a financial publication, such as *The Wall Street Journal*, for a tombstone advertisement. Contact one of the investment banking firms you see listed in a tombstone ad announcing a new issue. Request a prospectus for that new issue. Once you receive the prospectus, write a report describing its key elements and what those elements reveal about the new security and its issuer.
- CS-2.** Research a company that is having a contested stockholder vote. You will find notice of such a vote in business publications, such as *The Wall Street Journal*. Different groups will typically run their own advertisements soliciting proxies so those groups can vote the shares of other stockholders. Analyze the positions of the opposing sides, break into small groups, and debate the direction the company should take on the issue in contention.

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## Problems

### Ownership Claim

- 15-1.** Sonny owns 20,000 shares of common stock in QuickFix Company. The company has 1 million shares of common stock outstanding at a market value of \$50 per share. What percentage of the firm is owned by Sonny? If the company issues 500,000 new shares at \$50 per share to new stockholders, how does Sonny's ownership change?

### Valuation of IPO

- 15-2.** Terence Mann is considering buying some shares of common stock of an initial public offering by NewAge Communications Corporation. The privately held company is going public by issuing 2 million new shares at \$20 per share. Terence gathered the following information about NewAge:

Total assets:	\$200 million (historical cost)
Total liabilities:	\$150 million (market value)
Number of shares retained by pre-IPO owners outstanding	\$ 3 million (5 million shares after IPO)
Estimated liquidation value:	\$250 million
Estimated replacement value of assets:	\$400 million
Expected dividend in one year:	\$ 2 per share
Expected dividend growth rate:	8%

The required rate of return for Terence from a share of common stock for this type of company is 13 percent.

Compare the selling price of the stock with its value as obtained from different valuation methods. Would you recommend that Terence buy the stock?

### Number of Directors

- 15-3.** Danali Corporation has 2,500,000 shares of common stock outstanding. Danali has a 15-member board, and five will leave at the end of this year. There are nine candidates for these five open seats. The minority group of stockholders controls 45 percent of the shares, and the majority group controls the other 55 percent. What is the maximum number of directors who definitely can be elected by each of the following under cumulative voting rules?

- The minority group
- The majority group

### Number of Voting Shares Needed

- 15-4.** Using the information in the previous problem, how many voting shares would be needed to elect the specified directors?
- 1 director
  - 3 directors
  - 5 directors

- 15-5.** Alliances are shifting, and Danali Corporation (described in the previous two problems) now has 35 percent of the voting shares controlled by the minority group and 65 percent by the majority.
- How many directors can now be elected for the minority group?
  - How many voting shares would be needed if the minority group wanted two directors under the revised group breakdown?
- 15-6.** Iowa Corn Corporation has nine board members. Three of these seats are up for election every three years. What is the length of the term served by each board member?
- 15-7.** The stockholders of Blue Sky, Inc. are divided into two camps of different corporate management philosophy. The majority group controls 65 percent and the minority group controls 35 percent of the voting shares. The total number of shares of common stock outstanding is 1 million. The total number of directors to be elected in the near future is four. What is the maximum number of directors the minority group can possibly elect, assuming that the company follows cumulative voting procedures?
- 15-8.** Ms. O’Niel owns 26,000 shares of Tri Star Corporation out of 200,000 shares of common stock outstanding. The board has seven members, and all seven seats are up for election now. Ms. O’Niel has long wanted to serve as a member of the board. Assuming that the company follows cumulative voting procedures, can Ms. O’Niel get herself elected to the board on the strength of her own votes?
- 15-9.** The Rainbow Corporation had traditionally been a constant dollar-dividend paying company, with the board enjoying the support of retired investors holding 65 percent of the voting shares. A dissident group of high-salaried young investors holding 30 percent of the voting shares prefers reinvestment of earnings to save personal taxes and, hence, wants to elect board members supportive of its cause. The company has 600,000 shares of common stock outstanding and the board has 13 members—all to be reelected shortly.
- How many directors can the young stockholders elect under
    - cumulative voting rules?
    - majority voting rules?
  - What percentage of voting shares and/or proxies must the dissident group have to be able to elect 7 out of the 13 board members?
- 15-10.** Fargo Corporation has 500,000 shares of common stock currently outstanding. The company plans to sell 50,000 more shares of common stock to the existing shareholders through a rights offering. How many rights will it take to buy one share?
- 15-11.** A company with 2 million shares of common stock currently outstanding is planning to sell 500,000 new shares to its existing shareholders through a rights issue. Current market price of a share is \$65, and the subscription price is \$55. If the stock is selling rights-on, calculate the value of a right.

 **Number of Directors**

 **Term of Board Members**

 **Cumulative Voting**

 **Cumulative Voting**

 **Dissident Group and Cumulative Voting**

 **Rights Offering**

 **Value of Rights**

**Value of Rights** 

**15-12.** Use the same information given in problem 15-11. Now calculate the value of a right if the stock is selling ex-rights.

**Value of Rights** 

**15-13.** Fillsulate Products, a manufacturer of refractory powders, is about to declare a rights issue. The subscription price is \$65. Seven rights in addition to the subscription price are required to buy one new share of stock. Rights-on market price of the stock is \$77. Calculate the value of one right. Also calculate the new stock price once it goes ex-rights.

**Rights Offering** 

**15-14.** Johnny Rocco owns 700 shares of stock of East-West Tobacco Company, which is offering a rights issue to its existing shareholders. To buy one new share of stock, Johnny will need four rights plus \$60. Rights-on market price of the stock is \$72.

- a. Calculate the value of a right.
- b. What is the maximum number of new shares Johnny can buy?
- c. How much would he have to spend if he decides to buy all the new stock he can?
- d. If he decides not to buy the new stock, how much would he be able to sell his rights for?

**Rights Value (Rights-On)** 

**15-15.** Kelsery Products is planning on selling 300,000 new shares to existing stockholders through a rights issue. The company currently has 1,500,000 outstanding shares at a market price of \$40 and a subscription price of \$25. The stock is selling rights-on. What is the value of one right?

**Rights Value (Ex-Rights)** 

**15-16.** Using the data from problem 15-15, calculate the value of one right if the stock is selling ex-rights.

**Challenge Problem** 

**15-17.** Armand Goldman owns 60 shares of East Asia Shipping Company stock and has \$750 in cash for investment. The company has offered a rights issue in which purchasing a new stock would require four rights plus \$50 in cash. Current market value of the stock is \$62.

- a. Calculate the value of a right if the stock is selling rights-on.
- b. Should Armand participate in the rights offering by buying as many shares as he can, or sell his rights and keep the shares he already owns at a diluted value?

**Warrants** 

**15-18.** The current market price of a share of common stock of SkyHigh, Inc. is \$100. The company had issued warrants earlier to its new bond investors that gave the investors an option to buy five shares of common stock at an exercise price of \$85. Calculate the exercise value of a warrant. What happens to the exercise value of the warrant if the stock price changes to:

- a. \$110?
- b. \$80?

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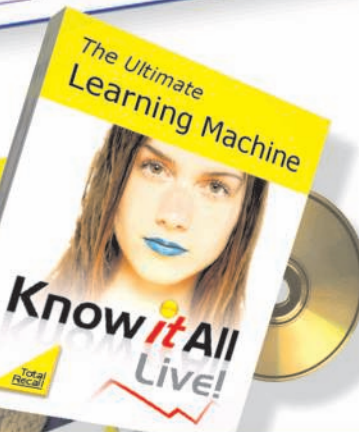
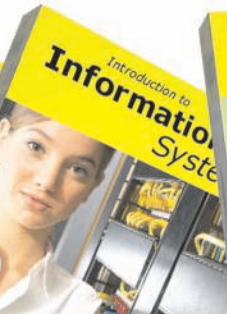
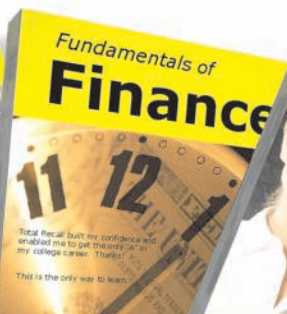


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**15-19.** The current market price of Digicomm's common stock is \$40 per share. The company has 600,000 common shares outstanding. To finance its growing business, the company needs to raise \$2 million. Due to its already high debt ratio, the only way to raise the funds is to sell new common stock. Alvin C. York, the vice president of finance of Digicomm, has decided to go ahead with a rights issue, but he is not sure at what price the existing shareholders would be willing to buy a share of new stock. Digicomm's investment banker has suggested that an analysis based on a wide range of possible prices be carried out, and the subscription prices agreed upon were \$36, \$33, \$29, and \$26 per share of new stock. Digicomm's net income for the year is \$1 million.

Based on the preceding information, Mr. York has asked you to carry out the following analysis:

- a. For each of the possible subscription prices, calculate the number of shares that would have to be issued and the number of rights required to buy one share of new stock.
- b. For each of the possible subscription prices, calculate the earnings per share immediately before and immediately after the rights offering.
- c. Guy Hamilton owns 10,000 shares of Digicomm stock. For each of the possible subscription prices, calculate the maximum number of new shares Guy would be able to buy. Under each of these cases, calculate Guy's total claim to earnings before and after the offering.

 **Comprehensive Problem**



## Answers to Self-Test

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- ST-1.** Residual income is income that is left over after all claimants, except for common stockholders, have been paid. This leftover income belongs to the common stockholders, who receive this income either in the form of a dividend or by having it reinvested in the corporation that they own.
- ST-2.** The market usually infers bad news when new common stock is issued. Investors ask themselves why the current owners would want to share their profits with new owners if management expected good news ahead. The market often infers (rightly or wrongly) that there must be bad news coming that the management of the firm wants to "share" with new stockholders. New stock issued is, therefore, usually perceived as a negative signal.
- ST-3.** A stock is selling ex-rights when the purchase of that stock no longer carries with it entitlement to the rights that are soon to be sent out to stockholders.
- ST-4.**  $(\$80 \text{ stock price} - \$60 \text{ exercise price}) \times 10 \text{ shares purchased per warrant} = \$200 \text{ exercise value of the warrant}$



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