



chapter 19

Initial Public Offerings, Investment Banking, and Financial Restructuring

On any given day, thousands of businesses go to the market to raise capital. Following are some examples of securities sold during August 2006:

1. Aircastle Limited, a firm that leases jets to passenger and cargo airlines, sold 9.0909 million shares of common stock in an initial public offering. It planned to use the proceeds of this issue to repay debt that had been taken on under a senior secured revolving credit facility. Its lead underwriters, JPMorgan Chase & Co., Bear Stearns Cos., and Citigroup Inc., anticipated that the stock could be sold in the range of \$21 to \$23. The actual offering price was \$23.00, and the stock closed on its first day of trading on the NYSE at \$26.60. Although the initial investors paid \$23 per share, Aircastle received only \$21.39—the difference went to the underwriters as a fee for bringing the issue to market. Thus, out of the \$209.091 million paid by investors, Aircastle received about \$194.454 million, and the underwriters and their sales forces received \$14.637 million. Because the stock ended the day \$3.60 higher than the offering price, Aircastle left an additional \$32.727 million “on the table.” The initial investors who bought the stock gained this amount.
2. Leap Wireless International Inc. (the founder of Cricket cellular phone service), already a publicly traded company, announced plans to sell an additional 5.6 million shares of common stock at \$42 per share. It planned to use the proceeds to purchase wireless spectrum soon to be auctioned by the FCC. Goldman, Sachs & Co. and Citigroup were the lead underwriters.
3. Cintas Corp. sold \$250 million of callable 30-year bonds with a 6.15% coupon rate, using KeyBanc as the lead underwriter. The bonds were rated A2 by Moody’s and A by Standard & Poor’s. At the time of the issue, the bonds had a yield spread of 1.2 percentage points above the yield on 30-year U.S. Treasury bonds.

Although these three issues represent just a fraction of the securities issued that month, they do illustrate an initial public offering, an additional stock offering by an already-public company, and a debt offering. After reading this chapter, you should have a better understanding of the procedures these and other firms use to issue securities.

The previous three chapters described how a company makes capital structure and dividend policy decisions. Those decisions affect both the firm's need for new capital and the form or forms in which this capital is raised. We now discuss the actual process of raising capital, including the roles played by investment banks and regulatory agencies.



e-resource

The textbook's Web site contains an *Excel* file that will guide you through the chapter's calculations. The file for this chapter is **FM12 Ch 19 Tool Kit.xls**, and we encourage you to open the file and follow along as you read the chapter.

19.1 The Financial Life Cycle of a Start-up Company

Most businesses begin life as proprietorships or partnerships, and if they become successful and grow, at some point they find it desirable to become corporations. Initially, most corporate stock is owned by the firms' founding managers and key employees. Even start-up firms that are ultimately successful usually begin with negative free cash flows due to their high growth rates and product development costs; hence, they must raise capital during these high-growth years. If the founding owners-managers have invested all of their own financial resources in the company, they must turn to outside sources of capital. Start-up firms generally have high growth opportunities relative to assets-in-place, and they suffer from especially large problems with asymmetric information. Therefore, as we discussed in Chapter 16, they must raise external capital primarily as equity rather than debt.

To protect investors from fraudulent stock issues, in 1933 Congress enacted the Securities Act, which created the **Securities and Exchange Commission (SEC)** to regulate the financial markets.¹ The Securities Act regulates interstate public offerings, which we explain later in this section, but it also provides several exemptions that allow companies to issue securities through **private placements** that are not registered with the SEC. The rules governing these exemptions are quite complex, but in general they restrict the number and type of investors who may participate in an issue. **Accredited investors** include the officers and directors of the company, high-wealth individuals, and institutional investors. In a nonregistered private placement, the company may issue securities to an unlimited number of accredited investors, but to only 35 nonaccredited investors. In addition, none of the investors can sell their securities in the secondary market to the general public.

Corporate Valuation, IPOs, and Financial Restructuring

Companies must make investments in operating capital before they can generate sales, net operating profit after taxes (NOPAT), and free cash flow. Some of these investments can be made from currently

generated NOPAT, but rapid growth generally requires raising additional funds from the marketplace. This chapter explains how companies raise external funds to support their operations.

$$\text{Value} = \frac{\text{FCF}_1}{(1 + \text{WACC})^1} + \frac{\text{FCF}_2}{(1 + \text{WACC})^2} + \frac{\text{FCF}_3}{(1 + \text{WACC})^3} + \cdots + \frac{\text{FCF}_\infty}{(1 + \text{WACC})^\infty}$$

¹In addition to federal statutes, which affect transactions that cross state borders, states have "Blue Sky" laws that regulate securities sold just within the state. These laws were designed to prevent unscrupulous dealers from selling something of little worth, such as blue sky, to naive investors.

For most start-ups, the first round of external financing comes through a private placement of equity to one or two individual investors, called **angels**. In return for a typical investment in the range of \$50,000 to \$400,000, the angels receive stock and perhaps also a seat on the board of directors. Because angels can influence the strategic direction of the company, it is best that they bring experience and industry contacts to the table, not just cash.

As the company grows, its financing requirements may exceed the resources of individual investors, in which case it is likely to turn to a **venture capital fund**. A venture capital fund is a private limited partnership, which typically raises \$30 million to \$80 million from a relatively small group of primarily institutional investors, including pension funds, college endowments, and corporations.² The managers of a venture capital fund, called **venture capitalists**, or **VCs**, are usually very knowledgeable and experienced in a particular industry, such as health care. They screen hundreds of companies, and ultimately fund around a dozen, called **portfolio companies**. The venture fund buys shares of the portfolio companies, and the VCs sit on the companies' boards of directors. The venture capital fund usually has a prespecified life of 7 to 10 years, after which it is dissolved, either by selling the portfolio companies' stock and distributing the proceeds to the funds' investors or by directly distributing the stock to the investors.

SELF-TEST

What is a private placement?

What is an angel?

What is a venture capital fund? A VC?

19.2 The Decision to Go Public: Initial Public Offerings

Going public means selling some of a company's stock to outside investors and then letting the stock trade in public markets. For example, Celanese, Huntsman, Under Armour, Baidu.com, and many other companies took this step in 2005. The advantages and disadvantages of public stock ownership are discussed next.

Advantages of Going Public

1. *Increases liquidity and allows founders to harvest their wealth.* The stock of a private, or closely held, corporation is illiquid. It may be hard for one of the owners who wants to sell some shares to find a ready buyer, and even if a buyer is located, there is no established price on which to base the transaction.
2. *Permits founders to diversify.* As a company grows and becomes more valuable, its founders often have most of their wealth tied up in the company. By selling some of their stock in a public offering, they can diversify their holdings, thereby reducing the riskiness of their personal portfolios.

²The typical venture capital fund is a private limited partnership, with limited partners and a general partner. The limited partners contribute cash but are prohibited from being involved in the partnership's decision making. Because of their limited participation, they are not held liable for any of the partnership's liabilities, except to the extent of their original investment. The general partner usually contributes a relatively modest amount of cash, but acts as the partnership's manager. In return, the general partner normally receives annual compensation equal to 1% to 2% of the fund's assets plus a 20% share of the fund's eventual profits.

3. *Facilitates raising new corporate cash.* If a privately held company wants to raise cash by selling new stock, it must either go to its existing owners, who may not have any money or may not want to put more eggs in this particular basket, or else shop around for wealthy investors. However, it is usually quite difficult to get outsiders to put money into a closely held company, because if the outsiders do not have voting control (more than 50% of the stock), the inside stockholders/managers can take advantage of them. Going public, which brings with it both public disclosure of information and regulation by the SEC, greatly reduces this problem, and thus makes people more willing to invest in the company, which makes it easier for the firm to raise capital.
4. *Establishes a value for the firm.* If a company wants to give incentive stock options to key employees, it is useful to know the exact value of those options, and employees much prefer to own stock, or options on stock, that is publicly traded and therefore liquid. Also, when the owner of a privately owned business dies, state and federal tax appraisers must set a value on the company for estate tax purposes. Often, these appraisers set a higher value than that of a similar publicly traded company.
5. *Facilitates merger negotiations.* Having an established market price helps when a company is either being acquired or seeking to acquire another company where it will pay for the acquisition with stock.
6. *Increases potential markets.* Many companies report that it is easier to sell their products and services to potential customers after they become a publicly traded company.

Disadvantages of Going Public

1. *Cost of reporting.* A publicly owned company must file quarterly and annual reports with the SEC and/or various state agencies. These reports can be a costly burden, especially for small firms. In addition, compliance with Sarbanes-Oxley often requires considerable expense and manpower.
2. *Disclosure.* Management may not like the idea of reporting operating data, because these data will then be available to competitors. Similarly, the owners of the company may not want people to know their net worth, and since a publicly owned company must disclose the number of shares owned by its officers, directors, and major stockholders, it is easy enough for anyone to multiply shares held by price per share to estimate the net worth of the insiders.
3. *Self-dealings.* The owners-managers of closely held companies have many opportunities for various types of questionable but legal self-dealings, including the payment of high salaries, nepotism, personal transactions with the business (such as a leasing arrangement), and not-truly-necessary fringe benefits. Such self-dealings, which are often designed to minimize their personal tax liabilities, are much harder to arrange if a company is publicly owned.
4. *Inactive market/low price.* If the firm is very small, and if its shares are not traded frequently, its stock will not really be liquid, and the market price may not represent the stock's true value. Security analysts and stockbrokers simply will not follow the stock, because there will not be sufficient trading activity to generate enough brokerage commissions to cover the costs of following the stock.
5. *Control.* Because of possible tender offers and proxy fights, the managers of publicly owned firms who do not have voting control must be concerned about maintaining control. Further, there is pressure on such managers to produce annual earnings gains, even when it might be in the shareholders'

best long-term interests to adopt a strategy that reduces short-term earnings but raises them in future years. These factors have led a number of public companies to “go private” in “leveraged buyout” deals where the managers borrow the money to buy out the nonmanagement stockholders. We discuss the decision to go private in a later section.

6. *Investor relations.* Public companies must keep investors abreast of current developments. Many CFOs of newly public firms report that they spend two full days a week talking with investors and analysts.

Conclusions on Going Public

There are no hard-and-fast rules regarding if or when a company should go public. This is an individual decision that should be made on the basis of the company’s and stockholders’ own unique circumstances. If a company does decide to go public, either by selling newly issued stock to raise new capital or by the sale of stock by the current owners, the key issue is setting the price at which shares will be offered to the public. The company and its current owners should want to set the price as high as possible—the higher the offering price, the smaller the fraction of the company the current owners will have to give up to obtain any specified amount of money. On the other hand, potential buyers want the price set as low as possible. We return to the establishment of the offering price later in the chapter, after we describe some other aspects of common stock financing.

SELF-TEST

What are the major advantages of going public?

What are the major disadvantages?

19.3 The Process of Going Public

As the following sections show, the process of going public is a lot more complicated, expensive, and time-consuming than simply making the decision to go public.

Selecting an Investment Bank

After a company decides to go public, it faces the problem of how to sell its stock to a large number of investors. While most companies know how to sell their products, few have experience in selling securities. To help in this process, the company will interview a number of different **investment banks**, also called **underwriters**, and then select one to be the lead underwriter. To understand the factors that affect this choice, it helps to understand exactly what investment banks do.

First, the investment bank helps the firm determine the preliminary offering price, or price range, for the stock and the number of shares to be sold. The investment bank’s reputation and experience in the company’s industry are very important in convincing potential investors to purchase the stock at the offering price. In effect, the investment bank certifies that the stock is not overpriced, which obviously comforts investors. Second, the investment bank actually sells the shares to its existing clients, which include a mix of institutional investors and retail (that is, individual) customers. Third, the investment bank, through its associated brokerage house, will have an analyst “cover” the stock after it is issued. This analyst will regularly distribute reports to investors describing the stock’s prospects,

which will help to maintain an interest in the stock. Well-respected analysts increase the likelihood that there will be a liquid secondary market for the stock and that its price will reflect the company's true value.

The Underwriting Syndicate

The firm and its investment bank must next decide whether the bank will work on a **best efforts basis** or will **underwrite** the issue. In a best efforts sale, the bank does not guarantee that the securities will be sold or that the company will get the cash it needs, only that it will put forth its "best efforts" to sell the issue. On an underwritten issue, the company does get a guarantee, because the bank agrees to buy the entire issue and then resell the stock to its customers. Therefore, the bank bears significant risks in underwritten offerings. For example, on one IBM bond issue, interest rates rose sharply and bond prices fell, after the deal had been set but before the investment banks could sell the bonds to the ultimate purchasers. The banks lost somewhere between \$10 million and \$20 million. Had the offering been on a best efforts basis, IBM would have been the loser.

Except for extremely small issues, virtually all IPOs are underwritten. Investors are required to pay for securities within 10 days, and the investment bank must pay the issuing firm within 4 days of the official commencement of the offering. Typically, the bank sells the stock within a day or two after the offering begins, but on occasion, the bank miscalculates, sets the offering price too high, and thus is unable to move the issue. At other times, the market declines during the offering period, forcing the bank to reduce the price of the stock or bonds. In either instance, on an underwritten offering the firm receives the price that was agreed upon, so the bank must absorb any losses that are incurred.

Because they are exposed to large potential losses, investment banks typically do not handle the purchase and distribution of issues single-handedly unless the issue is a very small one. If the sum of money involved is large, investment banks form **underwriting syndicates** in an effort to minimize the risk each bank faces. The banking house that sets up the deal is called the **lead**, or **managing underwriter**. Syndicated offerings are usually covered by more analysts, which contributes to greater liquidity in the post-IPO secondary market. Thus, syndication provides benefits to both underwriters and issuers.

In addition to the underwriting syndicate, on larger offerings still more investment banks are included in a **selling group**, which handles the distribution of securities to individual investors. The selling group includes all members of the underwriting syndicate plus additional dealers who take relatively small percentages of the total issue from the members of the underwriting syndicate. Thus, the underwriters act as wholesalers, while members of the selling group act as retailers. The number of houses in a selling group depends partly on the size of the issue, but is normally in the range of 10 to 15.

A new selling procedure has recently emerged that takes advantage of the trend toward institutional ownership of stock. In this type of sale, called an **unsyndicated stock offering**, the managing underwriter, acting alone, sells the issue entirely to a group of institutional investors, thus bypassing both retail stockbrokers and individual investors. In recent years, about 50% of all stock sold has been by unsyndicated offerings. Behind this phenomenon is a simple motivating force: money. The fees that issuers pay on a syndicated offering, which include commissions paid to retail brokers, can run a full percentage point higher than those on unsyndicated offerings. Further, although total fees are lower in unsyndicated

offerings, managing underwriters usually come out ahead because they do not have to share the fees with an underwriting syndicate. However, some types of stock do not appeal to institutional investors, so not all firms can use unsyndicated offers.

Regulation of Securities Sales

Sales of new securities, and also sales in the secondary markets, are regulated by the Securities and Exchange Commission and, to a lesser extent, by each of the 50 states. Here are the primary elements of SEC regulation:

1. The SEC has jurisdiction over all **interstate public offerings** in amounts of \$1.5 million or more.
2. Newly issued securities (stocks and bonds) must be registered with the SEC at least 20 days before they are publicly offered. The **registration statement**, called Form S-1, provides financial, legal, and technical information about the company to the SEC. A **prospectus**, which is embedded in the S-1, summarizes this information for investors. The SEC's lawyers and accountants analyze both the registration statement and the prospectus; if the information is inadequate or misleading, the SEC will delay or stop the public offering.³
3. After the SEC declares the registration to be effective, new securities may be advertised, but all sales solicitations must be accompanied by the prospectus. **Preliminary**, or "**red herring**," **prospectuses** may be distributed to potential buyers during the 20-day waiting period after the registration is effective, but no sales may be finalized during this time. The "red herring" prospectus contains all the key information that will appear in the final prospectus except the final price, which is generally set after the market closes the day before the new securities are actually offered to the public.
4. If the registration statement or prospectus contains **misrepresentations** or **omissions** of material facts, any purchaser who suffers a loss may sue for damages. Severe penalties may be imposed on the issuer or its officers, directors, accountants, engineers, appraisers, underwriters, and all others who participated in the preparation of the registration statement or prospectus.

The Roadshow and Book-Building

After the registration statement has been filed, the senior management team, the investment banks, and the company's lawyers go on a **roadshow**. The management team will make three to seven presentations each day to potential institutional investors, who are typically existing clients of the underwriters. The institutional investors ask questions during the presentation, but the management team may not give any information that is not in the registration statement due to the SEC-mandated **quiet period**. This quiet period begins when the registration statement is made effective and lasts for 25 days after the stock begins trading. Its purpose

³With the Internet, it is extremely easy to obtain the S-1 form, which typically has 50 to 200 pages of financial statements, a detailed discussion of the firm's business, the risks and opportunities the firm faces, details on its principal stockholders and managers, what will be done with the funds raised, and the like. This statement is filed with the SEC and is immediately available, through the Internet, to investors. The SEC staff reviews the filed S-1, and amendments may be issued, labeled S-1A, S-1B, etc. Most important, the likely range for the offering price will be reported, for example, \$13 to \$15 per share. If the market strengthens or weakens while the stock is undergoing SEC review, the price may be increased or decreased, right up to the last day. The SEC Web site is <http://www.sec.gov>.

is to create a level playing field for all investors, by ensuring that they all have access to the same information. It is not uncommon for the SEC to delay an IPO if managers violate the quiet period rules. The typical roadshow may last 10 to 14 days, with stops in 10 to 20 different cities. In many ways it resembles a coming-out party for the company, but it is much more grueling and has much higher stakes.

After a presentation, the investment banks ask the investor for an indication of interest, based on the offering price range shown in the registration statement. The investment bank records the number of shares that each investor is willing to buy, which is called **book-building**. As the roadshow progresses, the investment bank's "book" shows how demand for the offering is building. Many IPOs are **oversubscribed**, with investors wishing to purchase more shares than are available. In such a case the investment bank will allocate shares to the investors.⁴ If demand is high enough, then sometimes they will increase the offering price. If demand is low, then they will either reduce the offering price or withdraw the IPO. Sometimes low demand is specifically due to concern over the company's future prospects, but sometimes low demand is caused by a fall in the general stock market. Thus, the timing of the roadshow and offering date are very important. As the old saying goes, sometimes it is better to be lucky than good.

If all goes well with the roadshow, the investment bank will finalize the offering price on the evening before the actual offering date.

The First Day of Trading

The first day of trading for many IPOs is wild and exciting. Table 19-1 shows the largest first-day returns for IPOs in 2005. Some stocks end the day with large gains, such as the 353.9% price increase of Baidu.com, as shown in Table 19-1. Others have a sharp run-up and then fall back by the end of the day. A few IPOs actually end their first day with a loss.

According to a study by Professors Tim Loughran and Jay Ritter of IPOs during 1990–1998, about 27.3% of the IPOs have an offer price that is lower than the low range in their initial registration filing, and these stocks have an average first-day return of 4.0%.⁵ Even though the average return is positive, 47% of these stocks actually end the day with a loss or no gain. About 48.4% of IPOs have an offering price that is within the range of their initial filing. For such companies, the average first-day return was 10.8%. Due to indications of high demand during the roadshow, 24.3% of IPOs had a final offer price that was higher than their original range. These stocks had an average first-day return of 31.9%. Overall, the average first-day return was 14.1% during 1990–1998, with 75% of all IPOs having a positive return. During 1999, the average first-day return was an astronomical 70%!

You're probably asking yourself two questions: (1) How can you get in on these deals, and (2) why is the offering price so low? First, you probably can't get the chance to buy an IPO at its offering price, especially not a "hot" one. Virtually all sales go to institutional investors and preferred retail customers. There are a few Web-based investment banks who are trying to change this, such as the OpenIPO

⁴Most underwriting agreements contain an "overallocation option" that permits the underwriter to purchase additional shares up to 15% of the issue size to cover promises made to potential buyers. This is called a "green shoe" agreement because it was first used in the 1963 underwriting of a company named Green Shoe.

⁵See Tim Loughran and Jay R. Ritter, "Why Don't Issuers Get Upset about Leaving Money on the Table in IPOs?" *Review of Financial Studies*, 2002, pp. 413–444.

Table 19-1

Highest First-Day IPO Returns in 2005

Rank	Company (Symbol)	Offering Price	First-Day Closing Price	Gain
1	Baidu.com (BIDU)	\$27.00	\$122.54	353.9%
2	Under Armour Inc. (UA)	13.00	25.30	94.6
3	Int'l Securities Exchange (ISE)	18.00	30.40	68.9
4	Electro-Optical Sciences (MELA)	5.00	7.71	54.2
5	Adams Respiratory Therapeutics (ARXT)	17.00	25.75	51.5
6	IntercontinentalExchange (ICE)	26.00	39.25	51.0
7	Saifun Semiconductors (SFUN)	23.50	35.30	50.2
8	CBOT Holdings (BOT)	54.00	80.30	48.7
9	SunPower Corp (SPWR)	18.00	25.45	41.4
10	SunTech Power Holdings (STP)	15.00	21.20	41.3

Source: <http://www.ipohome.com>.

of W. R. Hambrecht & Co., but right now it is difficult for small investors to get in on the better first-day IPOs.

Various theories have been put forth to explain IPO underpricing. As long as issuing companies don't complain, investment banks have strong incentives to underprice the issue. First, underpricing increases the likelihood of oversubscription, which reduces the risk to the underwriter. Second, most investors who get to purchase the IPO at its offering price are preferred customers of the investment bank, and they became preferred customers because they generated lots of commissions in the investment bank's sister brokerage company. Therefore, the IPO is an easy way for the underwriter to reward customers for past and future commissions. Third, the underwriter needs an honest indication of interest when building the book prior to the offering, and underpricing is a possible way to secure this information from the institutional investors.

But why don't issuing companies object to underpricing? Some do, and are seeking alternative ways to issue securities, such as OpenIPO. However, most seem content to leave some money on the table. The best explanation seems to be that (1) the company wants to create excitement, and a price run-up on the first day does that; (2) only a small percentage of the company's stock is generally offered to the public, so current stockholders give away less due to underpricing than appears at first glance; and (3) IPO companies generally plan to have further offerings in the future, and the best way to ensure future success is to have a successful IPO, which underpricing guarantees.

Although IPOs on average provide large first-day returns, their long-term returns over the following 3 years are below average. For example, if you could not get in at the IPO price but purchased a portfolio of IPO stocks on their second day of trading, your 3-year return would have been lower than the return on a portfolio of similar but seasoned stocks. In summary, the offering price appears to be too low, but the first-day run-up is generally too high.

The Costs of Going Public

During recent years, virtually all investment banks have charged a 7% **spread** between the price they pay the issuing company and the price at which they sell shares to the public. Thus, they keep 7% of the offering price as their compensation. For example, in 2006 Aircastle Limited sold 9.0909 million shares at an offer price of \$23.00 per share. In this IPO the underwriters' direct compensation was \$1.61 per share. For 9.0909 million shares issued, these direct underwriting costs totaled about \$14.637 million.

But there are other direct costs, such as lawyer's fees, accountant's costs, printing, engraving, and so on. These fees can easily amount to several hundred thousand dollars, which can be a large percentage of a small IPO.

Last, but not least, are the indirect costs. The money left on the table, which is equal to the number of shares multiplied by the difference in the closing price and the offering price, can be quite large. Aircastle experienced a first-day run-up to \$26.60 from an offering price of \$23.00, and so the indirect costs total $9.0909(\$26.60 - \$23.00) = \$32.727$ million. In addition, senior managers spend an enormous amount of time working on the IPO rather than managing the business, which certainly carries a high cost, even if it cannot be easily measured.

Thus, Aircastle received proceeds of \$194.454 million, and the underwriters and their sales forces received \$14.637 million, with \$32.727 million left on the table. There were undoubtedly other direct costs of several hundred thousand dollars, and indirect costs due to the diversion of the management team. As you can see, an IPO is quite expensive.⁶

The Importance of the Secondary Market

An active secondary market after the IPO provides the pre-IPO shareholders with a chance to convert some of their wealth into cash, makes it easier for the company to raise additional capital later, makes employee stock options more attractive, and makes it easier for the company to use its stock to acquire other companies. Without an active secondary market, there would be little reason to have an IPO. Thus, companies should try to ensure that their stock will trade in an active secondary market before they incur the high costs of an IPO.

There are several types of secondary markets: physical stock exchanges, dealer markets, and bulletin boards. We discuss each of these below.

The physical exchanges, such as the NYSE and AMEX, conduct their trading in an actual location. In general, the NYSE and AMEX provide excellent liquidity. In order to have its stock listed, a company must apply to an exchange, pay a relatively small fee, and meet the exchange's minimum requirements. These requirements relate to the size of the company's net income, its market value, and its "float," which is the number of shares outstanding and in the hands of outsiders (as opposed to the number held by insiders, who generally do not actively trade their stock). Also, the company must agree to disclose certain information to the exchange and to help the exchange track trading patterns and thus ensure that no

⁶For more on IPOs, see Roger G. Ibbotson, Jody L. Sindelar, and Jay R. Ritter, "Initial Public Offerings," *Journal of Applied Corporate Finance*, Summer 1988, pp. 37–45; Roger G. Ibbotson, Jody L. Sindelar, and Jay R. Ritter, "The Market's Problems with the Pricing of Initial Public Offerings," *Journal of Applied Corporate Finance*, Spring 1994, pp. 66–74; Chris J. Muscarella and Michael R. Vetsuypens, "The Underpricing of 'Second' Initial Public Offerings," *Journal of Financial Research*, Fall 1989, pp. 183–192; Jay R. Ritter, "The Long-Run Performance of Initial Public Offerings," *Journal of Finance*, March 1991, pp. 3–27; and Jay R. Ritter, "Initial Public Offerings," *Contemporary Finance Digest*, Spring 1998, pp. 5–30.

one is attempting to manipulate the stock's price. The size qualifications increase as a company moves from the AMEX to the NYSE.

Assuming a company qualifies, many believe that listing is beneficial to the company and to its stockholders. Listed companies receive a certain amount of free advertising and publicity, and their status as listed companies may enhance their prestige and reputation, which often leads to higher sales. Investors respond favorably to increased information, increased liquidity, and the confidence that the quoted price is not being manipulated. Listing provides investors with these benefits, which may help managers lower their firms' cost of equity and increase the value of their stock.⁷

The advantages of physical exchanges have been eroded—some would say eliminated—by computers and the Internet, which have benefited the dealer markets. The primary equity dealer markets are administered by Nasdaq, and they include the Nasdaq National Market and the Nasdaq SmallCap Market. Almost 85% of new IPO stocks trade in these markets. Unlike the physical exchanges, these consist of a network of dealers, with each dealer making a market in one or more stocks. A dealer makes a market in a company's stock by holding an inventory of the shares and then making offers to buy or sell the stock. Many stocks have excellent liquidity in these markets and remain there even though they easily meet the requirements for listing on the NYSE. Examples include Microsoft, Intel, Apple, and Cisco Systems.

Investment banks generally agree to make a market in a company's stock as part of their IPO duties. The diligence with which they carry out this task can have a huge effect on the stock's liquidity in the secondary market, and, thus, the success of the IPO.

Although the requirements for listing on the Nasdaq National Market or SmallCap Market are not as stringent as for the NYSE, some companies fail to maintain them and hence are "delisted." For these companies, offers to buy or sell the stock may be posted on the OTC Bulletin Board, an electronic bulletin board administered by Nasdaq. However, there is very little liquidity in these stocks, and an IPO would be considered a failure if the company's stock ended up on the OTC Bulletin Board.

Regulating the Secondary Market

As we stated earlier, a liquid and crime-free secondary market is critical to the success of an IPO or any other publicly traded security. So, in addition to regulating the process for issuing securities, the Securities Exchange Commission also has responsibilities in the secondary markets. The primary elements of SEC regulation are set forth below.

1. The SEC *regulates all national stock exchanges*, and companies whose securities are listed on an exchange must file annual reports similar to the registration statement with both the SEC and the exchange.
2. The SEC has control over trading by corporate *insiders*. Officers, directors, and major stockholders must file monthly reports of changes in their holdings of the stock of the corporation. Any short-term profits from such transactions must be turned over to the corporation.
3. The SEC has the power to *prohibit manipulation* by such devices as pools (large amounts of money used to buy or sell stocks to artificially affect prices)

⁷For additional discussion on the benefits of listing, see H. Kent Baker and Richard B. Edelman, "AMEX-to-NYSE Transfers, Market Microstructure, and Shareholder Wealth," *Financial Management*, Winter 1992, pp. 60–72; and Richard B. Edelman and H. Kent Baker, "Liquidity and Stock Exchange Listing," *The Financial Review*, May 1990, pp. 231–249.

or wash sales (sales between members of the same group to record artificial transaction prices).

4. The SEC has *control over the proxy statement* and the way the company uses it to solicit votes.

Control over credit used to buy securities is exercised by the Federal Reserve Board through **margin requirements**, which specify the maximum percentage of the purchase price someone can borrow. If a great deal of margin borrowing has persisted, then a decline in stock prices can result in inadequate coverages. This could force stockbrokers to issue **margin calls**, which require investors either to put up more money or have their margined stock sold to pay off their loans. Such forced sales further depress the stock market and thus can set off a downward spiral. The margin at the time a stock is purchased has been 50% since 1974 (subsequent “maintenance margins” are lower and are generally set by individual lenders).

The securities industry itself realizes the importance of stable markets, sound brokerage firms, and the absence of stock manipulation.⁸ Therefore, the various exchanges work closely with the SEC to police transactions and to maintain the integrity and credibility of the system. Similarly, the **National Association of Securities Dealers (NASD)** cooperates with the SEC to police trading in its dealer and OTC markets. These industry groups also cooperate with regulatory authorities to set net worth and other standards for securities firms, to develop insurance programs to protect the customers of failed brokerage houses, and the like.

In general, government regulation of securities trading, as well as industry self-regulation, is designed to ensure (1) that investors receive information that is as accurate as possible, (2) that no one artificially manipulates the market price of a given stock, and (3) that corporate insiders do not take advantage of their position to profit in their companies’ stocks at the expense of other stockholders. Neither the SEC, the state regulators, nor the industry itself can prevent investors from making foolish decisions or from having “bad luck,” but they can and do help investors obtain the best data possible for making sound investment decisions.

Questionable IPO Practices

Among the many revelations to come out during 2002 regarding investment banking was the practice by some investment banking houses of letting CEOs and other high-ranking corporate executives in on “hot” IPOs. In these deals the demand for the new stock was far greater than supply at the offering price, so the investment banks were virtually certain that the stock would soar far above the offering price.

Some investment banks systematically allocated shares of hot IPOs to executives of companies that were issuing stocks and bonds—and thus generating fees to the banks who underwrote the deals. Bernie Ebbers, the chairman and CEO of WorldCom, one of the biggest providers of underwriting fees, was given huge allocations in hot IPOs, and he made millions on these deals. Ebbers is just one example—a lot of this was going on in the late 1990s, at the height of the tech/dot-com bubble.

Government regulators have been investigating this practice, called “spinning,” and quite a few corporate executives and investment bankers may be charged with something that amounts to a kickback scheme under which those executives who favored particular investment banks were rewarded with allocations in hot IPOs.

⁸It is illegal for anyone to attempt to manipulate the price of a stock. During the 1920s and earlier, syndicates would buy and sell stocks back and forth at rigged prices so the public would believe that a particular stock was worth more or less than its true value. The exchanges, with the encouragement and support of the SEC, utilize sophisticated computer programs to help spot any irregularities that suggest manipulation, and they require disclosures to help identify manipulators. This same system helps to identify illegal insider trading. It is now illegal to manipulate a stock’s price by spreading false news on the Internet.

Indeed, in 2004 Credit Suisse First Boston's Frank Quattrone was sentenced to 18 months in prison for obstructing a spinning investigation (however, the situation was still unresolved in late 2006 because Quattrone was granted a new trial with a new judge). Although the practice may or may not be illegal—this has yet to be determined—it is certainly unethical. The corporate executives were paid to work for their stockholders, so they should have turned over any IPO profits to their companies, not kept them for themselves. A suit filed by the New York Attorney General is seeking to force such profits to be “disgorged” by the executives and returned to the companies involved.

This kind of unethical and perhaps illegal behavior may help to explain IPO underpricing and “money left on the table.” An executive might be more interested in getting a future hot IPO allocation than in whether or not the company gets the best terms from its investment bank. This situation would be exacerbated if the investment banks' analysts overstated prospects for the company and thereby pumped up its price just prior to the time when executives were to receive and exercise stock options.

In summary, we have a hard time justifying IPO underpricing during the late 1990s on rational economic grounds. People have come up with explanations for why companies let their investment banks price their stocks too low in IPOs, but those reasons seem rather weak. However, when coupled with what may have been a kickback scheme, the underpricing may make somewhat more sense. Before closing, though, we should make it clear that relatively few corporate executives were corrupt. However, just as one rotten apple can spoil a barrel of apples, a few bad executives, combined with lax regulation, can help a bad practice become “the industry standard” and thus become widespread.

SELF-TEST

What is the difference between “best efforts” and “underwriting”?

What are some SEC regulations regarding sales of new securities?

What is a roadshow? What is book-building?

What is underpricing? Leaving money on the table?

What are some of the costs of going public?

A company is planning an IPO. Its underwriters have said the stock will sell at \$50 per share. The underwriters will charge a 7% spread. How many shares must the company sell to net \$93 million, ignoring any other expenses? (2 million)

19.4 Equity Carve-Outs: A Special Type of IPO

A few years ago, Condec Corporation sold to the public about 20% of the equity in its wholly owned subsidiary, Unimation Inc. In this transaction, the subsidiary, like the parent, became publicly owned, but the parent retained full control of the subsidiary by retaining about 80% of the subsidiary's common stock. (Parent companies typically retain at least 80% of the subsidiary's common stock to preserve their ability to file a consolidated tax return.) This type of transaction is called an **equity carve-out** (or **partial public offering**, or **spin-out**). The market's response to Condec's carve-out announcement was very positive—the stock price rose 19% after correcting for the overall movement in the market.⁹ Equity carve-outs raise

⁹For more information on equity carve-outs, see Roni Michaely and Wayne H. Shaw, “The Choice of Going Public: Spin-offs vs. Carve-outs,” *Financial Management*, Autumn 1995, pp. 5–21; Katherine Schipper and Abbie Smith, “Equity Carve-Outs,” *Midland Corporate Finance Journal*, Spring 1986, pp. 23–32; David M. Glassman, “Spin-Offs and Spin-Outs: Using ‘Securitization’ to Beat the Bureaucracy,” *Journal of Applied Corporate Finance*, Fall 1988, pp. 82–89; and Anand Vijh, “Long-Term Returns from Equity Carve-outs,” *Journal of Financial Economics*, (1999), pp. 273–308.

an interesting question: Why do carve-out announcements typically result in stock price increases while the announcements of new stock issues by parent corporations generally decrease stock prices?

One possible answer is that carve-outs facilitate the evaluation of corporate growth opportunities on a line-of-business basis. Thus, Condec, a conglomerate operating mostly in the defense industry, enabled investors to separately value its Unimation subsidiary, which manufactures industrial robots, by offering its stock to the public. Also, by creating a separate public market for Unimation's common stock, Condec offered investors a "pure play" in robotics, a relatively scarce commodity.

Another advantage to carve-outs is that they improve the ability of the parent to offer incentives to a subsidiary's managers. For example, McKesson Corporation, a \$52 billion firm in the drug and health care industry, sold 17% of its Armor All subsidiary to the public. At the time, Neil Harlan, McKesson's chairman, said that Armor All is "different than most of our operations. It is heavily marketing-driven and entrepreneurial in nature." Creation of a public market for the shares of Armor All provided the opportunity for McKesson to offer incentive shares in the subsidiary to Armor All's top managers. Such shares, which hinge directly on the market value of Armor All, were clearly a better inducement to superior performance than a compensation plan tied to the parent corporation's stock price, since at the time Armor All accounted for only 2% of McKesson's total sales.

Another potential advantage of carve-outs is that they can increase the effectiveness of capital allocation. Internally, the competition for capital is often waged on political rather than economic grounds, and thus the use, and hence value, of new capital is very uncertain. After a carve-out, it is easier to measure the cost of capital for the different business units, and this can improve the capital budgeting process. Also, by selling an ownership interest in a narrowly focused line of business rather than offering a stake in the conglomerate parent, management can reduce the uncertainty faced by investors. This can lower the cost of capital for the various units and thus increase the aggregate value of the consolidated enterprise.

Equity carve-outs do have some associated costs. First, the underwriting commission involved in a carve-out is larger than for an equity offering by the parent. Second, because an equity carve-out is a type of initial public offering, there is a potential for underpricing the new offering. Third, key managers of the subsidiary must spend a significant amount of time marketing the new stock. Fourth, there are costs associated with the minority interest that is created in the carve-out. For example, the subsidiary's new board of directors must monitor all transactions between the subsidiary and the parent to ensure that the minority investors are not being exploited. Finally, there are additional costs including annual reports, SEC filings, analyst presentations, and so on, that must now be borne by both the parent and the subsidiary.

In summary, there are costs to equity carve-outs, but there are also benefits, and the benefits may make the carve-out an attractive option in many situations. In essence, a carve-out is a form of corporate **securitization**, which is the issuance of public securities backed by assets that have been segregated from the remaining assets of the company. By creating such securities, and a liquid market for trading them, a corporation can potentially reduce investor risk and increase the value of the firm as a whole. We cover securitization in more depth later in the chapter.

SELF-TEST

Explain what is meant by an equity carve-out.

On average, equity carve-outs have increased shareholder wealth. What are some potential explanations for this observed phenomenon?



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See **Web Extension 19A** at the textbook's Web site for a discussion of rights offerings.

19.5 Non-IPO Investment Banking Activities

In addition to helping with IPOs, investment banks also help public companies raise additional debt and equity capital. As shown in Table 19-2, investment banks helped firms raise just over \$6.5 trillion during 2005. In this section we describe some of the ways that investment banks and public companies work together to raise capital.¹⁰

Preliminary Decisions

Before raising capital, the firm makes some initial, preliminary decisions, including the following:

1. *Dollars to be raised.* How much new capital is needed?
2. *Type of securities used.* Should common, preferred, bonds, hybrid securities, or a combination, be used? Further, if common stock is to be issued, should it be done as a rights offering or by a direct sale to the general public?
3. *Competitive bid versus a negotiated deal.* Should the company simply offer a block of its securities for sale to the highest bidder, or should it negotiate a deal with an investment bank? These two procedures are called **competitive bids** and **negotiated deals**, respectively. Only about 100 of the largest firms listed on the NYSE, whose securities are already well-known to the investment banking community, are in a position to use the competitive bidding process. The investment banks must do a great deal of investigative work

Table 19-2

Top Five Underwriters of Global Debt and Equity in 2005

Manager	Proceeds (in Billions)
Citigroup	\$ 564.7
Lehman Brothers	420.8
Deutsche Bank AG	418.1
JPMorgan	414.6
Morgan Stanley	383.5
Industry total	\$6,511.3

Source: *The Wall Street Journal Online*, January 3, 2006, p. R10.

¹⁰For an excellent discussion of the various procedures used to raise capital, see Jay R. Ritter, "Investment Banking and Securities Issuance," in *North-Holland Handbook of the Economics of Finance*, edited by George Constantinides, Milton Harris, and René Stulz (North-Holland, 2002). Also, see Bruce Jurin, "Raising Equity in an Efficient Market," *Midland Corporate Finance Journal*, Winter 1988, pp. 53–60; and Claudio Loderer, John W. Cooney, and Leonard D. Van Drunen, "The Price Elasticity of Demand for Common Stock," *Journal of Finance*, June 1991, pp. 621–651.

“due diligence”) to bid on an issue unless they are already quite familiar with the firm, and such costs would be too high to make it worthwhile unless the bank was sure of getting the deal. Therefore, except for the largest firms, offerings of stock and bonds are generally on a negotiated basis.

4. *Selection of an investment bank.* Most deals are negotiated, so the firm must select an investment bank. This can be an important decision for a firm that is going public. On the other hand, an older firm that has already “been to market” will have an established relationship with an investment bank. However, it is easy to change banks if the firm is dissatisfied. Different investment banking houses are better suited for different companies. For example, Goldman Sachs and Morgan Stanley are the leading tech-IPO underwriters. Investment banking houses sell new issues largely to their own regular brokerage customers, so the nature of these customers has a major effect on the ability of the house to do a good job for corporate issuers. Finally, a major factor in choosing an underwriter is the reputation of the analyst who will cover the stock in the secondary market, since a strong buy recommendation from a well-respected analyst can trigger a sharp price run-up.

Private Placements

In a *private placement*, securities are sold to one or a few investors, generally institutional investors. Private placements are most common with bonds, but they also occur with stocks. The primary advantages of private placements are (1) lower flotation costs and (2) greater speed, since the shares do not have to go through the SEC registration process.

The most common type of private placement occurs when a company places securities directly with a financial institution, often an insurance company or a pension fund. In fact, Prudential Insurance Company has begun sending salespeople to call on businesses—not to sell them policies, but to sell them on raising funds privately from Prudential. To illustrate a private placement, AT&T sold 6.3 million shares of common stock worth about \$650 million to Capital Group Inc., a Los Angeles institutional investor that manages both mutual and pension funds. The transaction was a blow to three Wall Street firms, Morgan Stanley, Dillon Reed, and Goldman Sachs, which wanted to sell the stock in a conventional public offering. AT&T’s treasurer said selling the stock in a private placement saved about 2.5%, or \$16.3 million, in underwriting expenses.

One type of private placement that is occurring with increasing frequency is when a large company makes an equity investment in a smaller supplier. For example, Comcast, Intel, Motorola, and Phillips, among others, invested several million dollars in Intellon Corporation, a telecommunications equipment manufacturer. Intellon needed capital for expansion, and the larger companies were all engaged in joint development ventures with Intellon and wanted it to have sufficient capital to move ahead quickly. Similar arrangements are quite common, and some of them go back many years. For example, Sears, Roebuck & Co., before its merger with Kmart, supplied equity capital to some of its major suppliers, including Johnson Controls, which furnished Sears with “Die-Hard” batteries, and DeSoto Chemical, which supplied most of the paints that Sears sold.

A potential disadvantage of a private placement is that if the securities are not registered with the SEC, they cannot be sold except to another large, “sophisticated”

purchaser in the event the original buyer wants to sell them. However, many institutions meet this qualification so there is a large potential market for the securities. In addition, companies are increasingly choosing to register the securities they privately place to improve their marketability after placement. With improved marketability, private placements are becoming increasingly popular, and today they constitute almost 40% of all nonbank debt financing.

Shelf Registrations

The selling procedures described previously, including the 20-day waiting period after registration with the SEC, apply to most security sales. However, under the SEC's Rule 415, large, well-known public companies that issue securities frequently may file a master registration statement with the SEC and then update it with a short-form statement just prior to each individual offering. Under this procedure, a company can decide at 10 A.M. to sell securities and have the sale completed before noon. This procedure is known as **shelf registration** because, in effect, the company puts its new securities "on the shelf" and then sells them to investors when it feels the market is "right." Firms with less than \$150 million in stock held by outside investors cannot use shelf registrations. The rationale for this distinction is to protect investors who may not be able to get adequate financial data about a little-known company in the short time between announcement of a shelf issue and its sale. Shelf registrations have two advantages over standard registrations: (1) lower flotation costs and (2) more control over the timing of the issue.¹¹

Seasoned Equity Offerings

When a company with publicly traded stock issues additional shares, this is called a **seasoned equity offering**, also known as a *follow-on offering*. Because the stock is already publicly traded, the offering price will be based upon the existing market price of the stock. Typically, the investment bank buys the securities at a prescribed number of points below the closing price on the last day of registration. For example, suppose that in August 2007, the stock of Microwave Telecommunications Inc. (MTI) had a price of \$28.60 per share, and the stock had traded between \$25 and \$30 per share during the previous 3 months. Suppose further that MTI and its underwriter agreed that the investment bank would buy 10 million new shares at \$1 per share below the closing price on the last day of registration. If the stock closed at \$25 on the day the SEC released the issue, MTI would receive \$24 per share. Typically, such agreements have an escape clause that provides for the contract to be voided if the price of the securities drops below some predetermined figure. In the illustrative case, this "upset" price might be set at \$24 per share. Thus, if the closing price of the shares on the last day of registration had been \$23.50, MTI would have had the option of withdrawing from the agreement.

The investment bank will have an easier job if the issue is priced relatively low. However, the issuer naturally wants as high a price as possible. A conflict of interest on price therefore arises between the investment bank and the issuer. If the issuer is financially sophisticated and makes comparisons with similar security issues, the investment bank will be forced to price close to the market.

¹¹For more on shelf registrations, see David J. Denis, "The Costs of Equity Issues Since Rule 415: A Closer Look," *Journal of Financial Research*, Spring 1993, pp. 77–88.

As we discussed in Chapter 16, the announcement of a new stock offering by a mature firm is often taken as a negative signal—if the firm’s prospects were good, management would not want to issue new stock and thus share the rosy future with new stockholders. Therefore, the announcement of a new offering is taken as bad news. Consequently, the price will probably fall when the announcement is made, so the offering price will probably have to be set at a price below the preannouncement market price.

One final point is that *if negative signaling effects drive down the price of the stock, all shares outstanding, not just the new shares, are affected*. Thus, if MTI’s stock should fall from \$28.60 to \$25 per share as a result of the financing, and if the price remains at the new level, then the company would incur a loss of \$3.60 on each of the 50 million shares previously outstanding, or a total market value loss of \$180 million. This loss, like underwriting expenses, is a flotation cost, and it should be considered as a cost associated with the stock issue. However, if the company’s prospects really were poorer than investors thought, then the price decline would have occurred sooner or later anyway. On the other hand, if the company’s prospects are really not all that bad (the signal was incorrect), then over time MTI’s price should move back to its previous level. However, if the price does revert to its former level, there will have been a transfer of wealth from the original shareholders to the new shareholders. To prevent this, companies often sell additional shares of stock through a rights offering, which we explain in *Web Extension 19A*.



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See **Web Extension 19A** at the textbook’s Web site for a discussion of rights offerings.

SELF-TEST

What is the difference between a competitive bid and a negotiated deal?

What is a private placement?

What is shelf registration?

19.6 The Decision to Go Private

In a **going private** transaction, the entire equity of a publicly held firm is purchased by a small group of investors that usually includes the firm’s current senior management.¹² In some of these transactions, the current management group acquires all of the equity of the company. In others, current management participates in the ownership with a small group of outside investors who typically place directors on the now-private firm’s board and arrange for the financing needed to purchase the publicly held stock. Such deals almost always involve substantial borrowing, often up to 90%, and thus are commonly known as **leveraged buyouts (LBOs)**.

Regardless of the structure of the deal, going private initially affects the right-hand side of the balance sheet, the liabilities and capital, and not the assets—going private simply rearranges the ownership structure. Thus, going private involves no obvious operating economies, yet the new owners are generally willing to pay a large premium over the stock’s current price in order to take the firm private. For example, prior to its acquisition by Columbia, the managers of Hospital Corporation of America (HCA) paid \$51 a share to outside (public) shareholders although the stock was selling for only about \$31 before the LBO offer was made.

¹²See Harry DeAngelo, Linda DeAngelo, and Edward M. Rice, “Going Private: The Effects of a Change in Corporate Ownership,” *Midland Corporate Finance Journal*, Summer 1984, pp. 35–43, for a more complete discussion of going private. The discussion in this section draws heavily from their work.

It is hard to believe that the managers of a company, who have the best information about the firm's potential profitability, would knowingly pay too much for the firm. Thus, HCA's managers must have regarded the firm as being grossly undervalued or else thought that they could significantly boost the firm's value under private ownership. This suggests that going private can increase the value of some firms sufficiently to enrich both managers and public stockholders. Other large companies going private recently include Georgia-Pacific (2005), Univision (2006), Kinder Morgan (2006), and G.M.A.C. (2006).

The primary advantages to going private are (1) administrative cost savings, (2) increased managerial incentives, (3) increased managerial flexibility, (4) increased shareholder participation, and (5) increased use of financial leverage, which of course reduces taxes. We discuss each of these advantages in more detail in the following paragraphs.

1. *Administrative cost savings.* Because going private takes the stock of a firm out of public hands, it saves on costs associated with securities registration, annual reports, SEC and exchange reporting, responding to stockholder inquiries, and so on. More important, the top managers of private firms are free from meetings with security analysts, government bodies, and other outside parties. Byron C. Radaker, CEO of Congoleum Corporation, a company that went private in the early 1980s, estimated the cost savings to his company from going private at between \$6 million and \$8 million per year.
2. *Increased managerial incentives.* An even larger potential gain comes from the improvement in incentives for high-level managerial performance. Their increased ownership means that the firm's managers benefit more directly from their own efforts; hence managerial efficiency tends to increase after going private. If the firm is highly successful, its managers can easily see their personal net worth increase ten- to twentyfold, while if the firm fails, its managers end up with nothing. Further, a highly leveraged position tends to drive the firm toward the extremes—large losses or large profits. The managers of companies that have gone through an LBO tell us that heavy interest payments, combined with a knowledge that success will bring great wealth, does a lot to cut fat and improve decisions.
3. *Increased managerial flexibility.* Another source of value stems from the increased flexibility available to managers of private firms. These managers do not have to worry about what a drop in next quarter's earnings will do to the firm's stock price; hence they can focus on long-term, strategic actions that ultimately will have the greatest positive impact on the firm's value. Managerial flexibility concerning asset sales is also greater in a private firm, since such sales do not have to be justified to a large number of shareholders with potentially diverse interests.
4. *Increased shareholder participation.* Going private typically results in replacing a dispersed, largely passive group of public shareholders with a small group of investors who take a much more active role in managing the firm. These new equity investors have a substantial position in the private firm; hence they have a greater motivation to monitor management and to provide incentives to management than do the typical stockholders of a public corporation. Further, the new nonmanagement equity investors, such as Kohlberg Kravis Roberts & Company (KKR), are typically represented on the board, and they bring both sophisticated financial expertise and hard-nosed attitudes to the new firm. These outsiders don't have good friends running money-losing divisions, so they are more willing to force major operating changes than are entrenched managers. For example, within a few weeks after KKR won the

battle for RJR Nabisco, the much touted but unprofitable Premier “smokeless” cigarette project was abandoned.

5. *Increased financial leverage.* Going private usually entails a drastic increase in the firm’s use of debt financing, which has two effects. First, the firm’s taxes are reduced because of the increase in deductible interest payments, so more of the operating income flows through to investors. Second, the increased debt servicing requirements force managers to hold costs down to ensure that the firm has sufficient cash flow to meet its obligations—a highly leveraged firm simply cannot afford any fat.

One might ask why all firms are not privately held. The answer is that while there are real benefits to private ownership, there are also benefits to being publicly owned. Most notably, public corporations have access to large amounts of equity capital on favorable terms, and for most companies, the advantage of access to public capital markets dominates the advantages of going private. Also, note that most companies that go private end up going public again after several years of operation as private firms. For example, HCA, which went private in 1987, again went public in 1992. During the private phase, management sheds inefficient businesses, cuts costs throughout the corporation, and, generally, rationalizes operations. These actions increase the value of the firm to investors. Once the company has been “straightened up,” going public allows the private equity holders to recover their investment, take their profit, and move on to new ventures. Interestingly, in mid-2006 HCA announced plans to go private again.

Note too that the examples set by LBO companies are not lost on companies that maintain their publicly owned status. Thus, companies such as Phillips Petroleum and Union Carbide have changed their operations to the point where they resemble LBO companies. This has increased their value and thus made them less attractive to KKR and other LBO specialists, benefiting both managers and shareholders.

SELF-TEST

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- What is meant by the term “going private”?
 - What are the main benefits of going private?
 - Why don’t all firms go private to capture these benefits?

19.7 Managing the Maturity Structure of Debt

Chapters 16 and 17 described the capital structure decision. But after a firm chooses the total amount of debt in its capital structure, it must still choose the maturities of the various securities that make up its debt. The following sections explain the factors associated with the choice of maturity structure.

Maturity Matching

Assume that Consolidated Tools, a Cincinnati machine tool manufacturer, made the decision to float a \$25 million nonconvertible bond issue to help finance its 2007 capital budget. It must choose a maturity for the issue, taking into consideration the shape of the yield curve, management’s own expectations about future interest rates, and the maturity of the assets being financed. To illustrate how asset maturities affect the choice of debt maturities, suppose Consolidated’s capital

projects consist primarily of new milling machinery. This machinery has an expected economic life of 10 years (even though it falls into the MACRS 5-year class life). Should Consolidated use debt with a 5-year, 10-year, 20-year, 30-year, or some other maturity?

Note that some of the new capital will come from common equity, which is permanent capital. On the other hand, debt maturities can be specified at the time of issue. If Consolidated financed its capital budget with 10-year sinking fund bonds, it would be matching asset and liability maturities. The cash flows resulting from the new machinery could be used to make the interest and sinking fund payments on the issue, so the bonds would be retired as the machinery wore out. If Consolidated used 1-year debt, it would have to pay off this debt with cash flows derived from assets other than the machinery in question. Conversely, if it used 20-year or 30-year debt, it would have to service the debt long after the assets that were purchased with the funds had been scrapped and had ceased providing cash flows. This would worry lenders.

Of course, the 1-year debt could probably be rolled over year after year, out to the 10-year asset maturity. However, if interest rates rose, Consolidated would have to pay a higher rate when it rolled over its debt, and if the company experienced difficulties, it might not be able to refund the debt at any reasonable rate.

For all these reasons, the safest all-around financing strategy is to match debt maturities with asset maturities. In recognition of this fact, firms generally place great emphasis on maturity matching, and this factor often dominates the debt maturity decision.

Some firms use zero coupon bonds as a tool in matching maturities. We explain these bonds in *Web Extension 5A*.



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See *Web Extension 5A* at the textbook's Web site for more on zero coupon bonds.

Effects of Interest Rate Levels and Forecasts

Financial managers also consider interest rate levels and forecasts, both absolute and relative, when making financing decisions. For example, if long-term interest rates are high by historical standards and are expected to fall, managers will be reluctant to issue long-term debt, locking in those costs for long periods. We already know that one solution to this problem is to use a call provision—callability permits refunding should interest rates drop. However, there is a cost, because of the call premium and also because the firm must set a higher coupon on callable debt. Floating-rate debt could be used, but another alternative would be to finance with short-term debt whenever long-term rates are historically high, and then, assuming that interest rates subsequently fall, sell a long-term issue to replace the short-term debt. Of course, this strategy has its risks: If interest rates move even higher, the firm will be forced to renew its short-term debt at higher and higher rates, or to replace the short-term debt with a long-term bond that costs even more than it would have when the original decision was made.

We could argue that capital markets are efficient, hence that it is impossible to predict what future interest rates will be because these rates will be determined by information that is not now known. Thus, under the efficient markets hypothesis, it would be unproductive for firms to try to “beat the market” by forecasting future capital costs and then acting on these forecasts. According to this view, financial managers ought to arrange their capital structures in such a manner that they can ride out almost any economic storm, and this generally calls for (1) using

some “reasonable” mix of debt and equity and (2) using debt with maturities that more or less match the maturities of the assets being financed.

Information Asymmetries

In Chapter 5, we discussed bond ratings and the effects of changes in ratings on the cost and availability of capital. If a firm’s current financial condition is poor, its managers may be reluctant to issue new long-term debt because (1) a new debt issue would probably trigger a review by the rating agencies, and (2) debt issued when a firm is in poor financial shape would probably cost more and be subject to more severe restrictive covenants than debt issued from strength. Further, in Chapters 16 and 17 we pointed out that firms are reluctant to use new common stock financing, especially when this might be taken as a negative signal. Thus, a firm that is in a weakened condition, but whose internal forecasts indicate greater financial strength in the future, would be inclined to delay long-term financing of any type until things improved. Such a firm would be motivated to use short-term debt even to finance long-term assets, with the expectation of replacing the short-term debt in the future with cheaper, higher-rated long-term debt.

Conversely, a firm that is strong now but that forecasts a potentially bad time in the period just ahead would be motivated to finance long term now rather than to wait. Each of these scenarios implies either that the capital markets are inefficient or that investors do not have the same information regarding the firm’s future as does its financial manager. The second situation undoubtedly is true at times, and the first one possibly is true at times.

The firm’s earnings outlook, and the extent to which forecasted higher earnings per share are reflected in stock prices, also has an effect on the choice of securities. If a successful R&D program has just been concluded, and as a result management forecasts higher earnings than do most investors, then the firm would not want to issue common stock. It would use debt and then, once earnings rise and push up the stock price, sell common stock to restore the capital structure to its target level.

Amount of Financing Required

Obviously, the amount of financing required will influence the financing decision. This is mainly due to flotation costs. A \$5 million debt financing, which is small in Wall Street terms, would most likely be done with a term loan or a privately placed bond issue, while a firm seeking \$2 billion of new debt would most likely use a public offering of long-term bonds.

Availability of Collateral

Generally, secured debt is less costly than unsecured debt. Thus, firms with large amounts of marketable fixed assets are likely to use a relatively large amount of long-term debt, especially mortgage bonds. Additionally, each year’s financing decision would be influenced by the amount of qualified assets available as security for new bonds.

SELF-TEST

What are some factors that financial managers consider when choosing the maturity structure of their debt?
How do information asymmetries affect financing decisions?

19.8 Refunding Operations

A great deal of corporate debt was sold during the late 1980s at interest rates in the 9% to 12% range. Because the call protection on much of this debt has ended, and because interest rates have fallen since the debt was issued, many companies are analyzing the pros and cons of bond refundings. Refunding decisions actually involve two separate questions: (1) Is it profitable to call an outstanding issue in the current period and replace it with a new issue; and (2) even if refunding is currently profitable, would the firm's expected value be increased even more if the refunding were postponed to a later date? We consider both questions in this section.

Note that the decision to refund a security is analyzed in much the same way as a capital budgeting expenditure. The costs of refunding (the investment outlays) include (1) the call premium paid for the privilege of calling the old issue, (2) the costs of selling the new issue, (3) the tax savings from writing off the unexpended flotation costs on the old issue, and (4) the net interest that must be paid while both issues are outstanding (the new issue is often sold prior to the refunding to ensure that the funds will be available). The annual cash flows, in a capital budgeting sense, are the interest payments that are saved each year plus the net tax savings that the firm receives for amortizing the flotation expenses. For example, if the interest expense on the old issue is \$1,000,000, whereas that on the new issue is \$700,000, the \$300,000 reduction in interest savings constitutes an annual benefit.¹³

The net present value method is used to analyze the advantages of refunding: The future cash flows are discounted back to the present, and then this discounted value is compared with the cash outlays associated with the refunding. The firm should refund the bond only if the present value of the savings exceeds the cost—that is, if the NPV of the refunding operation is positive.

In the discounting process, the after-tax cost of the new debt, r_d , should be used as the discount rate. The reason is that there is relatively little risk to the savings—cash flows in a refunding decision are known with relative certainty, which is quite unlike the situation with cash flows in most capital budgeting decisions.

The easiest way to examine the refunding decision is through an example. Microchip Computer Company has a \$60 million bond issue outstanding that has a 12% annual coupon interest rate and 20 years remaining to maturity. This issue, which was sold 5 years ago, had flotation costs of \$3 million that the firm has been amortizing on a straight-line basis over the 25-year original life of the issue. The bond has a call provision that makes it possible for the company to retire the issue at this time by calling the bonds in at a 10% call premium. Investment banks have assured the company that it could sell an additional \$60 million to \$70 million worth of new 20-year bonds at an interest rate of 9%. To ensure that the funds required to pay off the old debt will be available, the new bonds will be sold 1 month before the old issue is called, so for 1 month, interest will have to be paid on two issues. Current short-term interest rates are 6%. Predictions are that long-term

¹³During the early 1980s, there was a flurry of work on the pros and cons of refunding bond issues that had fallen to deep discounts as a result of rising interest rates. At such times, the company could go into the market, buy its debt at a low price, and retire it. The difference between the bonds' par values and the prices the company paid would be reported as income, and taxes would have to be paid on it. The results of the research on the refunding of discount issues suggest that bonds should not, in general, be refunded after a rise in rates. See Andrew J. Kalotay, "On the Structure and Valuation of Debt Refundings," *Financial Management*, Spring 1982, pp. 41–42; and Robert S. Harris, "The Refunding of Discounted Debt: An Adjusted Present Value Analysis," *Financial Management*, Winter 1980, pp. 7–12.

interest rates are unlikely to fall below 9%.¹⁴ Flotation costs on a new refunding issue will amount to \$2,650,000, and the firm's marginal federal-plus-state tax rate is 40%. Should the company refund the \$60 million of 12% bonds?

The following steps outline the decision process; they are summarized in the spreadsheet in Table 19-3. This spreadsheet is part of the spreadsheet model, *FM12 Ch 19 Tool Kit.xls*, developed for this chapter. The range of cells from A15 through H21 shows input data needed for the analysis, which were just discussed.



e-resource

See *FM12 Ch 19 Tool Kit.xls* at the textbook's Web site for details.

Step 1: Determine the Investment Outlay Required to Refund the Issue

Row 26. *Call premium on old issue:*

$$\begin{aligned}\text{Before tax: } 0.10(\$60,000,000) &= \$6,000,000 \\ \text{After tax: } \$6,000,000(1 - T) &= \$6,000,000(0.6) \\ &= \$3,600,000.\end{aligned}$$

Although Microchip must spend \$6 million on the call premium, this is a deductible expense in the year the call is made. Because the company is in the 40% tax bracket, it saves \$2.4 million in taxes; therefore, the after-tax cost of the call is only \$3.6 million. This amount is shown in Row 26 of Table 19-3.

Row 27. *Flotation costs on new issue:* Flotation costs on the new issue will be \$2,650,000. This amount cannot be expensed for tax purposes, so it provides no immediate tax benefit.

Row 28. *Flotation costs on old issue:* The old issue has an unamortized flotation cost of $(20/25)(\$3,000,000) = \$2,400,000$ at this time. If the issue is retired, the unamortized flotation cost may be recognized immediately as an expense, thus creating an after-tax savings of $\$2,400,000(T) = \$960,000$. Because this is a cash inflow, it is shown as a positive number in Row 28.

Rows 29 and 30. *Additional interest:* One month's "extra" interest on the old issue, after taxes, costs \$360,000:

$$\begin{aligned}(\text{Dollar amount})(1/12 \text{ of } 12\%)(1 - T) &= \text{Interest cost} \\ (\$60,000,000)(0.01)(0.6) &= \$360,000.\end{aligned}$$

However, the proceeds from the new issue can be invested in short-term securities for 1 month. Thus, \$60 million invested at a rate of 6% will return \$180,000 in after-tax interest:

$$\begin{aligned}(\$60,000,000)(1/12 \text{ of } 6\%)(1 - T) &= \text{Interest earned} \\ (\$60,000,000)(0.005)(0.6) &= \$180,000.\end{aligned}$$

¹⁴The firm's management has estimated that interest rates will probably remain at their present level of 9% or else rise; there is only a 25% probability that they will fall further.



Table 19-3

Spreadsheet for the Bond Refunding Decision

	A	B	C	D	E	F	G	H
13	Input Data (in thousands of dollars)							
14								
15	Existing bond issue =			\$60,000		New bond issue =		\$60,000
16	Original flotation cost =			\$3,000		New flotation cost =		\$2,650
17	Maturity of original debt =			25		New bond maturity =		20
18	Years since old debt issue =			5		New cost of debt =		9.0%
19	Call premium (%) =			10.0%				
20	Original coupon rate =			12.0%		Tax rate =		40.0%
21	After-tax cost of new debt =			5.4%		Short-term interest rate =		6.0%
22								
23	Schedule of cash flows							
24						Before-tax	After-tax	
25	<i>Investment Outlay</i>							
26	Call premium on the old bond					(\$6,000.0)	(\$3,600.0)	
27	Flotation costs on new issue					(\$2,650.0)	(\$2,650.0)	
28	Immediate tax savings on old flotation cost expense					\$2,400.0	\$960.0	
29	Extra interest paid on old issue					(\$600.0)	(\$360.0)	
30	Interest earned on short-term investment					\$300.0	\$180.0	
31	Total after-tax investment						(\$5,470.0)	
32								
33	<i>Annual Flotation Cost Tax Effects: t=1 to 20</i>							
34	Annual tax savings from new issue flotation costs					\$132.5	\$53.0	
35	Annual lost tax savings from old issue flotation costs					(\$120.0)	(\$48.0)	
36	Net flotation cost tax savings =					\$12.5	\$5.0	
37								
38	<i>Annual Interest Savings Due to Refunding: t=1 to 20</i>							
39	Interest on old bond					\$7,200.0	\$4,320.0	
40	Interest on new bond					(\$5,400.0)	(\$3,240.0)	
41	Net interest savings					\$1,800.0	\$1,080.0	
42								
43	Calculating the annual flotation cost tax effects and the annual interest savings							
44								
45	Annual flotation Cost Tax Effects					Annual Interest Savings		
46	Maturity of the new bond (Nper)			20		Maturity of the new bond (Nper)		20
47	After-tax cost of new debt (Rate)			5.4%		After-tax cost of new debt (Rate)		5.4%
48	Annual flotation cost tax savings (Pmt)			\$5		Annual interest savings (Pmt)		\$1,080
49								
50	Since the annual flotation cost tax effects and interest savings occur for the next 20 years, they represent annuities. To evaluate this project, we must find the present values of these savings. Using the function wizard and solving for present value, we find that the present values of these annuities are:							
51								
52								
53								
54	NPV of annual flotation cost savings			\$60.251		NPV of annual interest savings		\$13,014.174
55								
56	Hence, the net present value of this bond refunding project will be the sum of the initial outlay and the present values of the annual flotation cost tax effects and interest savings.							
57								
58								
59	Bond Refunding NPV =	Initial Outlay	+		PV of flotation costs	+	PV of interest savings	
60	Bond Refunding NPV =	(\$5,470.000)		+	\$60.251		\$13,014.174	
61								
62	Bond Refund NPV =	\$7,604.425						

The net after-tax additional interest cost is thus \$180,000:

Interest paid on old issue	(\$360,000)
Interest earned on short-term securities	180,000
Net additional interest	<u>(\$180,000)</u>

These figures are reflected in Rows 29 and 30 of Table 19-3.

Row 31. *Total after-tax investment:* The total investment outlay required to refund the bond issue, which will be financed by debt, is thus \$5,470,000.¹⁵

Call premium	(\$3,600,000)
Flotation costs, new	(2,650,000)
Flotation costs, old, tax savings	960,000
Net additional interest	(180,000)
Total investment	<u>(\$5,470,000)</u>

This total is shown in Row 31 of Table 19-3.

Step 2: Calculate the Annual Flotation Cost Tax Effects

Row 34. *Tax savings on flotation costs on the new issue:* For tax purposes, flotation costs must be amortized over the life of the new bond, or for 20 years. Therefore, the annual tax deduction is

$$\frac{\$2,650,000}{20} = \$132,500.$$

Since our spreadsheet shows dollars in thousands, this number appears as \$132.5 on the spreadsheet. Because the firm is in the 40% tax bracket, it has a tax savings of $\$132,500(0.4) = \$53,000$ a year for 20 years. This is an annuity of \$53,000 for 20 years, and it is shown in Row 34.

Row 35. *Tax benefits lost on flotation costs on the old issue:* The firm, however, will no longer receive a tax deduction of \$120,000 a year for 20 years, so it loses an after-tax benefit of \$48,000 a year. This is shown in Row 35.

Row 36. *Net amortization tax effect:* The after-tax difference between the amortization tax effects of flotation on the new and old issues is \$5,000 a year for 20 years. This is shown in Row 36.

Step 3: Calculate the Annual Interest Savings

Row 39. *Interest on old bond, after tax:* The annual after-tax interest on the old issue is \$4.32 million:

$$(\$60,000,000)(0.12)(0.6) = \$4,320,000.$$

This is shown in Row 39 of Table 19-3.

Row 40. *Interest on new bond, after tax:* The new issue has an annual after-tax cost of \$3,240,000:

$$(\$60,000,000)(0.09)(0.6) = \$3,240,000.$$

This is shown in Row 40.

¹⁵The investment outlay (in this case, \$5,470,000) is usually obtained by increasing the amount of the new bond issue. In the example given, the new issue would be \$65,470,000. However, the interest on the additional debt *should not* be deducted at Step 3 because the \$5,470,000 itself will be deducted at Step 4. If additional interest on the \$5,470,000 were deducted at Step 3, interest would, in effect, be deducted twice. The situation here is exactly like that in regular capital budgeting decisions. Even though some debt may be used to finance a project, interest on that debt is not subtracted when developing the annual cash flows. Rather, the annual cash flows are *discounted* at the project's cost of capital.

Row 41. *Net annual interest savings:* Thus, the net annual interest savings is \$1,080,000:

Interest on old bonds, after tax	\$4,620,000
Interest on new bonds, after tax	(3,240,000)
Annual interest savings, after tax	<u>\$1,080,000</u>

This is shown in Row 41.

Step 4: Determine the NPV of the Refunding

Row 54. *PV of the benefits:* The PV of the annual after-tax flotation cost benefit can be found with a financial calculator, with $N = 20$, $I/YR = 5.4$, $PMT = 5,000$, and $FV = 0$. Solving for PV shows the flotation cost savings have a present value equal to \$60,251. The PV of the \$1,080,000 annual after-tax interest savings can be found with a financial calculator, with $N = 20$, $I/YR = 5.4$, $PMT = 1,080,000$ and $FV = 0$. Solving for PV shows the present value of after-tax interest cost savings is \$13,014,174.

These values are used in Row 60 when finding the NPV of the refunding operation:

Amortization tax effects	\$ 60,251
Interest savings	13,014,174
Net investment outlay	<u>(5,470,000)</u>
NPV from refunding	<u>\$ 7,604,425</u>

Because the net present value of the refunding is positive, it would be profitable to refund the old bond issue.

We can summarize the data shown in Table 19-3 using a time line (amounts in thousands) as shown below:

Time Period	0	5.4%	1	2	...	20
After-tax investment	□5,470					
Flotation cost tax effects			5	5	...	5
Interest savings			<u>1,080</u>	<u>1,080</u>	...	<u>1,080</u>
Net cash flows	<u>□5,470</u>		<u>1,085</u>	<u>1,085</u>	...	<u>1,085</u>
NPV _{5.4%} = \$7,604.						

Several other points should be made. First, because the cash flows are based on differences between contractual obligations, their risk is the same as that of the underlying obligations. Therefore, the present values of the cash flows should be found by discounting at the firm's least risky rate—its after-tax cost of marginal debt. Second, since the refunding operation is advantageous to the firm, it must be disadvantageous to bondholders; they must give up their

TVA Ratchets Down Its Interest Expenses



In 1998, TVA raised \$575 million in 30-year debt. If it had issued fixed-rate debt, it would be stuck with high coupon payments if interest rates in the market fall. If it had issued floating-rate debt, it would be stuck with high coupon payments if interest rates rise. If it had issued callable debt, then it could refinance if interest rates fall. But the costs of refunding are high, and TVA would have to agonize over the decision of whether to refund or wait in the hopes that rates will fall. None of these three choices seemed desirable, so TVA issued a new type of security that finesses these problems.

The new bonds are officially called Putable Automatic Rate Reset Securities (PARRS), but they are commonly known as ratchet bonds. After 2003, these bonds have a feature that resets the coupon rate each year to 94 basis points over the rate on the prevailing 30-year Treasury bond, if the new coupon would be lower than the ratchet bond's current coupon. In other words, the coupon on the bond will fall if interest rates fall, but will never increase from year to year, letting TVA lock in the lowest interest rates that prevail during the bond's life. In essence,

TVA gets to refund its debt in any year when rates fall, thus the term "ratchet."

The 94-basis-point spread is higher than the spread over Treasuries that normally exists on TVA's noncallable bonds, given its bond rating. However, if the bond rating deteriorates, then investors can "put" the bond by selling it back to TVA. The net effect is that investors are exposed to interest rate risk but not to credit risk, and they are compensated for interest rate risk by the relatively high spread.

These bonds were originally issued with a 6³/₄% coupon and on the first reset date, June 1, 2003, the rate ratcheted down to 5.952%, reflecting the decline in long-term interest rates since 1998. By June 1, 2005, long-term interest rates had fallen so that the coupon rate on the PARRS was ratcheted down to 5.49%. As of mid-2006, the rate was still 5.49%.

Source: Andrew Kalotay and Leslie Abreo, "Ratchet Bonds: Maximum Refunding Efficiency at Minimum Transaction Cost," *Journal of Applied Corporate Finance*, Vol. 41, no. 1 (Spring 1999), pp. 40–47, and TVA's Web site, <http://www.tva.gov>.

12% bonds and reinvest in new ones yielding 9%. This points out the danger of the call provision to bondholders, and it also explains why noncallable bonds command higher prices than callable bonds. Third, although it is not emphasized in the example, we assumed that the firm raises the investment required to undertake the refunding operation (the \$5,470,000 shown in Row 31 of Table 19-3) as debt. This should be feasible because the refunding operation will improve the interest coverage ratio, even though a larger amount of debt is outstanding.¹⁶ Fourth, we set up our example in such a way that the new issue had the same maturity as the remaining life of the old one. Often, the old bonds have a relatively short time to maturity (say, 5 to 10 years), whereas the new bonds have a much longer maturity (say, 25 to 30 years). In such a situation, the analysis should be set up similarly to a replacement chain analysis in capital budgeting, which was discussed in Chapter 11. Fifth, refunding decisions are

¹⁶See Aharon R. Ofer and Robert A. Taggart, Jr., "Bond Refunding: A Clarifying Analysis," *Journal of Finance*, March 1977, pp. 21–30, for a discussion of how the method of financing the refunding affects the analysis. Ofer and Taggart prove that if the refunding investment outlay is to be raised as common equity, the before-tax cost of debt is the proper discount rate, whereas if these funds are to be raised as debt, the after-tax cost of debt is the proper discount rate. Since a profitable refunding will virtually always raise the firm's debt-carrying capacity (because total interest charges after the refunding will be lower than before it), it is more logical to use debt than either equity or a combination of debt and equity to finance the operation. Therefore, firms generally do use additional debt to finance refunding operations.

well suited for analysis with a computer spreadsheet program. Spreadsheets such as the one shown in Table 19-3 are easy to set up, and once the model has been constructed, it is easy to vary the assumptions (especially the assumption about the interest rate on the refunding issue) and to see how such changes affect the NPV.

One final point should be addressed: Although our analysis shows that the refunding would increase the firm's value, would refunding *at this time* truly maximize the firm's expected value? If interest rates continue to fall, the company might be better off waiting, for this would increase the NPV of the refunding operation even more. The mechanics of calculating the NPV in a refunding are easy, but the decision of *when* to refund is not simple at all because it requires a forecast of future interest rates. Thus, the final decision on refunding now versus waiting for a possibly more favorable time is a judgmental decision.

To illustrate the timing decision, assume that Microchip's managers forecast that long-term interest rates have a 50% probability of remaining at their present level of 9% over the next year. However, there is a 25% probability that rates could fall to 7%, and a 25% probability that they could rise to 11%. Further, assume that short-term rates are expected to remain three percentage points below long-term rates and that the call premium would be reduced by one-twentieth if the call were delayed for 1 year.

The refunding analysis could then be repeated, as previously, but while assuming it would take place 1 year from now. Thus, the old bonds would have only 19 years remaining to maturity. We performed the analysis and found the NPV distribution of refunding 1 year from now:

Probability	Long-Term Interest Rate	NPV of Refunding One Year from Now
25%	7%	\$17,947,071
50	9	7,390,083
25	11	(1,359,939)

At first blush, it would seem reasonable to calculate the expected NPV of refunding next year in terms of the probability distribution. However, that would not be correct. If interest rates did rise to 11%, Microchip would not refund the issue; therefore, the actual NPV if rates rose to 11% would be zero. The expected NPV from refunding 1 year hence is therefore $0.25(\$17,947,071) + 0.50(\$7,390,083) + 0.25(\$0) = \$8,181,809$ versus \$7,604,425 if refunding occurred today.

Even though the expected NPV of refunding in 1 year is higher, Microchip's managers would probably decide to refund today. The \$7,604,425 represents a sure increase in firm value, whereas the \$8,181,809 is only an expected increase. Also, proper comparison requires that the \$8,181,809 be discounted back 1 year to today. Microchip's managers should opt to delay refunding only if the expected NPV from later refunding is sufficiently above today's sure NPV to compensate for the risk and time value involved.

Clearly, the decision to refund now versus refund later is complicated by the fact that there would be numerous opportunities to refund in the future rather than just a single opportunity 1 year from now. Furthermore, the decision must

be based on a large set of interest rate forecasts, a daunting task in itself. Fortunately, financial managers making bond refunding decisions can now use the values of derivative securities to estimate the value of the bond issue's embedded call option. If the call option is worth more than the NPV of refunding today, the issue should not be immediately refunded. Rather, the issuer should either delay the refunding to take advantage of the information obtained from the derivative market or actually create a derivative transaction to lock in the value of the call option.¹⁷

SELF-TEST

How is bond refunding like a capital budgeting project?

19.9 Managing the Risk Structure of Debt

There are several techniques that firms use to manage the risk of their debt, including project financing and securitization.

Project Financing

Historically, many large projects such as the Alaska pipeline have been financed by what is called **project financing**.¹⁸ We can only present an overview of the concept, for in practice it involves very complicated provisions and can take on many forms.

Project financing has been used to finance energy explorations, oil tankers, refineries, and electric generating plants. Generally, one or more firms will sponsor the project, putting up the required equity capital, while the remainder of the financing is furnished by lenders or lessors.¹⁹ Most often, a separate legal entity is formed to operate the project. Normally, the project's creditors do not have full recourse against the sponsors. In other words, the lenders and lessors must be paid from the project's cash flows, plus the sponsors' equity in the project, because the creditors have no claims against the sponsors' other assets or cash flows. Often the sponsors write "comfort" letters, giving general assurances that they will strive diligently to make the project successful. However, these letters are not

¹⁷For more information on derivatives in general, see Chapter 23. For more information on the use of derivatives to help make call decisions, see Andrew J. Kalotay and George O. Williams, "How to Succeed in Derivatives without Really Buying," *Journal of Applied Corporate Finance*, Fall 1993, pp. 100–103. For more on bond refunding, see Raymond C. Chiang and M. P. Narayanan, "Bond Refunding in Efficient Markets: A Dynamic Analysis with Tax Effects," *Journal of Financial Research*, Winter 1991, pp. 287–302; John D. Finnerty "Refunding High-Coupon Debt," *Midland Corporate Finance Journal*, Winter 1986, pp. 59–74; David C. Mauer, "Optimal Bond Call Policies under Transactions Costs," *Journal of Financial Research*, Spring 1993, pp. 23–37; and Janet S. Thatcher and John G. Thatcher, "An Empirical Test of the Timing of Bond-Refunding Decisions," *Journal of Financial Research*, Fall 1992, pp. 219–230.

¹⁸For an excellent discussion of project financing, see John W. Kensinger and John D. Martin, "Project Finance: Raising Money the Old-Fashioned Way," *Journal of Applied Corporate Finance*, Fall 1988, pp. 69–81; and Benjamin C. Esty, "Petrozuata: A Case Study on the Effective Use of Project Finance," *Journal of Applied Corporate Finance*, Fall 1999, pp. 26–42.

¹⁹A lessor is an individual or firm that owns buildings and equipment and then leases them to another firm. Leasing is discussed in Chapter 20.

legally binding, so in project financing the lenders and lessors must focus their analysis on the inherent merits of the project plus the equity cushion provided by the sponsors.²⁰

Project financing is not a new development. Indeed, back in 1299, the English Crown negotiated a loan with Florentine merchant banks that was to be repaid with 1 year's output from the Devon silver mines. Essentially, the Italians were allowed to operate the mines for 1 year, paying all the operating costs and mining as much ore as they could. The Crown made no guarantees as to how much ore could be mined or the value of the refined silver. A more current example involved GE Capital, the credit arm of General Electric, which recently financed a \$72 million project to build an aluminum can plant. The plant is owned by several beverage makers, but it is operated independently, and GE Capital must depend on the cash flows from the plant to repay the loan. About half of all project financings in recent years have been for electric generating plants, including both plants owned by electric utilities and cogeneration plants operated by industrial companies. Project financings are generally characterized by large size and a high degree of complexity. However, because project financing is tied to a specific project, it can be tailored to meet the specific needs of both the creditors and the sponsors. In particular, the financing can be structured so that both the funds provided during the construction phase and the subsequent repayments match the timing of the project's projected cash outflows and inflows.

Project financing offers several potential benefits over conventional debt financing. For one, project financing usually restricts the usage of the project's cash flows, which means that the lenders, rather than the managers, can decide whether to reinvest excess cash flows or to use them to reduce the loan balance by more than the minimum required. Conferring this power on the lenders reduces their risks. Project financings also have advantages for borrowers. First, because risks to the lenders are reduced, the interest rate built into a project financing deal may be relatively low. Second, since suppliers of project financing capital have no recourse against the sponsoring firms' other assets and cash flows, project financings insulate the firms' other assets from risks associated with the project being financed. Managers may be more willing to take on a very large, risky project if they know that the company's existence would not be threatened if it fails.

Project financings increase the number and type of investment opportunities; hence they make capital markets "more complete." At the same time, project financings reduce the costs to investors of obtaining information and monitoring the borrower's operations. To illustrate, consider an oil and gas exploration project that is funded using project financing. If the project were financed as an integral part of the firm's normal operations, investors in all the firm's outstanding securities would need information on the project. By isolating the project, the need for information is confined to the investors in the project financing, and they need to monitor only the project's operations, and not those of the entire firm.

²⁰In another type of project financing, each sponsor guarantees its share of the project's debt obligations. Here the creditors also consider the creditworthiness of the sponsors in addition to the project's own prospects. It should be noted that project financing with multiple sponsors in the electric utility industry has led to problems when one or more of the sponsors has gotten into financial trouble. For example, Long Island Lighting, one of the sponsors in the Nine Mile Point nuclear project, became unable to meet its commitments to the project, which forced other sponsors to shoulder an additional burden or else see the project cancelled and lose all their investment up to that point. Utility executives have stated that this default, and others, will make companies reluctant to enter into similar projects in the future.

Project financings also permit firms whose earnings are below the minimum requirements specified in their existing bond indentures to obtain additional debt financing. In such situations, lenders look only at the merits of the new project, and its cash flows may support additional debt even though the firm's overall situation does not. Project financings also permit managers to reveal proprietary information to a smaller group of investors; hence project financings increase the ability of a firm to maintain confidentiality. Finally, project financings can improve incentives for key managers by enabling them to take direct ownership stakes in the operations under their control. By establishing separate projects, companies can provide incentives that are much more directly based on individual performance than is typically possible within a large corporation.

Securitization

As the term is generally used, a **security** refers to a publicly traded financial instrument, as opposed to a privately placed instrument. Thus, securities have greater liquidity than otherwise similar instruments that are not traded in an open market. In recent years, procedures have been developed to **securitize** various types of debt instruments, thus increasing their liquidity, lowering the cost of capital to borrowers, and generally increasing the efficiency of the financial markets.

Securitization has occurred in two major ways. First, some debt instruments that were formerly rarely traded are now actively traded, with the change being due to decisions by certain financial institutions to "make a market," which means to stand willing to buy or sell the security and to hold an inventory of the security in order to balance buy and sell orders. This occurred many years ago in the case of common stocks and investment-grade bonds. More recently, it occurred in the commercial paper market, in which large, financially strong firms issue short-term, unsecured debt in lieu of obtaining bank loans. The commercial paper market has grown from about \$50 billion outstanding in the mid-1970s to over \$1.6 trillion today, and this market permits large, strong firms to finance their working capital needs at lower cost than with bank loans.

Another example of securitization is the junk bond market. Before this market developed, firms with poor credit were forced to obtain debt financing on a private placement basis, typically from the firms' banks. It was difficult for firms to shop around for the best rate, because lenders who were not familiar with them were unwilling to spend the time and money necessary to determine the feasibility of the loan. Moreover, lenders were concerned about (and hence charged a higher rate for) the illiquidity of privately placed debt. Then, Michael Milken developed procedures for analyzing the repayment feasibility of junk bonds, and Drexel Burnham Lambert put its reputation and credibility behind these issues and made a market for them in case a purchaser needed to cash out. Subsequently, Morgan Stanley, Merrill Lynch, Salomon Smith Barney, and the other major investment banks entered the junk bond market, and today they have "securitized" much of the old private placement market for below-investment-grade debt.

The second major development in securitization involves the pledging of specific assets, **asset securitization**, or the creation of **asset-backed securities**. The oldest type of asset securitization is the mortgage-backed bond. Here, individual home mortgages are combined into pools, and then bonds are created that use the pool of mortgages as collateral. The financial institution that originated the mortgage generally continues to act as the servicing agent, but the mortgage itself is sold to

Bowie Bonds Ch-Ch-Change Asset Securitization



Asset securitization was already booming, with bonds being backed by mortgages, car loans, credit cards, and student loans. But David Bowie juiced it up even more by issuing Bowie Bonds, which are backed by future royalties on more than 250 of his older songs. These bonds have a 10-year maturity and pay an interest rate of 7.9%. With a total issue size of \$55 million, that amounts to a whopping \$4.345 million in interest payments each year. At the

time of issue, Moody's Investor Service was bullish on Bowie, since it gave his issue a rating of A3, high enough that the bonds were issued with an interest rate only 1.53 percentage points higher than 10-year Treasury bonds. However, in response to declining industry sales, Moody's downgraded the bonds to Baa3 in 2004.

Source: "Bowie Ch-Ch-Changes the Market," *CFO*, April 1997, p. 20; and www.moody.com.

other investors. The securitization of mortgages has created a national mortgage market with many players, and this has benefited borrowers. The development has also benefited lenders, for the original lending institution no longer owns the relatively long-term mortgage; hence it is better able to match the maturity of its assets (loans) with its liabilities (deposit accounts). Today, many different types of assets are being used as collateral, including auto loans, credit card balances, and even the royalties from David Bowie's music!

The asset securitization process involves the pooling and repackaging of loans secured by relatively homogeneous, small-dollar assets into liquid securities. In the past, such financing was provided by a single lending institution, which would write the loan, structure the terms, absorb the credit and interest rate risk, provide the capital, and service the collections. Under securitization, several different institutions are involved, with each playing a different functional role. A savings and loan might originate the loan, an investment bank might pool the loans and structure the security, a federal agency might insure against credit risk, a second investment bank might sell the securities, and a pension fund might supply the final capital.

The process of securitization has, in general, lowered costs and increased the availability of funds to borrowers, decreased risks to lenders, and created new investment opportunities for many investors. With these potential benefits, we predict that securitization will continue to expand in the future.

SELF-TEST

What is project financing? What are its advantages and disadvantages?

What is securitization? What are its advantages to borrowers? What are its advantages to lenders?

Summary

- The **Securities and Exchange Commission (SEC)** regulates securities markets.
- **Private placements** are securities offerings to a limited number of investors and are exempt from registration with the SEC.

- **Accredited investors** include the officers and directors of a company, high-wealth individuals, and institutional investors. These investors are eligible to buy securities in private placements.
- An **angel** is a wealthy individual who makes an equity investment in a start-up company.
- The managers of a **venture capital fund** are called **venture capitalists**, or **VCs**. They raise money from investors and make equity investments in start-up companies, called **portfolio companies**.
- **Going public** in an **initial public offering (IPO)** facilitates stockholder diversification, increases liquidity of the firm's stock, makes it easier for the firm to raise capital, establishes a value for the firm, and makes it easier for a firm to sell its products. However, reporting costs are high, operating data must be disclosed, management self-dealings are harder to arrange, the price may sink to a low level if the stock is not traded actively, and public ownership may make it harder for management to maintain control.
- **Investment banks** assist in issuing securities by helping the firm determine the size of the issue and the type of securities to be used, by establishing the selling price, by selling the issue, and, in some cases, by maintaining an aftermarket for the stock.
- An investment bank may sell a security issue on a **best efforts basis**, or may guarantee the sale by **underwriting** the issue.
- Before an IPO, the investment bank and management team go on a **roadshow** and make presentations to potential institutional investors.
- An IPO is **oversubscribed** if investors are willing to purchase more shares than are being offered at the IPO price.
- The **spread** is the difference between the price at which an underwriter sells a security and the proceeds that the underwriter gives to the issuing company. In recent years the spread for almost all IPOs has been 7%.
- An **equity carve-out** (also called a **partial public offering** or **spin-out**) is a special IPO in which a publicly traded company converts a subsidiary into a separately traded public company by selling shares of stock in the subsidiary. The parent typically retains a controlling interest.
- SEC Rule 415, also known as **shelf registration**, allows a company to register an issue and then sell the issue in pieces over time rather than all at once.
- A **seasoned equity offering** occurs when a public company issues additional shares of stock.
- A company **goes private** when a small group of investors, including the firm's senior management, purchases all of the equity in the company. Such deals usually involve high levels of debt, and are commonly called **leveraged buyouts (LBOs)**.
- If a bond has a call provision, the issuer may **refund (call)** the bond prior to maturity and pay for it with a new debt issue at a lower interest rate.
- In **project financing**, the payments on debt are secured by the cash flows of a particular project.
- **Asset securitization** occurs when assets such as mortgages or credit card receivables are bundled together into a pool. Then bonds are created that use the payments in the pool to make interest and principal payments on the bonds.

Questions

- (19-1) Define each of the following terms:
- Going public; new issue market; initial public offering (IPO)
 - Public offering; private placement
 - Venture capitalists; roadshow; spread
 - Securities and Exchange Commission (SEC); registration statement; shelf registration; margin requirement; insiders
 - Prospectus; “red herring” prospectus
 - National Association of Securities Dealers (NASD)
 - Best efforts arrangement; underwritten arrangement
 - Refunding; project financing; securitization; maturity matching
- (19-2) Is it true that the “flatter,” or more nearly horizontal, the demand curve for a particular firm’s stock and the less important investors regard the signaling effect of the offering, the more important the role of investment banks when the company sells a new issue of stock?
- (19-3) The SEC attempts to protect investors who are purchasing newly issued securities by making sure that the information put out by a company and its investment banks is correct and is not misleading. However, the SEC does not provide an opinion about the real value of the securities; hence, an investor might pay too much for some new stock and consequently lose heavily. Do you think the SEC should, as a part of every new stock or bond offering, render an opinion to investors on the proper value of the securities being offered? Explain.
- (19-4) How do you think each of the following items would affect a company’s ability to attract new capital and the flotation costs involved in doing so?
- A decision of a privately held company to go public
 - The increasing institutionalization of the “buy side” of the stock and bond markets
 - The trend toward “financial conglomerates” as opposed to stand-alone investment banking houses
 - Elimination of the preemptive right
 - The introduction of shelf registrations in 1981
- (19-5) Before entering a formal agreement, investment banks carefully investigate the companies whose securities they underwrite; this is especially true of the issues of firms going public for the first time. Since the banks do not themselves plan to hold the securities but intend to sell them to others as soon as possible, why are they so concerned about making careful investigations?

Self-Test Problem Solution Appears in Appendix A

- (ST-1) House Mountain Breweries (HMB) is planning an IPO. Its underwriters have said the stock will sell at \$20 per share. The direct costs (legal fees, printing, etc.) will be \$800,000. The underwriters will charge a 7% spread.

- How many shares must HMB sell to net \$30 million?
- If the stock price closes the first day at \$22, how much cash has HMB left on the table?
- What are HMB's total costs (direct, indirect, and underwriting) for the IPO?

Problems Answers Appear in Appendix B

Easy Problems 1–2

(19-1)
Profit or Loss on New
Stock Issue

Security Brokers Inc. specializes in underwriting new issues by small firms. On a recent offering of Beedles Inc., the terms were as follows:

Price to public	\$5 per share
Number of shares	3 million
Proceeds to Beedles	\$14,000,000

The out-of-pocket expenses incurred by Security Brokers in the design and distribution of the issue were \$300,000. What profit or loss would Security Brokers incur if the issue were sold to the public at an average price of

- \$5 per share?
- \$6 per share?
- \$4 per share?

(19-2)
Underwriting and
Flotation Expenses

The Beranek Company, whose stock price is now \$25, needs to raise \$20 million in common stock. Underwriters have informed the firm's management that they must price the new issue to the public at \$22 per share because of signaling effects. The underwriters' compensation will be 5% of the issue price, so Beranek will net \$20.90 per share. The firm will also incur expenses in the amount of \$150,000.

How many shares must the firm sell to net \$20 million after underwriting and flotation expenses?

Intermediate Problem 3

(19-3)
New Stock Issue

The Edelman Gem Company, a small jewelry manufacturer, has been successful and has enjoyed a good growth trend. Now Edelman is planning to go public with an issue of common stock, and it faces the problem of setting an appropriate price on the stock. The company and its investment banks believe that the proper procedure is to select several similar firms with publicly traded common stock and to make relevant comparisons.

Several jewelry manufacturers are reasonably similar to Edelman with respect to product mix, asset composition, and debt/equity proportions. Of these companies, Kennedy Jewelers and Strasburg Fashions are most similar. When analyzing the following data, assume that 2002 and 2007 were reasonably "normal" years for all three companies—that is, these years were neither especially good nor especially bad in terms of sales, earnings, and dividends. At the time of the analysis, r_{RF} was 8% and RP_M was 4%. Kennedy is listed on the AMEX and Strasburg on the NYSE, while Edelman will be traded in the Nasdaq market.

	Kennedy	Strasburg	Edelman (Totals)
Earnings per share*			
2007	\$ 4.50	\$ 7.50	\$1,200,000
2002	3.00	5.50	816,000
Price per share*			
2007	\$36.00	\$65.00	—
Dividends per share*			
2007	\$ 2.25	\$ 3.75	\$ 600,000
2002	1.50	2.75	420,000
Book value per share, 2007*	\$30.00	\$55.00	\$ 9 million
Market/book ratio, 2007	120%	118%	—
Total assets, 2007	\$28 million	\$ 82 million	\$20 million
Total debt, 2007	\$12 million	\$ 30 million	\$11 million
Sales, 2007	\$41 million	\$140 million	\$37 million

*The data are on a per share basis for Kennedy and Strasburg, but are totals for Edelman.

- Assume that Edelman has 100 shares of stock outstanding. Use this information to calculate earnings per share (EPS), dividends per share (DPS), and book value per share for Edelman. (Hint: Edelman's 2007 EPS = \$12,000.)
- Calculate earnings and dividend growth rates for the three companies. (Hint: Edelman's EPS growth rate is 8%.)
- On the basis of your answer to part a, do you think Edelman's stock would sell at a price in the same "ballpark" as that of Kennedy and Strasburg, that is, in the range of \$25 to \$100 per share?
- Assuming that Edelman's management can split the stock so that the 100 shares could be changed to 1,000 shares, 100,000 shares, or any other number, would such an action make sense in this case? Why or why not?
- Now assume that Edelman did split its stock and has 400,000 shares. Calculate new values for EPS, DPS, and book value per share. (Hint: Edelman's new 2007 EPS is \$3.00.)
- Return on equity (ROE) can be measured as EPS/book value per share or as total earnings/total equity. Calculate ROEs for the three companies for 2007. (Hint: Edelman's 2007 ROE is 13.3%.)
- Calculate dividend payout ratios for the three companies for both years. (Hint: Edelman's 2007 payout ratio is 50%.)
- Calculate debt/total assets ratios for the three companies for 2007. (Hint: Edelman's 2007 debt ratio is 55%.)
- Calculate the P/E ratios for Kennedy and Strasburg for 2007. Are these P/Es reasonable in view of relative growth, payout, and ROE data? If not, what other factors might explain them? (Hint: Kennedy's P/E = 8 \times .)
- Now determine a range of values for Edelman's stock price, with 400,000 shares outstanding, by applying Kennedy's and Strasburg's P/E ratios, price/dividends ratios, and price/book value ratios to your data for Edelman. For example, one possible price for Edelman's stock is (P/E Kennedy)(EPS Edelman) = 8(\$3) = \$24 per share. Similar calculations would produce a

range of prices based on both Kennedy's and Strasburg's data. (Hint: Our range was \$24 to \$27.)

- k. Using the equation $r_s = D_1/P_0 + g$, find approximate r_s values for Kennedy and Strasburg. Then use these values in the constant growth stock price model to find a price for Edelman's stock. (Hint: We averaged the EPS and DPS g 's for Edelman.)
- l. At what price do you think Edelman's shares should be offered to the public? You will want to select a price that will be low enough to induce investors to buy the stock but not so low that it will rise sharply immediately after it is issued. Think about relative growth rates, ROEs, dividend yields, and total returns ($r_s = D_1/P_0 + g$).

Challenging Problems 4-5

(19-4) Refunding Analysis

Jan Volk, financial manager of Green Sea Transport (GST), has been asked by her boss to review GST's outstanding debt issues for possible bond refunding. Five years ago, GST issued \$40,000,000 of 11%, 25-year debt. The issue, with semiannual coupons, is currently callable at a premium of 11%, or \$110 for each \$1,000 par value bond. Flotation costs on this issue were 6%, or \$2,400,000.

Volk believes that GST could issue 20-year debt today with a coupon rate of 8%. The firm has placed many issues in the capital markets during the last 10 years, and its debt flotation costs are currently estimated to be 4% of the issue's value. GST's federal-plus-state tax rate is 40%.

Help Volk conduct the refunding analysis by answering the following questions:

- a. What is the total dollar call premium required to call the old issue? Is it tax deductible? What is the net after-tax cost of the call?
- b. What is the dollar flotation cost on the new issue? Is it immediately tax deductible? What is the after-tax flotation cost?
- c. What amounts of old-issue flotation costs have not been expensed? Can these deferred costs be expensed immediately if the old issue is refunded? What is the value of the tax savings?
- d. What is the net after-tax cash outlay required to refund the old issue?
- e. What is the semiannual tax savings that arises from amortizing the flotation costs on the new issue? What is the forgone semiannual tax savings on the old-issue flotation costs?
- f. What is the semiannual after-tax interest savings that would result from the refunding?
- g. Thus far, Volk has identified two future cash flows: (1) the net of new-issue flotation cost tax savings and old-issue flotation cost tax savings that are lost if refunding occurs and (2) after-tax interest savings. What is the sum of these two semiannual cash flows? What is the appropriate discount rate to apply to these future cash flows? What is the present value of these cash flows? (Hint: The $PVIFA_{2.4\%,40} = 25.5309$.)
- h. What is the NPV of refunding? Should GST refund now or wait until later?

(19-5) Refunding Analysis

Mullet Technologies is considering whether or not to refund a \$75 million, 12% coupon, 30-year bond issue that was sold 5 years ago. It is amortizing \$5 million of flotation costs on the 12% bonds over the issue's 30-year life. Mullet's investment banks have indicated that the company could sell a new 25-year issue at an

interest rate of 10% in today's market. Neither they nor Mullet's management anticipate that interest rates will fall below 10% any time soon, but there is a chance that rates will increase.

A call premium of 12% would be required to retire the old bonds, and flotation costs on the new issue would amount to \$5 million. Mullet's marginal federal-plus-state tax rate is 40%. The new bonds would be issued 1 month before the old bonds are called, with the proceeds being invested in short-term government securities returning 6% annually during the interim period.

- Perform a complete bond refunding analysis. What is the bond refunding's NPV?
- What factors would influence Mullet's decision to refund now rather than later?

Spreadsheet Problem

(19-6)

Build a Model: Bond Refunding



Start with the partial model in the file *FM12 Ch 19 P 06 Build a Model.xls* from the textbook's Web site. Rework Problem 19-5, part a, using a spreadsheet model, and answer the following question:

- At what interest rate on the new debt is the NPV of the refunding no longer positive?



Cyberproblem

Please go to the textbook's Web site to access any Cyberproblems.

Mini Case



Randy's, a family-owned restaurant chain operating in Alabama, has grown to the point where expansion throughout the entire Southeast is feasible. The proposed expansion would require the firm to raise about \$15 million in new capital. Because Randy's currently has a debt ratio of 50%, and also because the family members already have all their personal wealth invested in the company, the family would like to sell common stock to the public to raise the \$15 million. However, the family does want to retain voting control. You have been asked to brief the family members on the issues involved by answering the following questions:

- What agencies regulate securities markets?
- How are start-up firms usually financed?
- Differentiate between a private placement and a public offering.

- d. Why would a company consider going public? What are some advantages and disadvantages?
 - e. What are the steps of an initial public offering?
 - f. What criteria are important in choosing an investment bank?
 - g. Would companies going public use a negotiated deal or a competitive bid?
 - h. Would the sale be on an underwritten or best efforts basis?
 - i. Without actually doing any calculations, describe how the preliminary offering range for the price of an IPO would be determined.
 - j. What is a roadshow? What is book-building?
 - k. Describe the typical first-day return of an IPO and the long-term returns to IPO investors.
 - l. What are the direct and indirect costs of an IPO?
 - m. What are equity carve-outs?
 - n. In what other ways are investment banks involved in issuing securities?
 - o. What is meant by “going private”? What are some advantages and disadvantages?
 - p. How do companies manage the maturity structure of their debt?
 - q. Under what conditions would a firm exercise a bond call provision?
 - r. Explain how firms manage the risk structure of their debt with
 - (1) Project financing.
 - (2) Securitization.
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Selected Additional Cases

The following cases from Textchoice, Thomson Learning's online library, cover many of the concepts discussed in this chapter and are available at <http://www.textchoice2.com>.

Klein-Brigham Series:

Case 21, “Sun Coast Savings Bank,” illustrates the decision to go public. Case 22, “Precision Tool

Company,” emphasizes the investment banking process. Case 23, “Art Deco Reproductions, Inc.,” focuses on the analysis of a rights offering. Case 24, “Bay Area Telephone Company,” Case 48, “Shenandoah Power Company,” and Case 64, “Tucson Entertainment, Inc.,” illustrate the bond refunding decision.