CHAPTER

18

LEASE FINANCING AND BUSINESS VALUATION

Learning Objectives

After studying this chapter, readers will be able to

- Describe the two primary types of leases.
- Explain how lease financing affects financial statements and taxes.
- Conduct a basic lease analysis from the perspective of the lessee.
- Discuss the factors that create value in lease transactions.
- Explain in general terms how businesses are valued.
- Conduct a business valuation using both discounted cash flow and market multiple approaches.

Introduction

This chapter contains two unrelated topics: lease financing and business valuation. *Leasing* is a substitute for debt financing and hence expands the range of financing alternatives available to businesses (and to individuals). However, leasing should be used only when it offers some advantage over conventional financing. We begin this chapter by discussing how businesses analyze lease transactions and what factors contribute to the large amount of leasing activity among healthcare businesses.

The valuation of entire businesses, as opposed to individual projects, is a critical step in the merger and acquisition process. In addition, *business valuation* plays an important role when one owner is bought out by other owners and when businesses are inherited. The second part of this chapter discusses two specific techniques used to value businesses: discounted cash flow and market multiple.

Leasing Basics

Businesses generally own fixed assets, but it is the use of land, buildings, and equipment that is important, not their ownership. One way to obtain the use of such assets is to raise debt or equity capital and then use these funds to buy

them. An alternative way to obtain the use of assets is by leasing. Before the 1950s, leasing was generally associated with real estate (land and buildings), but today it is possible to lease almost any kind of fixed asset. Although leasing is used extensively in all industries, it is especially prevalent in the health services industry, primarily with medical equipment and information technology hardware and software.

Lessee
In a lease agreement, the party that uses the leased asset and makes the rental payments.

Every lease transaction has two parties: The user of the leased asset is called the **lessee,** while the owner of the property, usually the manufacturer or a leasing company, is called the **lessor.** (The term "lessee" is pronounced "less-ee," not "lease-ee," and "lessor" is pronounced "less-or.")

Lessor
In a lease agreement, the party that owns the leased asset and receives the rental payments.

Leases are commonly classified into two categories: operating leases and financial leases. In this section, we discuss these informal classifications. In later sections, we will discuss the more formal classifications used by accountants in the preparation of financial statements and by the Internal Revenue Service (IRS).

Operating Leases

Operating lease
A lease whose term is much shorter than the expected useful life of the asset being leased.

Operating leases, sometimes called *service leases,* generally provide both financing and maintenance. IBM was one of the pioneers of operating lease contracts, which are used most often for computers and office copying machines as well as for automobiles, trucks, and medical diagnostic equipment. Operating leases typically require the lessor to maintain and service the leased equipment, with the cost of maintenance built into the lease payments.

Additionally, operating leases are not fully amortized—that is, the payments required under the lease contract are not sufficient for the lessor to recover the full cost of the equipment. However, the lease contract is written for a period that is considerably shorter than the expected useful life of the leased asset, and the lessor expects to recover all costs eventually, either by lease renewal payments or by sale of the equipment.

A final feature of operating leases is that they frequently contain a *cancellation clause* that gives the lessee the right to cancel the lease and return the equipment to the lessor prior to the expiration of the lease. This is an important feature to the lessee because it means that the equipment can be returned if it is rendered obsolete by technological developments or if it is no longer needed because of a decline in the lessee's business.

Per procedure lease
A lease agreement in which the lessee pays a fee to the lessor each time the equipment is used, as opposed to paying a fixed, typically monthly, rental payment. Also called *per use* or *per click* lease.

Note that lease (rental) payments on operating leases can be structured in two different ways. Under *conventional* terms, fixed payments are made to the lessor periodically, usually monthly. With this type of payment, the cost to the lessee (and the return to the lessor) is known (more or less) with certainty. Under **per procedure lease** terms, also called *per use* or *per click* terms, a fixed amount is paid each time the equipment is used—for example, for each X-ray taken. In this case, the cost to the lessee and return to the lessor are

not known with certainty—rather, they depend on volume. In essence, a per procedure lease converts a fixed cost for the equipment, which is independent of volume, into a variable cost, which is directly related to volume. We will have more to say about per procedure leases later in the chapter.

Financial Leases

Financial leases, sometimes called *capital leases,* differ from operating leases in that they (1) typically do not provide for maintenance, (2) are typically not cancelable, (3) are generally for a period that approximates the useful life of the asset, and (4) are fully amortized.

Financial lease A lease agreement that has a term (life) approximately equal to the expected useful life of the leased asset.

In a typical financial lease, the lessee selects the specific item needed and then negotiates the price and delivery terms with the manufacturer. The lessee then arranges to have a leasing firm (lessor) buy the equipment from the manufacturer, and the lessee simultaneously executes a lease agreement with the lessor.

The terms of a financial lease call for full amortization of the lessor's investment, plus a rate of return on the lease that is close to the percentage rate the lessee would have paid on a secured term loan. For example, if a radiology group practice would have to pay 10 percent for a term loan to buy an X-ray machine, the lessor would build in a return on the lease of about 10 percent. The parallel to borrowing is obvious in a financial lease. Under a secured loan arrangement, the lender would normally receive a series of equal payments just sufficient to amortize the loan and to provide a specified rate of return on the outstanding loan balance. Under a financial lease, the lease payments are set up exactly the same way—the payments are just sufficient to return the full purchase price to the lessor plus a stated return on the lessor's investment. At the end of a financial lease, the ownership of the leased asset is transferred from the lessor to the lessee.

A *sale and leaseback* is a special type of financial lease, often used with real estate, which can be arranged by a user who currently owns some asset. The user sells the asset to another party and simultaneously executes an agreement to lease the property for a stated period under specific terms. In a sale and leaseback, the lessee receives an immediate cash payment in exchange for a future series of lease payments that must be made to rent the use of the asset sold. For example, in June 2015, DEC Property LLC, which is owned by seven physicians, sold a ten-year-old building in Nashville that housed the physicians' endoscopy practice. The building was purchased by Community Health Trust, a real estate investment trust (REIT), for $2.8 million, which simultaneously signed a five-year operating lease with the practice. In essence, the physicians "cashed out" of the real estate business, pocketed a good piece of change, and can now focus on medicine. Of course, the practice now must pay lease payments to the building's new owner.

Although the distinction between operating and financial leases has historical significance, today many lessors offer leases under a wide variety of terms. Therefore, in practice, leases sometimes do not fit exactly into the operating lease or financial lease categories but combine some features of each.

SELF-TEST QUESTIONS

1. What is the difference between an operating lease and a financial lease?
2. What is a sale and leaseback?
3. How do per procedure payment terms differ from conventional terms?

Tax Effects

Guideline lease A lease contract that meets the IRS requirements for a genuine lease, thus allowing the lessee to deduct the full amount of the lease payment from taxable income.

For both investor-owned and not-for-profit businesses, tax effects can play an important role in the lease-versus-buy decision.

Investor-Owned (Taxable) Businesses

For investor-owned businesses, the full amount of each lease payment is a tax-deductible expense for the lessee **provided that the IRS agrees that a particular contract is a genuine lease.** This makes it important that lease contracts be written in a form acceptable to the IRS. A lease that complies with all of the IRS requirements for taxable businesses is called a **guideline lease** or *tax-oriented lease*. In a guideline lease, ownership (depreciation) tax benefits accrue to the lessor, and the lessee's lease payments are fully tax deductible. A lease that does not meet the tax guidelines is called a *non-tax-oriented lease*. For this type of lease, a for-profit lessee can deduct only the implied interest portion of each lease payment. However, in this situation the IRS considers the lessee the owner of the leased equipment, so the lessee, rather than the lessor, obtains the tax depreciation benefits.

The reason for the IRS's concern about lease terms is that, without restrictions, a for-profit business could set up a "lease" transaction that calls for rapid lease payments, which would be deductible from taxable income. The effect would be

Industry Practice

LASIK and Per Use Leases

LASIK—commonly referred to as laser eye surgery or laser vision correction—is a type of refractive surgery for the correction of myopia, hypermetropia, and astigmatism. The surgery is performed by an ophthalmologist who uses a laser to reshape the eye's cornea to improve visual acuity. For most patients, LASIK provides a permanent alternative to eyeglasses or contact lenses. As of 2014, more than 12 million such procedures have been performed in the United States.

LASIK surgery was first approved by the Food and Drug Administration for use in the United States in the early 1990s, after its successful application in other countries. At the time, the equipment itself cost about $100,000 and, while the cost to patients varied substantially, it

(continued)

to depreciate the equipment over a much shorter period than the IRS allows in its depreciation guidelines. If just any type of contract could be called a lease and given tax treatment as a lease, the timing of lease tax shelters could be sped up compared with depreciation tax shelters. This speed-up would benefit the lessee, but it would be costly to the government and to individual taxpayers. For this reason, the IRS has established specific rules that define a lease for tax purposes.

The primary point here is that if investor-owned businesses are to obtain tax benefits from leasing, the lease contract must be written in a manner that will qualify it as a true lease under IRS guidelines. Any questions about the tax status of a lease contract must be resolved by the potential lessee prior to signing the contract.

Not-for-Profit (Tax-Exempt) Businesses

Not-for-profit lessees also benefit from tax laws, but in a different way. Because not-for-profit businesses do not obtain tax benefits from depreciation, the ownership of assets has no tax value. However, lessors, who are all taxable businesses, do benefit from ownership. In effect, when assets are owned by not-for-profit businesses, the depreciation tax benefit is lost, but when not-for-profit firms lease assets, a tax benefit is realized by the lessor. This realized benefit, in turn, can be shared with the lessee in the form of lower rental payments. However, the cost of tax-exempt debt to not-for-profit firms can be lower than the after-tax cost of debt to taxable firms, so sometimes it is less costly for a not-for-profit firm to borrow money in the tax-exempt markets and buy the equipment rather than lease it.

A special type of financial transaction has been created for not-for-profit businesses called a *tax-exempt lease*. The major difference between a tax-exempt lease and a conventional lease is that the implied interest portion of the lease payment is not classified as taxable income to the lessor, so it is exempt from federal income taxes. The rationale for this tax treatment is that the interest paid on most debt financing used by not-for-profit organizations is tax exempt

(continued from previous page)

averaged about $2,000 per eye. Initially, there was significant uncertainty regarding the effectiveness and patient acceptance of the procedure, and hence the volume of surgeries was highly speculative. The end result was that most ophthalmologists were unwilling to risk the $100,000 purchase price.

To encourage widespread use, the manufacturer, along with other lessors, offered to lease the equipment to physicians on a per procedure (per use) basis. The lease required no up-front payment, and the lessor handled equipment maintenance and any required repairs. In addition, the lessor provided delivery and installation along with all required technical training for a per use charge of roughly $800. The end result was a fixed contribution of about $1,200 for each procedure performed, which first covered all other operating costs and then flowed to profit. Under a traditional fixed payment lease, the risk of low volume is borne by the practice, but under a per use lease, this risk is assumed by the lessor. At anticipated volumes, the per use lease cost more than a fixed payment lease, but the per use lease provides protection (insurance) for the lessee against low volume.

Because of the attractiveness of the per use lease financing option to ophthalmologists, LASIK surgery took off like gangbusters and today remains one of their leading revenue sources.

to the lender, and a lessor is, in actuality, a lender. Tax-exempt leases provide a greater after-tax return to lessors than do conventional leases, so some of this "extra" return can be passed back to the lessee in the form of lower lease payments. Thus, the lessee's payments on a tax-exempt lease could be lower than payments on a conventional lease.

SELF-TEST QUESTIONS

1. What is the difference between a tax-oriented (guideline) lease and a non-tax-oriented lease?
2. Why should the IRS care about lease provisions?
3. What is a tax-exempt lease?

Financial Statement Effects

Regardless of the type of lease, the lessee reports lease payments as an expense item on the *income statement* in the year they are made. Furthermore, as discussed below, if the lease is a capital lease and is listed on the *balance sheet,* the leased asset is depreciated each year, and the annual depreciation expense is reported on the income statement.

However, under certain conditions, neither the leased asset nor the contract liabilities (present value of lease payments) appear on the lessee's balance sheet. For this reason, leasing is often called **off-balance-sheet financing.** This point is illustrated in Exhibit 18.1 by the balance sheets of two hypothetical healthcare providers, B and L. Initially, the balance sheets of both firms are identical, and they both have debt ratios of 50 percent. Next, each firm decides to acquire a fixed asset that costs $100. Firm B borrows $100 and buys the asset, so both an asset and a liability are entered on its balance sheet, and its debt ratio rises from 50 percent to 75 percent. Firm L leases the equipment. The lease may call for fixed charges as high as or higher than the loan, and the obligations assumed under the lease may have equal or greater potential to force the business into bankruptcy, but the firm's debt ratio remains at only 50 percent.

Off-balance-sheet financing Financing that does not appear on a business's balance sheet, such as short-term (operating) leases.

To correct this accounting deficiency, accounting rules require businesses that enter into certain leases to restate their balance sheets to report the leased asset as a fixed asset and the present value of the future lease payments as a liability. This process is called *capitalizing* the lease, and hence such a lease is called a *capital lease*. The net effect of capitalizing the lease is to cause firms B and L to have similar balance sheets, both of which will, in essence, resemble the one shown for Firm B.

The logic here is as follows. If a firm signs a capital lease contract, its obligation to make payments is just as binding as if it had signed a loan

EXHIBIT 18.1
Effects of Leasing on Balance Sheets

Before Asset Increase:

Firms B and L

Current assets	$ 50	Debt	$ 50
Fixed assets	50	Equity	50
Total assets	$100		$100
Debt/assets ratio			50%

After Asset Increase:

Firm B, Which Borrows and Buys

Current assets	$ 50	Debt	$ 5
Fixed assets	150	Equity	50
Total assets	$200		$200
Debt/assets rat			75%

Firm L, Which Leases

Current assets	$ 50	Debt	$ 50
Fixed assets	50	Equity	50
Total assets	$100		$100
Debt/assets ratio			50%

agreement; the failure to make lease payments has the potential to bankrupt a firm just as the failure to make principal and interest payments on a loan can result in bankruptcy. Therefore, under most circumstances, a capital lease has the same impact on a business's financial risk as does a loan. This being the case, if a firm signs a capital lease agreement, it has the effect of raising the firm's effective debt ratio. Therefore, to maintain the firm's established target capital structure, the lease financing requires additional equity support exactly as debt financing does. In other words, leasing uses up a business's *debt capacity*.

Note, however, that there are some legal differences between loans and leases, mostly involving the rights of lessors versus lenders when a business in financial distress reorganizes or liquidates under bankruptcy. In most financial distress situations, lessors fare better than lenders do, so lessors may be more willing to deal with firms in poor financial condition than lenders are. At a minimum, lessors may be willing to accept lower rates of return than lenders are when dealing with financially distressed businesses because the risks are lower.

If disclosure of the lease in our Exhibit 18.1 example were not made, Firm

For Your Consideration

Accounting for Leases

Under current generally accepted accounting principles (GAAP), leases are reported on a lessee's balance sheets in two ways. For capital (long-term) leases, the leased property is reported as an asset and the present value of lease payments is reported as a liability. But for operating (short-term) leases, the leased property does not appear on the balance sheet at all. Rather, operating lease obligations are reported in the notes to the financial statements.

It is likely that the current rules, in effect since 1977, will be replaced by new standards by 2017. Although a complete discussion of old and new rules is beyond the scope of this text, the most important proposed change is that leases

(continued)

(continued from previous page)

would no longer be classified by accountants as operating or capital. Rather, all leases greater than one year in length would be accounted for in the same way on the balance sheet—there would be no difference between short-term and long-term leases. All leased property would be listed on the asset side as "right-to-use assets" and on the liability side as "lease liabilities."

Over the term of the lease, leased assets would be depreciated by the straight-line method and lease liabilities would be decreased by the rental payments made. For all practical purposes, the leased assets and liabilities will balance one another, so the primary effect will be to increase both sides of the balance sheet by a like amount. The ultimate purpose of the proposed rule is to eliminate operating leases as a source of off-balance-sheet financing and hence report all leases directly on the balance sheet.

What do you think about the proposed rule change? Will it make financial statement analysis easier for analysts? Do you think that the new rules would reduce the amount of leasing that currently takes place? When all factors are considered, should the change take place?

L's investors might be deceived into thinking that its financial position is stronger than it really is. Thus, even before businesses were required to place some leases on the balance sheet, they were required to disclose the existence of all leases longer than one year in the footnotes to their financial statements. At that time, some people argued that investors fully recognized the impact of leases and would conclude that firms B and L are essentially in the same financial position. Conversely, other people argued that investors would be better served if all leases were capitalized (shown directly on the balance sheet). Current accounting requirements represent a compromise between these two positions, although one that is tilted heavily toward those who favor capitalization. However, after several years of work, the Financial Accounting Standards Board is close to issuing new rules that will significantly change the way leases are reported (see the For Your Consideration box).

SELF-TEST QUESTIONS

1. Why is lease financing sometimes called off-balance-sheet financing?
2. How are leases accounted for on a business's balance sheet? On its income statement?
3. What is the primary effect of the new lease accounting rules?

Lease Evaluation

Leases are evaluated by both the lessee and the lessor. The lessee must determine whether leasing an asset is less costly than obtaining equivalent alternative financing and buying the asset, and the lessor must decide what the lease payments must be to produce a rate of return consistent with the risk of the investment. Here we cover only the lessee's analysis.

To begin, note that a degree of uncertainty exists regarding the theoretically correct way to evaluate lease-versus-purchase decisions, and some complex decision models have been developed to aid in the analysis. However,

the simple analysis given here, coupled with judgment, is sufficient to avoid situations where a lessee enters into a lease agreement that is clearly not in the business's best interests. In the typical case, the events that lead to a lease arrangement are as follows:

- The business decides to acquire a particular building or piece of equipment; this decision is based on the capital budgeting procedures discussed in chapters 14 and 15. The decision to acquire the asset is *not* at issue in a typical lease analysis; this decision was made previously as part of the capital budgeting process. In lease analysis, we are concerned simply with whether to obtain the use of the property by lease or by purchase.
- Once the business has decided to acquire the asset, the next question is how to finance the acquisition. A well-run business does not have excess cash lying around, and even if it did, opportunity costs would be associated with its use. Funds to purchase the asset could be obtained from excess cash, by borrowing, or (if the business is investor owned) by selling new equity. Alternatively, the asset could be leased.

As indicated previously, a lease is comparable to a loan in the sense that the business is required to make a specified series of payments, and failure to meet these payments could result in bankruptcy. Thus, the most appropriate comparison when making lease decisions is the cost of lease financing versus the cost of debt financing, *regardless of how the asset actually would be financed if it were not leased*. The asset may be purchased with available cash if it is not leased or financed by a new equity sale, but because leasing is a substitute for debt financing, the appropriate comparison would still be to debt financing.

To illustrate the basic elements of lease analysis, consider this simplified example. Nashville Radiology Group (the Group) requires the use of a $100 X-ray machine for two years, and the Group must choose between leasing and buying the equipment. (The actual cost is $100,000, but let's keep the numbers simple.) If the machine were purchased, the bank would lend the Group the needed $100 at a rate of 10 percent on a two-year, simple interest loan. Thus, the Group would have to pay the bank $10 in interest at the end of each year, plus return the $100 in principal at the end of Year 2. For simplicity, assume that the Group could depreciate the entire cost of the machine over two years for tax purposes by the straight-line method if it were purchased, resulting in tax depreciation of $50 in each year. Furthermore, the Group's tax rate is 40 percent. Thus, the depreciation expense produces a tax savings, or *tax shield*, of $50 × 0.40 = $20 in each year. Also for the sake of simplicity, assume the equipment's value at the end of two years (its residual value) is estimated to be $0.

Alternatively, the Group could lease the asset under a guideline lease for two years for a payment of $55 at the end of each year. The analysis for the lease-versus-buy decision consists of (1) estimating the cash flows associated with borrowing and buying the asset, (2) estimating the cash flows associated with leasing the asset, and (3) comparing the two financing methods to determine which has the lower cost. Here is the cash flow associated with the purchase option:

Cash Flows If the Group Buys	Year 0	Year 1	Year 2
Equipment cost	($100)		
Loan amount	100		
Interest expense		($10)	($ 10)
Tax savings from interest		4	4
Principal repayment			(100)
Tax savings from depreciation		20	20
Net cash flow	$ 0	$14	($ 86)

The net cash flow is zero in Year 0, positive in Year 1, and negative in Year 2. Because the operating cash flows (the revenues and operating costs) will be the same regardless of whether the equipment is leased or purchased, they can be ignored. Cash flows that are not affected by the decision at hand are said to be *nonincremental* to the decision.

Here are the cash flows associated with the lease:

Cash Flows If the Group Bu	Year 0	Year 1	Year 2
Lease payment		($55)	($55)
Tax savings from payments		22	22
Net cash flow	$0	($33)	($33)

Note that the two sets of cash flows reflect the tax savings associated with interest expense, depreciation, and lease payments, as appropriate. If the lease had not met IRS guidelines, ownership would effectively reside with the lessee, and the Group would depreciate the asset for tax purposes whether it was "leased" or purchased. Furthermore, only the implied interest portion of the lease payment would be tax deductible. Thus, the analysis for a no guideline lease would consist of simply comparing the after-tax financing flows on the loan with the after-tax lease-payment stream.

To compare the cost streams of buying and leasing, we must put them on a present value basis. As we explain later, the correct discount rate is the after-tax cost of debt, which for the Group is $10\% \times (1 - T) = 10\% \times (1 - 0.4) = 6.0\%$. Applying this rate to the Year 1 and 2 buying and leasing net cash flows presented above and summing the resulting present values, we find

the present value cost of buying to be $63.33 and the present value cost of leasing to be $60.50. Because leasing has the lower present value of costs, it is the less costly financing alternative, so the Group should lease the asset.

Not only does this simplified example illustrate the general approach used in lease analysis, but it also illustrates a concept that can simplify the cash flow estimation process. Look back at the loan-related cash flows if the Group buys the machine. The after-tax loan-related flows are –$6 in Year 1 and –$106 in Year 2. When these flows are discounted to Year 0 at the 6 percent after-tax cost of debt, their present value is –$100, which is the negative of the loan amount shown in Year 0. This equality results because we first used the cost of debt to estimate the future financing flows, and we then used this same rate to discount the flows back to Year 0, all on an after-tax basis. In effect, the loan-amount positive cash flows and the loan-cost negative cash flows cancel one another out. Here is the cash flow stream associated with buying the asset after the Year 0 loan amount and the related Year 1 and Year 2 financing flows have been removed:

Cash Flows If the Group Buys	Year 0	Year 1	Year 2
Cost of asset	($100)		
Tax savings from depreciation		$20	$20
Net cash flow	($100)	$20	$20

The present value cost of buying here is, of course, $63.33, which is the same amount we found earlier. The consistency between the two approaches will always occur regardless of the specific terms of the debt financing: As long as the discount rate is the after-tax cost of debt, the cash flows associated with the loan can be ignored.

To examine a more realistic example of lease analysis, consider another lease-versus-buy decision faced by the Nashville Radiology Group:

- The Group plans to acquire a new computer system that will automate the Group's clinical records as well as its accounting, billing, and collection process. The system has an economic life of eight years and costs $200,000, delivered and installed. However, the Group plans to lease the equipment for only four years because it believes that computer technology is changing rapidly, and it wants the opportunity to reevaluate the situation at that time.
- The Group can borrow the required $200,000 from its bank at a before-tax cost of 10 percent.
- The system's estimated scrap value is $5,000 after eight years of use, but its estimated **residual value,** which is the value at the expiration of the lease, is $20,000. Thus, if the Group buys the equipment, it would

Residual value The estimated market value of a leased asset at the end of the lease term.

expect to receive $20,000 before taxes when the equipment is sold in four years.

- The Group can lease the equipment for four years at a rental charge of $57,000, payable at the beginning of each year. However, the lessor will own the equipment upon the expiration of the lease. (The lease payment schedule is established by the potential lessor, and the Group can accept it, reject it, or attempt to negotiate the terms.)
- The lease contract stipulates that the lessor will maintain the computer at no additional charge to the Group. However, if the Group borrows money and buys the computer, it will have to bear the cost of maintenance, which would be performed by the equipment manufacturer at a fixed contract rate of $2,500 per year, payable at the beginning of each year.
- The computer falls into the MACRS (Modified Accelerated Cost Recovery System) five-year class life, the Group's marginal tax rate is 40 percent, and the lease qualifies as a guideline lease under a special IRS ruling.

Dollar Cost Analysis

Exhibit 18.2 illustrates a complete dollar cost analysis. Again, our approach here is to compare the dollar cost of owning (borrowing and buying) the computer to the cost of leasing the computer. All else the same, the lower cost alternative is preferable. Part I of the exhibit is devoted to the costs of borrowing and buying. Here, Line 1 gives the equipment's cost and Line 2 shows the maintenance expense, both of which are shown as outflows. Note that whenever an analyst is setting up cash flows on a time line, one of the first decisions to be made is what time interval will be used—that is, months, quarters, years, or some other period. As a starting point, we generally assume that all cash flows occur at the end of each year. If, at some point later in the analysis, we conclude that another interval is better, we will change it. Longer intervals, such as years, simplify the analysis but introduce some inaccuracies because all cash flows do not actually occur at year end. For example, tax benefits occur quarterly because businesses pay taxes on a quarterly basis. On the other hand, shorter intervals, such as months, often are used for lease analyses because lease payments typically occur monthly. For ease of illustration, we are using annual flows in this example.

Line 3 gives the maintenance tax savings. Because maintenance expense is tax deductible, the Group saves 0.40 × $2,500 = $1,000 in taxes by virtue of paying the maintenance fee. Line 4 contains the depreciation tax savings, which equals the depreciation expense times the tax rate. For example, the MACRS allowance for the first year is 20 percent, so the depreciation expense is 0.20 × $200,000 = $40,000 and the depreciation tax savings is 0.40 × $40,000 = $16,000.

EXHIBIT 18.2 Nashville Radiology Group: Dollar Cost Analysis

	Year 0	Year 1	Year 2	Year 3	Year 4
I. Cost of Owning (Borrowing and Buying)					
1. Net purchase price	($200,000)				
2. Maintenance cost	(2,500)	($ 2,500)	($ 2,500)	($ 2,500)	
3. Maintenance tax savings	1,000	1,000	1,000	1,000	
4. Depreciation tax savings		16,000	25,600	15,200	$ 9,600
5. Residual value					20,000
6. Residual value t					5,600
7. Net cash flow	($ 201,500)	$ 14,500	$ 24,100	$ 13,700	$ 35,200
8. PV cost of owning	($ 126,987)				
II. Cost of Leasing					
9. Lease payment	($ 57,000)	($ 57,000)	($ 57,000)	($ 57,000)	
10. Tax savings	22,800	22,800	22,800	22,800	
11. Net cash flow	($ 34,200)	($ 34,200)	($ 34,200)	($ 34,200)	$ 0
12. PV cost of leasing	($ 125,617)				
III. Cost Comparison					
13. Net advantage to leasing (NAL)	= PV cost of leasing – PV cost of owning = – $125,617 – (– $126,987) = $1,370.				

Notes: a. The MACRS depreciation allowances are 0.20, 0.32, 0.19, and 0.12 in Years 1 through 4, respectively. b. In practice, a lease analysis such as this would be done on a monthly basis using a spreadsheet program.

Lines 5 and 6 contain the residual value cash flows. The residual value is estimated to be $20,000, but the tax book value after four years of depreciation is $200,000 – $40,000 – $64,000 – $38,000 – $24,000 = $34,000 (see Exhibit 18.2, Note a). Thus, the Group is losing $14,000 for tax purposes, which results in the 0.4 × $14,000 = $5,600 tax savings shown as an inflow on Line 6. Line 7, which sums the component cash flows, contains the net cash flows associated with borrowing and buying.

Part II of Exhibit 18.2 contains an analysis of the cost of leasing. The lease payments, shown on Line 9, are $57,000 per year; this rate, which includes maintenance, was established by the prospective lessor and offered to the Group. If the Group accepts the lease, the full amount will be a deductible expense, so the tax savings, shown on Line 10, is 0.40 × Lease payment = 0.40 × $57,000 = $22,800. The net cash flows associated with leasing are shown on Line 11.

The final step is to compare the net cost of owning with the net cost of leasing, so we must put the annual cash flows associated with owning and leasing on a common basis. This requires converting them to present values, which brings up the question of the proper rate at which to discount the net cash flows. We know that the riskier the cash flows, the higher the discount rate that should be applied to find the present value. This principle was applied

in both security valuation and capital budgeting analysis, and it also applies to lease analysis. Just how risky are the cash flows under consideration here? Most of them are relatively certain, at least when compared with the types of cash flows associated with stock investments or with the Group's operations. For example, the loan payment schedule is set by contract, as is the lease payment schedule. Depreciation expenses are established by law and are not subject to change, and the annual maintenance fee is fixed by contract as well. The tax savings are somewhat uncertain because they depend on the Group's future marginal tax rates. The residual value is the riskiest of the cash flows, but even here the Group's management believes that its risk is minimal.

Because the cash flows under the lease and the borrow-and-purchase alternatives are both relatively certain, they should be discounted at a low rate. Most analysts recommend that the firm's cost of debt financing be used, and this rate seems reasonable in our example. However, the Group's cost of debt—10 percent—must be adjusted to reflect the tax deductibility of interest payments because this benefit of borrowing and buying is not accounted for in the cash flows. Thus, the Group's effective cost of debt becomes Before-tax cost × (1 – Tax rate) = 10% × 0.6 = 6%. Accordingly, the cash flows in lines 7 and 11 are discounted at a 6 percent rate. The resulting present values are $126,987 for the cost of owning and $125,617 for the cost of leasing, as shown in lines 8 and 12. Leasing is the lower-cost financing alternative, so the Group should lease, rather than buy, the computer.

Net advantage to leasing (NAL) The discounted cash flow dollar value of a lease to the lessee. Similar to net present value (NPV).

The cost comparison can be formalized by defining the **net advantage to leasing (NAL)** as follows:

$$\begin{aligned} \text{NAL} &= \text{PV cost of leasing} - \text{PV cost of owning} \\ &= -\$125{,}617 - (-\$126{,}987) = \$1{,}370. \end{aligned}$$

The positive NAL shows that leasing creates more value than buying, so the Group should lease the equipment. Indeed, the value of the Group is increased by $1,370 if it leases, rather than buys, the computer system.

Key Equation: Net Advantage to Leasing (NAL)

The NAL indicates the dollar value of leasing as compared to owning (borrowing and buying):

$$\text{NAL} = \text{PV cost of leasing} - \text{PV cost of owning}.$$

A positive NAL indicates that leasing is preferred to owning, and the greater the NAL, the greater the advantage of leasing.

Percentage Cost Analysis

The Group's lease-versus-buy decision can also be analyzed by looking at the effective cost rate on the lease and comparing it to the after-tax cost rate on the loan. If the cost rate implied in the lease contract is less than the 6 percent after-tax loan cost, there is an advantage to leasing.

Exhibit 18.3 sets forth the cash flows needed to determine the percentage cost of the lease. Here is an explanation of the exhibit:

- The first step is to calculate the leasing-versus-owning cash flows, which are obtained by subtracting the owning cash flows, Line 7 in Exhibit 18.2, from the leasing cash flows shown on Line 11. The differences, shown on Line 3 in Exhibit 18.3, are the incremental cash flows to the Group if it leases rather than buys the computer system.
- Exhibit 18.3 consolidates the analysis shown in Exhibit 18.2 into a single set of cash flows. At this point, we can discount the consolidated cash flows by 6 percent to obtain the NAL of $1,370. In Exhibit 18.2, we discounted the owning and leasing cash flows separately and then subtracted their present values to obtain the NAL. In Exhibit 18.3, we subtracted the cash flows first to obtain a single set of incremental flows and then found their present value. The end result is the same.
- The consolidated cash flows provide good insight into the economics of leasing. If the Group leases the computer system, it avoids the Year 0 ($167,300 net cash outlay required to buy the equipment, but it is then obligated to a series of cash outflows for four years. In marketing materials, leasing companies are quick to point out the fact that leasing avoids a large up-front cash outlay ($167,300, in this example). However, they are not so quick to mention that the cost to save this outlay is an obligation to make payments over the next four years. Leasing only makes sense financially (disregarding other factors) if the savings up front are worth the cost over time.

EXHIBIT 18.3 Nashville Radiology Group: Percentage Cost Analysis

	Year 0	*Year 1*	*Year 2*	*Year 3*	*Year 4*
1. Leasing cash flow	($ 34,200)	($34,200)	($34,200)	($34,200)	$ 0
2. Less: Owning cash flow	(201,500)	14,500	24,100	13,700	35,200
3. Leasing versus owning CF	$167,300	($48,700)	($58,300)	($47,900)	($35,200)
NAL = $1,370					
IRR = 5.6%					

Note: CF (cash flow); NAL (net advantage to leasing); IRR (internal rate of return).

- By inputting the leasing-versus-owning cash flows listed in Exhibit 18.3 into the cash flow registers of a calculator and solving for internal rate of return (IRR) (or by using a spreadsheet's IRR function), we can find the cost rate inherent in the cash flow stream—5.6 percent. This is the equivalent *after-tax cost rate* implied in the lease contract. Because this cost rate is less than the 6 percent after-tax cost of a loan, leasing is less expensive than borrowing and buying. Thus, the percentage cost analysis confirms the dollar cost (NAL) analysis.

Some Additional Points

So far, we have discussed the main features of a lessee's analysis. Here are some additional points of relevance:

- The dollar cost and percentage cost approaches will always lead to the same decision. Thus, one method is as good as the other from a decision standpoint.
- If the net residual value cash flow (residual value and tax effect) is considered to be much riskier than the other cash flows in the analysis, it is possible to account for this risk by applying a higher discount rate to this flow, which results in a lower present value. Because the net residual value flow is an inflow in the cost-of-owning analysis, a lower present value leads to a higher present value cost of owning. Thus, increasing residual value risk decreases the attractiveness of owning an asset. To illustrate the concept, assume that the Group's managers believe that the computer system's residual value is much riskier than the other flows in Exhibit 18.2. Furthermore, they believe that 10 percent, rather than 6 percent, is the appropriate discount rate to apply to the residual value flows. When the Exhibit 18.2 analysis is modified to reflect this risk, the present value cost of owning increases to $129,780, while the NAL increases to $4,163. The riskier the residual value, all else the same, the more favorable leasing becomes because residual value risk is borne by the lessor.
- Remember that net present value (NPV) is the dollar present value of a project, assuming that it is financed using debt and equity financing. In lease analysis, the NAL is the additional dollar present value of a project attributable to leasing, as opposed to conventional (debt) financing. Thus, as an approximation of the value of a leased asset to the business, the project's NPV can be increased by the amount of NAL:

$$\text{Adjusted NPV} = \text{NPV} + \text{NAL}.$$

The value added through leasing, in some cases, can turn unprofitable (negative NPV) projects into profitable (positive adjusted NPV) projects.

SELF-TEST QUESTIONS

1. Explain how the cash flows are structured in conducting a dollar cost (NAL) analysis.
2. What discount rate should be used when lessees perform lease analyses?
3. What is the economic interpretation of the net advantage to leasing?
4. What is the economic interpretation of a lease's IRR?

Motivations for Leasing

Although we do not prove it here, leasing is a zero-sum game; that is, when both the lessor and the lessee have the same inputs (equal costs, tax rates, residual value estimates, and so on), a positive NAL for the lessee creates an equal but negative return (NPV) for the lessor, and vice versa. Thus, under symmetric conditions, it would be impossible to structure a lease that would be acceptable to both the lessee and lessor, and hence no leases would be written. The large amount of leasing activity that takes place is driven by differentials between the lessee and the lessor. In this section, we discuss some of the differentials that motivate lease agreements.

Tax Rate Differentials

Many leases are driven by tax rate differentials. Historically, the typical tax asymmetry arose between highly taxed lessors and lessees with sufficient tax shields (primarily depreciation) to drive their tax rates very low, even to zero. In these situations, the asset's depreciation tax benefits could be taken by the lessor, and then this value would be shared with the lessee. In addition, other possible tax motivations exist, including tax differentials between not-for-profit providers with zero taxes and investor-owned lessors with positive tax rates.

The Alternative Minimum Tax

Taxable corporations are permitted to use accelerated depreciation and other tax shelters to reduce taxable income but, at the same time, use straight-line depreciation for stockholder reporting. Thus, under the normal procedure for determining federal income taxes, many profitable businesses report large net incomes but pay little or no federal income taxes. The **alternative minimum tax (AMT),** which amounts to roughly 20 percent of profits as *reported to shareholders,* is designed to force profitable firms to pay at least some taxes. Those firms that are exposed to heavy tax liabilities under the AMT naturally seek ways to reduce reported income. One way is to use high-payment short-term leases, which increase the business's expenses and consequently lower reported profits and AMT liability. Note that the lease payments do not have

Alternative minimum tax (AMT)
A provision of the federal tax code that requires profitable businesses (or individuals) to pay a minimum amount of income tax regardless of the amounts of certain deductions.

to qualify as a deductible expense for regular tax purposes; all that is needed is that they reduce reported income shown on the income statement.

Ability to Bear Obsolescence (Residual Value) Risk

Leasing is an attractive financing alternative for many high-tech items that are subject to rapid and unpredictable technological obsolescence. For example, assume that a small, rural hospital plans to acquire a magnetic resonance imaging (MRI) device. If it buys the MRI equipment, it is exposed to the risk of technological obsolescence. In a relatively short time, some new technology might be developed that makes the current system nearly worthless, which could create a financial burden on the hospital. Because it does not use much equipment of this nature, the hospital would bear a great deal of risk if it bought the MRI device.

Conversely, a lessor that specializes in state-of-the-art medical equipment might be exposed to significantly less risk. By purchasing and then leasing many different high-tech items, the lessor benefits from portfolio diversification; over time, some items will lose more value than the lessor expected, but these losses will be offset by other items that retain more value than expected. Also, because specialized lessors are familiar with the markets for used medical equipment, they can estimate residual values better and negotiate better prices when the asset is resold (or leased to another business) than can a hospital. Because the lessor is better able than the hospital to bear residual value risk, the lessor could charge a premium for bearing this risk that is less than the risk premium inherent in ownership.

Some lessors also offer programs that guarantee that the leased asset will be modified as necessary to keep it in line with technological advancements. For an increased rental fee, lessors will provide upgrades to keep the leased equipment current regardless of the cost. To the extent that lessors are better able to forecast such upgrades; negotiate better terms from manufacturers; and, through greater diversification, control the risks involved with such upgrades, it may be cheaper for users to ensure state-of-the art equipment by leasing than by buying.

Ability to Bear Utilization Risk

As we discussed earlier in the chapter, many lessors offer per procedure leases. In this type of lease, instead of a fixed annual or monthly payment, the lessor charges the lessee a fixed amount for each procedure performed. For example, the lessor may charge the hospital $300 for every scan performed using a leased MRI device, or it may charge $400 per scan for the first 50 scans in each month and $200 for each scan above 100. Because the hospital's reimbursement for MRI scans typically depends primarily on the amount of use, and because the per procedure lease changes the hospital's costs for the MRI from fixed to variable, the hospital's risk is reduced.

However, the conversion of the payment to the lessor from a known amount to an uncertain stream increases the lessor's risk. In essence, the lessor is now bearing the utilization (operating) risk of the MRI. Although the passing of risk often produces no net benefit, a per procedure lease can be beneficial to both parties if the lessor is better able than the lessee to bear the utilization risk. As before, if the lessor has written a large number of per procedure leases, then some of the leases will be more profitable than expected and some will be less profitable than expected, but if the lessor's expectations are unbiased, the aggregate return on all leases will be close to that expected.

Ability to Bear Project Life Risk

Leasing can also be attractive when a business is uncertain about how long an asset will be needed. To illustrate the concept, consider the following example. Hospitals sometimes offer services that are dependent on a single staff member—for example, a physician who performs liver transplants. To support the physician's practice, the hospital might have to invest millions of dollars in equipment that can be used only for this particular procedure. The hospital will charge for the use of the equipment, and if things go as expected, the investment will be profitable. However, if the physician dies or leaves the hospital staff and no other qualified physician can be recruited to fill the void, the project must be abandoned and the equipment becomes useless to the hospital. In this situation, the annual usage may be predictable, but the need for the asset could suddenly cease.

A lease with a cancellation clause would permit the hospital to return the equipment to the lessor. The lessor would charge a fee for the cancellation clause because such clauses increase the riskiness of the lease to the lessor. The increased lease cost would lower the expected profitability of the project but would provide the hospital with an option to abandon the equipment, and such an option could have a value that exceeds the incremental cost of the cancellation clause. The leasing company would be willing to write this option because it is in a better position to remarket the equipment, either by writing another lease or by selling it outright.

Maintenance Services

Some businesses find leasing attractive because the lessor is able to provide better or less expensive (or both) maintenance services. For example, MEDTRANS, Inc., a for-profit ambulance and medical transfer service that operates in Pennsylvania, recently leased 25 ambulances and transfer vans. The lease agreement—with a lessor that specializes in purchasing, maintaining, and then reselling automobiles and trucks—permitted the replacement of an aging fleet that MEDTRANS had built up over seven years. "We are pretty good at providing emergency services and moving sick people from one facility to another, but we aren't very good at maintaining an automotive fleet," said MEDTRANS's CEO.

Lower Information Costs

Leasing may be financially attractive to smaller businesses that have limited access to debt markets. For example, a small, recently formed family group practice may need to finance one or more diagnostic devices such as an ECG (electrocardiogram) machine. The group has no credit history, so it would be difficult and costly for a bank to assess the group's credit risk. Some banks might think the loan is not even worth the effort. Others might be willing to make the loan but only after building the high cost of credit assessment into the cost of the loan. On the other hand, some lessors specialize in leasing to medical practices, so their analysts have assessed the financial worthiness of hundreds, or even thousands, of such businesses. Thus, it would be relatively easy for them to make the credit judgment, and hence they might be more willing to provide the financing and charge lower rates than conventional lenders.

Lower Risk in Bankruptcy

Finally, leasing may be less expensive than buying for firms that are poor credit risks. As discussed earlier, in the event of financial distress leading to reorganization or liquidation, lessors tend to have more secure claims than do lenders. Thus, lessors may be willing to write leases to firms with poor financial characteristics that are less costly than loans offered by lenders, if such loans are even available.

Other factors might motivate businesses to lease an asset rather than buy it. Often, the reasons are difficult to quantify, so they cannot be easily incorporated into a numerical analysis. Nevertheless, a sound lease analysis must begin with a quantitative analysis, and then qualitative factors can be considered before making the final lease-or-buy decision.

SELF-TEST QUESTIONS

1. What are some economic factors that motivate leasing—that is, what asymmetries might exist that would make leasing beneficial to both lessors and lessees?
2. Would it ever make sense to lease an asset that has a negative NAL when evaluated by a conventional lease analysis? Explain your answer.

Business Valuation

We now move to the second topic of this chapter, *business valuation*. Entire businesses, as opposed to individual projects, are valued for many reasons, including acquisitions, buyouts, and the assessment of taxes. Although many different approaches can be used to value businesses, we focus on the two

most commonly used in the health services industry: the discounted cash flow and market multiple approaches.

Regardless of the valuation approach, it is crucial to understand three concepts that affect valuations. First, if the valuation is for acquisition purposes, the business being valued typically will not continue to operate as a separate entity but will become part of the acquiring business's portfolio of assets. Thus, any changes in ownership form, operations, or tax status that would result from the merger must be considered in the analysis. Second, the goal of most valuations is to estimate the equity value of the business because most valuations are conducted to assess the value of ownership. Thus, although we use the term "business valuation," the ultimate goal is to value the ownership stake in the business rather than its total value. Finally, *business valuation is an imprecise process.* The best that can be done, even by professional appraisers who conduct these valuations on a regular basis, is to attain a reasonable valuation rather than a precise one.

Discounted Cash Flow Approach

The *discounted cash flow (DCF) approach* to valuing a business involves the application of classical capital budgeting procedures to an entire business. To apply this approach, two key items are needed: (1) a set of statements that estimates the cash flows expected from the business and (2) a discount rate to apply to these cash flows.

The development of accurate cash flow forecasts is by far the most important step in the DCF approach. Exhibit 18.4 contains projected profit and loss statements for Doctors' Hospital, an investor-owned hospital that is being valued by its owners for possible future sale. The hospital currently uses 50 percent debt (at book values), and it has a 40 percent marginal federal-plus-state tax rate.

Line 1 of Exhibit 18.4 contains the forecast for Doctors' Hospital's net revenues, including both patient services revenue and other revenue. Note that all contractual allowances and other adjustments to charges, including collection delays, have been considered, so Line 1 represents actual cash revenues. Lines 2 and 3 contain the cash expense forecasts, while Line 4 lists depreciation—a noncash expense. Line 5, which is merely Line 1 minus lines 2, 3, and 4, contains the **EBIT** (earnings before interest and taxes) projections for each year. If the valuation were being conducted by another business that was considering making an acquisition bid for Doctors' Hospital, the revenue and expense amounts would reflect any utilization, reimbursement, and cost efficiencies that would occur as a result of the acquisition.

EBIT
Earnings before interest and taxes.

Note that the interest expense values shown on Line 6 include interest on current debt as well as interest on any newly issued debt required to fund business growth. In addition to interest expense, any debt principal repayments that will not be funded by new debt must be reflected in Exhibit 18.4.

EXHIBIT 18.4 Doctors' Hospital: Projected Profit and Loss Statements and Retention Estimates (in millions)

	2016	2017	2018	2019	2020
1. Net revenues	$105.0	$126.0	$151.0	$174.0	$191.0
2. Patient services expenses	80.0	94.0	111.0	127.0	137.0
3. Other expenses	9.0	12.0	13.0	16.0	16.0
4. Depreciation	8.0	8.0	9.0	9.0	10.0
5. Earnings before interest and taxes (EBIT)	$ 8.0	$ 12.0	$ 18.0	$ 22.0	$ 28.0
6. Interest	4.0	4.0	5.0	5.0	6.0
7. Earnings before taxes (EBT)	$ 4.0	$ 8.0	$ 13.0	$ 17.0	$ 22.0
8. Taxes (40 percent)	1.6	3.2	5.2	6.8	8.8
9. Net profit	$ 2.4	$ 4.8	$ 7.8	$ 10.2	$ 13.2
10. Estimated retentions	$ 4.0	$ 4.0	$ 7.0	$ 9.0	$ 12.0

Because such payments are made from after-tax income, they would be placed on a line below net profit—say, on a new Line 9a. Line 7 contains the earnings before taxes (EBT), and Line 8 lists the taxes based on Doctors' 40 percent marginal rate. Note here that any tax rate changes that would result from an acquisition must be incorporated into the profit and loss statement forecasts. Line 9 lists each year's net profit.

Finally, because some of Doctors' assets are expected to wear out or become obsolete, and because the hospital must grow its assets to support projected revenue growth, some *equity funds* (shown on Line 10) must be retained and reinvested in the subsidiary to pay for asset replacement and growth. These retentions, *which would be matched by equal amounts of new debt,* are not available for distribution to shareholders.

Exhibit 18.5 provides relevant cost-of-capital data for Doctors' Hospital. These data will be used to set the discount rate for the DCF valuation. As with many healthcare valuations, there is no market beta available to help establish the cost of equity. Doctors' Hospital is investor owned but not publicly traded; in other situations the business could be not-for-profit. However, we can obtain market betas of the stocks of the major investor-owned hospital chains, and this value could be used to help estimate the cost of equity given in Exhibit 18.5. It is important to realize that the discount rate used in the DCF valuation must reflect the *riskiness of the cash flows being discounted*. If the valuation is for acquisition purposes, and if the riskiness of the cash flows will be affected by the acquisition, the cost of capital calculated for the business must be adjusted to reflect any expected changes in risk.

The cost of equity estimate (18.0 percent) in Exhibit 18.5 merits additional discussion. The cost of equity estimate based on market data is applicable

EXHIBIT 18.5 Doctors' Hospital: Selected Cost-of-Capital Data

Cost of equity	18.0%
Cost of debt	10.0%
Proportion of debt financing	0.50
Proportion of equity financing	0.50
Tax rate	40.0%

$$\begin{aligned} CCC &= [w_d \times R(R_d) \times (1 - T)] + [w_e \times R(R_e)] \\ &= [0.50 \times 10.0\% \times (1 - 0.40)] + [0.50 \times 18.0\%] \\ &= 3.0\% + 9.0\% = 12.0\%. \end{aligned}$$

Note: If necessary, see Chapter 13 for a discussion of the corporate cost of capital (CCC).

only to large, publicly traded companies whose stock is owned by well-diversified investors. For example, in the Doctors' Hospital illustration, the cost of equity of large hospital management companies was estimated to be 12 percent. However, such companies are highly diversified both geographically and in the types of services they provide. In addition, equity (stock) ownership in such companies is very liquid—if a stockholder wants out, he or she simply calls a broker and sells the shares. Thus, a "traditional" large company cost of equity estimate does not reflect the added risks inherent in an equity position in a small, undiversified business whose stock is illiquid.

To estimate the cost of equity for Doctors' Hospital, we used the *build-up* method, first discussed in Chapter 13. To begin, we added a *size premium* of 4 percentage points to account for the added risks associated with ownership of a small company. In addition, a 2 percentage point *liquidity premium* was added to account for the fact that an equity interest in the hospital would be difficult to sell should a sale be necessary. Thus, Doctors' Hospital's cost of equity estimate is actually based on a 12 percent estimate for similar large companies plus a 4 percentage point size premium plus a 2 percentage point liquidity premium: 12% + 4% + 2% = 18%. If there were other factors in addition to size that would increase the risk of ownership even more, such as heavy use of new, unproven technology, an additional risk premium would be added to compensate for the unique riskiness inherent in that particular small company. We will use 18 percent as our estimate for Doctors' cost of equity, but an even higher rate might be justifiable.

At this point, there are several alternative cash flow/discount rate combinations that could be used to complete the DCF valuation. The most widely used DCF method for business valuation, the *free equity cash flow method*, focuses on cash flows that accrue solely to equity holders (owners). Free equity cash flow is defined as net profit plus noncash expenses (depreciation) less equity cash flow needed for reinvestment in the business. Exhibit 18.6 uses the data contained in Exhibit 18.4 to forecast the free equity cash flows for Doctors'

Hospital. In valuation analyses, the term *free* means that cash flows that are available to the owners after all other expenses, including asset replacement to support growth, have been taken into account.

The next step in the DCF valuation process is to choose the appropriate discount rate (opportunity cost of capital). Unlike a typical capital budgeting analysis that focuses on operating cash flows, our DCF business valuation focuses on *equity flows*. Thus, the discount rate applied must reflect the riskiness of cash flows after interest expense is deducted, which have greater risk than do operating flows. What capital cost reflects the riskiness of these higher-risk equity flows? The cost of equity. This means that the appropriate discount rate to apply to the Exhibit 18.6 cash flows is the 18 percent cost of equity shown in Exhibit 18.5, not the 12 percent corporate cost of capital.

Because we have projected only five years of cash flows, and because Doctors' Hospital will generate cash flows for many years (perhaps 20 or 30 years or more), it is necessary to estimate a *terminal value*. If the free equity cash flows given in Exhibit 18.6 are assumed to grow at a constant rate after 2020, the constant growth model can be used to estimate the value of all free equity cash flows that would occur in 2021 and beyond. Assuming a constant 3 percent growth rate in free equity cash flow forever, the terminal value at the end of 2020 is estimated to be $76.9 million:

$$\text{Terminal value} = \frac{\text{2020 Free equity cash flow} \times (1 + \text{Growth rate})}{\text{Required rate of return} - \text{Growth rate}}$$

$$= \frac{\$11.2 \times 1.03}{0.18 - 0.03} = \frac{\$11.54}{0.15}$$

$$= \$76.9 \text{ million.}$$

Combining the free equity cash flows from Exhibit 18.6 with the terminal value calculated above produces the following set of flows (in millions):

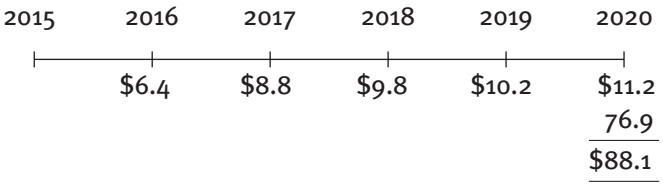

EXHIBIT 18.6 Doctors' Hospital: Projected Free Equity Cash Flows (in millions)

	2016	2017	2018	2019	2020
1. Net profit	$ 2.4	$ 4.8	$ 7.8	$10.2	$13.2
2. Plus depreciation	8.0	8.0	9.0	9.0	10.0
3. Less retentions	4.0	4.0	7.0	9.0	12.0
4. Free equity cash flow	$ 6.4	$ 8.8	$ 9.8	$10.2	$ 11.2

The final step in the DCF valuation process is to discount the time line cash flows at the cost of equity—18 percent. The resulting present (2015) value is $61.5 million. Thus, the DCF method estimates a value for Doctors' Hospital of about $60 million.

Note that the final value estimate of Doctors' Hospital probably would be higher than the DCF value because the DCF method only values the *operations* of the business. Thus, $60 million represents the value only of the business's assets *that support operations.* Many businesses hold nonoperating assets, such as marketable securities in excess of those required for operations or real estate that will not be needed in the future to support operations. The overall value of a business is the sum of its *operational value,* as estimated by the DCF method, and the market values of any nonoperating assets. In this example, we assume that Doctors' Hospital does not have material nonoperating assets, so a reasonable estimate of its value is $60 million.

Although we do not illustrate it here, the valuation would include a risk analysis of the cash flows that is similar to that performed on capital budgeting flows. Generally, scenario analysis (and perhaps Monte Carlo simulation) would be used to obtain some feel for the degree of uncertainty in the final estimate, which might further be used to set a valuation range rather than focus on a single estimate.

Market Multiple Approach

A second method for valuing entire businesses is **market multiple analysis,** which applies a market-determined multiple to some proxy for value—typically some measure of revenues or earnings. As in the DCF valuation approach, the basic premise here is that the value of any business depends on the cash flows that the business produces. The DCF approach applies this premise in a precise manner, while market multiple analysis is more ad hoc.

Market multiple analysis
A technique for valuing a business that applies a market-determined multiple to some proxy for value, such as net income.

To illustrate the concept, suppose that recent data of for-profit hospitals indicate that equity values average about four to five times the business's **EBITDA,** which means *earnings before interest, taxes, depreciation, and amortization.* Thus, we would say that the EBITDA *market multiple* is 4.5. In estimating the value of Doctors' Hospital's equity using this method, note that Doctors' 2016 EBITDA estimate is $8 million in EBIT plus $8 million in depreciation, or $16 million. Multiplying EBITDA by the 4.5 average market multiple gives an equity value of $72 million. Because of the uncertainties involved in the market multiple process, we will use $70 million as our estimate.

EBITDA
Earnings before interest, taxes, depreciation, and amortization. A common measure of earnings used in business valuation.

To illustrate another, less direct proxy, consider the nursing home industry. In recent years, prices paid for nursing home acquisitions have been in the range of $80,000 to $120,000 per bed, with an average of roughly $100,000. Thus, using number of beds as the proxy for value, a nursing home with 50 beds would be valued at 50 × $100,000 = $5 million.

Comparison of the Valuation Methods

Clearly, the valuation of any business can only be considered a rough estimate. In the Doctors' Hospital illustration, we obtained values for the business of $60 million and $70 million. Thus, we might conclude that the value of Doctors' Hospital falls somewhere in the range of $60 to $70 million. In many real-world valuations, the range is even larger than the one in our example. Because the estimates of the two methods can differ by large amounts, it is important to understand the advantages and disadvantages of each method. Although the DCF approach has strong theoretical support, one has to be concerned about the validity of the estimated cash flows and the discount rate applied to those flows. Sensitivity analyses demonstrate that it does not take much change in the terminal value growth rate or discount rate estimates to create large differences in estimated value. Thus, the theoretical superiority of the DCF approach is offset to some degree by the difficulties inherent in estimating the model's input values.

The market multiple method is more ad hoc, but its proponents argue that a proxy estimate for a single year, such as measured by EBITDA, is more likely to be accurate than a multiple-year cash flow forecast. Furthermore, the market multiple approach avoids the problem of having to estimate a terminal value. Of course, the market multiple approach has problems of its own. One concern is the comparability between the business being valued and the firm (or firms) that set the market multiple (i.e., how well does Hospital A, which is being considered for acquisition, compare to Hospital B, which sold at five times EBITDA six months ago?). Another concern is how well one year, or even an average of several years, of EBITDA (or some other value proxy) captures the value of a business that will be operated for many

For Your Consideration

Asset-Based Valuation

We have discussed two methods of business valuation: discounted cash flow and market multiple. But several other methods can also be used, including asset-based valuation, which has three different approaches. All asset-based valuation approaches look to the balance sheet for answers, but the values used for the asset and liability accounts differ for each approach.

- **Book value approach.** Book value is merely the value of the equity account on the business's balance sheet. Note that, according to GAAP, balance sheet asset values typically reflect historical costs reduced by book depreciation, when applicable.
- **Liquidation value approach.** Liquidation value is the amount that remains if the assets of the business are quickly sold, without taking the time to obtain the assets' full market values, and then the proceeds are used to pay off the business's liabilities. The remainder is the value of the business.
- **Fair market value approach.** In this approach, the values of the business's assets and liabilities are first adjusted to reflect their fair market values. Then, the liability values are subtracted from the asset values to obtain the valuation estimate.

What do you think about the asset-based valuation methods? Of the three methods, which one is the best? Are there any advantages to these methods compared to the discounted cash flow and market multiple methods? If you were conducting a business valuation, which method(s) would you use?

years into the future. After all, if the valuation is for merger purposes, merger-related synergies could cause the target's EBITDA to soar in coming years.

The bottom line is that both methods have problems. In general, business valuations should use both the DCF and market multiple methods, as well as other available methods. Then a great deal of judgment must be applied to reconcile the valuation differences that typically occur.

SELF-TEST QUESTIONS

1. Briefly describe two approaches commonly used to value businesses.
2. What are some problems that occur in the valuation process?
3. Which approach do you believe to be best? Explain your answer.

Key Concepts

In this chapter, we discuss both leasing decisions and business valuation. The key concepts of this chapter are as follows:

- Lease agreements are informally categorized as either *operating leases* or *financial (capital) leases.*
- The IRS has specific guidelines that apply to lease arrangements. A lease that meets these guidelines is called a *guideline*, or *tax-oriented*, *lease* because the IRS permits the lessee to deduct the lease payments. A lease that does not meet IRS guidelines is called a *non-tax-oriented lease.* In such leases, ownership effectively resides with the lessee rather than the lessor.
- Accounting rules spell out the conditions under which a lease must be *capitalized* (shown directly on the balance sheet) rather than shown only in the notes to the financial statements. Generally, leases that run for a period equal to or greater than 75 percent of the asset's life must be capitalized. Note that the GAAP regarding accounting for leases is expected to change by 2017. Under the new rules, virtually all leases must be shown directly on the balance sheet.
- The lessee's analysis consists of a comparison of the costs and benefits associated with leasing the asset and the costs and benefits associated with owning (borrowing and buying) the asset. Two analytical techniques can be used: the *dollar-cost (NAL) method* and the *percentage-cost (IRR) method.*

(continued)

(continued from previous page)

- One of the key issues in the lessee's analysis is the appropriate discount rate. Because the cash flows in a lease analysis are known with relative certainty, the appropriate discount rate is the *lessee's after-tax cost of debt*. A higher discount rate may be used on the *residual value* if it is substantially riskier than the other flows.
- Leasing is motivated by differentials between lessees and lessors. Some of the more common reasons for leasing are (1) *tax rate differentials*, (2) *alternative minimum taxes*, (3) *residual risk bearing*, and (4) *lack of access* to conventional debt markets.
- Two approaches are most commonly used to value businesses: the *discounted cash flow approach* and the *market multiple approach*.
- The *free equity cash flow approach*, which is a commonly used DCF method, focuses on the cash flows that are available to equity investors. (The *free operating cash flow* approach focuses on cash flows that are available to service both debt and equity investors.)
- The *discounted cash flow approach* has the strongest theoretical basis, but its inputs—the projected cash flows and discount rate—are difficult to estimate. The *market multiple approach* is somewhat ad hoc but requires a much simpler set of inputs.
- The *market multiple approach* identifies some proxy for value, such as *earnings before interest, taxes, depreciation, and amortization (EBITDA)*, and then multiplies it by a multiple derived from recent market data.

This chapter contains topics related to lease financing and business valuation. Many health services organizations use substantial amounts of lease financing, and business valuation is commonly applied when one healthcare provider acquires another provider, such as when hospitals purchase medical practices.

Questions

18.1 Distinguish between operating and financial leases. Would you be more likely to use an operating lease to finance a piece of diagnostic equipment or a hospital building?

18.2 Leasing companies often promote the following two benefits of leasing. Critique the merits of each hypothesized benefit.

a. Leasing preserves a business's liquidity because it avoids the large cash outlay associated with buying the asset.
b. Leasing (with operating leases) allows businesses to use more debt financing than would otherwise be possible because leasing keeps the liability off the books.

18.3 Assume that there were no IRS restrictions on what type of transaction could qualify as a lease for tax purposes. Explain why some restrictions should be imposed.

18.4 In the Nashville Radiology Group example given in the chapter, we assumed that the lease did not have a cancellation clause. What effect would a cancellation clause have on the analysis?

18.5 Discuss some of the asymmetries that drive lease transactions.

18.6 Describe the mechanics of the discounted cash flow (DCF) approach to business valuation.

18.7 Describe the mechanics of the market multiple approach to business valuation.

18.8 Which approach do you think is best for valuing a business: the DCF approach or the market multiple approach? Explain the rationale behind your answer.

Problems

18.1 Suncoast Healthcare is planning to acquire a new X-ray machine that costs $200,000. The business can either lease the machine using an operating lease or buy it using a loan from a local bank. Suncoast's balance sheet prior to acquiring the machine is as follows:

Current assets	$100,000	Debt	$400,000
Net fixed assets	900,000	Equity	600,000
Total assets	$1,000,000	Total claims	$1,000,000

a. What is Suncoast's current debt ratio?
b. What would the new debt ratio be if the machine were leased? If it were purchased?
c. Is the financial risk of the business different under the two acquisition alternatives?

18.2 Big Sky Hospital plans to obtain a new MRI scanner that costs $1.5 million and has an estimated four-year useful life. Big Sky can obtain a bank loan for the entire amount and buy the MRI, or it can lease the equipment. Assume that the following facts apply to the decision:

- The MRI falls into the three-year class for tax depreciation, so the MACRS allowances are 0.33, 0.45, 0.15, and 0.07 in years 1 through 4, respectively.
- Estimated maintenance expenses are $75,000 payable at the beginning of each year whether the MRI is leased or purchased.
- Big Sky's marginal tax rate is 40 percent.
- The bank loan would have an interest rate of 15 percent.
- If leased, the lease (rental) payments would be $400,000 payable at the *end of* each of the next four years.
- The estimated residual (and salvage) value is $250,000.

a. What are the NAL and IRR of the lease? Interpret each value.

b. Assume now that the salvage value estimate is $300,000, but all other facts remain the same. What is the new NAL? The new IRR?

18.3 HealthPlan Northwest must install a new $1 million computer to track patient records in its three service areas. It plans to use the computer for only three years, after which time a brand new system will be acquired that will handle both billing and patient records. The company can obtain a 10 percent bank loan to buy the computer, or it can lease the computer for three years. Assume that the following facts apply to the decision:

- The computer falls into the three-year class for tax depreciation, so the MACRS allowances are 0.33, 0.45, 0.15, and 0.07 in years 1 through 4, respectively.
- The company's marginal tax rate is 34 percent.
- Tentative lease terms call for payments of $320,000 at the *end of* each year.
- The best estimate for the value of the computer after three years of wear and tear is $200,000.

a. What are the NAL and IRR of the lease? Interpret each value.

b. Assume now that the bank loan would cost 15 percent, but all other facts remain the same. What is the new NAL? The new IRR?

18.4 Assume that you have been asked to place a value on the ownership position in Briarwood Hospital. Its projected profit and loss statements and equity reinvestment (a  requirements are as follows (in millions):

	2016	2017	2018	2019	2020
Net revenues	$225.0	$240.0	$250.0	$260.0	$275.0
Cash expenses	200.0	205.0	210.0	215.0	225.0
Depreciation	11.0	12.0	13.0	14.0	15.0
Earnings before interest and taxes (EBIT)	$ 14.0	$ 23.0	$ 27.0	$ 31.0	$ 35.0
Interest	8.0	9.0	9.0	10.0	10.0
Earnings before taxes (EBT)	$ 6.0	$ 14.0	$ 18.0	$ 21.0	$ 25.0
Taxes (40 percent)	2.4	5.6	7.2	8.4	10.0
Net profit	$ 3.6	$ 8.4	$ 10.8	$ 12.6	$ 15.0
Asset requirements	$ 6.0	$ 6.0	$ 6.0	$ 6.0	$ 6.0

Briarwood's cost of equity is 16 percent. The best estimate for Briarwood's long-term growth rate is 4 percent.

a. What is the equity value of the hospital?

b. Suppose that the expected long-term growth rate was 6 percent. What impact would this change have on the equity value of the business? What if the growth rate were only 2 percent?

18.5 Assume that you have been asked to place a value on the fund capital (equity) of BestHealth, a not-for-profit health maintenance organization (HMO). Its projected profit and loss statements and equity reinvestment (asset requirements are as follows (in millions):

	2016	2017	2018	2019	2020
Net revenues	$50.0	$52.0	$54.0	$57.0	$60.0
Cash expenses	45.0	46.0	47.0	48.0	49.0
Depreciation	3.0	3.0	4.0	4.0	4.0
Interest	1.5	1.5	2.0	2.0	2.5
Net profit	$ 0.5	$ 1.5	$ 1.0	$ 3.0	$ 4.5
Asset requirements	$ 0.4	$ 0.4	$ 0.4	$ 0.4	$ 0.4

The cost of equity of similar for-profit HMOs is 14 percent, while the best estimate for BestHealth's long-term growth rate is 5 percent.

a. What is the equity value of the HMO?

b. Suppose that it was not necessary to retain any of the operating income in the business. What impact would this change have on the equity value?

Resources

The following resources are relevant to leasing:

Bernstein, C. 2006. "Is Your Leasing Arrangement Paying Off?" *Healthcare Financial Management* (August): 46–50.

McCue, M. J. 2007. "Factors Associated with Lease Financing in the Hospital Industry." *Journal of Health Care Finance* (Spring): 72–85.

McIntire, M., and D. J. Waldron. 2006. "Funding Technology: Evaluating and Exercising the Leasing Option." *Healthcare Financial Management* (November): 92–100.

Tolbert, S. H., and C. P. Wood. 2007. "Leasing vs. Owning a Medical Office: An Analytical Model." *Journal of Health Care Finance* (Winter): 71–81.

Ung, B., and J. Zeinfeld. 2011. "How to Optimize an Equipment Leasing Program." *Healthcare Financial Management* (April): 92–96.

The following resources are relevant to business valuation:

Ault, K., B. Childs, C. F. Wainright, and M. Young. 2011. "Relevant Factors to Consider Prior to an Investor-Owned Acquisition of a Nonprofit Healthcare Entity." *Journal of Healthcare Management* (July/August): 269–81.

Calayag, J. 2013. "Consolidation: Challenges and Opportunities." *Healthcare Executive* (May/June): 31–40.

Driscoll, M., and A. Long. 2012. "Physician Acquisition: What to Avoid After the Deal Is Complete." *Healthcare Financial Management* (April): 90–94.

Ealey, T. 2011. "Due Diligence During the Integration of Physician Groups." *Healthcare Financial Management* (December): 80–86.

Eastaugh, S. R. 2014. "Hospital Diversification Strategy." *Journal of Health Care Finance* (Spring): 1–13.

Evans, C. J. 2000. "Measuring the Value of Healthcare Business Assets." *Healthcare Financial Management* (April): 58–64.

Grauman, D. M., and M. P. Tam. 2012. "The Urge to Merge." *Healthcare Financial Management* (November): 76–86.

Harrison, J. P., M. J. McCue, and B. B. Wang. 2003. "A Profile of Hospital Acquisitions." *Journal of Healthcare Management* (May/June): 156–71.

Heuer, C., and M. A. K. Travers. 2011. "Valuing Goodwill: Not-for-Profits Prepare for Annual Impairment Testing." *Healthcare Financial Management* 65 (February): 38–42.

HFMA Principles and Practices Board Background Paper. 2011. "Mergers and Acquisitions: What Has Changed." *Healthcare Financial Management* (January): 105–8.

HFMA Principles and Practices Board Background Paper. 2011. "Not-for-Profits Trek into For-Profit Accounting: Goodwill Impairments." *Healthcare Financial Management* (March): 110–14.

Johnson, B. A. 2012. "Understanding Your Options: Combinations, Mergers, and Acquisitions." *MGMA Connexion* (November/December): 32–36.

Laine, M., and D. Tyler. 2007. "Mergers and Acquisitions: A Most Strategic Decision." *Healthcare Financial Management* (November): 106–12.

Robeson, J. D. III, and K. C. Kaplan. 2008. "10 Myths of Healthcare Business Valuation." *Healthcare Financial Management* (October): 82–90.

CHAPTER

19

DISTRIBUTIONS TO OWNERS: BONUSES, DIVIDENDS, AND REPURCHASES

Learning Objectives

After studying this chapter, readers should be able to

- Explain how owner distributions differ between large and small businesses.
- Discuss the three theories of dividend policy.
- Describe the information content and clientele effect hypotheses.
- Use the residual dividend model to establish dividend policy.
- Explain stock dividends and stock splits and the rationale for their use.
- Discuss stock repurchase programs and the reasons for their current popularity.

Introduction

Successful businesses, including not-for-profit healthcare corporations, earn income. That income can then be reinvested in the enterprise or, in the case of investor-owned businesses, distributed to owners. If a for-profit business decides to distribute income to owners, three key issues arise: (1) What percentage of earnings should be distributed? (2) What form should the distribution take—bonuses, cash dividends, or stock repurchases? (3) How stable should the distribution be—that is, should the annual dollar amount be stable and dependable, which owners may prefer, or should it vary with the business's cash flows and investment opportunities, which might be better for the business? These three issues are the primary focus of this chapter, but we also consider several related issues.

Distributions in Small Businesses

In general, income distributions to owners in small businesses differ from those in large businesses. In this section, we focus on small businesses. The remainder of the chapter is devoted to distributions in large, publicly held corporations.

The reason for a separate treatment of small businesses is twofold. First, small businesses often are organized as proprietorships, partnerships, or some hybrid form. If they are organized as corporations, taxes typically are filed under Chapter S, which means that, as in a proprietorship or partnership, the earnings of the business are prorated among the owners and taxed as ordinary income, regardless of whether the earnings are reinvested in the business or distributed to owners. Second, small-business owners tend to also be the controlling managers of the business. Thus, they have the option of shifting business earnings to themselves in the form of increased compensation, either directly as wages or indirectly as perquisites. In large corporations, there is a "firewall" between managers and owners (except for the few who are managers), so the only ways to distribute earnings to owners (the outside stockholders) are through dividends and stock repurchases.

These inherent differences between small and large businesses, as well as the limited resources available to devote to the finance and accounting function, create an incentive for small businesses to use the *modified cash basis* of accounting as opposed to the *accrual basis* required of most large businesses. If the modified cash method is used, revenues and costs are reported on the income statement as they occur (when the cash transaction takes place) rather than when the obligations occur. Furthermore, because the financial statements of small businesses are not presented to outsiders, the statements are used both for control purposes and for tax purposes. For the most part, small businesses report as little taxable income as possible, except for the amounts specifically required as reserves or to replace assets and grow the business.

For an example of a situation facing a typical small healthcare provider, consider Exhibit 19.1, which shows the income statements for Bismarck Clinic, a solo-physician family practice. The left column shows the income statement as it would typically be constructed. However, this format suggests that there is no ownership value to the business because the net income is zero. To determine the value of ownership, the clinic must explicitly show on its income statement any bonuses paid to the owner/physician.

Although not an easy task, some judgments must be made regarding which portion of the $250,000 in physician compensation is for actual professional services and which portion is, in reality, a return on owner's capital. Assume that current studies indicate that the median compensation for salaried primary care physicians in the area is $200,000. Assuming that this amount is "fair" compensation for the work the owner/physician of Bismarck Clinic does, the compensation of $250,000 implies that he is receiving a bonus of $50,000. The right column of the income statement does not list the $50,000 bonus as part of physician compensation, but rather shows it as net income. Because the practice is a proprietorship, the $50,000 is taxed at the physician's personal tax rate, regardless of whether it is received as a salary bonus or as earnings (net income).

EXHIBIT 19.1 Bismarck Clinic: Standard and Recast Income Statements

	Standard Format	*Recast Format*
Revenues		
Professional fees	$ 950,000	$ 950,000
Other income	50,000	50,000
Total revenues	$1,000,000	$1,000,000
Expenses		
Physician compensation	$ 250,000	$ 200,000
Staff compensation	370,000	370,000
Clinical supplies	85,000	85,000
Office supplies	50,000	50,000
Rent	50,000	50,000
Insurance	25,000	25,000
Telephone and utilities	25,000	25,000
Outside laboratory fees	25,000	25,000
Other expenses	120,000	120,000
Total expenses	$1,000,000	$ 950,000
Net income	$ 0	$ 50,000

With no differential tax consequences, the two income statements create the same cash flows to the owner/physician. The value of recasting is that the compensation is broken down into the portion that is a result of employment at the clinic and the portion that is a result of owning the clinic. Indeed, Bismarck Clinic has $500,000 of assets, so its implied return on assets (ROA) is $50,000/$500,000 = 10.0%, as opposed to zero indicated initially. Furthermore, if the clinic has $200,000 in debt financing (with the interest expense shown in the other expenses category), the implied return on equity (ROE) to the owner/physician is $50,000/$300,000 = 16.7%.

Although recasting the income statement as we have done in Exhibit 19.1 seems like much ado about nothing, it is essential in some circumstances. For example, if the clinic is put up for sale, it will be necessary to convince potential buyers that the business has economic value to a new owner by showing that it can generate a positive net income (and cash flow). Showing a zero net income will not generate much interest among prospective buyers, especially those who would not practice at the clinic.

SELF-TEST QUESTIONS

1. How can a small business's income statement be recast to show the value of employment versus the value of ownership?
2. Why is such recasting necessary?

Dividends Versus Capital Gains: What Do Investors Prefer?

Payout ratio
The percentage of net income paid out as dividends.

In the remainder of the chapter, we discuss decisions involving distributions to owners of large businesses in which stockholders and managers are separated. When deciding how much cash to distribute to stockholders, managers must keep in mind that the business's primary financial objective is to maximize shareholder value. Consequently, the target **payout ratio**—defined as the percentage of net income to be paid out as cash dividends—should be based in large part on investors' preferences for dividends versus capital gains: Do investors prefer (1) to have the business distribute income as cash dividends or (2) to have it either repurchase stock or plow the earnings back into the business, both of which should result in capital gains?

This preference can be considered in terms of the constant growth stock valuation models, which were first presented in Chapter 12:

Key Equation: Constant Growth Stock Valuation

$$E(P_0) = \frac{E(D_1)}{R(R_e) - E(g)}.$$

Key Equation: Expected Rate of Return on a Constant Growth Stock

$$E(R_e) = \frac{E(D_1)}{P_0} + E(g).$$

If the business increases the payout ratio, it will raise the next expected dividend, $E(D_1)$. This increase in the numerator, taken alone, would cause the stock price, $E(P_0)$, to rise. However, if $E(D_1)$ were raised, less money would be available for reinvestment, which would cause the expected growth rate, $E(g)$, to decline and hence would tend to lower the stock's price. This scenario illustrates that any change in payout policy will have two opposing effects. Thus, the *optimal dividend policy* depends on the relationship between the dividend policy and the required rate of return on (cost of) equity, $R(R_e)$. The policy that produces the lowest cost of equity will maximize stock price.

In this section, we examine three theories of investor preference: (1) the dividend irrelevance theory, (2) the "bird-in-the-hand" theory, and (3) the tax preference theory. In essence, these theories focus on whether or not dividend policy affects the cost of equity. If it does, then, like capital structure

policy, the dividend policy that produces the lowest cost of equity will be optimal because it will produce the highest stock price.

Dividend Irrelevance Theory

The principal proponents of the **dividend irrelevance theory** are Merton Miller and Franco Modigliani (MM), who argued that dividend policy has no effect on a business's cost of equity and hence on stock price. If they are correct, dividend policy is irrelevant. The essence of dividend irrelevance is that a business's value is determined solely by its earning power and its business risk. In other words, MM argued that the value of a business depends only on the income produced by its assets and the riskiness of that income, not on how this income is split between dividends and retained earnings.

Dividend irrelevance theory The theory that dividend policy has no effect on a business's cost of equity or stock price.

To understand MM's argument that dividend policy is irrelevant, recognize that any shareholder can construct her own dividend policy. For example, if a business does not pay dividends, a shareholder who wants a 5 percent dividend can "create" it by selling 5 percent of her stock. Conversely, if a business pays a higher dividend than an investor desires, the investor can use the unwanted dividends to buy additional shares of the business's stock. If investors could buy and sell shares and, thus, create their own dividend policy *without incurring transaction costs,* the business's dividend policy would truly be irrelevant. However, investors who want additional dividends must incur brokerage costs to sell shares and perhaps pay capital gains taxes, and investors who do not want dividends must first pay taxes on the unwanted dividends and then incur brokerage costs to purchase shares with the after-tax dividends.

Because transaction costs do exist, dividend policy may well be relevant. However, the merit of any theory is based on how well it describes reality, not on the number or realism of its assumptions. Therefore, the validity of the dividend irrelevance theory must be judged by empirical testing, the results of which will be discussed in a later section.

Bird-in-the-Hand Theory

The principal conclusion of the dividend irrelevance theory—that dividend policy does not affect the cost of equity—has been hotly debated in academic circles. In particular, Myron Gordon and John Lintner argued, in their **bird-in-the-hand theory,** that the cost of equity decreases as the dividend payout is increased because investors are more certain of receiving dividends than they are of receiving capital gains, which are supposed to result from profit retentions. Gordon and Lintner said, in effect, that investors value a dollar of expected dividends more highly than a dollar of expected capital gains because the dividend yield component, $E(D_1)/P_0$, is less risky than the capital gains component, $E(g)$, in the constant growth stock valuation equation.

Bird-in-the-hand theory The theory that stock investors value dividends more highly than expected capital gains because dividends are less risky.

MM disagreed. They argued that the cost of equity is independent of dividend policy, which implies that investors are indifferent between dividends and capital gains. Furthermore, they called the Gordon-Lintner argument the *bird-in-the-hand fallacy* because, in their view, most investors plan to reinvest their dividends in the stock of the same or similar businesses, and in any event, the riskiness of a business's cash flows to investors in the long run is determined by the riskiness of its operating cash flows rather than by its dividend policy.

Tax Preference Theory

There are three potential tax-related reasons for thinking that investors might prefer a low dividend payout to a high payout. First, long-term capital gains historically have been taxed at lower rates than dividends have been. Therefore, wealthy investors (who own most of the stock and receive most of the dividends) might prefer to have businesses retain and plow earnings back into the business. Earnings growth would presumably lead to higher stock prices, and thus lower-taxed capital gains would be substituted for higher-taxed dividends. Today, however, capital gains and dividends are taxed at the same rate (15 percent or 20 percent for most taxpayers). Second, and most relevant under the current tax code, taxes are not paid on the gain until a stock is sold. Because of time value effects, a dollar of taxes paid in the future has a lower effective cost than a dollar of taxes paid on dividends received today. Third, if a stockholder holds a stock until he dies, no capital gains tax is due at all; the beneficiaries who receive the stock can use the stock's value on the day of death as their cost basis and thus completely escape the capital gains tax on the gain thus far, whereas dividends are taxed as they are received.

Because of these tax advantages, investors may prefer to have businesses retain most of their earnings, which in turn would lead to a lower cost of equity. If so, according to the **tax preference theory,** investors would be willing to pay more for low-payout businesses than for otherwise similar high-payout businesses.

Tax preference theory
The theory that investors prefer capital gains over dividends because there are tax advantages to capital gains.

The Empirical Evidence

These three theories offer contradictory advice to the managers of investor-owned corporations, so which, if any, should we believe? The most logical way to proceed is to test the theories empirically. Many such tests have been conducted, but their results have been mixed. There are two reasons for the mixed results: (1) For a valid statistical test, things other than dividend policy must be held constant—that is, the sample businesses must differ only in their dividend policies—and (2) we must be able to measure with a high degree of accuracy each sample business's cost of equity. Neither of these two conditions holds: (1) We cannot find a set of publicly owned businesses that differ only in their dividend policies, and (2) we cannot obtain precise estimates of the cost of equity.

Therefore, the studies have been unable to establish a clear relationship between dividend policy and the cost of equity. In other words, no study has shown that, in the aggregate, investors prefer either higher or lower dividends. Nevertheless, individual investors do have strong preferences. Some prefer high dividends, while others prefer all capital gains. These differences help explain why definitive conclusions regarding the optimal dividend payout are difficult to reach. Even so, evidence and logic suggest that investors prefer businesses that follow a *stable, predictable* dividend policy (regardless of the payout level). We will consider the issue of dividend stability later in the chapter.

SELF-TEST QUESTIONS

1. What variable must dividend policy affect to have an impact on stock price?
2. Briefly explain the dividend irrelevance, bird-in-the-hand, and tax preference theories.
3. What did MM assume about taxes and brokerage costs when they developed their dividend irrelevance theory?
4. How did the bird-in-the-hand theory get its name?
5. In what sense does MM's theory represent a middle-ground position between the other two theories?
6. What have been the results of empirical tests of the dividend theories?

Other Dividend Policy Issues

Before we discuss how dividend policy is set in practice, we must examine two other issues that could affect investor views toward dividend policy: (1) information content, or signaling, hypothesis and (2) clientele effect hypothesis.

Information Content (Signaling) Hypothesis

When MM set forth their dividend irrelevance theory, they assumed that everyone—investors and managers alike—has identical information regarding the business's future earnings and dividends. In reality, however, different investors have different views on both the level of future dividend payments and the uncertainty inherent in those payments. Furthermore, managers have better information about future prospects than do outside stockholders.

It has been observed that an increase in the dividend payment often is accompanied by an increase in the price of the stock, while a dividend cut generally leads to a stock price decline. This observation could mean that investors, in the aggregate, prefer dividends to capital gains. However, MM

argued differently. They noted the well-established fact that corporations are reluctant to cut dividends and will not raise dividends unless they anticipate good earnings in the future and hence are able to sustain the higher dividend. Thus, MM argued that a higher-than-expected dividend increase is a "signal" to investors that the business's management forecasts good future earnings. Conversely, a dividend reduction, or a smaller-than-expected increase, is a signal that management is forecasting poor earnings in the future. Thus, MM argued that investors' reactions to changes in dividend policy do not necessarily show that investors prefer dividends to retained earnings. Rather, they argued that price changes following dividend actions simply indicate there is important **information content (signaling)** in dividend announcements.

Information content (signaling) hypothesis The hypothesis that investors view dividend announcements as "signals" from management regarding future earnings prospects.

Interestingly, it also has been suggested that managers can use capital structure as well as dividends to signal businesses' future prospects. For example, a business with good earnings prospects can carry more debt than can a similar business with poor earnings prospects. The overall theory—called *incentive signaling*—rests on the premise that signals with cash-based variables (either debt interest or dividends) cannot be mimicked by unsuccessful businesses because such businesses do not have the future cash-generating power to maintain the announced interest or dividend payment. Thus, investors are more likely to believe a glowing verbal report when it is accompanied by a dividend increase or a debt-financed expansion program.

Like most other aspects of dividend policy, empirical studies of the signaling hypothesis have had mixed results. Clearly, some information content exists in dividend announcements. However, it is difficult to tell whether the stock price changes that follow dividend increases and decreases reflect only signaling effects or both signaling effects and dividend preferences. Still, signaling effects should be considered when a business is contemplating changing its dividend policy.

Clientele Effect Hypothesis

As we indicated earlier, different groups, or clienteles, of stockholders prefer different dividend payout policies. For example, retired individuals and university endowment funds generally prefer cash income, so they may want the business to pay out a high percentage of its earnings. Such investors, and pension funds, are often in low or even zero tax brackets, so taxes are of no concern. On the other hand, stockholders in their peak earning years might prefer reinvestment because they have less need for current investment income and would simply reinvest the dividends they receive, after paying income taxes on those dividends.

If a business retains and reinvests income rather than pays dividends, stockholders who need current income would be disadvantaged. The value of their stock might increase, but they would be forced to go through the

trouble and expense of selling some of their shares to obtain cash. Also, some institutional investors, or trustees for individuals, would be legally precluded from selling stock and then "spending capital." On the other hand, stockholders who are saving rather than spending dividends might favor a low-dividend policy because the less the business pays out in dividends, the less these stockholders will have to pay in current taxes and the less trouble and expense they will have reinvesting their after-tax dividends. Therefore, investors who want current investment income should own shares in high-dividend-payout businesses, while investors with no need for current investment income should own shares in low-dividend-payout businesses.

To the extent that stockholders can switch the stocks that they hold, a business can change from one dividend payout policy to another and then let stockholders who do not like the new policy sell to investors who do. However, frequent switching would be inefficient because of (1) brokerage costs, (2) the likelihood that stockholders who are selling will have to pay capital gains taxes, and (3) a possible shortage of investors who like the business's newly adopted dividend policy. Thus, management should be hesitant to change its dividend policy because a change might cause current shareholders to sell their stock, which would lower the stock price. Such a price decline might be temporary, but it might also be permanent—if the new dividend policy attracts few new investors, the stock price will remain depressed. Of course, the new policy might attract an even larger clientele than the business had before, in which case the stock price would rise.

Clientele effect hypothesis The hypothesis that certain types of investors prefer to own high-dividend-paying stocks while other types prefer to own zero- or low-dividend-paying stocks.

Evidence from many studies suggests the existence of a **clientele effect.** MM and others have argued that one clientele is as good as another, so the existence of a clientele effect does not necessarily imply that one dividend policy is better than any other. MM may be wrong, though, and neither they nor anyone else can prove that the aggregate makeup of investors makes clientele effects irrelevant. This issue, like most others concerning dividend policy, is still up in the air.

SELF-TEST QUESTION

1. Define the information content and clientele effects hypotheses, and explain how they affect dividend policy.

Dividend Stability

The stability of dividends is also important to stock investors. Corporate profits and cash flows vary over time, as do capital investment opportunities. Taken alone, these uncertainties suggest that corporations should vary their dividends over time, increase them when cash flows are large and the need for

internal funds is low, and lower them when cash is in short supply relative to investment opportunities. However, many stockholders rely on dividends to meet expenses, and they would be seriously inconvenienced if the dividend stream were unstable. Furthermore, reducing dividends to make funds available for capital investment could cause investors to push down the stock price because they interpreted the dividend cut as a signal from management that the business's future earnings prospects have dimmed. Thus, to maximize its stock price, a business must balance its internal needs for funds against the needs and desires of its stockholders.

How should this balance be struck—that is, how stable and dependable should a business attempt to make its dividends? It is impossible to answer this question definitively, but here are some points to consider. Virtually every publicly owned business makes a five-year to ten-year financial forecast of earnings and dividends. Such forecasts are rarely made public; they are used for internal planning purposes only. However, security analysts construct similar forecasts and do make them available to investors. Furthermore, the internal five-year to ten-year corporate forecasts for most businesses show a trend of higher earnings and dividends. Both managers and investors know that economic conditions may cause actual results to differ from forecasted results, but most businesses are expected to show increasing earnings (and dividends if they are being paid).

Years ago, the term *stable dividend policy* meant a policy of paying the same dollar dividend year after year. For example, the old AT&T paid $9 per year ($2.25 per quarter) for 25 straight years. Today, though, most businesses and stockholders expect earnings to grow over time as a result of profit retentions. Thus, dividends are normally expected to grow more or less in line with earnings, and today, a stable dividend policy generally means increasing the dividend at a reasonably steady rate. Indeed, some businesses inform investors of dividend growth expectations in their annual reports. Businesses with volatile earnings and cash flows would be reluctant to make a commitment to increase the dividend each year, so they would not make such announcements. Even so, most businesses would like to be able to exhibit dividend stability, and they try to come as close to it as they can.

Dividend stability has two components: (1) How dependable is the growth rate, and (2) can stockholders count on receiving at least the current dividend in the future? From an investor's standpoint, a business whose dividend growth rate is predictable has the most stable policy; such a business's total return (dividend yield plus capital gains yield) would be relatively stable over the long run, and its stock would be a good hedge against inflation. The second most stable policy is one that reasonably assures stockholders that the current dividend will not be reduced; it may not grow at a steady rate, but management will probably be able to maintain the current dividend amount.

The least stable situation is characterized by earnings and cash flows that are so volatile that investors cannot count on the business to maintain the current dividend over a typical business cycle.

Most observers believe that dividend stability is desirable. Assuming this position is correct, investors prefer stocks that pay more predictable dividends to stocks that pay the same average amount of dividends over the long run but in a more erratic manner. Thus, the cost of equity is minimized and stock price maximized if a business strives to stabilize its dividends.

SELF-TEST QUESTIONS

1. What does stable dividend policy mean?
2. What are the two components of dividend stability?

Establishing the Dividend Policy in Practice

In the preceding sections, we discussed that investors may or may not prefer dividends to capital gains but that they do prefer predictable to unpredictable dividends. Given these preferences, how should businesses set their basic dividend policies? In this section, we describe the policy-setting process.

Setting the Target Payout Ratio: The Residual Dividend Policy

Before we begin our discussion of the residual dividend policy, note that the term *payout ratio* can be interpreted in two ways: (1) the conventional way, in which the term means the percentage of net income paid out as *cash dividends,* or (2) the global context, in which the term includes both cash dividends and share repurchases. In this section, we assume that no repurchases occur. (Repurchases are discussed in a later section.) Increasingly, though, businesses are using the residual model to determine distributions to shareholders and then making a separate decision regarding the form of that distribution (cash dividend or repurchase).

When deciding how much cash to distribute to stockholders, two points should be kept in mind: (1) The overriding objective is to maximize shareholder value, and (2) the business's cash flows really belong to its shareholders, so management should refrain from retaining income unless it can be reinvested to produce returns higher than shareholders could earn themselves by investing the cash in investments of similar risk. On the other hand, internal equity (retained earnings) is cheaper than external equity (new common stock) because of the costs associated with new stock sales. This factor encourages businesses to retain earnings because they add to the equity base and thus reduce the likelihood that the business will have to raise external equity at a later date to fund future real-asset investments.

In setting dividend policy, one size does not fit all. Some businesses produce a lot of cash but have limited capital investment opportunities—namely businesses in profitable, but mature, industries where few opportunities for growth exist. Such businesses typically distribute a large percentage of their cash to shareholders, thereby attracting investment clienteles that prefer high dividends. Other businesses generate little or no excess cash but have many good investment opportunities—commonly new businesses in rapidly growing industries. These businesses generally distribute little or no cash but enjoy rising earnings and stock prices, thereby attracting investors who prefer capital gains.

Because investor preferences for dividends versus capital gains remain unclear, the optimal payout ratio is a function of three factors: (1) the business's investment opportunities, (2) its target capital structure, and (3) the availability and cost of external capital. When combined, these three factors create the **residual dividend policy.** Under this policy, a business follows four steps when deciding its target payout ratio: (1) It estimates the optimal capital budget; (2) it estimates the amount of equity needed to finance that budget, given its target capital structure; (3) it uses retained earnings to meet equity requirements to the extent possible; and (4) it pays dividends only if more earnings are available than are needed to support the optimal level of new investment. *Residual* implies leftover, so *residual policy* implies that dividends are paid out of "leftover" earnings.

Residual dividend policy
The policy of setting dividend payments on the basis of the difference between a business's earnings and the amount of equity needed to fund capital investment opportunities.

If a business rigidly follows the residual dividend policy, dividends paid in any given year can be expressed as follows:

Key Equation: Residual Dividend Policy

$$\begin{aligned}\text{Dividends} &= \text{Net income} - \text{Retained earnings required for reinvestment} \\ &= \text{Net income} - (\text{Target equity ratio} \times \text{Total capital budget}).\end{aligned}$$

To illustrate, assume a business has a net income of $100,000, a target equity ratio of 60 percent (meaning a target debt ratio of 40 percent), and a $50,000 capital budget. Under the residual model, its dividends would be $100,000 – (0.6 × $50,000) = $100,000 – $30,000 = $70,000. Thus, the business would use the $30,000 retained earnings plus $50,000 – $30,000 = $20,000 of new debt to finance the capital budget and hence would keep its capital structure on target. Note that the amount of equity needed to finance new investments might exceed net income; in this example, the equity needed to finance new investments would exceed net income if the capital budget were $200,000. In such instances, no dividends would be paid and the business would have to raise external equity if it wanted to maintain its target capital structure and undertake all desired projects.

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

Because investment opportunities and earnings vary from year to year, strict adherence to the residual dividend policy would cause dividends to be unstable. One year a business might pay zero dividends because it needed the money to finance good investment opportunities, but the next year it might pay a large dividend because investment opportunities were poor and therefore the business did not need to retain a large amount of earnings. Similarly, fluctuating earnings could lead to variable dividends, even if investment opportunities were stable. Therefore, for most businesses, adherence to the residual dividend policy would lead to fluctuating, unstable dividends. Adherence to it would be optimal only if investors were not bothered by fluctuating dividends. Because investors prefer stable, dependable dividends, the cost of equity would be higher, and the stock price lower, if businesses followed the residual model in a strict sense rather than attempted to stabilize their dividends over time. Therefore, many businesses instead use the **managed residual dividend policy,** which consists of the following steps:

Managed residual dividend policy A modification of the residual dividend policy wherein the average earnings and investment needs over, say, the coming five years are used to set the dividend as opposed to setting each year's dividend independently.

- Estimate the earnings and investment opportunities, on average, over the next five or so years.
- Use this forecast to find the residual policy average payout ratio during the planning period, which then becomes the business's long-run target payout ratio.

Although the target payout ratio is one input, many other factors are considered when setting each year's dollar dividend.

Businesses with stable operations can plan their dividends with a fairly high degree of confidence. Other businesses, especially those in cyclical industries, have difficulty maintaining in bad times a dividend that is really too low in good times. Historically, such businesses have set a low "regular" dividend and then supplemented it with an "extra" dividend when times were good. In essence, they announced a low regular dividend that they were reasonably sure they could maintain, even in bad times, so stockholders could count on receiving this dividend under almost all conditions. When times were good and profits and cash flows were high, the businesses paid a clearly designated

extra dividend. Investors recognized that the extra dividend might not be maintained in the future, so they did not interpret it as a signal that the businesses' earnings were going up permanently, nor did they take the elimination of an extra dividend as a negative signal. In recent years, however, many businesses following this **low regular dividend plus extras policy** have replaced the extras with stock repurchases.

Low regular dividend plus extras policy The policy of setting a low regular dividend that investors expect to receive every year plus, in years with large excess earnings, paying an additional (extra) dividend. The extra dividend may be a cash dividend or it may be in the form of a stock repurchase.

Earnings, Cash Flows, and Dividends

We normally think of earnings as the primary determinant of dividends, but cash flows are even more important. This point should be more or less intuitive because dividends clearly depend more on cash flows (which reflect the business's ability to pay cash dividends [or to repurchase stock]) than on current earnings (which are heavily influenced by accounting practices and do not necessarily reflect cash availability). Because of this relationship, dividends—or better yet, cash to investors—divided by cash flow is probably a better measure of payout than is dividends divided by net income. Still, the historical precedent was to express the payout ratio on the basis of earnings.

Quarterly Versus Other Payout Periods

Traditionally, US investor-owned corporations have paid dividends quarterly. Until recently, the term *quarterly dividend* was a permanent part of the financial lexicon. However, some corporations pay a single annual dividend while others pay monthly dividends.

There are two reasons to pay annual rather than quarterly dividends. First and foremost, it cuts both administrative and payment costs. Paying only one dividend instead of four saves the printing and distribution costs associated with three dividend payments. These savings can be considerable, especially for businesses that have a large number of shareholders and send out more than a million checks with each declared dividend. Also, there is a time value of money savings. For example, assume a business paid out about $400 million in dividends in 2015. If it paid out this money annually instead of quarterly, it could invest the intra-year (quarterly) payments. At a 5 percent annual rate, the business's savings would total more than $8 million. Second, businesses have more flexibility in funding annual dividends than in funding quarterly dividends, so those with highly fluctuating income are more comfortable paying annually. Many executives predict that more and more corporations will convert to annual dividends, especially those that pay small dollar amounts to a large number of shareholders.

Some corporations—primarily funds and trusts—pay dividends on a monthly basis. The rationale for paying dividends so frequently is that these corporations appeal mostly to investors seeking steady dividend income, as opposed to capital gains, and monthly payments are more attractive to such investors than are payments at longer intervals.

Changing Dividend Policies

From our discussion thus far, it is obvious that businesses should try to establish a rational dividend policy and stick with it. Businesses can change their dividend policies, but changes can inconvenience their existing stockholders, send unintended signals, and suggest dividend instability—all of which can negatively influence stock price. Still, economic circumstances change, and occasionally such changes dictate that a business alter its dividend policy.

In general, when a business changes its dividend policy, it must fully inform its stockholders of the rationale for the change. Good communications between the business and investors can mitigate the potential negative consequences of the change. This point is especially critical when dividends are cut or omitted. Although there may be "good and just" reasons for the change, many stock investors still believe the old adage—"like diamonds, dividends are forever."

SELF-TEST QUESTIONS

1. Explain the logic of the residual dividend policy. Why is the managed dividend policy (as opposed to the strict residual dividend policy) more likely to be used in practice?
2. Which are more critical to the dividend decision—earnings or cash flow? Explain your answer.
3. Why do some businesses pay annual or monthly dividends rather than the more common quarterly dividends?
4. Why do businesses change their dividend policies, and what is the best strategy in such situations?

Summary of the Factors Influencing Dividend Policy

We have described the major theories of investor preference and some issues concerning the effects of dividend policy on the value of a business. We also discussed the managed dividend policy for setting a business's long-run target payout ratio. In this section, we discuss several other factors that affect the dividend decision. These factors may be grouped into three broad categories: (1) constraints on dividend payments, (2) investment opportunities, and (3) alternative sources of capital.

Constraints on Dividend Payments

- **Bond indentures.** Debt contracts often contain restrictive covenants that limit dividend payments to earnings generated after the loan is granted. Also, debt contracts often stipulate that no dividends can be paid unless the current ratio, the times interest earned ratio, or some other measure of financial soundness meets stated minimums.

- **Preferred stock restrictions.** Typically, common dividends cannot be paid if the business has omitted a dividend on any preferred stock that had been issued. Any preferred arrearages must be satisfied before payment of common dividends can resume.
- **Impairment of capital rule.** Dividend payments cannot exceed the amount shown in the retained earnings account on the balance sheet. This legal restriction—known as the *impairment of capital rule*—is designed to protect creditors. Without the rule, a business that is in trouble could sell off most of its assets and distribute the proceeds to stockholders, leaving the creditors holding an "empty bag." (*Liquidating dividends* can be paid out of capital, but they must be indicated as such and must not reduce capital to amounts that are less than the limits stated in debt contracts.)
- **Availability of cash.** Cash dividends can be paid only with cash. Thus, a shortage of cash in the bank can restrict dividend payments. However, the ability to borrow can offset this factor.
- **Penalty tax on improperly accumulated earnings.** To prevent wealthy stockholders from using corporations to elude personal taxes, the tax code imposes a special surtax on improperly accumulated income. A business will be subject to heavy penalties if the Internal Revenue Service (IRS) can demonstrate that the business is deliberately holding down its dividend payout ratio to help its stockholders elude personal taxes. This factor is relevant only to privately owned businesses; we have never heard of a publicly owned business accused of improperly accumulating earnings.

Investment Opportunities

- **Number of profitable capital investment opportunities.** If a business typically has a large number of profitable capital investment opportunities, it will tend to have a low target payout ratio—and vice versa if the business has few profitable investment opportunities.
- **Possibility of accelerating or delaying projects.** A business's ability to accelerate or to postpone projects enables it to adhere more closely to a stable dividend policy.

Alternative Sources of Capital

- **Cost of selling new stock.** If a business needs to finance a given level of investment, it can obtain equity by retaining earnings or by issuing new common stock. If flotation costs (which include issuance costs and any negative signaling effects of a stock offering) are high, the cost of new equity is well above the cost of retained earnings, making it better to set a low payout ratio and to finance through retention rather than

through a sale of new common stock. On the other hand, a high-dividend payout ratio is more feasible for a business whose flotation costs are low. Flotation costs differ among businesses; for example, the flotation percentage is generally higher for small businesses, so they tend to set low payout ratios.

- **Ability to substitute debt for equity.** A business can finance a given level of investment with debt or equity. As noted in the previous point, a business's dividend policy can be more flexible if it has low stock flotation costs because equity can be raised either by retaining earnings or by selling new stock. The same is true for debt policy: If the business can adjust its debt ratio without raising costs sharply, it can pay the expected dividend, even if earnings fluctuate, by using a variable debt ratio.
- **Control.** If management is concerned about maintaining control, it may be reluctant to sell new stock, and hence the business may retain more earnings than it otherwise would. However, if stockholders want higher dividends and a proxy fight looms, it will increase the dividend.

It should be apparent from this discussion that dividend policy decisions are exercises in informed judgment, not decisions based on quantified rules. Even so, to make rational dividend decisions, financial managers must take into account all the points discussed in the preceding sections.

SELF-TEST QUESTIONS

1. What constraints affect dividend policy?
2. How do investment opportunities affect dividend policy?
3. How do the availability and cost of outside capital affect dividend policy?

The Dividend Policy Decision Process

In many ways, our discussion of dividend policy parallels our discussion of capital structure presented in Chapter 13: We have presented the relevant theories and issues and listed some additional factors that influence dividend policy, but we have not come up with any hard-and-fast guidelines that managers can follow. Dividend policy decisions are exercises in informed judgment, not made on the basis of a precise mathematical model. In practice, dividend policy is not an independent decision—the dividend decision is made jointly with capital structure and capital budgeting decisions. The underlying reason for this joint decision process is asymmetric information, which influences managerial actions in two ways:

1. In general, managers do not want to issue new common stock. First, new common stock involves issuance costs—commissions, fees, and so on—that can be avoided by using retained earnings to finance the business's equity needs. Also, asymmetric information causes investors to view new common stock issues by mature businesses as negative signals and, thus, lowers expectations regarding the business's future prospects. As a result, the announcement of a new stock issue usually causes the stock price to drop. Considering the costs involved, including issuance and asymmetric information costs, managers strongly prefer to use retained earnings as their primary source of new equity.
2. Dividend changes are signals about managers' beliefs regarding their businesses' future prospects. Thus, dividend reductions—or worse yet, omissions—generally have a significant negative effect on a business's stock price. For this reason, managers try to set dollar dividends low enough so that there is only a remote chance that they will have to reduce the dividend in the future. Of course, unexpectedly large dividend increases can be used to signal positive prospects.

The effects of asymmetric information suggest that, to the extent possible, managers should avoid selling new common stock and cutting dividends because both actions tend to lower stock prices. Thus, in setting dividend policy, managers should begin by considering the business's future investment opportunities relative to its projected internal sources of funds. The business's target capital structure also plays a part, but because the optimal capital structure typically is specified as a range, businesses can vary their actual capital structures somewhat from year to year. Because it is best to avoid issuing new common stock, the target long-term payout ratio should be designed so that the business can meet all of its equity capital requirements with retained earnings. In effect, managers should use the residual dividend model to set dividends, but in a long-term framework. Finally, the current dollar dividend should be set so that there is an extremely low probability that the dividend, once set, will ever have to be reduced or eliminated.

Of course, the dividend decision is made during the planning process, so future investment opportunities and operating cash flows are uncertain. Thus, the actual payout ratio in any year will probably be above or below the business's long-range target. However, the dollar dividend should be maintained, or increased as planned, unless the business's financial condition deteriorates to the point where it cannot maintain the planned policy or the basic nature of the business changes. A steady or increasing stream of dividends over the long run signals that the business's financial condition is under control. Furthermore, stable dividends reduce investor uncertainty, so a steady dividend

stream would reduce the negative effect of a new stock issue if one became absolutely necessary.

In general, businesses with superior capital investment opportunities should set lower payouts, and hence retain more earnings, than should businesses with poor investment opportunities. The degree of uncertainty also influences the decision. If there is a great deal of uncertainty in the forecasts of free cash flows, it is best to be conservative and set a lower current dollar dividend. Also, businesses with investment opportunities that can be delayed can afford to set a higher dollar dividend because, in times of stress, businesses can postpone investments for a year or two, thereby increasing the cash available for dividends. Finally, businesses whose cost of capital is largely unaffected by changes in the debt ratio can also afford to set a higher payout ratio because they can, in times of stress, issue additional debt to maintain the capital budgeting program without having to cut dividends or issue stock.

Businesses have only one opportunity to set the dividend payment from scratch. Today's dividend decisions are constrained by policies that were set in the past; hence, policy setting for the next five years necessarily begins with a review of the current situation.

Although we have outlined a rational process for managers to use when setting their businesses' dividend policies, dividend policy remains one of the most judgmental decisions businesses must make. For this reason, dividend policy is always set by the board of directors. The financial staff analyzes the situation and makes a recommendation, but the board makes the final decision. Finally, before we close our discussion of dividend policy, note that many businesses have *dividend reinvestment plans (DRIPs)*, which allow stockholders to buy more stock instead of receiving a cash dividend. DRIPs are discussed in Chapter 12.

SELF-TEST QUESTION

1. Describe the dividend policy decision process. Be sure to discuss all the factors that influence the decision.

Stock Dividends and Stock Splits

Stock dividends and stock splits are related to the business's cash dividend policy. The rationale for stock dividends and splits can best be explained through an example. We will use Porter Surgical Centers, a $700 million (in revenues) corporation that manages ambulatory surgery centers, for this purpose.

Since Porter's inception, its markets have expanded and it has enjoyed strong sales and earnings growth. Some of its earnings have been paid out

in cash dividends, but most have been retained, causing earnings per share and stock price to grow. Because the business had only a few million shares outstanding, each of Porter's shares had a high stock price, which limited the demand for the stock and thus kept the total market value of the business below what it would have been if more shares, at a lower price, had been outstanding. To correct this situation, Porter "split its stock," as described in the next section.

Stock Splits

Although little empirical evidence exists to support the contention, the widespread belief in financial circles is that an *optimal price range* exists for stocks. *Optimal* means that if the price is within this range, the price/earnings ratio—and hence the business's value—is maximized. Many observers, including Porter's management, believe that the best range for most mature stocks is from $20 to $80 per share. Accordingly, if the price of Porter's stock rose to $80, management would probably declare a two-for-one **stock split,** which would double the number of shares outstanding and halve the earnings and dividends per share, thereby lowering the stock price. Each stockholder would have more shares, but each share would be worth less. If the post-split price were $40, Porter's stockholders would be exactly as well off as they were before the split. However, if the stock price were to stabilize above $40, stockholders would be better off. Stock splits can be any size; for example, the stock could be split two-for-one, three-for-one, or one-and-a-half-for-one. Note that *reverse splits*, which reduce the number of shares outstanding, can also be used. For example, a firm whose stock sells for $5 might employ a one-for-five reverse split, exchanging one new share for five old ones and raising the value of the shares to about $25, which is within the optimal price range.

Stock split
An action by a corporation that increases the number of shares outstanding. For example, a two-for-one split would double the number of shares. Note that a *reverse split* decreases the number of shares outstanding.

Stock Dividends

Stock dividends are similar to stock splits in that they "divide the pie into smaller slices" without affecting the fundamental position of current stockholders. On a 5 percent stock dividend, the holder of 100 shares would receive an additional 5 shares (without cost); on a 20 percent stock dividend, the same holder would receive 20 new shares; and so on. Again, the total number of shares is increased, so earnings, dividends, and price per share all decline.

Stock dividend
A dividend that consists of shares of stock rather than cash.

If a business wants to reduce the price of its stock, should it use a stock split or a stock dividend? Stock splits are generally used after a sharp price run-up to produce a large price reduction. Stock dividends used on a regular annual basis will keep the stock price more or less constrained. For example, if a business's earnings and dividends were growing at about 10 percent per year, its stock price would tend to go up at about that same rate and it would soon be outside the desired trading range. A 10 percent annual stock

dividend would maintain the stock price within the optimal trading range. Note, though, that small stock dividends create bookkeeping problems and unnecessary expenses, so businesses today use stock splits far more often than they use stock dividends.

Price Effects

If a business splits its stock or declares a stock dividend, will it increase the market value of its stock? Several empirical studies have sought to answer this question. Here is a summary of their findings:

- On average, the price of a business's stock rises shortly after it announces a stock split or dividend.
- However, the price probably increases because investors take stock splits/dividends as signals of higher future earnings and dividends. Because only businesses whose managers are optimistic about the future tend to split their stocks, the announcement of a stock split is taken as a signal that earnings and cash dividends are likely to increase, which then causes the stock price to rise.
- However, if the business does not announce an increase in earnings and dividends within a few months of the stock split or dividend, its stock price will drop back to the earlier level.

What do we conclude from this discussion? From a purely economic standpoint, stock dividends and splits are just additional pieces of paper that do not create value. They can be likened to a story about Yogi Berra ordering pizza. When the counterman asked him whether he wanted the pizza cut into six or eight slices, he reportedly said, "Make it eight, I'm feeling hungry tonight."

Despite the lack of inherent value in stock splits and dividends, they do provide management with a relatively low-cost way of signaling that the business's prospects look good. Furthermore, because few large, publicly owned stocks sell at prices greater than several hundred dollars, we simply do not know what the effect would be if highly

Industry Practice

Warren Buffett and Berkshire Hathaway Stock

It is interesting to note that Berkshire Hathaway—which is controlled by billionaire Warren Buffett, one of the most successful financiers of the twentieth century—has never had a stock split with its original (Class A) shares. In early May 2015, these shares were selling on the New York Stock Exchange for roughly $217,000 per share. However, in response to investment trusts that were formed to sell fractional units of the stock, and to allow the stock to be gifted in increments of less than $10,000 to meet IRS requirements for tax-free gifts to individuals, Buffett created a new class of shares (Class B). The Class B shares were initially structured to be worth about 1/30 of a Class A share. However, in 2010, the Class B stock split 50 to 1, so all else the same, the Class A shares should be worth 1,500 times as much as the Class B shares. At the same time the Class A shares were selling for about $217,000, the Class B shares sold for about $145.

successful businesses had never split their stocks and had sold at prices in the thousands or even tens of thousands of dollars. All in all, it probably makes sense for a business to employ stock splits when its prospects are favorable, especially if the price of its stock has gone beyond the normal trading range.

SELF-TEST QUESTIONS

1. What are stock dividends and stock splits?
2. What impact do stock dividends and splits have on stock prices? Why?
3. In what situations should managers consider the use of stock dividends?
4. In what situations should they consider the use of stock splits?

Stock Repurchases

Stock (share) repurchase
The repurchase of outstanding stock by a corporation. Once repurchased, the shares of stock become *treasury stock*.

Stock (share) repurchases have become a major part of many corporations' distribution of earnings, including health services businesses. For example, in 2015, National HealthCare Corporation (NHC), a long-term care company, announced that its board of directors, at a regularly scheduled meeting, authorized two new stock repurchase programs. One of the programs authorizes the repurchase of up to $25 million of its common stock, and the other program will allow for the repurchase of up to $25 million of its preferred stock. Both of the stock repurchase plans expire on August 31, 2016. Under both programs, NHC may repurchase its stock from time to time, in amounts and at prices deemed appropriate, subject to market conditions and other considerations. The repurchases may be executed using open market purchases, privately negotiated agreements, or other transactions. NHC intends to fund the repurchases from cash on hand, available borrowings, or proceeds from potential debt or other capital market sources. The repurchase programs may be suspended or discontinued at any time without prior notice.

In the remainder of this section, we explain what a stock repurchase is, how it is carried out, and how managers should analyze a possible repurchase program.

Types of Repurchases

There are two principal types of repurchases: (1) *non-capital-structure related*, meaning the business has cash from operations available for distribution to its stockholders, and it distributes this cash by repurchasing shares rather than by paying cash dividends, and (2) *capital-structure related*, meaning the business concludes that its capital structure is too heavily weighted with equity, so it sells debt and uses the proceeds to buy back its stock. Stock that has been

repurchased by a business is called *treasury stock*. If some of the outstanding stock is repurchased, fewer shares will remain outstanding. Assuming that the repurchase does not adversely affect the business's future earnings, the earnings per share on the remaining shares will increase, and presumably the stock price will also increase. As a result, for those stockholders who retain their shares, capital gains are substituted for dividends.

Repurchase Methods

Stock repurchases are generally made in one of three ways:

1. A publicly owned business can buy its own stock through a broker on the open market.
2. A business can make a *tender offer*, which means it can ask stockholders to tender (give) their shares to the business in exchange for a specified price per share. In a tender offer, the business generally indicates that it will buy up to a specified number of shares within a particular period (usually about two weeks); if more shares are tendered than the business wishes to purchase, purchases are made on a pro rata basis.
3. A business can purchase a block of its shares from one large holder on a negotiated basis. In a negotiated purchase, care must be taken to ensure that this one stockholder does not receive preferential treatment over other stockholders or that any preference given can be justified by "sound business reasons." Historically, this method has been used to pay *greenmail*, which is a premium a business pays when buying shares of its stock from a potential "raider" who had expressed interest in taking over the business, to encourage him to drop the takeover attempt. However, such deals, which often were made at prices well above the current market price, were followed by a spate of lawsuits that have dampened managerial enthusiasm for the practice.

The Effects of Stock Repurchases

The effects of a repurchase can be illustrated with data on Atlanta Diabetes Counselors (ADC), Inc. The business expects to earn $4.4 million in 2016, and 50 percent of this amount, or $2.2 million, has been allocated for distribution to common shareholders. There are 1.1 million shares outstanding, and the market price is $20 per share. ADC believes that it can either use the $2.2 million to repurchase 100,000 of its shares through a tender offer at $22 per share or pay a cash dividend of $2 per share.

The effect of a cash dividend is obvious—investors receive $2 per share with no change in the number of shares outstanding. The effect of the repurchase can be analyzed in the following way:

$$\text{Current EPS} = \frac{\text{Total earnings}}{\text{Number of shares}} = \frac{\$4.4 \text{ million}}{1.1 \text{ million}} = \$4 \text{ per share},$$

where EPS is earnings per share.

$$\text{P/E ratio} = \frac{\$20}{\$4} = 5,$$

where P/E ratio is the price/earnings ratio.

$$\text{EPS after repurchasing 100,000 shares} = \frac{\$4.4 \text{ million}}{1.0 \text{ million}} = \$4.40 \text{ per share}.$$

$$\begin{aligned}\text{Expected market price after repurchase} &= \text{EPS} \times \text{P/E ratio} \\ &= \$4.40 \times 5 = \$22 \text{ per share}.\end{aligned}$$

This example proves that investors would receive the same before-tax benefits regardless of the distribution choice, either in the form of a $2 cash dividend or a $2 increase in the stock price. However, this result occurs because we assumed (1) that shares could be repurchased at exactly $22 a share and (2) that the P/E ratio would remain constant. If shares could be bought for less than $22, the repurchase would be even better for remaining stockholders, but the reverse would hold if ADC had to pay more than $22 a share. Furthermore, the P/E ratio might change as a result of the repurchase, rising if investors viewed it favorably and falling if they viewed it unfavorably. Some factors that might affect P/E ratios are considered next.

Although it may appear that ADC's stockholders would be indifferent between the two distribution methods, there are clear advantages and disadvantages to stock repurchases, which we examine in the next sections.

Advantages of Repurchases

- Repurchase announcements generally are viewed as positive signals by investors because the repurchase is often motivated by management's belief that the business's shares are undervalued.
- Stockholders have a choice when the business distributes cash by repurchasing stock—they can sell or not sell. With a cash dividend, on the other hand, stockholders must accept a dividend payment and pay the tax. Thus, stockholders who need cash can sell back some of their shares, while those who do not want additional cash can retain their stock. From a tax standpoint, a repurchase satisfies both types of stockholders.
- A repurchase can remove a large block of stock that is "overhanging" the market and keeping the price per share down.

- Dividends are "sticky" in the short run because managers are reluctant to raise the dividend if the increase cannot be maintained in the future—managers dislike cutting cash dividends because cuts are negative signals. Thus, if the excess cash flow is thought to be only temporary, management may prefer to make the distribution in the form of a share repurchase rather than to declare an increased cash dividend that the business cannot maintain.
- Businesses can use the residual model to set a *target cash distribution* level and then divide the distribution into a *dividend component* and a *repurchase component*. The dividend payout ratio will be relatively low, but the dividend itself will be relatively secure and will grow as the number of shares outstanding declines. The business will have more flexibility in adjusting the total distribution than it would if the entire distribution were in the form of cash dividends because repurchases can vary from year to year without sending negative signals.
- Repurchases can be used to produce large-scale changes in capital structures. For example, several years ago Consolidated Healthcare repurchased $400 million of its common stock to increase its debt ratio. The repurchase was necessary because even if the business financed its capital budget only with debt, it would still take several years to raise the debt ratio to the target level. With a repurchase, a capital structure change can be almost instantaneous.
- Many businesses grant large numbers of stock options to employees. If these businesses have repurchased stock, these shares can be reissued when options are exercised. This practice stops the dilution that would occur if new shares were sold to cover exercised options.

Disadvantages of Repurchases

- Stockholders may view the repurchase as a signal that the business has limited investment opportunities and hence a sign of slow growth ahead.
- Stockholders may not be indifferent between dividends and capital gains, and the price of the stock might benefit more from cash dividends than from repurchases. Cash dividends are generally dependable, but repurchases are not.
- Stockholders selling their shares may not be fully aware of all the implications of a repurchase, or they may not have all pertinent information about the corporation's present and future activities. However, businesses generally announce repurchase programs before embarking on them to avoid stockholder lawsuits.
- A business may pay too high a price for the repurchased stock, to the disadvantage of remaining stockholders. If its shares are not actively

traded, and if the business seeks to acquire a relatively large amount of its stock, the price may be bid up to an amount greater than the equilibrium level and then fall after the business ceases its repurchase operations.

Conclusions on Stock Repurchases

When we consider all the pros and cons of stock repurchases, where do we stand? Our conclusions may be summarized as follows:

- Because of the lower capital gains tax rate and the deferred tax on capital gains, repurchases have a significant tax advantage over dividends as a way to distribute income to stockholders. This advantage is reinforced by the fact that repurchases provide cash to stockholders who want cash but allow those who do not currently need cash to retain their shares. On the other hand, dividends are more dependable and thus better suited for those who need a steady source of income.
- Because of signaling effects, businesses should not vary their dividends—doing so would lower investors' confidence in them and adversely affect their cost of equity and stock price. However, cash flows vary over time, as do investment opportunities, so the "proper" dividend in the residual model sense varies. To circumvent this problem, a business can set its dividend at a level low enough to keep dividend payments from constraining operations and then use repurchases on a more or less regular basis to distribute excess cash. Such a procedure would provide regular, dependable dividends plus additional cash flow to stockholders who want it.
- Repurchases are also useful when a business wants to significantly change its capital structure within a short time or when it wants to distribute cash from a onetime event, such as the sale of a subsidiary.

Increases in the size and frequency of stock repurchases in recent years suggest that managers believe the advantages outweigh the disadvantages.

SELF-TEST QUESTIONS

1. Explain how repurchases can (1) help stockholders reduce taxes and (2) help businesses change their capital structures.
2. What is treasury stock?
3. What are three ways a business can repurchase its stock?
4. What are some advantages and disadvantages of stock repurchases?
5. How can stock repurchases help a business operate in accordance with the residual dividend model?

Key Concepts

This chapter explores the various ways that for-profit businesses can pass earnings to owners. Here are its key concepts:

- Small owner-managed businesses often use bonuses and other compensation as a way to distribute earnings.
- *Dividend policy* involves three decisions: (1) What fraction of earnings should be distributed, on average, over time? (2) Should the distribution take the form of cash dividends or stock repurchases? (3) Should the business maintain a steady, stable dividend growth rate?
- The *optimal dividend policy* strikes a balance between current dividends and future growth to maximize the business's stock price.
- Miller and Modigliani (MM) developed the *dividend irrelevance theory*, which holds that a business's dividend policy has no effect on either the value of its stock or its cost of capital.
- The *bird-in-the-hand theory* holds that a business's value is maximized by a high-dividend payout ratio because cash dividends are less risky than potential capital gains.
- The *tax preference theory* states that because long-term capital gains are subject to lower taxes than are dividends, investors prefer to have businesses retain earnings rather than pay them out as dividends.
- *Empirical tests* of the three theories have been inconclusive. Therefore, theory cannot tell corporate managers how a given dividend policy will affect stock prices and capital costs.
- Dividend policy should take account of the *information content (signaling)* and the *clientele effect* hypotheses. The information content hypothesis relates to the fact that investors regard an unexpected dividend change as a signal of management's forecast of future earnings. The clientele effect hypothesis suggests that a business will attract investors who like the business's dividend payout policy. Both factors should be considered by businesses that are considering a change of dividend policy.
- In practice, most businesses try to follow a policy of paying a *steadily increasing dividend*. This policy provides investors with stable, dependable income, and departures from it signal to investors management's expectations for future earnings.

(continued)

(continued from previous page)

- Most businesses use the *managed dividend policy* to set the long-run target payout ratio at a level that will permit the business to satisfy its equity requirements with retained earnings. This policy is a form of the *residual dividend policy*, which suggests that managers use the portion of earnings not needed for reinvestment to pay dividends.
- *Constraints on dividend payments*, *investment opportunities*, and *alternative sources of capital* are also considered when businesses establish dividend policies.
- Although most corporations pay dividends on a quarterly basis, some pay dividends annually and some pay dividends monthly.
- A *stock split* increases the number of shares outstanding. In theory, splits should reduce the price per share in proportion to the increase in shares because splits merely "divide the pie into smaller slices." However, businesses generally split their stocks only if (1) the price is high and (2) management thinks the future is bright. Therefore, stock splits often are taken as positive signals and, thus, boost stock prices.
- A *stock dividend* is a dividend paid in additional shares of stock rather than in cash. Stock dividends and stock splits both are used to keep stock prices within an "optimal" trading range.
- Under a *stock repurchase plan*, a business buys back some of its outstanding stock, thereby decreasing the number of shares, which should increase both earnings per share (EPS) and stock price. Repurchases are useful for making major changes to capital structure and for distributing temporary excess cash.

Although the material in this chapter is not relevant to most health services organizations, there are many for-profit corporations is the industry, some quite large. Examples include HCA, HealthSouth, and HCR ManorCare.

Questions

19.1 Explain the unique features of small, privately held businesses versus large, publicly owned businesses in regard to profit distributions to owners.

19.2 Briefly describe each of the following theories of investor preferences for dividends versus capital gains.

a. Dividend irrelevance theory
b. Bird-in-the-hand theory
c. Tax preference theory

19.3 Which of the theories listed in Question 19.2 have been empirically verified?

19.4 Discuss each of the following hypotheses relevant to the dividend decision.
a. Information content (signaling) hypothesis
b. Clientele effect hypothesis

19.5 Explain the difference between the residual dividend policy and the managed dividend policy.

19.6 Describe each of the following actions related to dividend policy.
a. Stock splits
b. Stock dividends

19.7 Explain how stock repurchase plans work and how they are used.

Problems

19.1 Suncoast Healthcare, a for-profit hospital, expects to have net income of $8,000,000 next year. Its target capital structure is 40 percent debt and 60 percent equity. The CFO has estimated that the optimal capital budget for next year is $12,000,000. If Suncoast uses the residual dividend policy, what is next year's expected dividend payout ratio?

19.2 ElderCare, Inc., a for-profit nursing home operator, is forecasting a capital budget of $60 million for next year. Its optimal capital structure is 50 percent debt and 50 percent equity. Its forecasted earnings before interest and taxes (EBIT) is $98 million. The company has $200 million in assets, pays an average of 10 percent on its debt financing, and has a marginal tax rate of 35 percent. If ElderCare follows the residual dividend policy, what is next year's expected dollar dividend?

19.3 Rosemont Pharmaceuticals' current stock price is $16.00, which the firm's managers believe to be undervalued by the marketplace. The company plans to repurchase 2.4 million of its 20 million outstanding shares. Rosemont's current earnings are $44 million. If the company can repurchase the planned 2.4 million shares at the expected post-repurchase price, what is the expected stock price after the repurchase?

19.4 In 2015, American Healthcare, Incorporated (AHI), a for-profit hospital management company, paid dividends totaling $3.6 million on net income of $10.8 million. The year 2015 was a normal year for AHI, whose dividends have grown at an average constant rate of 10 percent for the past eight years. However, in 2016, earnings are expected to jump to $14.4 million, with capital investment needs forecasted at $8.4 million for the year, 40 percent of which would be financed with debt. Several onetime events are driving the high 2016 earnings forecast, and earnings are expected to return to their historical 10 percent growth rate in 2017.

AHI is considering four different approaches to its 2016 dividend payment:

1. Set the dividend payment at 10 percent more than it was in 2015 to be consistent with the historical growth rate.
2. Use the 2015 dividend payout ratio to set the dividend.
3. Use the residual dividend policy to set the dividend.
4. Use the low regular dividend plus extras policy, with the regular dividend based on the historical growth rate and the extra dividend based on the residual model.

a. Calculate AHI's expected dividend under each of the four approaches considered.
b. Which approach would you recommend?

Resources

For some classic articles pertaining to dividend policy, see

Gordon, M. J. 1963. "Optimal Investment and Financing Policy." *Journal of Finance* 18 (2): 264–72.

Lintner, J. 1962. "Dividends, Earnings, Leverage, Stock Prices, and the Supply of Capital to Corporations." *Review of Economics and Statistics* 44 (3): 243–69.

Miller, M. H., and F. Modigliani. 1961. "Dividend Policy, Growth, and the Valuation of Shares." *Journal of Business* 34 (4): 411–33.

For some other pertinent articles, see

Baker, M., and J. Wurgler. 2004. "Appearing and Disappearing Dividends: The Link to Catering Incentives." *Journal of Financial Economics* 73 (2): 271–88.

Brav, A., J. R. Graham, C. R. Harvey, and R. Michaely. 2005. "Payout Policy in the 21st Century." *Journal of Financial Economics* 77 (3): 483–527.

DeAngelo, H., L. DeAngelo, and D. J. Skinner. 2004. "Are Dividends Disappearing? Dividend Concentration and the Consolidation of Earnings." *Journal of Financial Economics* 72 (3): 425–56.

Denis, D. J., and I. Osobov. 2008. "Why Do Firms Pay Dividends? International Evidence on the Determinants of Dividend Policy." *Journal of Financial Economics* 89 (1): 62–82.

Fama, E. F., and K. R. French. 2001. "Disappearing Dividends: Changing Firm Characteristics of Lower Propensity to Pay?" *Journal of Finance* 60 (1): 3–43.

Li, W., and E. Lie. 2006. "Dividend Changes and Catering Incentives." *Journal of Financial Economics* 80 (2): 293–308.

Skinner, D. J. 2008. "The Evolving Relationship Between Earnings, Dividends, and Stock Repurchases." *Journal of Financial Economics* 87 (3): 582–609.

The following websites contain additional related information:

- For illustrations of corporate dividend policies, see
  www.shell.com/global/aboutshell/investor/dividend-information/dividend-policy.html.
  www.annualreport2013.philips.com/content/en/investor_relations/key_financials_and_dividend_policy.html.

- To read Apple's initial dividend and share repurchase announcement, see
  www.apple.com/pr/library/2012/03/19Apple-Announces-Plans-to-Initiate-Dividend-and-Share-Repurchase-Program.html.