Chapter 15

Financing Corporate Real Estate

The focus of the previous chapters dealing with income properties has been that of an owner/investor who leases space to tenants. These tenants would generally be firms that use space as part of business operations. For example, a typical user could be a corporation that leases some, or all, of the space in an office building for use by its employees. Thus, the corporation uses the office space but does not own the building as an operating asset. This chapter analyzes real estate from the point of view of firms that are not real estate investors, but use real estate as part of business operations. Because so many of these "user firms" are corporations, their real estate activities are commonly referred to as **corporate real estate.**[1] However, this chapter is intended for any *user* of real estate assets and is not limited to corporations. Even though the primary business of these corporations is not real estate investment, they have to make many decisions regarding the use of real estate because real estate is typically an integral part of the firm's operations. For example, real estate is used for office space, warehouse space, manufacturing, and so on. In addition to using real estate, firms may choose to own real estate for a variety of other reasons, including these:[2]

- Owning, rather than leasing, space used in the operation of the business.
- Investing in real estate as one means of diversification from the core business.
- Retaining, rather than selling, real estate that may have been used previously in business operations.
- Acquiring real estate for future business expansion or relocation.

For these reasons, corporations are very significant users of commercial real estate in the United States. Corporate users control as much as 75 percent of all commercial real estate according to some estimates. On a book-value basis, moreover, roughly one-third of the total assets of Fortune 500 companies is estimated to be real estate. With such a large concentration of corporate wealth in commercial property, it is worth taking a closer look at the way that businesses or users of real estate should make real estate investment and financing decisions.

Benefits associated with ownership of real estate for a corporate user include many of the same benefits realized by investors. For example, a corporate owner that would

[1] Portions of this chapter are based on an article by William B. Brueggeman, Jeffrey D. Fisher, and David M. Porter, "Rethinking Corporate Real Estate," *Journal of Applied Corporate Finance,* 1991 (published by Continental Bank, Chicago).

[2] By "owning" real estate, we are referring to fee simple ownership in the property. A corporation may also have a leasehold interest in real estate that has value because the property is leased at a below market rate.

otherwise lease space saves lease payments, which is analogous to an investor earning lease income. By owning real estate, the corporation also receives the tax benefits from depreciation allowances. Furthermore, by owning real estate, the corporation retains the right to sell the property in the future. At that time, the property can be leased back from the purchaser if the firm still needs to use the space. Firms whose core business is not real estate investment, however, must consider additional factors. In particular, the user must consider the opportunity cost of capital invested in real estate, the impact that ownership of the real estate will have on corporate financial statements, and the corporation's ability to use space efficiently. These are some of the issues that this chapter will consider. We begin by considering how a corporate user should analyze whether or not to lease or own space necessary in its business operations.

Lease-versus-Own Analysis

Corporations can either lease or own space needed in business operations and may conduct **lease-versus-own analysis** to decide which option is superior. If a corporation owns space, it is essentially "investing" in real estate. When purchasing these assets, a corporation may decide to finance the purchase by taking out a mortgage secured by the property in addition to equity capital, or it may decide to use only equity capital. Alternatively, depending on the extent of debt already used to finance business operations, capital could consist of a combination of unsecured corporate debt and equity obtained from sale of stock or retained earnings.

If the firm leases space, on the other hand, it can use the space without investing corporate equity, freeing the equity capital for other investment opportunities available to the firm. Whether these investment opportunities are better than investing in the real estate depends on the after-tax rate of return and risk of these opportunities relative to that of the real estate.

Leasing versus Owning—An Example

To illustrate the decision to own rather than lease real estate that the corporation plans to use in its operations, consider the following example. Assume that the XYZ Corporation is considering opening an office in a new market area that would allow it to increase its annual sales by $1.5 million. The cost of goods sold is estimated to be 50 percent of sales, and corporate overhead would increase by $200,000, which does not include the cost of either acquiring or leasing office space. XYZ will also have to invest $1.3 million in office furniture, office equipment, and other up-front costs associated with opening the new office before considering the costs of owning or leasing the office space.[3]

XYZ could purchase a small office building for its sole use at a total price of $1.8 million, of which $225,000 (12.5%) of the purchase price would represent land value, and $1,575,000 (87.5%) would represent building value. The cost of the building would be depreciated over 31.5 years.[4] XYZ is in a 30 percent tax bracket. As an alternative to owning, an investor has approached XYZ and indicated a willingness to purchase the same building and lease it to XYZ for $180,000 per year for a term of 15 years. XYZ would pay all real estate operating expenses (absolute net lease), which are estimated to be 50 percent of the lease payments. XYZ has estimated that the property value should increase over the 15-year lease term, and the building could be sold for $3 million at the end of the 15 years.[5]

[3] Other costs might include sales training, relocating employees, and the like.

[4] For illustration only. The depreciable life would depend on the tax law in effect at the time of purchase.

[5] Even if the corporation still needs to use the space, it could sell the property and lease it back at the end of the lease term. Sale-leaseback is considered later in this chapter. The corporation could also decide to sell the building and relocate its sales office to another property that is leased or owned.

XYZ has also determined that if it purchases the property, it could arrange financing with an interest-only mortgage on the property for $1,369,000 (76% of the purchase price) at an interest rate of 10 percent with a balloon payment due after 10 years.[6]

Cash Flow from Leasing

Exhibit 15–1 shows the calculation of after-tax cash flow associated with opening the office building and obtaining use of the space by leasing. Recall that the initial cash outlay of $1.3 million is the up-front cost of setting up the office. After-tax cash flow of $196,000 is received each year for 15 years. We also assume that XYZ will close the office at the end of the lease, and that the furniture and equipment will have no residual value. An after-tax rate of return of 12.5 percent is assumed to be the opportunity cost, or after-tax reinvestment rate savings of $1.3 million, if XYZ chooses to lease rather than own the office building. This is the rate of return after tax that XYZ can compare with other investment alternatives of equal risk when considering whether it should invest the $1.3 million necessary to open the new office building.

Assuming that XYZ believes that it should open a new regional office, the next question is whether the firm should lease or own the property that will house the new operation. One way to answer this question is to calculate the after-tax cash flows and after-tax rate of return assuming that the space is owned rather than leased.

Cash Flow from Owning

Exhibit 15–2 shows the after-tax cash flow from opening the office building under the assumption that it is owned. The initial cash outlay of $1,731,000 includes the equity invested in the office building of $431,000 as well as the other up-front costs of $1.3 million.

EXHIBIT 15–1
After-Tax Cash Flow: Leasing Office Building

Cash Flow from Operations	
	Lease
Sales	$1,500,000
Cost of goods sold	750,000
Gross income	750,000
Less operating expenses:	
Business	
Real estate*	200,000
Less: Lease payments	90,000
Taxable income	180,000
Tax	$ 280,000
Income after tax	84,000
After-tax cash flow	$ 196,000
	$ 196,000

Summary of After-Tax Cash Flows		
	Outlay	Cash Flow
Year	0	1–15
	$–1,300,000	$ 196,000
IRR	12.50%	

*Operating expenses on the real estate (such as property taxes and insurance) that the tenant is responsible for paying under the net lease.

[6] For purposes of illustration, we assume the loan amount to be equal to the present value of the lease payments of $180,000 per year, discounted at the mortgage loan interest rate of 10 percent. This makes the financing comparable with leasing, as we will discuss later in the chapter.

EXHIBIT 15–2
After-Tax Cash Flow: Owning Office Building

Operating Years		
Sales		$ 1,500,000
Cost of goods sold		750,000
Gross income		750,000
Less operating expenses:		
Business		200,000
Building or property		90,000
Less: Interest		136,900
Depreciation		50,000
Taxable income		273,100
Less: Tax		81,930
Income after tax		191,170
Plus: Depreciation		50,000
Cash flow		$ 241,170
Sale at End of Lease		
Reversion		$ 3,000,000
Mortgage balance		−1,369,000
Reversion	$ 3,000,000	
Basis	−1,050,000	
Gain	$ 1,950,000	
Tax		−585,000
Cash flow		$ 1,046,000

Calculation of *IRR* Summary			
	Outlay	Cash Flow	Reversion
Year	0	1–15	15
Cash flow	$−1,731,000	$241,170	$ 1,046,000
IRR	12.95%		

During the first 15 years, the after-tax cash flow is $241,170. The after-tax cash flow from sale of the real estate is $1,046,000. The after-tax *IRR* under this scenario is 12.95 percent. This return is slightly higher than the after-tax rate of return of 12.50 percent if XYZ chooses to lease the space, as shown in Exhibit 15–1. This return suggests that owning is better than leasing. Note, however, that the 12.95 percent rate of return is the after-tax rate of return on *both* the funds invested in opening the office building ($1.3 million) and the additional equity invested in owning the building ($431,000). That is, this rate of return is for two combined investment decisions: (1) to open the office building and (2) to own the office building. Although the rate of return associated with owning the office building is greater than leasing it, the risk may also be greater, depending on the risk of holding the real estate as an investment.[7] To evaluate this risk further, we have to isolate the after-tax rate of return associated with making the investment in the real estate only.

[7] The decision whether or not to use the space for an office building should normally be made by considering the after-tax cash flow from leasing the space. This ensures that the decision to use the space is based on the market-determined cost of using the space. It also separates the benefits of owning the space from the benefits of using the space for a new sales office.

Cash Flow from Owning versus Leasing

Thus far, we have been dealing with two interrelated decisions. The first decision is whether the corporation should expand its operations by investing funds to *use* the additional office space. The second decision is how to pay for the use of the space. In the preceding analysis, we calculated the rate of return under two different assumptions about how the firm would pay for the use of the space. Assuming that the rate of return under one or both of these alternatives meets the firm's investment criteria, the firm should decide to use the space. It is not clear, however, whether the risk and rate of return are the same for both alternative ways of obtaining use of the space. In this example, both scenarios involve use of the same building with the same sales potential and non–real estate costs.[8]

As we have seen, however, the decision to own the space involves an additional equity investment in the property that is not required when leasing. To look more closely at the equity investment in the property that is included with the decision to own versus lease, we must consider the *difference* in the cash flow to the corporation if it leases the space rather than owns the space. Exhibit 15–3 replicates the after-tax cash flow under both the lease and own scenarios and computes the difference in these cash flows.

The first two columns of Exhibit 15–3 repeat calculations of the after-tax cash flows for owning and leasing, respectively. As we have discussed, these cash flows to the firm would result from using the office building based on each alternative. The $431,000 initial outlay now represents only the equity for investment in the property. During the first 15 years, the after-tax cash flow would be $241,170 per year if the property were owned, as compared to $196,000 per year if the property were leased—a difference of $45,170 per year. The firm would realize the $1,046,000 cash flow from sale if it chooses to own the project. When making the lease-versus-own decision, remember that the volume of sales and the operating costs associated with generating those sales will be the same whether the space is leased or owned. Therefore, the decision to lease or own should depend only on the *difference* in cash flows under the two alternatives. In other words, owning or leasing a building should in no way affect the XYZ's business operations. The difference in cash flows is shown in column 3 of Exhibit 15–3. By owning rather than leasing, XYZ should save $45,170 per year after taxes.[9] Furthermore, if XYZ owns the space, it will receive $1,046,000 at the end of the 15th year from sale of the office building.

Return from Owning versus Leasing

Recall that the equity investment required to own the property was $431,000. Based on this investment and the incremental cash flows of $45,170 per year and $1,046,000 in year 15 (owning vs leasing), the after-tax *IRR* is 13.79 percent. Whether this is sufficient to justify the additional investment in ownership versus leasing the space depends on the opportunity cost and risk associated with the investment of equity capital in the property. If XYZ believes that an after-tax rate of return of 13.79 percent is not sufficient to warrant the risk associated with owning the space, it should decide to lease rather than own the space. On the other hand, if XYZ thinks that 13.79 percent is an adequate return given the risk of owning and eventually selling the property after 15 years, then it should own.

[8] In practice, space that is available for leasing may not be available for purchase, so that the space that would be leased would not be the same as the space that would be owned. This could result in slightly different assumptions about the sales potential of each alternative. For simplicity, we have ignored this potential difference.

[9] Alternatively, by leasing rather than owning, the corporation must pay an additional $45,170 per year.

EXHIBIT 15–3
Lease-versus-Own Analysis

Cash Flow from Operations			
	Own	Lease	Difference (Own – Lease)
Sales	$1,500,000	$1,500,000	0
Cost of goods sold	750,000	750,000	0
Gross income	750,000	750,000	0
Operating expenses:			
Business	200,000	200,000	0
Real estate	90,000	90,000	0
Lease payments	0	180,000	−180,000
Interest	136,900	0	136,900
Depreciation	50,000	0	50,000
Taxable income	273,100	280,000	6,900
Tax	81,930	84,000	2,070
Income after tax	191,170	196,000	4,830
Plus: Depreciation	50,000	0	50,000
After-tax cash flow	$ 241,170	$ 196,000	$ 45,170

Cash Flow from Sale		
Reversion/owning		$ 3,000,000
Mortgage balance		−1,369,000
Reversion	$ 3,000,000	
Basis	−1,050,000	
Gain	$ 1,950,000	
Tax		−585,000
After-tax cash flow		$ 1,046,000

Summary of After-Tax Cash Flows			
	Outlay	Cash Flow	Reversion
Year	0	1–15	15
Own – Lease	$−431,000	$45,170	$1,046,000
IRR	13.79%		

Importance of the Residual Value of Real Estate

Leasing and owning are often viewed as two financing alternatives because lease payments substitute for debt payments as discussed above. As we saw in the above example, however, the debt liability that is comparable to a lease liability does not cover the portion of the purchase price that represents an investment in the right to the residual value. Hence, leasing property differs from equipment leasing, where the residual value can usually be assumed to be zero.

Generally, leasing or owning real estate differs from leasing or owning equipment because real estate may have a substantial residual value. The owner of the real estate has the right to the residual value and incurs the risk that the residual value will be different from the cost of the property at the time it was purchased. Thus, in addition to having use of the real estate during the term of the lease, *a corporation that chooses to own real estate has also made an investment in its residual value.* This means that deciding between owning and leasing real estate is not simply a choice between two financing alternatives. Although they are both ways of financing

the use of the real estate over the lease term, ownership includes the right to the residual value of the property at the end of the lease term.[10] Leasing does not give the company any interest in the residual value of the property.[11] This residual value can be quite substantial if the property has retained its value or appreciated in value over the lease term, whereas with corporate equipment the expected residual value is so small in most cases that it can usually be ignored.

The residual value of the property is affected by changes in the supply and demand for real estate over the term of the lease and is usually more uncertain than the contract lease payments. Thus, the required rate of return from owning (discount rate) used to evaluate the incremental cash flows from owning versus leasing should probably be higher than the after-tax cost of corporate debt, although the rate of return may not have to be as high as the cost of capital used for the typical corporate investment.[12]

Estimating the Residual Value

Residual value—that is, the reversion value of land and improvements at the end of the lease term—is an important part of the decision to lease or own that causes confusion for corporate managers. Some analysts assume that the residual value of the real estate will be equal to the book value of the property, or the original acquisition cost less accounting depreciation at the expiration of the lease term. Others go to the extreme of assuming that there will be no residual value. Why? Because there will always be a need for a facility and the residual sale price received must be reinvested in a lease or on a new facility at that time.

Because real estate does not typically decline in value as fast as accounting depreciation and rarely has zero value at the end of a typical lease term, assuming no residual value biases the lease-versus-own decision toward leasing. However, it is just as incorrect to assume unrealistically high rates of appreciation that bias the analysis toward ownership. The correct approach is to make a realistic estimate of the residual value of the real estate and the uncertainty of the value estimate. This estimate should consider the *market value* of the real estate (as discussed in Chapter 10), not the investment value to the corporation.

By deciding to own, a corporation chooses, in effect, to bear a residual real estate risk that may be completely unrelated to its operating success. Real estate differs from other corporate assets in that, at the end of the lease term, the range of possible residual values runs from well below to well above the initial cost of the property. Over the life of a medium- to long-term lease, local, regional, and even international economic factors can cause the market values of corporate real estate to change significantly. By deciding to own rather than lease space, the company must bear the risk of any unexpected changes in the residual value of the real estate.

[10] Assume that the property in our lease-versus-own example is financed with a nonrecourse mortgage loan. The difference between owning and leasing (aside from the tax benefits) would be an option to keep the property if at the end of the lease its value exceeds the loan balance. If the value of the property is less than the loan balance, the corporation could default on the mortgage, and the property would revert to the lender just as it would to the lessor at the end of the lease. In this case, owning differs from leasing by including the investment made to purchase a call option on the residual value property. The exercise price of the option is the mortgage balance at the end of the lease term. Because we assumed the loan amount to be equal to the present value of the lease payments, the price paid for the call option is essentially the amount of equity that must be invested.

[11] Leases can also be structured to include a claim on the residual value of the property. For example, an equity lease gives the lessee an ownership interest in the building. The lessee might also have an option to buy the property at the end of the lease.

[12] The cost of capital typically used by corporations is a weighted average of the cost of corporate debt and equity capital. Because equity is more expensive than debt, the weighted average cost of capital is greater than the cost of debt. (See chapter appendix.)

Some analysts argue that the residual value of the real estate is irrelevant because the corporation needs to use space on an ongoing basis. That is, there will always be a need for a facility, and proceeds from the residual sale must be reinvested in a new facility at that time. But this approach ignores the fact that, by owning, the corporation retains ownership of an asset with value at the end of the typical lease term. At that time (when the lease ends) management may or may not decide to continue to *use* the same space. The corporation has the option to relocate if a change in the highest and best use of the site makes the space inefficient for continued use.[13] If the corporation decides to continue to use the space, it can then decide whether to continue to own the space or sell the space and lease it back.[14]

Regardless of what the firm decides to do in the future, the initial decision to own versus lease means that the firm has an asset with an expected market value when the initial lease term would have ended. If property values have risen, the corporation has an asset that is more valuable than when it was purchased. If property values have fallen, the asset is less valuable than when purchased. In either case, the corporation has an asset on the balance sheet that it would not have had if it had decided to lease. If the market capitalization rate for the property has remained fairly constant, any change in the market value of the property and market rental rates should be highly correlated. Thus, by owning, the corporation has in effect invested in an asset that has a rate of return that is correlated with changes in the corporation's cost of leasing the space. As suggested above, this may or may not be correlated with the return on the corporation's core business. If market values and rental rates rise, the opportunity cost of using the space will be greater in the future whether the space is leased or owned. The difference is that by having decided to own, the company has an asset that has appreciated in value and a gain on the value of the real estate. As noted, it can realize this historical gain by a sale and leaseback or by relocating.[15]

Alternatively, if the company had leased, it would still face higher lease costs but may or may not have invested funds in an asset that has increased in value. Of course, if rental rates fall, the company can now lease the space at a lower rate. But by owning instead of leasing, the company has also incurred a loss on the real estate.

The point is that by owning rather than leasing, the corporation has made an investment with a rate of return that depends on what happens to local real estate values. Own-versus-lease decisions must consider how the risk and expected return from the investment fit into the corporation's overall investment and financing strategy.

The Investor's Perspective

In the above analysis, we considered the incremental cash flow associated with owning versus leasing. The return from owning (and the cost of leasing) from the corporation's point of view was calculated to be 13.79 percent. If the corporation decides to lease the space, our analysis assumes that there is an investor willing to own the space and lease it to the corporation. What rate of return would the investor expect? This depends, of course, on how the investor finances the property and the investor's tax situation. For the sake of comparison, assume that the investor is in the same tax bracket as the corporation and that the property would be financed the same way. Exhibit 15–4 shows the projected after-tax cash flows from operating the property during the term of the lease and resale at the end of the lease.

[13] Options available to the corporation when the highest and best use of the space has changed are considered in a later section.

[14] Sale-leaseback is examined in more detail later in the chapter.

[15] If lease payments have risen as well as property values, the company may still be better off by continuing to own rather than selling and leasing back the space. This does not negate the fact that the return from owning the real estate may or may not have been greater than the return that the corporation could have earned from leasing instead of owning and investing the funds elsewhere.

EXHIBIT 15–4
Investment Analysis

Lease income		$ 180,000
Operating expenses (net lease)		0
Net operating income		180,000
Less: Depreciation		50,000
Less: Interest		136,900
Taxable income		−6,900
Tax		−2,070
Net operating income		180,000
Less: Debt service		136,900
Less: Taxes		−2,070
After-tax cash flow		45,170
Sale at End of Lease		
Reversion		$ 3,000,000
Mortgage balance		−1,369,000
Reversion	$ 3,000,000	
Basis	−1,050,000	
Gain	$ 1,950,000	
Tax		−585,000
Cash flow		$ 1,046,000

Summary

	Outlay	*ATCF*	Reversion
Year	0	1–15	15
Cash flow	$−431,000	$45,170	$ 1,046,000
IRR	13.79%		

The rate of return for the investor is exactly the same as it was for the corporation. This should be no surprise because we have emphasized that the difference between owning and leasing is a real estate equity investment.

A Note on Project Financing

In the lease-versus-own analysis considered earlier, we assumed that the corporation took out a mortgage on the property. Rather than a mortgage, the corporation could have used unsecured corporate debt. Using a mortgage loan utilizing real estate as security substitutes for the use of unsecured corporate debt under the assumption that the corporation wants to maintain a constant proportion of total debt (e.g., mortgages on real estate, corporate bonds). However, corporations may find that the rate on a mortgage secured by the real estate is less than the rate it has to pay on a new issue of unsecured corporate debt. This is because the rate on a mortgage tends to reflect the risk of the real estate, whereas the risk for unsecured corporate debt reflects the risk of the corporation.

A corporation with a high credit rating may pay less for unsecured debt than for a mortgage because the rate on mortgage loans, particularly those made without recourse to the borrower, reflects the risk of default—the inability of the cash flows produced by the property to service the debt rather than the default risk associated with the borrower. That is, in the case of nonrecourse financing, the rate on the mortgage includes a risk premium to the lender because the borrower has the option to default in the event that the property value is less than the loan or cash flow cannot service the debt. In such cases, the financial

community may consider debt based on the assets of the corporation less risky than the real estate, and, therefore, the unsecured corporate borrowing rate may be lower than that of a mortgage loan based solely on the real estate as security.

On the other hand, a corporation that has assets that are riskier than the real estate may have to pay more for unsecured corporate debt than the mortgage rate used to finance the acquisition of real estate when real estate is the only collateral for the debt.

If the corporation can obtain unsecured corporate debt at a lower rate than a mortgage on the property, we can assume the lower rate in the analysis in Exhibits 15–2 and 15–3. Alternatively, analysts sometimes calculate the incremental cash flows from owning versus leasing (as in Exhibit 15–3) *without explicitly considering the debt financing*. This type of analysis is analogous to calculating the return from owning the real estate (as in Exhibit 15–4) by using the cash flows before considering financing, that is, as if the property were unleveraged. In this case, the rate of return from owning (vs leasing) must be compared to the firm's weighted-average cost of capital, which is an average of the firm's cost of debt and equity capital. This approach allows the cost of debt financing to be reflected in the required rate of return from owning the real estate rather than considering financing in the calculation of the cash flows.[16] As shown in the appendix to this chapter, this approach does not change the conclusion about the rate of return earned by investing in real estate. Analysts often argue that for lease-versus-own decisions, the rate of return on the incremental cash flows from owning versus leasing (when financing is not explicitly considered) should be compared with the corporation's cost-of-debt capital rather than a weighted-average cost of debt and equity. This argument is based on the assumption that the lease liability (based on the present value of the lease payments) is equivalent to the amount of debt financing and that no additional equity would be invested in owning. This assumption is realistic for equipment leasing because equipment has no substantial residual value. However, as our example illustrated, even if we can borrow an amount equal to the present value of the lease payments, real estate requires an additional equity investment due to the expected present value of the residual.

Factors Affecting Own-versus-Lease Decisions

The above example provides insight into key financial factors that affect the decision to own or lease space. Additional matters, however, must be considered. Some of these are difficult to incorporate explicitly in a lease-versus-own analysis, but they may affect the final decision.

Space Requirements

Leasing is preferable when the company's space requirements are far less than the optimal development on a given site. In cases where the amount of space a corporate user desires is less than the optimal building scale that should be developed on a site, we expect (and typically find) corporate users leasing and developers (and their investment partners) assuming real estate risks. Even in cases where a corporate lessee will be the dominant tenant, it may be preferable for the corporate user to lease. For example, companies like IBM may be able to negotiate lease concessions (or a share of the developer's profits) that reflect the developer's use of the corporate credit when obtaining development financing.

Amount of Time Space Is Needed

In cases where the expected life of an asset far exceeds the company's projected period of use, companies will also generally choose to lease rather than bear the costs associated

[16] This approach is typically taken in corporate finance texts. The appendix to this chapter discusses the use of the weighted-average cost of capital approach.

with selling an illiquid asset. This tendency can be explained, in part, by the comparative advantage of lessors in creating or locating alternative uses for such assets.

Risk Bearing

We have discussed the importance of the residual value of the real estate, which is affected by changes in local property values. Lease-versus-own analysis should carefully consider any relationship between the factors that influence the company's operating value and those driving local property markets. The aim of such consideration should be to determine whether other real estate investors have a comparative advantage in bearing the risk associated with local real estate markets. Pension funds, for example, generally hold unlevered portfolios of real estate diversified both by property type (offices, warehouses, etc.) and by geographic region. These funds, as well as real estate investment trusts (REITs), are likely to be able to diversify risks in property markets much more efficiently than all but the largest corporations. When a given real estate investment represents a large proportion of the company's total capital, the comparative advantage of other investors in bearing such risks may create a strong preference for leasing. For these reasons of relative risk-bearing capacity, larger companies with broadly dispersed operations are more likely to own than are smaller companies with geographically concentrated operations.

Management Expertise

Owning and managing real estate is not typically a primary part of a corporation's business activity. Thus, the corporation can be at a disadvantage when it comes to owning real estate. The corporation may not have the expertise to manage real estate assets. When property is owned rather than leased, managers may not be as aware of the true cost of using the space, leading to inefficient use of real estate. Leasing is favored when the company does not have a comparative advantage relative to developers and other investors in managing property and eventually selling it.

Maintenance

Companies are more likely to own assets whose values are highly sensitive to the level of maintenance. Lessors that own maintenance-sensitive buildings, unless protected by enforceable maintenance provisions,[17] are likely to charge higher lease rates to compensate for lower expected levels of maintenance undertaken by (particularly short-term) tenants. Therefore, unless corporate users find some means of reassuring lessors that maintenance is in the user's as well as the owner's best interest (perhaps through a very long-term lease), corporate users are likely to find it more economical to own.

Special Purpose Buildings

Companies are more likely to own buildings that have been customized for their operations, especially when those operations are unusual and the company has few competitors. To illustrate the case of customized corporate real estate, we typically observe corporations owning rather than leasing buildings outfitted for hi-tech, R&D operations.[18] (Bulk distribution warehouses, by contrast, are far more likely to be leased than owned.) The high costs

[17] Effective contracting may be very difficult to achieve even if a net lease is negotiated with the lessor because of time losses in monitoring, assessing blame, and resolving disputes over excessive equipment failures or other problems caused by poor building design or other flaws believed to be the responsibility of the lessor.

[18] The maintenance and specialization issues may in fact be closely related. For example, in an R&D facility requiring specific hardware in its design, technicians employed by the corporate entity may be better able to diagnose and respond to maintenance problems. In such cases, ownership would be preferable to constructing intricate provisions in lease contracts for the lessor to maintain such assets.

of relocating specialized corporate fixtures and machinery are an obvious incentive to own rather than lease. In the case of many single-tenant, **special purpose buildings**, the value of the real estate may well be far higher in its current corporate use than in any conceivable alternative use. To the extent this is the case, a lessor would be effectively holding a corporate security whose value depended almost entirely on the company's operating success. In such cases, corporate users would likely have a considerable advantage over real estate investors in bearing such firm-specific risk.

Tax Considerations

Tax considerations have historically played a major role in the standard lease-versus-buy analysis. It is less clear today than it was prior to 1986 whether corporations or individuals (through the medium of either partnerships or institutions) are the tax-favored owners of real estate.

The simple rule of thumb on taxes in lease-versus-buy decisions is as follows: If the lessor is in a higher tax bracket than the lessee, then leasing puts "ownership" of the asset in the hands of the party that can most benefit from the tax shelter provided by depreciation. From 1981 to 1986, two elements of the tax code together encouraged the ownership of real estate by individuals in high tax brackets: (1) depreciation lives were considerably shorter for real estate assets, thus increasing the depreciation tax shield and (2) the marginal tax rate for wealthy individuals (50%) was higher than the highest marginal tax rate for corporations (46%), and many companies had other tax shields that effectively lowered their marginal rate well below the statutory 46 percent rate. These two conditions, combined with the ability of partnerships to pass through operating losses directly to investors and avoid the double taxation of corporate dividends, created strong incentives for partnerships of high-tax individuals to own real estate and lease it to corporations. These tax incentives for corporations to sell real estate to individuals coupled with the market's perceived reluctance to reflect corporate real estate values in stock prices explain much of the real estate sales and sale-leasebacks that occurred during this time period.

The Tax Reform Act of 1986 in several ways substantially reduced the incentive for individuals to lease to corporations. First, it lengthened tax depreciation lives, thus lowering the tax shield. Second, the highest marginal tax rate for corporations (34%) is now slightly higher than that of wealthy individuals (31%). Third, individuals are subject to limitations on "passive" losses that restrict their ability to use accounting losses from real estate to offset other income. These tax law changes have leveled the playing field among partnerships, corporations, and tax-exempt entities such as pension funds as owners of real estate.[19] For this reason, taxes are far less likely today to be the deciding factor in corporate lease-versus-own decisions.

Access to Capital Markets

Real estate is very capital intensive. The cost of owning real estate is a function of the cost of obtaining debt and equity capital. As mentioned previously, corporations with a high credit rating may be able to obtain unsecured corporate debt and equity at a cost less than the cost of capital for the individual or institutional investor that would be willing to own and lease the real estate to the corporation. This would tend to make owning preferable because the lease rate must cover the owner's cost of capital. On the other hand, a corporation that has a high cost of capital relative to a potential lessor might find leasing more attractive than owning.

[19] In fact, some researchers now claim that, for tax purposes under certain conditions, corporations rather than partnerships may be the optimal organizational form for holding real estate. See Jeffrey D. Fisher and George Lentz, "Tax Reform and Organizational Forms for Holding Investment Real Estate: Corporations vs. Partnerships," *The American Real Estate and Urban Economics Association Journal* 17, no. 3, 1989.

Many corporate users with a significant presence in the retail sector choose to use sale–leasebacks as an integral, recurring part of their primary business operations. Firms that use this approach include, among many others, Walgreens, CVS, Mattress Firm, Dollar Tree, Dollar General, Lone Star Steakhouse, and Tractor Supply.

These firms use sale–leasebacks for several reasons. They can

(1) exert significant control regarding the location, size, and design of their retail outlets.
(2) receive cash flow from the sale of these real estate assets, thereby redeploying funds for alternative uses and not tying up corporate capital in real estate assets.
(3) use the strength of their corporate credit rating when executing long-term leases, which provides more secure rents for investors who purchase these properties.

This option also serves as an alternative to using corporate bond financing. Using bond financing could require that all properties be cross-collateralized as security for the bond offering. An economic failure of one or more of the retail properties could have significant negative effects when all properties are used as security for the bonds. Under a sale–leaseback arrangement, a negative event would result in a lease termination and a financial settlement for only those individual properties affected by the sale–leaseback.

If a property is mortgaged, we might expect the rate to be the same for the corporation or the investor, assuming that the rate is based on the risk of the real estate rather than the risk of the borrower. If the loan is made with recourse to the borrower, however, the mortgage rate for corporations and investors could differ.

Control

The corporation may want to control the real estate by owning the property for financial reasons not considered in the above example. For example, as the corporation does business at a particular site, it may build up goodwill that is difficult to transfer to another location. If the space is leased, the lessor may attempt to extract some of this firm-specific value from the corporation by charging a lease rate that is higher than the prevailing market rate. Owning the real estate ensures that the corporation retains goodwill at a reasonable cost.

Effect on Financial Statements

The decision to own versus lease space has an impact on the financial statements of the corporation, which, in turn, may affect the value placed on the corporation by investors and lenders and, consequently, the cost of capital for the corporation. These financial considerations can have a substantial impact on the decision to own versus lease. In fact, because of the nature of real estate versus other corporate assets, corporations are often at a disadvantage owning real estate versus other investors.

Looking again at Exhibit 15–3, note that by owning versus leasing, income after tax is only $4,830 higher during the first 15 years, even though the after-tax cash flow is higher by $45,170. Income based on accounting statements versus cash flows presents potential problems because investors may be aware only of the earnings per share reported by the corporation, not the cash flow. Furthermore, much of the benefit of owning in this example comes from the residual value of the real estate at the end of the lease term. This unrealized source of potential gain would not be reflected in the annual income statements. Another potential problem is that real estate is carried at book value on corporate balance sheets. Because book values are based on cost, they are equal to the original acquisition cost less accumulated depreciation. The investment community may not be aware of the market value of the real estate held by the corporation, or at least the real estate value is difficult

to determine. Thus, many analysts argue that a corporation's stock price may not reflect the benefit of any above-average appreciation in any real estate assets that it owns.[20]

Indeed, unless real estate assets are valued periodically, corporate managers may not realize that the corporation's real estate is worth more than book value. Thus, they may use real estate inefficiently because they do not consider the true cost of the space. Corporations' inefficient use of real estate can lead to takeover attempts by investors who recognize the value of the real estate and the fact that it is not being put to its highest and best use. After such takeovers, the new owners sell real estate assets and shift operations to cost facilities elsewhere.

Another distortion in corporate balance sheets occurs when real estate is carried at book value but is financed with a mortgage based on its current market value. If this occurs, the proportion of financing (loan-to-market-value ratio) is lower than the loan-to-book-value ratio. Thus, a mortgage can increase a corporation's overall debt ratio, which is based on assets carried at book value. The debt ratio can make the corporation appear riskier to shareholders and result in a lower stock price because the assets of the firm may appear to be more highly levered than they actually are. Many have argued that this distortion partially accounts for premiums paid over the prevailing stock prices by investors who are aware of this difference when they seek to take over a firm.

Off-Balance-Sheet Financing

Because ownership of real estate often has an unfavorable impact on the company's financial statements, corporations often attempt to avoid showing real estate on the financial statements. They do this by using **off-balance-sheet financing**. Leasing may allow the corporation to get the real estate off the balance sheet if the lease meets certain criteria. If the lease is accounted for as an **operating lease**, the lease contract does not affect the corporation's balance sheet. If the lease is accounted for as a **capital lease**, however, the lease is recorded on the balance sheet as both a long-term asset and a long-term liability. Both are recorded on the balance sheet at an amount equal to the present value of the lease payments.[21] This obviously increases the corporation's debt-to-assets ratio. Thus, many corporations prefer to account for the lease as an operating lease. Under Financial Accounting Standards Board (FASB) guidelines, however, the lease must be accounted for as a capital lease if it meets any one of the four conditions.[22] A lease is a capital lease if it extends for at least 75 percent of the asset's life, if it transfers ownership to the lessee at the end of the lease term, or if it seems likely that ownership will be transferred to the lessee because of a *bargain purchase* option.[23] Finally, if the present value of the contractual lease payments equals or exceeds 90 percent of the fair market value of the asset at the time the lease is signed, then the lease is a capital lease.

In the past, many corporations used unconsolidated subsidiaries to provide a way to own real estate assets but report only the equity ownership interest (not the purchase price and the debt liability) and still report the earnings on consolidated financial statements. Corporations could use subsidiaries in this way when the subsidiary was considered to

[20] Investors may know that real estate has a higher value on average than its book value. But without details as to the market value of the real estate for a specific company, the best they can do is to assume that the market value is higher than the book value by some arbitrary amount.

[21] This was one of the reasons that we assumed in the lease-versus-own example that the loan would equal the present value of the lease payments. FASB guidelines require that the discount rate be appropriate given the creditworthiness of the lessee. Recall that we assumed that the loan amount was equal to the present value of the lease payments discounted at the mortgage interest rate. A lease and a mortgage to the same corporation would be of comparable risk.

[22] FASB, *Statement of Financial Accounting Standards No. 13*, par. 7.

[23] A bargain purchase option gives the lessee the right to purchase the asset for a price less than the fair market value of the asset expected when the option is exercised.

engage in nonhomogeneous, or unrelated, activities. Thus, if real estate was unrelated to the firm's core business, the corporation could use an unconsolidated subsidiary to own the real estate without affecting the consolidated balance sheet. FASB guidelines have since been revised, however, to severely restrict the use of unconsolidated subsidiaries for this purpose. Companies wanting to use unconsolidated subsidiaries to keep the real estate off the balance sheet must own less than 50 percent of the subsidiary, which means that they must give up control of the subsidiary.

The Problem of "Hidden Value"

The appreciation in value of some corporate real estate poses a critical problem for management. Many observers claim that: (1) because accounting conventions require companies to carry real estate assets on a lower of cost or market basis and (2) many properties contribute little to reported earnings, the value of corporate real estate is hidden from investors and, therefore, not fully reflected in stock prices. This is the problem of **hidden value**. To the extent that real estate values are not reflected in share prices, corporate management is vulnerable to the predations of raiders who are able to buy companies at bargain prices and then sell off the undervalued assets.

The perceived undervaluation of corporate real estate is leading corporate managers to take careful inventory of real assets and to evaluate their alternative uses. In some cases, this process has led to outright property sales accompanied by major relocations, in others to sale–leaseback, and in still others to a variety of asset-backed refinancing strategies designed to capture hidden values. At the same time, some companies are attempting to reduce occupancy costs as well as the potential for future hidden-value problems through the use of equity leases and joint ventures. Such methods allow corporations to participate in the appreciation of real estate projects in which they are major tenants, while avoiding the costs associated with a major capital commitment to real estate.

The case of real estate presents several special problems that may result in a discount in the share price. For one thing, the costs for outside investors to ascertain the values of such real estate may be large enough to warrant a large discount, especially if management (1) does not know the value of its own real estate or (2) does know but fails to communicate it to investors.

Second, investors may discount too heavily (if they consider it at all) the expected future value of real estate that produces no current operating cash flow—especially if they believe that management has no intention of selling or developing the real estate. For example, if prices of undeveloped land have risen dramatically but management does not inspire confidence that it has a plan to harvest such value, then investors may be justified in assigning low value to such growth options. Investors, after all, do not have the control necessary to realize hidden values.

Third, in the case of operating real estate, the fact that management persists in using assets with much-higher-valued alternative uses in marginally profitable operations would also warrant a large discount in the stock—again, provided management does not signal to the market its intent to sell or convert the asset.

Still another potential problem in valuing real estate arises even in the case of income-producing properties. Because accounting depreciation charges generally exceed true economic depreciation, the reported earnings of real estate companies typically understate the level of operating cash flow. And if the market responds mechanically to reported earnings, then it could systematically undervalue real estate assets, thus leaving companies prey to raiders concerned only about cash flow. But if markets do look through earnings to cash flow, as much as academic research suggests, then accounting conventions should not lead to the undervaluation of real estate.

On the other hand, as mentioned earlier, the ability of acquirers to take over asset-rich companies, write up the value of acquired real estate assets to market, and then depreciate their values over shorter lives (provided by the Economic Recovery Tax Act of 1981) clearly provided an artificial stimulus to takeover activity in the early 1980s. Such a stimulus was removed, however, with the Tax Reform Act of 1986.

To summarize, then, besides the possibility of market inefficiency, information and control problems could be responsible for large disparities between stock prices and perceived real estate values. First, in the case of large industrial companies with dispersed real estate assets, the costs to investors of ascertaining such values may be very large. Second, even if the market knows the value of such assets, the remaining uncertainty about whether management will take steps to realize the value of such real estate options, and about when such steps will be taken, could lead investors to heavily discount real assets in setting stock prices.

The Role of Real Estate in Corporate Restructuring

The business environment continually changes, many situations arise which may include: widespread deregulation, heightened international competition, and increased shareholder activism,etc. These changes forceAmerican corporations to reexamine many aspects of their operations in the attempt to increase shareholder value (and, in some cases, to defend against raiders). By stepping up the urgency of management's search for efficiencies, these competitive forces may produce mergers and acquisitions, divestitures, spinoffs, leveraged buyouts, and other major recapitalizations. Real estate assets are often a focal point in these restructurings.

In today's environment, corporate management are far more likely to question the traditional notion that corporations have a comparative advantage in owning real estate. It is important to remember that corporate real assets, while functioning as facilities in corporate operations, are part of local and regional property markets. And unless the company is a dominant force in a small local economy, the market value of those assets is typically governed by factors very different from those that drive the value of the firm's operating business. Developers and real estate investors are likely to be more alert to changes in property values, and to opportunities to take advantage of such changes, than a corporate management focused on operations.

Sale–Leaseback

An additional analysis that is relevant for a corporation that has owned real estate for some time is whether it should sell the real estate and lease it back from the new owner. This procedure would be attractive in cases where the company wants to sell the real estate but needs to continue to use the space because relocation is not practicable. For example, many years ago, Time, Inc., sold its 45 percent interest in its Rockefeller Center headquarters to the building's former co-owner, the Rockefeller Group, and then arranged a long-term lease.

Why might the corporation benefit from a sale–leaseback? In such cases, the corporation receives cash from sale of the property and, assuming that it still needs to use the real estate, leases the facilities back and makes lease payments. It also loses any remaining depreciation allowance on the book value of the building. However, it also removes the risk associated with the residual value of the property.

As discussed in the analysis of leasing versus owning, whether a corporation benefits from continuing to be an investor in the real estate will dictate whether to do a **sale–leaseback**. In fact, the analysis is very similar to that of leasing versus owning. There is one main difference: Because the corporation already owns the real estate, it has to consider the after-tax cash flow it receives from sale of the property (rather than the purchase price) as the amount of funds invested if it decides to continue to own the property.

The after-tax cash flow from sale will be less than the cost of purchasing the property if capital gains tax must be paid. Thus, the rate of return received on funds left in the property (if the company does not do a sale–leaseback) may be greater than would be the case if the company were deciding to own or lease the same property that it did not already own.

To see how we might analyze whether a corporation should sell and lease back space, we will extend the example we considered earlier in the lease-versus-own analysis. Suppose that

EXHIBIT 15–5
Sale-Leaseback

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Original price: (5 years ago)			
Land	$ 225,000	12.50%	
Building	1,575,000	87.50%	
Total	1,800,000	100.00%	
Depreciation	31.5 years		
Tax rate	30.00%		
ATCF if sold today:			
Reversion			
Mortgage balance		$ 2,000,000	
Reversion	$ 2,000,000	−1,369,000	
Basis	−1,550,000		
Gain	$ 450,000		
Tax		−135,000	
Cash flow		$ 496,000	
Lease payment		$200,000 (15-year net lease)	
Operating expense		50.00% of lease payment	

	Own	Lease	Difference (Own − Lease)
Sales	$ 1,500,000	$ 1,500,000	$ 0
Cost of goods sold	750,000	750,000	0
Gross income	750,000	750,000	0
Operating expenses:			
Business	200,000	200,000	0
Real estate	100,000	100,000	0
Lease payments	0	200,000	−200,000
Interest	−136,900	0	−136,900
Depreciation	−50,000	0	−50,000
Taxable income	263,100	250,000	13,100
Tax	78,930	75,000	3,930
Income after tax	184,170	175,000	9,170
Plus: Depreciation	50,000	0	50,000
Less: Principal	0	0	0
Cash flow	234,170	175,000	59,170
Reversion			$ 3,000,000
Mortgage balance			−1,369,000
Reversion		$ 3,000,000	
Basis (after 20 years)		−800,000	
Gain		$ 2,200,000	
Tax			−660,000
Cash flow			$ 971,000
Year	0	1–15	15
Own − Lease	$ −496,000	$ 59,170	$ 971,000
IRR	14.10%		

five years ago, the corporation had decided to own rather than lease the real estate. Assume that it is now five years later and management is considering a sale–leaseback of the property. The property can be sold today for $2 million and leased back at a rate of $200,000 per year on a 15-year lease starting today. Exhibit 15–5 shows the after-tax cash flow if the property is sold today, taking into consideration that the company purchased the property five years ago for $1.8 million. Because it has depreciated the property over the past five years, the firm must pay capital gains tax of $135,000, making the after-tax cash flow from the sale today $1,865,000. By leasing instead of owning for the next 15 years, management must pay an additional $155,000 in after-tax cash flow each year.[24] Further, if the property is sold today, the firm will not receive the cash flow from sale of the property at the end of the lease. We assume that the property will be worth $3 million at the end of the 15-year lease.

As shown in Exhibit 15–5, the *IRR* from owning versus leasing is 14.10 percent. This is the *return from continuing to own* instead of leasing. Alternatively, the *IRR* can be viewed as the *cost of the sale–leaseback financing*, that is, the cost of obtaining $496,000 today by selling the property, then leasing it back. The return from continuing to own is slightly greater than in the original lease-versus-own example. Why? One reason is that taxes must be paid if the property is sold, which increases the benefit of continuing to own. Lease payments are also higher because market rents increased during the past five years. In this situation, there are more benefits from owning because the higher lease payments are now saved. Should the firm choose to lease, higher lease payments offset the higher price of the property that would be realized if the property were sold and reduce the benefit of owning relative to leasing.

A sale-leaseback also has implications for the corporation's financial statements. As we discussed, sale of the property results in capital gains tax. At the same time, however, it allows the corporation to report additional income because of the gain on the sale. Additional income results in an increase in reported earnings per share. Managers may have the incentive to do a real estate sale–leaseback to recognize a capital gain when they want to show an increase in earnings per share. Sale–leaseback for that reason is not necessarily in the best interest of the corporation, however.

A sale-leaseback, like any asset sale, removes an option for potential raiders to use real estate as a means of financing. Provided management can profitably reinvest the sale proceeds in its basic business or return the cash to shareholders, the opportunity for outside investors to profit from takeover by selling or refinancing the real estate is foreclosed. Furthermore, if the company leases with a short-term lease, it retains its option to relocate. But if a company simply sells and then commits itself to a long-term lease, the ownership transfer may offer no economic gain. The capital inflow from the sale may simply be offset over time by the higher rent charged by the new owner. Moreover, if the sale triggers a large tax liability payment, then the transaction could actually reduce shareholder value.

Assuming, however, that companies can shelter capital gains,[25] corporate shareholders could benefit from sale–leaseback to the extent that U.S. institutional or foreign investors are willing to accept lower yields than the returns required by corporate investors (again, adjusted for risk and leverage). In such cases, the sale proceeds to the company could exceed the present value of the new lease stream as well as any forgone tax savings from ownership.

Another potential benefit of sale–leaseback is its role as a "signaling" device. To the extent investors have been unable or unwilling to recognize real estate values, a sale–leaseback clearly demonstrates those values to the marketplace. Perhaps equally important, a sale–leaseback, especially when combined with stock repurchases, may also persuade investors that management has become more serious about its commitment to increasing shareholder value.

[24] Alternatively, by continuing to own, the corporation saves $155,000 in after-tax cash flow.

[25] Of course, there will always be cases where sale–leaseback may be used to recognize gains from the sale of assets to offset any loss carryforwards that a corporation may want to utilize.

Web App

A type of off-balance-sheet financing called *synthetic leases* became popular in recent years as a way for corporations to structure leases on real estate. Many tech companies financed the construction or purchase of their corporate headquarters with these types of leases. Use a search engine to find either a company that has used this method or a site that discusses how these leases work. What were the major advantages and disadvantages of this lease structure? Are they still being used?

For companies in mature industries with limited investment opportunities, a sale–leaseback together with a large distribution to shareholders may add value by returning excess capital to investors.[26]

Still another possible benefit from sale–leaseback is to provide a source of capital that can be used to fund growth opportunities or to refinance existing high-priced debt. Fred Meyer, Inc., for example, once sold and leased back 35 stores and a distribution center, thereby raising $400 million. Each store was leased for 20 years with a fixed-payment, net-lease rate, and an operating lease structure that allowed off-balance-sheet treatment. This transaction effectively enabled the company to capture the full market value of real estate assets, use the sale proceeds to retire some of its higher-yielding debt, and retain control of the assets by means of long-term leases.

Refinancing

One reason that the corporation might be considering a sale–leaseback as discussed in the previous section is to raise capital. An alternative might be to refinance the real estate with a mortgage, especially if unsecured corporate financing sources were initially used. As discussed earlier, mortgage financing may be a substitute for corporate debt if it is shown on the balance sheet and increases the corporation's debt ratio. Thus, the corporation must consider whether a mortgage on the real estate can be obtained at a lower cost than unsecured corporate debt. An additional option available to the corporation is refinancing with a hybrid mortgage, as discussed in Chapter 12.

Investing in Real Estate for Diversification

Corporations may view ownership of real estate as a way of diversifying their business activities, leading to the purchase of more real estate than it needs for its operations. For example, the corporation may decide to develop or purchase an office building that is larger than it needs for its own use. The rest of the office building is held as an investment.[27]

A corporation may also own space that was formerly used for the core business but is no longer needed. This excess space might be kept as an investment. In both of these cases, the question is whether the corporation has the expertise to own and manage investment real estate and whether the value of the company's stock will fully reflect the value of the

[26] This is the substance of Michael Jensen's argument known as the "agency costs of free cash flow." For a nontechnical explanation of this concept and its reflection in corporate restructuring activity, see Michael Jensen, "The Takeover Controversy: Analysis and Evidence," *Midland Corporate Finance Journal* 4, no. 2 (Summer 1986).

[27] If the corporation needs to expand, building ownership can be an advantage because, in effect, the corporation has the first option on space in the building it owns when another tenant's lease expires.

real estate investments. That is, would the real estate be considered more valuable if held by a different entity such as a real estate investment trust or a real estate limited partnership? These investment vehicles will be discussed further in later chapters. The point here is that corporations need to determine whether holding real estate as an investment is in the best interests of their shareholders. Shareholders may prefer to have the corporation own only assets related to its core business.

Conclusion

This chapter focused on the decision to own or lease real estate that is used by a corporation as part of its core business. We showed the decision to own versus lease real estate to be similar to the pure real estate investment decision we analyzed extensively in earlier chapters. A key difference, however, is the impact that ownership or sale–leaseback of real estate can have on the corporation's financial statements. Whether a particular corporation should own or lease depends on whether it has a comparative advantage owning real estate relative to other investors or investment vehicles.

CFOs, realizing the importance of property to their bottom line and share price, are increasingly giving corporate real estate more attention. Facilities managers today must justify ownership of real estate against a variety of alternatives that combine the operating control provided by ownership with reduced investment and greater flexibility. Corporations are more likely to accept such alternatives, which include a variety of leasing forms as well as joint-venture ownership, as ownership becomes unnecessary to maintaining operating control of real estate.

Key Terms

capital lease, *516*
corporate real estate, *503*
hidden value, *517*
lease-versus-own analysis, *504*
off-balance-sheet financing, *516*
operating lease, *516*
residual value, *509*
sale–leaseback, *518*
special purpose buildings, *514*

Useful Websites

www.reis.com—Provides commercial real estate trends, analytics, market research, and news that support transactions by real estate professionals.

www.corenetglobal.org—Corporate Real Estate Network, or CoreNet Global, is the premier organization for business leaders engaged in the strategic management of real estate for major corporations worldwide.

www.naiop.org—National Association of Industrial and Office Properties. Trade association for developers, owners, investors, and asset managers in industrial, office, and related commercial real estate.

www.equiscorp.com—UGL Equis is a global real estate company that focuses on managing corporate real estate.

Questions

1. What are the main reasons that corporations may choose to own real estate?
2. What factors would tend to make leasing more desirable than owning?
3. Why might the cost of a mortgage loan be greater than the cost of using unsecured corporate debt to finance corporate real estate?
4. Why might the riskiness of cash flow from the residual value of the real estate differ from the riskiness of cash flow from the corporation's core business? What would cause these cash flows to be correlated?
5. What would cause the rate of return for an investor that purchases real estate and leases it to the corporation to differ from the rate of return earned by the corporation on the incremental investment in owning versus leasing the same property?
6. Why might the decision to own rather than lease real estate have an unfavorable effect on the corporation's financial statements?

7. Why is the value of corporate real estate often considered hidden from shareholders?
8. How does the analysis of a sale–leaseback differ from the analysis of owning versus leasing?
9. Why is the cost of financing with a sale–leaseback essentially the same as the return from continuing to own?
10. Why might it be argued that corporations do not have a comparative advantage when investing in real estate as a means of diversification from the core business?
11. Why has real estate often been a key factor in corporate restructuring?
12. Why might refinancing be considered an alternative to a sale–leaseback?
13. What factors might cause the highest and best use of real estate to change during the course of a typical lease term?
14. Why should corporations have their real estate appraised on a regular basis?
15. What factors would tend to affect the value of a lease?

Problems

1. The ABC Corporation is considering opening an office in a new market area that would allow it to increase its annual sales by $2.5 million. The cost of goods sold is estimated to be 40 percent of sales, and corporate overhead would increase by $300,000, not including the cost of either acquiring or leasing office space. The corporation will have to invest $2.5 million in office furniture, office equipment, and other up-front costs associated with opening the new office before considering the costs of owning or leasing the office space.

   A small office building could be purchased for sole use by the corporation at a total price of $3.9 million, of which $600,000 of the purchase price would represent land value, and $3.3 million would represent building value. The cost of the building would be depreciated over 39 years. The corporation is in a 30 percent tax bracket. An investor is willing to purchase the same building and lease it to the corporation for $450,000 per year for a term of 15 years, with the corporation paying all real estate operating expenses (absolute net lease). Real estate operating expenses are estimated to be 50 percent of the lease payments. Estimates are that the property value will increase over the 15-year lease term for a sale price of $4.9 million at the end of the 15 years. If the property is purchased, it would be financed with an interest-only mortgage for $2,730,000 at an interest rate of 10 percent with a balloon payment due after 15 years.

   a. What is the return from opening the office building under the assumption that it is leased?

   b. What is the return from opening the office building under the assumption that it is owned?

   c. What is the return on the incremental cash flow from owning versus leasing?

   d. In general, what other factors might the firm consider before deciding whether to lease or own?

2. Refer to Problem 1. Suppose that five years ago the corporation had decided to own rather than lease the real estate. Assume that it is now five years later and management is considering a sale–leaseback of the property. The property can be sold today for $4,240,000 and leased back at a rate of $450,000 per year on a 15-year lease starting today. It was purchased five years ago for $3.9 million. Assume that the property will be worth $5.7 million at the end of the 15-year lease.

   a. How much would the corporation receive from a sale–leaseback of the property?

   b. What is the cost of obtaining financing with a sale–leaseback?

   c. What is the return from continuing to own the property?

   d. In general, what other factors and alternatives might the firm consider in order to decide whether to do a sale–leaseback?

3. Refer to Problem 1. ABC realizes that the benefits of leasing versus owning may be sensitive to many of the assumptions being made. The management wants to know how the return on the incremental cash flow from owning versus leasing is affected by different assumptions. (This problem is best done using a spreadsheet.)

   a. How would the return be affected by the corporation being in a zero tax bracket?

   b. How will the return be affected if the property value does not increase over time but remains constant?

   c. How would the return be affected if the mortgage were at an 8 percent (rather than 10%) interest rate?

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4. **Excel.** Refer to the "Ch15 Lease_Own" tab in the Excel Workbook provided on the website. How does each of the following affect the *IRR* on the *ATCF* difference from owning versus leasing?
   a. The property can be leased for $175,000 instead of $200,000.
   b. A loan can be obtained at an 8 percent interest rate instead of 10 percent.

Appendix

Real Estate Asset Pricing and Capital Budgeting Analysis: *A Synthesis*

Introduction

As we have discussed beginning with Chapter 11, real estate income property is usually valued from the point of view of the equity investor. That is, we discount the cash flows (before or after tax) available to the equity investor based on explicit assumptions about the cost and terms of the mortgage used to finance the property. We use an after-tax discount rate to discount the after-tax cash flows. When analyzing the after-tax basis, the calculation of the after-tax cash flow to the equity investor reflects the tax deductibility of interest. The amount of equity an investor is willing to invest represents the value of the equity position. The amount of loan that a mortgage lender will lend on the property represents the value of the mortgage position. The total property value is the sum of the value of the mortgage and equity positions.

In contrast, the traditional capital budgeting procedures shown in corporate finance textbooks suggest that after-tax cash flows produced by the project *before deducting any financing costs* should be discounted by a weighted average cost of capital that considers after-tax cost of debt and equity. Tax deductibility of interest on debt is treated in one of the two ways: (1) the after-tax cost of debt is used when calculating the weighted-average cost of capital or (2) the tax shield created by the interest deduction on debt is added back to the after-tax cash flow produced by the project. In this latter case, the before-tax cost of debt is used to calculate the weighted-average cost of capital. In both of these approaches, the after-tax cost of equity is included in the weighted-average cost of capital.

This appendix demonstrates that all three approaches mentioned above are consistent and result in the same property value when applied correctly.

Mortgage-Equity Approach

As we saw in Chapter 9, the term *mortgage-equity analysis* is often used in real estate to refer to the valuation of real estate income property by explicitly considering how the property will be financed. For simplicity, in this appendix, we assume that all cash flows are a level perpetuity, the loan is interest-only (no amortization), and there is no depreciation allowance.[1] In general, the value of the property can be found with the mortgage-equity approach as follows:

$$V = \frac{(NOI - r_d D)(1 - t)}{R_e} + D$$

where

V = Estimated property value
D = Amount of debt
NOI = Net operating income
t = Tax rate
r_d = Cost of debt (before tax)
R_e = Cost of equity (after tax)

Example

Assume that NOI is $115,000 per year. A loan (D) is available for $800,000 with an interest rate (r_d) of 10 percent. The investor's tax rate (t) is 20 percent and the investor's required after-tax rate of return (R_e) is 14 percent.

Using the preceding formula, we have

$$V = \frac{(115{,}000 - .10 \times 800{,}000)(1 - .20)}{.14} + 800{,}000$$

$$V = 200{,}000 + 800{,}000$$

$$V = 1{,}000{,}000$$

Weighted-Average Cost of Capital—Alternative 1

Use of a weighted average cost of capital assumes that the project will have the same proportion of debt as in other projects. In the above example, debt represented 80 percent of property value. Assuming that another project is undertaken

[1] Assuming that cash flows are not level and that the project is sold after a finite holding period or assuming that there is a depreciation allowance does not change any of the conclusions of this appendix.

with the same proportion of debt, the weighted average cost of capital is as follows:

$$R_a = [D/V \times r_d \times (1 - t)] + [E/V \times R_e]$$

where

R_a = Weighted-average cost of capital
E = Amount of equity
D/V = Proportion of debt
E/V = Proportion of equity

The value of the property is found as follows:

$$V = \frac{NOI(1 - t)}{R_a}$$

For the example considered earlier, we have

$$V = \frac{115,000(1 - .20)}{[.80 \times .10 \times (1 - .2)] + (.20 \times .14)}$$
$$V = \frac{92,000}{.092}$$
$$V = 1,000,000$$

This is obviously the same answer as before.

Weighted-Average Cost of Capital—Alternative 2

An alternative way of valuing the property is to adjust the after-tax cash flows available on the project for the tax shield associated with the deductibility of the debt. This tax shield is equal to the annual interest payment ($r_d \times D$) multiplied by the tax rate (t). In terms of the above symbols, the tax shield is equal to $r_d \times D \times t$. When the cash flows are adjusted by the tax shield, the cost of capital is calculated by using the before-tax cost of debt (r_d) rather than the after-tax cost. The after-tax cost of equity (r_e) is still used. In this case, the value can be expressed as follows:

$$V = \frac{(NOI)(1 - t) + (r_d \times D \times t)}{(D/V \times r_d) + (E/V \times R_e)}$$

Note that the numerator in the above formula is not the cash flow to the equity investor. It represents the cash flow on the entire property plus an adjustment for the additional tax benefit associated with the debt.[2]

[2] This adjustment does not necessarily assume that the use of debt adds to the value of the property relative to an unlevered property. It simply recognizes the fact that interest is tax deductible.

For the same example considered above, we have

$$V = \frac{115,000(1 - .20) + (.10 \times 800,00 \times .20)}{[.80 \times .10] + (.20 \times .14)}$$
$$V = \frac{108,000}{.1080}$$
$$V = 1,000,000$$

Again, the answer is the same as before.

Conclusion

Use of the mortgage-equity approach is consistent with traditional capital budgeting procedures when valuing real estate. When using the mortgage-equity approach, the after-tax cost of equity is used in place of the weighted-average cost of capital when discounting the cash flows produced after payment of interest. When using the traditional weighted-average cost of capital calculation, an after-tax cost of debt and equity is used to discount before-tax cash flows. An alternative to the latter approach is to adjust the after-tax cash flow from the property by adding back an amount that represents the tax savings associated with the debt. When using this approach, a before-tax cost of debt must be used when calculating the weighted-average cost of capital. In either case, the estimated value is the same as the mortgage-equity approach, which is typically used to value real estate.

We simplified the above analysis by assuming that cash flows were perpetuities and that the debt was not amortized. This approach implies that the proportion of debt and equity remains constant over time. Analysts argue that corporations can maintain a target proportion of debt in their capital structure by alternating between issuing debt and equity. Thus, it may not be appropriate to value a *particular* project based on the amount of debt or equity used to finance that project. However, mortgage loans are typically amortized and are usually secured by a specific property. Refinancing is expensive and, therefore, it is not feasible to maintain a constant proportion of debt from year to year. As this appendix points out, the value produced by the mortgage-equity approach is the same as that found with traditional capital budgeting techniques if consistent assumptions are made about the use of financing. However, because real estate is used as security for debt and refinancing to maintain a constant ratio of debt to assets is costly, using the mortgage-equity approach may be more appropriate because it allows financing to be considered explicitly.

Chapter 15

Financing Corporate Real Estate

The focus of the previous chapters dealing with income properties has been that of an owner/investor who leases space to tenants. These tenants would generally be firms that use space as part of business operations. For example, a typical user could be a corporation that leases some, or all, of the space in an office building for use by its employees. Thus, the corporation uses the office space but does not own the building as an operating asset. This chapter analyzes real estate from the point of view of firms that are not real estate investors, but use real estate as part of business operations. Because so many of these "user firms" are corporations, their real estate activities are commonly referred to as **corporate real estate.**[1] However, this chapter is intended for any *user* of real estate assets and is not limited to corporations. Even though the primary business of these corporations is not real estate investment, they have to make many decisions regarding the use of real estate because real estate is typically an integral part of the firm's operations. For example, real estate is used for office space, warehouse space, manufacturing, and so on. In addition to using real estate, firms may choose to own real estate for a variety of other reasons, including these:[2]

- Owning, rather than leasing, space used in the operation of the business.
- Investing in real estate as one means of diversification from the core business.
- Retaining, rather than selling, real estate that may have been used previously in business operations.
- Acquiring real estate for future business expansion or relocation.

For these reasons, corporations are very significant users of commercial real estate in the United States. Corporate users control as much as 75 percent of all commercial real estate according to some estimates. On a book-value basis, moreover, roughly one-third of the total assets of Fortune 500 companies is estimated to be real estate. With such a large concentration of corporate wealth in commercial property, it is worth taking a closer look at the way that businesses or users of real estate should make real estate investment and financing decisions.

Benefits associated with ownership of real estate for a corporate user include many of the same benefits realized by investors. For example, a corporate owner that would

[1] Portions of this chapter are based on an article by William B. Brueggeman, Jeffrey D. Fisher, and David M. Porter, "Rethinking Corporate Real Estate," *Journal of Applied Corporate Finance*, 1991 (published by Continental Bank, Chicago).

[2] By "owning" real estate, we are referring to fee simple ownership in the property. A corporation may also have a leasehold interest in real estate that has value because the property is leased at a below market rate.

otherwise lease space saves lease payments, which is analogous to an investor earning lease income. By owning real estate, the corporation also receives the tax benefits from depreciation allowances. Furthermore, by owning real estate, the corporation retains the right to sell the property in the future. At that time, the property can be leased back from the purchaser if the firm still needs to use the space. Firms whose core business is not real estate investment, however, must consider additional factors. In particular, the user must consider the opportunity cost of capital invested in real estate, the impact that ownership of the real estate will have on corporate financial statements, and the corporation's ability to use space efficiently. These are some of the issues that this chapter will consider. We begin by considering how a corporate user should analyze whether or not to lease or own space necessary in its business operations.

Lease-versus-Own Analysis

Corporations can either lease or own space needed in business operations and may conduct **lease-versus-own analysis** to decide which option is superior. If a corporation owns space, it is essentially "investing" in real estate. When purchasing these assets, a corporation may decide to finance the purchase by taking out a mortgage secured by the property in addition to equity capital, or it may decide to use only equity capital. Alternatively, depending on the extent of debt already used to finance business operations, capital could consist of a combination of unsecured corporate debt and equity obtained from sale of stock or retained earnings.

If the firm leases space, on the other hand, it can use the space without investing corporate equity, freeing the equity capital for other investment opportunities available to the firm. Whether these investment opportunities are better than investing in the real estate depends on the after-tax rate of return and risk of these opportunities relative to that of the real estate.

Leasing versus Owning—An Example

To illustrate the decision to own rather than lease real estate that the corporation plans to use in its operations, consider the following example. Assume that the XYZ Corporation is considering opening an office in a new market area that would allow it to increase its annual sales by $1.5 million. The cost of goods sold is estimated to be 50 percent of sales, and corporate overhead would increase by $200,000, which does not include the cost of either acquiring or leasing office space. XYZ will also have to invest $1.3 million in office furniture, office equipment, and other up-front costs associated with opening the new office before considering the costs of owning or leasing the office space.[3]

XYZ could purchase a small office building for its sole use at a total price of $1.8 million, of which $225,000 (12.5%) of the purchase price would represent land value, and $1,575,000 (87.5%) would represent building value. The cost of the building would be depreciated over 31.5 years.[4] XYZ is in a 30 percent tax bracket. As an alternative to owning, an investor has approached XYZ and indicated a willingness to purchase the same building and lease it to XYZ for $180,000 per year for a term of 15 years. XYZ would pay all real estate operating expenses (absolute net lease), which are estimated to be 50 percent of the lease payments. XYZ has estimated that the property value should increase over the 15-year lease term, and the building could be sold for $3 million at the end of the 15 years.[5]

[3] Other costs might include sales training, relocating employees, and the like.

[4] For illustration only. The depreciable life would depend on the tax law in effect at the time of purchase.

[5] Even if the corporation still needs to use the space, it could sell the property and lease it back at the end of the lease term. Sale-leaseback is considered later in this chapter. The corporation could also decide to sell the building and relocate its sales office to another property that is leased or owned.

XYZ has also determined that if it purchases the property, it could arrange financing with an interest-only mortgage on the property for $1,369,000 (76% of the purchase price) at an interest rate of 10 percent with a balloon payment due after 10 years.[6]

Cash Flow from Leasing

Exhibit 15–1 shows the calculation of after-tax cash flow associated with opening the office building and obtaining use of the space by leasing. Recall that the initial cash outlay of $1.3 million is the up-front cost of setting up the office. After-tax cash flow of $196,000 is received each year for 15 years. We also assume that XYZ will close the office at the end of the lease, and that the furniture and equipment will have no residual value. An after-tax rate of return of 12.5 percent is assumed to be the opportunity cost, or after-tax reinvestment rate savings of $1.3 million, if XYZ chooses to lease rather than own the office building. This is the rate of return after tax that XYZ can compare with other investment alternatives of equal risk when considering whether it should invest the $1.3 million necessary to open the new office building.

Assuming that XYZ believes that it should open a new regional office, the next question is whether the firm should lease or own the property that will house the new operation. One way to answer this question is to calculate the after-tax cash flows and after-tax rate of return assuming that the space is owned rather than leased.

Cash Flow from Owning

Exhibit 15–2 shows the after-tax cash flow from opening the office building under the assumption that it is owned. The initial cash outlay of $1,731,000 includes the equity invested in the office building of $431,000 as well as the other up-front costs of $1.3 million.

EXHIBIT 15–1
After-Tax Cash Flow: Leasing Office Building

Cash Flow from Operations	
	Lease
Sales	$1,500,000
Cost of goods sold	750,000
Gross income	750,000
Less operating expenses:	
Business	200,000
Real estate*	90,000
Less: Lease payments	180,000
Taxable income	$ 280,000
Tax	84,000
Income after tax	$ 196,000
After-tax cash flow	$ 196,000

Summary of After-Tax Cash Flows		
	Outlay	Cash Flow
Year	0	1–15
	$–1,300,000	$ 196,000
IRR	12.50%	

*Operating expenses on the real estate (such as property taxes and insurance) that the tenant is responsible for paying under the net lease.

[6] For purposes of illustration, we assume the loan amount to be equal to the present value of the lease payments of $180,000 per year, discounted at the mortgage loan interest rate of 10 percent. This makes the financing comparable with leasing, as we will discuss later in the chapter.

EXHIBIT 15–2
After-Tax Cash Flow: Owning Office Building

Operating Years		
Sales		$ 1,500,000
Cost of goods sold		750,000
Gross income		750,000
Less operating expenses:		
Business		200,000
Building or property		90,000
Less: Interest		136,900
Depreciation		50,000
Taxable income		273,100
Less: Tax		81,930
Income after tax		191,170
Plus: Depreciation		50,000
Cash flow		$ 241,170
Sale at End of Lease		
Reversion		$ 3,000,000
Mortgage balance		−1,369,000
Reversion	$ 3,000,000	
Basis	−1,050,000	
Gain	$ 1,950,000	
Tax		−585,000
Cash flow		$ 1,046,000

Calculation of *IRR* Summary			
	Outlay	Cash Flow	Reversion
Year	0	1–15	15
Cash flow	$–1,731,000	$241,170	$ 1,046,000
IRR	12.95%		

During the first 15 years, the after-tax cash flow is $241,170. The after-tax cash flow from sale of the real estate is $1,046,000. The after-tax *IRR* under this scenario is 12.95 percent. This return is slightly higher than the after-tax rate of return of 12.50 percent if XYZ chooses to lease the space, as shown in Exhibit 15–1. This return suggests that owning is better than leasing. Note, however, that the 12.95 percent rate of return is the after-tax rate of return on *both* the funds invested in opening the office building ($1.3 million) and the additional equity invested in owning the building ($431,000). That is, this rate of return is for two combined investment decisions: (1) to open the office building and (2) to own the office building. Although the rate of return associated with owning the office building is greater than leasing it, the risk may also be greater, depending on the risk of holding the real estate as an investment.[7] To evaluate this risk further, we have to isolate the after-tax rate of return associated with making the investment in the real estate only.

[7] The decision whether or not to use the space for an office building should normally be made by considering the after-tax cash flow from leasing the space. This ensures that the decision to use the space is based on the market-determined cost of using the space. It also separates the benefits of owning the space from the benefits of using the space for a new sales office.

Cash Flow from Owning versus Leasing

Thus far, we have been dealing with two interrelated decisions. The first decision is whether the corporation should expand its operations by investing funds to *use* the additional office space. The second decision is how to pay for the use of the space. In the preceding analysis, we calculated the rate of return under two different assumptions about how the firm would pay for the use of the space. Assuming that the rate of return under one or both of these alternatives meets the firm's investment criteria, the firm should decide to use the space. It is not clear, however, whether the risk and rate of return are the same for both alternative ways of obtaining use of the space. In this example, both scenarios involve use of the same building with the same sales potential and non–real estate costs.[8]

As we have seen, however, the decision to own the space involves an additional equity investment in the property that is not required when leasing. To look more closely at the equity investment in the property that is included with the decision to own versus lease, we must consider the *difference* in the cash flow to the corporation if it leases the space rather than owns the space. Exhibit 15–3 replicates the after-tax cash flow under both the lease and own scenarios and computes the difference in these cash flows.

The first two columns of Exhibit 15–3 repeat calculations of the after-tax cash flows for owning and leasing, respectively. As we have discussed, these cash flows to the firm would result from using the office building based on each alternative. The $431,000 initial outlay now represents only the equity for investment in the property. During the first 15 years, the after-tax cash flow would be $241,170 per year if the property were owned, as compared to $196,000 per year if the property were leased—a difference of $45,170 per year. The firm would realize the $1,046,000 cash flow from sale if it chooses to own the project. When making the lease-versus-own decision, remember that the volume of sales and the operating costs associated with generating those sales will be the same whether the space is leased or owned. Therefore, the decision to lease or own should depend only on the *difference* in cash flows under the two alternatives. In other words, owning or leasing a building should in no way affect the XYZ's business operations. The difference in cash flows is shown in column 3 of Exhibit 15–3. By owning rather than leasing, XYZ should save $45,170 per year after taxes.[9] Furthermore, if XYZ owns the space, it will receive $1,046,000 at the end of the 15th year from sale of the office building.

Return from Owning versus Leasing

Recall that the equity investment required to own the property was $431,000. Based on this investment and the incremental cash flows of $45,170 per year and $1,046,000 in year 15 (owning vs leasing), the after-tax *IRR* is 13.79 percent. Whether this is sufficient to justify the additional investment in ownership versus leasing the space depends on the opportunity cost and risk associated with the investment of equity capital in the property. If XYZ believes that an after-tax rate of return of 13.79 percent is not sufficient to warrant the risk associated with owning the space, it should decide to lease rather than own the space. On the other hand, if XYZ thinks that 13.79 percent is an adequate return given the risk of owning and eventually selling the property after 15 years, then it should own.

[8] In practice, space that is available for leasing may not be available for purchase, so that the space that would be leased would not be the same as the space that would be owned. This could result in slightly different assumptions about the sales potential of each alternative. For simplicity, we have ignored this potential difference.

[9] Alternatively, by leasing rather than owning, the corporation must pay an additional $45,170 per year.

EXHIBIT 15–3
Lease-versus-Own Analysis

Cash Flow from Operations			
	Own	Lease	Difference (Own – Lease)
Sales	$1,500,000	$1,500,000	0
Cost of goods sold	750,000	750,000	0
Gross income	750,000	750,000	0
Operating expenses:			
Business	200,000	200,000	0
Real estate	90,000	90,000	0
Lease payments	0	180,000	–180,000
Interest	136,900	0	136,900
Depreciation	50,000	0	50,000
Taxable income	273,100	280,000	6,900
Tax	81,930	84,000	2,070
Income after tax	191,170	196,000	4,830
Plus: Depreciation	50,000	0	50,000
After-tax cash flow	$ 241,170	$ 196,000	$ 45,170

Cash Flow from Sale		
Reversion/owning		$ 3,000,000
Mortgage balance		–1,369,000
Reversion	$ 3,000,000	
Basis	–1,050,000	
Gain	$ 1,950,000	
Tax		–585,000
After-tax cash flow		$ 1,046,000

Summary of After-Tax Cash Flows			
	Outlay	Cash Flow	Reversion
Year	0	1–15	15
Own – Lease	$–431,000	$45,170	$1,046,000
IRR	13.79%		

Importance of the Residual Value of Real Estate

Leasing and owning are often viewed as two financing alternatives because lease payments substitute for debt payments as discussed above. As we saw in the above example, however, the debt liability that is comparable to a lease liability does not cover the portion of the purchase price that represents an investment in the right to the residual value. Hence, leasing property differs from equipment leasing, where the residual value can usually be assumed to be zero.

Generally, leasing or owning real estate differs from leasing or owning equipment because real estate may have a substantial residual value. The owner of the real estate has the right to the residual value and incurs the risk that the residual value will be different from the cost of the property at the time it was purchased. Thus, in addition to having use of the real estate during the term of the lease, *a corporation that chooses to own real estate has also made an investment in its residual value.* This means that deciding between owning and leasing real estate is not simply a choice between two financing alternatives. Although they are both ways of financing

the use of the real estate over the lease term, ownership includes the right to the residual value of the property at the end of the lease term.[10] Leasing does not give the company any interest in the residual value of the property.[11] This residual value can be quite substantial if the property has retained its value or appreciated in value over the lease term, whereas with corporate equipment the expected residual value is so small in most cases that it can usually be ignored.

The residual value of the property is affected by changes in the supply and demand for real estate over the term of the lease and is usually more uncertain than the contract lease payments. Thus, the required rate of return from owning (discount rate) used to evaluate the incremental cash flows from owning versus leasing should probably be higher than the after-tax cost of corporate debt, although the rate of return may not have to be as high as the cost of capital used for the typical corporate investment.[12]

Estimating the Residual Value

Residual value—that is, the reversion value of land and improvements at the end of the lease term—is an important part of the decision to lease or own that causes confusion for corporate managers. Some analysts assume that the residual value of the real estate will be equal to the book value of the property, or the original acquisition cost less accounting depreciation at the expiration of the lease term. Others go to the extreme of assuming that there will be no residual value. Why? Because there will always be a need for a facility and the residual sale price received must be reinvested in a lease or on a new facility at that time.

Because real estate does not typically decline in value as fast as accounting depreciation and rarely has zero value at the end of a typical lease term, assuming no residual value biases the lease-versus-own decision toward leasing. However, it is just as incorrect to assume unrealistically high rates of appreciation that bias the analysis toward ownership. The correct approach is to make a realistic estimate of the residual value of the real estate and the uncertainty of the value estimate. This estimate should consider the *market value* of the real estate (as discussed in Chapter 10), not the investment value to the corporation.

By deciding to own, a corporation chooses, in effect, to bear a residual real estate risk that may be completely unrelated to its operating success. Real estate differs from other corporate assets in that, at the end of the lease term, the range of possible residual values runs from well below to well above the initial cost of the property. Over the life of a medium- to long-term lease, local, regional, and even international economic factors can cause the market values of corporate real estate to change significantly. By deciding to own rather than lease space, the company must bear the risk of any unexpected changes in the residual value of the real estate.

[10] Assume that the property in our lease-versus-own example is financed with a nonrecourse mortgage loan. The difference between owning and leasing (aside from the tax benefits) would be an option to keep the property if at the end of the lease its value exceeds the loan balance. If the value of the property is less than the loan balance, the corporation could default on the mortgage, and the property would revert to the lender just as it would to the lessor at the end of the lease. In this case, owning differs from leasing by including the investment made to purchase a call option on the residual value property. The exercise price of the option is the mortgage balance at the end of the lease term. Because we assumed the loan amount to be equal to the present value of the lease payments, the price paid for the call option is essentially the amount of equity that must be invested.

[11] Leases can also be structured to include a claim on the residual value of the property. For example, an equity lease gives the lessee an ownership interest in the building. The lessee might also have an option to buy the property at the end of the lease.

[12] The cost of capital typically used by corporations is a weighted average of the cost of corporate debt and equity capital. Because equity is more expensive than debt, the weighted average cost of capital is greater than the cost of debt. (See chapter appendix.)

Some analysts argue that the residual value of the real estate is irrelevant because the corporation needs to use space on an ongoing basis. That is, there will always be a need for a facility, and proceeds from the residual sale must be reinvested in a new facility at that time. But this approach ignores the fact that, by owning, the corporation retains ownership of an asset with value at the end of the typical lease term. At that time (when the lease ends) management may or may not decide to continue to *use* the same space. The corporation has the option to relocate if a change in the highest and best use of the site makes the space inefficient for continued use.[13] If the corporation decides to continue to use the space, it can then decide whether to continue to own the space or sell the space and lease it back.[14]

Regardless of what the firm decides to do in the future, the initial decision to own versus lease means that the firm has an asset with an expected market value when the initial lease term would have ended. If property values have risen, the corporation has an asset that is more valuable than when it was purchased. If property values have fallen, the asset is less valuable than when purchased. In either case, the corporation has an asset on the balance sheet that it would not have had if it had decided to lease. If the market capitalization rate for the property has remained fairly constant, any change in the market value of the property and market rental rates should be highly correlated. Thus, by owning, the corporation has in effect invested in an asset that has a rate of return that is correlated with changes in the corporation's cost of leasing the space. As suggested above, this may or may not be correlated with the return on the corporation's core business. If market values and rental rates rise, the opportunity cost of using the space will be greater in the future whether the space is leased or owned. The difference is that by having decided to own, the company has an asset that has appreciated in value and a gain on the value of the real estate. As noted, it can realize this historical gain by a sale and leaseback or by relocating.[15]

Alternatively, if the company had leased, it would still face higher lease costs but may or may not have invested funds in an asset that has increased in value. Of course, if rental rates fall, the company can now lease the space at a lower rate. But by owning instead of leasing, the company has also incurred a loss on the real estate.

The point is that by owning rather than leasing, the corporation has made an investment with a rate of return that depends on what happens to local real estate values. Own-versus-lease decisions must consider how the risk and expected return from the investment fit into the corporation's overall investment and financing strategy.

The Investor's Perspective

In the above analysis, we considered the incremental cash flow associated with owning versus leasing. The return from owning (and the cost of leasing) from the corporation's point of view was calculated to be 13.79 percent. If the corporation decides to lease the space, our analysis assumes that there is an investor willing to own the space and lease it to the corporation. What rate of return would the investor expect? This depends, of course, on how the investor finances the property and the investor's tax situation. For the sake of comparison, assume that the investor is in the same tax bracket as the corporation and that the property would be financed the same way. Exhibit 15–4 shows the projected after-tax cash flows from operating the property during the term of the lease and resale at the end of the lease.

[13] Options available to the corporation when the highest and best use of the space has changed are considered in a later section.

[14] Sale-leaseback is examined in more detail later in the chapter.

[15] If lease payments have risen as well as property values, the company may still be better off by continuing to own rather than selling and leasing back the space. This does not negate the fact that the return from owning the real estate may or may not have been greater than the return that the corporation could have earned from leasing instead of owning and investing the funds elsewhere.

with selling an illiquid asset. This tendency can be explained, in part, by the comparative advantage of lessors in creating or locating alternative uses for such assets.

Risk Bearing

We have discussed the importance of the residual value of the real estate, which is affected by changes in local property values. Lease-versus-own analysis should carefully consider any relationship between the factors that influence the company's operating value and those driving local property markets. The aim of such consideration should be to determine whether other real estate investors have a comparative advantage in bearing the risk associated with local real estate markets. Pension funds, for example, generally hold unlevered portfolios of real estate diversified both by property type (offices, warehouses, etc.) and by geographic region. These funds, as well as real estate investment trusts (REITs), are likely to be able to diversify risks in property markets much more efficiently than all but the largest corporations. When a given real estate investment represents a large proportion of the company's total capital, the comparative advantage of other investors in bearing such risks may create a strong preference for leasing. For these reasons of relative risk-bearing capacity, larger companies with broadly dispersed operations are more likely to own than are smaller companies with geographically concentrated operations.

Management Expertise

Owning and managing real estate is not typically a primary part of a corporation's business activity. Thus, the corporation can be at a disadvantage when it comes to owning real estate. The corporation may not have the expertise to manage real estate assets. When property is owned rather than leased, managers may not be as aware of the true cost of using the space, leading to inefficient use of real estate. Leasing is favored when the company does not have a comparative advantage relative to developers and other investors in managing property and eventually selling it.

Maintenance

Companies are more likely to own assets whose values are highly sensitive to the level of maintenance. Lessors that own maintenance-sensitive buildings, unless protected by enforceable maintenance provisions,[17] are likely to charge higher lease rates to compensate for lower expected levels of maintenance undertaken by (particularly short-term) tenants. Therefore, unless corporate users find some means of reassuring lessors that maintenance is in the user's as well as the owner's best interest (perhaps through a very long-term lease), corporate users are likely to find it more economical to own.

Special Purpose Buildings

Companies are more likely to own buildings that have been customized for their operations, especially when those operations are unusual and the company has few competitors. To illustrate the case of customized corporate real estate, we typically observe corporations owning rather than leasing buildings outfitted for hi-tech, R&D operations.[18] (Bulk distribution warehouses, by contrast, are far more likely to be leased than owned.) The high costs

[17] Effective contracting may be very difficult to achieve even if a net lease is negotiated with the lessor because of time losses in monitoring, assessing blame, and resolving disputes over excessive equipment failures or other problems caused by poor building design or other flaws believed to be the responsibility of the lessor.

[18] The maintenance and specialization issues may in fact be closely related. For example, in an R&D facility requiring specific hardware in its design, technicians employed by the corporate entity may be better able to diagnose and respond to maintenance problems. In such cases, ownership would be preferable to constructing intricate provisions in lease contracts for the lessor to maintain such assets.

of relocating specialized corporate fixtures and machinery are an obvious incentive to own rather than lease. In the case of many single-tenant, **special purpose buildings**, the value of the real estate may well be far higher in its current corporate use than in any conceivable alternative use. To the extent this is the case, a lessor would be effectively holding a corporate security whose value depended almost entirely on the company's operating success. In such cases, corporate users would likely have a considerable advantage over real estate investors in bearing such firm-specific risk.

Tax Considerations

Tax considerations have historically played a major role in the standard lease-versus-buy analysis. It is less clear today than it was prior to 1986 whether corporations or individuals (through the medium of either partnerships or institutions) are the tax-favored owners of real estate.

The simple rule of thumb on taxes in lease-versus-buy decisions is as follows: If the lessor is in a higher tax bracket than the lessee, then leasing puts "ownership" of the asset in the hands of the party that can most benefit from the tax shelter provided by depreciation. From 1981 to 1986, two elements of the tax code together encouraged the ownership of real estate by individuals in high tax brackets: (1) depreciation lives were considerably shorter for real estate assets, thus increasing the depreciation tax shield and (2) the marginal tax rate for wealthy individuals (50%) was higher than the highest marginal tax rate for corporations (46%), and many companies had other tax shields that effectively lowered their marginal rate well below the statutory 46 percent rate. These two conditions, combined with the ability of partnerships to pass through operating losses directly to investors and avoid the double taxation of corporate dividends, created strong incentives for partnerships of high-tax individuals to own real estate and lease it to corporations. These tax incentives for corporations to sell real estate to individuals coupled with the market's perceived reluctance to reflect corporate real estate values in stock prices explain much of the real estate sales and sale-leasebacks that occurred during this time period.

The Tax Reform Act of 1986 in several ways substantially reduced the incentive for individuals to lease to corporations. First, it lengthened tax depreciation lives, thus lowering the tax shield. Second, the highest marginal tax rate for corporations (34%) is now slightly higher than that of wealthy individuals (31%). Third, individuals are subject to limitations on "passive" losses that restrict their ability to use accounting losses from real estate to offset other income. These tax law changes have leveled the playing field among partnerships, corporations, and tax-exempt entities such as pension funds as owners of real estate.[19] For this reason, taxes are far less likely today to be the deciding factor in corporate lease-versus-own decisions.

Access to Capital Markets

Real estate is very capital intensive. The cost of owning real estate is a function of the cost of obtaining debt and equity capital. As mentioned previously, corporations with a high credit rating may be able to obtain unsecured corporate debt and equity at a cost less than the cost of capital for the individual or institutional investor that would be willing to own and lease the real estate to the corporation. This would tend to make owning preferable because the lease rate must cover the owner's cost of capital. On the other hand, a corporation that has a high cost of capital relative to a potential lessor might find leasing more attractive than owning.

[19] In fact, some researchers now claim that, for tax purposes under certain conditions, corporations rather than partnerships may be the optimal organizational form for holding real estate. See Jeffrey D. Fisher and George Lentz, "Tax Reform and Organizational Forms for Holding Investment Real Estate: Corporations vs. Partnerships," *The American Real Estate and Urban Economics Association Journal* 17, no. 3, 1989.

EXHIBIT 15–4
Investment Analysis

Lease income		$ 180,000
Operating expenses (net lease)		0
Net operating income		180,000
Less: Depreciation		50,000
Less: Interest		136,900
Taxable income		−6,900
Tax		−2,070
Net operating income		180,000
Less: Debt service		136,900
Less: Taxes		−2,070
After-tax cash flow		45,170
Sale at End of Lease		
Reversion		$ 3,000,000
Mortgage balance		−1,369,000
Reversion	$ 3,000,000	
Basis	−1,050,000	
Gain	$ 1,950,000	
Tax		−585,000
Cash flow		$ 1,046,000

Summary

	Outlay	*ATCF*	Reversion
Year	0	1–15	15
Cash flow	$–431,000	$45,170	$ 1,046,000
IRR	13.79%		

The rate of return for the investor is exactly the same as it was for the corporation. This should be no surprise because we have emphasized that the difference between owning and leasing is a real estate equity investment.

A Note on Project Financing

In the lease-versus-own analysis considered earlier, we assumed that the corporation took out a mortgage on the property. Rather than a mortgage, the corporation could have used unsecured corporate debt. Using a mortgage loan utilizing real estate as security substitutes for the use of unsecured corporate debt under the assumption that the corporation wants to maintain a constant proportion of total debt (e.g., mortgages on real estate, corporate bonds). However, corporations may find that the rate on a mortgage secured by the real estate is less than the rate it has to pay on a new issue of unsecured corporate debt. This is because the rate on a mortgage tends to reflect the risk of the real estate, whereas the risk for unsecured corporate debt reflects the risk of the corporation.

A corporation with a high credit rating may pay less for unsecured debt than for a mortgage because the rate on mortgage loans, particularly those made without recourse to the borrower, reflects the risk of default—the inability of the cash flows produced by the property to service the debt rather than the default risk associated with the borrower. That is, in the case of nonrecourse financing, the rate on the mortgage includes a risk premium to the lender because the borrower has the option to default in the event that the property value is less than the loan or cash flow cannot service the debt. In such cases, the financial

community may consider debt based on the assets of the corporation less risky than the real estate, and, therefore, the unsecured corporate borrowing rate may be lower than that of a mortgage loan based solely on the real estate as security.

On the other hand, a corporation that has assets that are riskier than the real estate may have to pay more for unsecured corporate debt than the mortgage rate used to finance the acquisition of real estate when real estate is the only collateral for the debt.

If the corporation can obtain unsecured corporate debt at a lower rate than a mortgage on the property, we can assume the lower rate in the analysis in Exhibits 15–2 and 15–3. Alternatively, analysts sometimes calculate the incremental cash flows from owning versus leasing (as in Exhibit 15–3) *without explicitly considering the debt financing*. This type of analysis is analogous to calculating the return from owning the real estate (as in Exhibit 15–4) by using the cash flows before considering financing, that is, as if the property were unleveraged. In this case, the rate of return from owning (vs leasing) must be compared to the firm's weighted-average cost of capital, which is an average of the firm's cost of debt and equity capital. This approach allows the cost of debt financing to be reflected in the required rate of return from owning the real estate rather than considering financing in the calculation of the cash flows.[16] As shown in the appendix to this chapter, this approach does not change the conclusion about the rate of return earned by investing in real estate. Analysts often argue that for lease-versus-own decisions, the rate of return on the incremental cash flows from owning versus leasing (when financing is not explicitly considered) should be compared with the corporation's cost-of-debt capital rather than a weighted-average cost of debt and equity. This argument is based on the assumption that the lease liability (based on the present value of the lease payments) is equivalent to the amount of debt financing and that no additional equity would be invested in owning. This assumption is realistic for equipment leasing because equipment has no substantial residual value. However, as our example illustrated, even if we can borrow an amount equal to the present value of the lease payments, real estate requires an additional equity investment due to the expected present value of the residual.

Factors Affecting Own-versus-Lease Decisions

The above example provides insight into key financial factors that affect the decision to own or lease space. Additional matters, however, must be considered. Some of these are difficult to incorporate explicitly in a lease-versus-own analysis, but they may affect the final decision.

Space Requirements

Leasing is preferable when the company's space requirements are far less than the optimal development on a given site. In cases where the amount of space a corporate user desires is less than the optimal building scale that should be developed on a site, we expect (and typically find) corporate users leasing and developers (and their investment partners) assuming real estate risks. Even in cases where a corporate lessee will be the dominant tenant, it may be preferable for the corporate user to lease. For example, companies like IBM may be able to negotiate lease concessions (or a share of the developer's profits) that reflect the developer's use of the corporate credit when obtaining development financing.

Amount of Time Space Is Needed

In cases where the expected life of an asset far exceeds the company's projected period of use, companies will also generally choose to lease rather than bear the costs associated

[16] This approach is typically taken in corporate finance texts. The appendix to this chapter discusses the use of the weighted-average cost of capital approach.

Sale—Leasebacks and Corporate Real Estate

Concept Box 15.1

Many corporate users with a significant presence in the retail sector choose to use sale–leasebacks as an integral, recurring part of their primary business operations. Firms that use this approach include, among many others, Walgreens, CVS, Mattress Firm, Dollar Tree, Dollar General, Lone Star Steakhouse, and Tractor Supply.

These firms use sale–leasebacks for several reasons. They can

(1) exert significant control regarding the location, size, and design of their retail outlets.

(2) receive cash flow from the sale of these real estate assets, thereby redeploying funds for alternative uses and not tying up corporate capital in real estate assets.

(3) use the strength of their corporate credit rating when executing long-term leases, which provides more secure rents for investors who purchase these properties.

This option also serves as an alternative to using corporate bond financing. Using bond financing could require that all properties be cross-collateralized as security for the bond offering. An economic failure of one or more of the retail properties could have significant negative effects when all properties are used as security for the bonds. Under a sale–leaseback arrangement, a negative event would result in a lease termination and a financial settlement for only those individual properties affected by the sale–leaseback.

If a property is mortgaged, we might expect the rate to be the same for the corporation or the investor, assuming that the rate is based on the risk of the real estate rather than the risk of the borrower. If the loan is made with recourse to the borrower, however, the mortgage rate for corporations and investors could differ.

Control

The corporation may want to control the real estate by owning the property for financial reasons not considered in the above example. For example, as the corporation does business at a particular site, it may build up goodwill that is difficult to transfer to another location. If the space is leased, the lessor may attempt to extract some of this firm-specific value from the corporation by charging a lease rate that is higher than the prevailing market rate. Owning the real estate ensures that the corporation retains goodwill at a reasonable cost.

Effect on Financial Statements

The decision to own versus lease space has an impact on the financial statements of the corporation, which, in turn, may affect the value placed on the corporation by investors and lenders and, consequently, the cost of capital for the corporation. These financial considerations can have a substantial impact on the decision to own versus lease. In fact, because of the nature of real estate versus other corporate assets, corporations are often at a disadvantage owning real estate versus other investors.

Looking again at Exhibit 15–3, note that by owning versus leasing, income after tax is only $4,830 higher during the first 15 years, even though the after-tax cash flow is higher by $45,170. Income based on accounting statements versus cash flows presents potential problems because investors may be aware only of the earnings per share reported by the corporation, not the cash flow. Furthermore, much of the benefit of owning in this example comes from the residual value of the real estate at the end of the lease term. This unrealized source of potential gain would not be reflected in the annual income statements. Another potential problem is that real estate is carried at book value on corporate balance sheets. Because book values are based on cost, they are equal to the original acquisition cost less accumulated depreciation. The investment community may not be aware of the market value of the real estate held by the corporation, or at least the real estate value is difficult

to determine. Thus, many analysts argue that a corporation's stock price may not reflect the benefit of any above-average appreciation in any real estate assets that it owns.[20]

Indeed, unless real estate assets are valued periodically, corporate managers may not realize that the corporation's real estate is worth more than book value. Thus, they may use real estate inefficiently because they do not consider the true cost of the space. Corporations' inefficient use of real estate can lead to takeover attempts by investors who recognize the value of the real estate and the fact that it is not being put to its highest and best use. After such takeovers, the new owners sell real estate assets and shift operations to cost facilities elsewhere.

Another distortion in corporate balance sheets occurs when real estate is carried at book value but is financed with a mortgage based on its current market value. If this occurs, the proportion of financing (loan-to-market-value ratio) is lower than the loan-to-book-value ratio. Thus, a mortgage can increase a corporation's overall debt ratio, which is based on assets carried at book value. The debt ratio can make the corporation appear riskier to shareholders and result in a lower stock price because the assets of the firm may appear to be more highly levered than they actually are. Many have argued that this distortion partially accounts for premiums paid over the prevailing stock prices by investors who are aware of this difference when they seek to take over a firm.

Off-Balance-Sheet Financing

Because ownership of real estate often has an unfavorable impact on the company's financial statements, corporations often attempt to avoid showing real estate on the financial statements. They do this by using **off-balance-sheet financing.** Leasing may allow the corporation to get the real estate off the balance sheet if the lease meets certain criteria. If the lease is accounted for as an **operating lease,** the lease contract does not affect the corporation's balance sheet. If the lease is accounted for as a **capital lease,** however, the lease is recorded on the balance sheet as both a long-term asset and a long-term liability. Both are recorded on the balance sheet at an amount equal to the present value of the lease payments.[21] This obviously increases the corporation's debt-to-assets ratio. Thus, many corporations prefer to account for the lease as an operating lease. Under Financial Accounting Standards Board (FASB) guidelines, however, the lease must be accounted for as a capital lease if it meets any one of the four conditions.[22] A lease is a capital lease if it extends for at least 75 percent of the asset's life, if it transfers ownership to the lessee at the end of the lease term, or if it seems likely that ownership will be transferred to the lessee because of a *bargain purchase* option.[23] Finally, if the present value of the contractual lease payments equals or exceeds 90 percent of the fair market value of the asset at the time the lease is signed, then the lease is a capital lease.

In the past, many corporations used unconsolidated subsidiaries to provide a way to own real estate assets but report only the equity ownership interest (not the purchase price and the debt liability) and still report the earnings on consolidated financial statements. Corporations could use subsidiaries in this way when the subsidiary was considered to

[20] Investors may know that real estate has a higher value on average than its book value. But without details as to the market value of the real estate for a specific company, the best they can do is to assume that the market value is higher than the book value by some arbitrary amount.

[21] This was one of the reasons that we assumed in the lease-versus-own example that the loan would equal the present value of the lease payments. FASB guidelines require that the discount rate be appropriate given the creditworthiness of the lessee. Recall that we assumed that the loan amount was equal to the present value of the lease payments discounted at the mortgage interest rate. A lease and a mortgage to the same corporation would be of comparable risk.

[22] FASB, *Statement of Financial Accounting Standards No. 13,* par. 7.

[23] A bargain purchase option gives the lessee the right to purchase the asset for a price less than the fair market value of the asset expected when the option is exercised.

engage in nonhomogeneous, or unrelated, activities. Thus, if real estate was unrelated to the firm's core business, the corporation could use an unconsolidated subsidiary to own the real estate without affecting the consolidated balance sheet. FASB guidelines have since been revised, however, to severely restrict the use of unconsolidated subsidiaries for this purpose. Companies wanting to use unconsolidated subsidiaries to keep the real estate off the balance sheet must own less than 50 percent of the subsidiary, which means that they must give up control of the subsidiary.

The Problem of "Hidden Value"

The appreciation in value of some corporate real estate poses a critical problem for management. Many observers claim that: (1) because accounting conventions require companies to carry real estate assets on a lower of cost or market basis and (2) many properties contribute little to reported earnings, the value of corporate real estate is hidden from investors and, therefore, not fully reflected in stock prices. This is the problem of **hidden value**. To the extent that real estate values are not reflected in share prices, corporate management is vulnerable to the predations of raiders who are able to buy companies at bargain prices and then sell off the undervalued assets.

The perceived undervaluation of corporate real estate is leading corporate managers to take careful inventory of real assets and to evaluate their alternative uses. In some cases, this process has led to outright property sales accompanied by major relocations, in others to sale–leaseback, and in still others to a variety of asset-backed refinancing strategies designed to capture hidden values. At the same time, some companies are attempting to reduce occupancy costs as well as the potential for future hidden-value problems through the use of equity leases and joint ventures. Such methods allow corporations to participate in the appreciation of real estate projects in which they are major tenants, while avoiding the costs associated with a major capital commitment to real estate.

The case of real estate presents several special problems that may result in a discount in the share price. For one thing, the costs for outside investors to ascertain the values of such real estate may be large enough to warrant a large discount, especially if management (1) does not know the value of its own real estate or (2) does know but fails to communicate it to investors.

Second, investors may discount too heavily (if they consider it at all) the expected future value of real estate that produces no current operating cash flow—especially if they believe that management has no intention of selling or developing the real estate. For example, if prices of undeveloped land have risen dramatically but management does not inspire confidence that it has a plan to harvest such value, then investors may be justified in assigning low value to such growth options. Investors, after all, do not have the control necessary to realize hidden values.

Third, in the case of operating real estate, the fact that management persists in using assets with much-higher-valued alternative uses in marginally profitable operations would also warrant a large discount in the stock—again, provided management does not signal to the market its intent to sell or convert the asset.

Still another potential problem in valuing real estate arises even in the case of income-producing properties. Because accounting depreciation charges generally exceed true economic depreciation, the reported earnings of real estate companies typically understate the level of operating cash flow. And if the market responds mechanically to reported earnings, then it could systematically undervalue real estate assets, thus leaving companies prey to raiders concerned only about cash flow. But if markets do look through earnings to cash flow, as much as academic research suggests, then accounting conventions should not lead to the undervaluation of real estate.

On the other hand, as mentioned earlier, the ability of acquirers to take over asset-rich companies, write up the value of acquired real estate assets to market, and then depreciate their values over shorter lives (provided by the Economic Recovery Tax Act of 1981) clearly provided an artificial stimulus to takeover activity in the early 1980s. Such a stimulus was removed, however, with the Tax Reform Act of 1986.

To summarize, then, besides the possibility of market inefficiency, information and control problems could be responsible for large disparities between stock prices and perceived real estate values. First, in the case of large industrial companies with dispersed real estate assets, the costs to investors of ascertaining such values may be very large. Second, even if the market knows the value of such assets, the remaining uncertainty about whether management will take steps to realize the value of such real estate options, and about when such steps will be taken, could lead investors to heavily discount real assets in setting stock prices.

The Role of Real Estate in Corporate Restructuring

The business environment continually changes, many situations arise which may include: widespread deregulation, heightened international competition, and increased shareholder activism,etc. These changes forceAmerican corporations to reexamine many aspects of their operations in the attempt to increase shareholder value (and, in some cases, to defend against raiders). By stepping up the urgency of management's search for efficiencies, these competitive forces may produce mergers and acquisitions, divestitures, spinoffs, leveraged buyouts, and other major recapitalizations. Real estate assets are often a focal point in these restructurings.

In today's environment, corporate management are far more likely to question the traditional notion that corporations have a comparative advantage in owning real estate. It is important to remember that corporate real assets, while functioning as facilities in corporate operations, are part of local and regional property markets. And unless the company is a dominant force in a small local economy, the market value of those assets is typically governed by factors very different from those that drive the value of the firm's operating business. Developers and real estate investors are likely to be more alert to changes in property values, and to opportunities to take advantage of such changes, than a corporate management focused on operations.

Sale–Leaseback

An additional analysis that is relevant for a corporation that has owned real estate for some time is whether it should sell the real estate and lease it back from the new owner. This procedure would be attractive in cases where the company wants to sell the real estate but needs to continue to use the space because relocation is not practicable. For example, many years ago, Time, Inc., sold its 45 percent interest in its Rockefeller Center headquarters to the building's former co-owner, the Rockefeller Group, and then arranged a long-term lease.

Why might the corporation benefit from a sale–leaseback? In such cases, the corporation receives cash from sale of the property and, assuming that it still needs to use the real estate, leases the facilities back and makes lease payments. It also loses any remaining depreciation allowance on the book value of the building. However, it also removes the risk associated with the residual value of the property.

As discussed in the analysis of leasing versus owning, whether a corporation benefits from continuing to be an investor in the real estate will dictate whether to do a **sale–leaseback**. In fact, the analysis is very similar to that of leasing versus owning. There is one main difference: Because the corporation already owns the real estate, it has to consider the after-tax cash flow it receives from sale of the property (rather than the purchase price) as the amount of funds invested if it decides to continue to own the property.

The after-tax cash flow from sale will be less than the cost of purchasing the property if capital gains tax must be paid. Thus, the rate of return received on funds left in the property (if the company does not do a sale–leaseback) may be greater than would be the case if the company were deciding to own or lease the same property that it did not already own.

To see how we might analyze whether a corporation should sell and lease back space, we will extend the example we considered earlier in the lease-versus-own analysis. Suppose that

EXHIBIT 15–5
Sale-Leaseback

www.mhhe.com/bf16e

Original price: (5 years ago)			
Land	$ 225,000	12.50%	
Building	1,575,000	87.50%	
Total	1,800,000	100.00%	
Depreciation	31.5 years		
Tax rate	30.00%		
ATCF if sold today:			
Reversion		$ 2,000,000	
Mortgage balance		−1,369,000	
Reversion	$ 2,000,000		
Basis	−1,550,000		
Gain	$ 450,000		
Tax		−135,000	
Cash flow		$ 496,000	
Lease payment		$200,000 (15-year net lease)	
Operating expense		50.00% of lease payment	
	Own	**Lease**	**Difference (Own − Lease)**
Sales	$ 1,500,000	$ 1,500,000	$ 0
Cost of goods sold	750,000	750,000	0
Gross income	750,000	750,000	0
Operating expenses:			
Business	200,000	200,000	0
Real estate	100,000	100,000	0
Lease payments	0	200,000	−200,000
Interest	−136,900	0	−136,900
Depreciation	−50,000	0	−50,000
Taxable income	263,100	250,000	13,100
Tax	78,930	75,000	3,930
Income after tax	184,170	175,000	9,170
Plus: Depreciation	50,000	0	50,000
Less: Principal	0	0	0
Cash flow	234,170	175,000	59,170
Reversion			$ 3,000,000
Mortgage balance			−1,369,000
Reversion		$ 3,000,000	
Basis (after 20 years)		−800,000	
Gain		$ 2,200,000	
Tax			−660,000
Cash flow			$ 971,000
Year	0	1–15	15
Own − Lease	$ −496,000	$ 59,170	$ 971,000
IRR	14.10%		

five years ago, the corporation had decided to own rather than lease the real estate. Assume that it is now five years later and management is considering a sale–leaseback of the property. The property can be sold today for $2 million and leased back at a rate of $200,000 per year on a 15-year lease starting today. Exhibit 15–5 shows the after-tax cash flow if the property is sold today, taking into consideration that the company purchased the property five years ago for $1.8 million. Because it has depreciated the property over the past five years, the firm must pay capital gains tax of $135,000, making the after-tax cash flow from the sale today $1,865,000. By leasing instead of owning for the next 15 years, management must pay an additional $155,000 in after-tax cash flow each year.[24] Further, if the property is sold today, the firm will not receive the cash flow from sale of the property at the end of the lease. We assume that the property will be worth $3 million at the end of the 15-year lease.

As shown in Exhibit 15–5, the *IRR* from owning versus leasing is 14.10 percent. This is the *return from continuing to own* instead of leasing. Alternatively, the *IRR* can be viewed as the *cost of the sale–leaseback financing*, that is, the cost of obtaining $496,000 today by selling the property, then leasing it back. The return from continuing to own is slightly greater than in the original lease-versus-own example. Why? One reason is that taxes must be paid if the property is sold, which increases the benefit of continuing to own. Lease payments are also higher because market rents increased during the past five years. In this situation, there are more benefits from owning because the higher lease payments are now saved. Should the firm choose to lease, higher lease payments offset the higher price of the property that would be realized if the property were sold and reduce the benefit of owning relative to leasing.

A sale-leaseback also has implications for the corporation's financial statements. As we discussed, sale of the property results in capital gains tax. At the same time, however, it allows the corporation to report additional income because of the gain on the sale. Additional income results in an increase in reported earnings per share. Managers may have the incentive to do a real estate sale–leaseback to recognize a capital gain when they want to show an increase in earnings per share. Sale–leaseback for that reason is not necessarily in the best interest of the corporation, however.

A sale-leaseback, like any asset sale, removes an option for potential raiders to use real estate as a means of financing. Provided management can profitably reinvest the sale proceeds in its basic business or return the cash to shareholders, the opportunity for outside investors to profit from takeover by selling or refinancing the real estate is foreclosed. Furthermore, if the company leases with a short-term lease, it retains its option to relocate. But if a company simply sells and then commits itself to a long-term lease, the ownership transfer may offer no economic gain. The capital inflow from the sale may simply be offset over time by the higher rent charged by the new owner. Moreover, if the sale triggers a large tax liability payment, then the transaction could actually reduce shareholder value.

Assuming, however, that companies can shelter capital gains,[25] corporate shareholders could benefit from sale–leaseback to the extent that U.S. institutional or foreign investors are willing to accept lower yields than the returns required by corporate investors (again, adjusted for risk and leverage). In such cases, the sale proceeds to the company could exceed the present value of the new lease stream as well as any forgone tax savings from ownership.

Another potential benefit of sale–leaseback is its role as a "signaling" device. To the extent investors have been unable or unwilling to recognize real estate values, a sale–leaseback clearly demonstrates those values to the marketplace. Perhaps equally important, a sale–leaseback, especially when combined with stock repurchases, may also persuade investors that management has become more serious about its commitment to increasing shareholder value.

[24] Alternatively, by continuing to own, the corporation saves $155,000 in after-tax cash flow.

[25] Of course, there will always be cases where sale–leaseback may be used to recognize gains from the sale of assets to offset any loss carryforwards that a corporation may want to utilize.

Web App

A type of off-balance-sheet financing called *synthetic leases* became popular in recent years as a way for corporations to structure leases on real estate. Many tech companies financed the construction or purchase of their corporate headquarters with these types of leases. Use a search engine to find either a company that has used this method or a site that discusses how these leases work. What were the major advantages and disadvantages of this lease structure? Are they still being used?

For companies in mature industries with limited investment opportunities, a sale–leaseback together with a large distribution to shareholders may add value by returning excess capital to investors.[26]

Still another possible benefit from sale–leaseback is to provide a source of capital that can be used to fund growth opportunities or to refinance existing high-priced debt. Fred Meyer, Inc., for example, once sold and leased back 35 stores and a distribution center, thereby raising $400 million. Each store was leased for 20 years with a fixed-payment, net-lease rate, and an operating lease structure that allowed off-balance-sheet treatment. This transaction effectively enabled the company to capture the full market value of real estate assets, use the sale proceeds to retire some of its higher-yielding debt, and retain control of the assets by means of long-term leases.

Refinancing

One reason that the corporation might be considering a sale–leaseback as discussed in the previous section is to raise capital. An alternative might be to refinance the real estate with a mortgage, especially if unsecured corporate financing sources were initially used. As discussed earlier, mortgage financing may be a substitute for corporate debt if it is shown on the balance sheet and increases the corporation's debt ratio. Thus, the corporation must consider whether a mortgage on the real estate can be obtained at a lower cost than unsecured corporate debt. An additional option available to the corporation is refinancing with a hybrid mortgage, as discussed in Chapter 12.

Investing in Real Estate for Diversification

Corporations may view ownership of real estate as a way of diversifying their business activities, leading to the purchase of more real estate than it needs for its operations. For example, the corporation may decide to develop or purchase an office building that is larger than it needs for its own use. The rest of the office building is held as an investment.[27]

A corporation may also own space that was formerly used for the core business but is no longer needed. This excess space might be kept as an investment. In both of these cases, the question is whether the corporation has the expertise to own and manage investment real estate and whether the value of the company's stock will fully reflect the value of the

[26] This is the substance of Michael Jensen's argument known as the "agency costs of free cash flow." For a nontechnical explanation of this concept and its reflection in corporate restructuring activity, see Michael Jensen, "The Takeover Controversy: Analysis and Evidence," *Midland Corporate Finance Journal* 4, no. 2 (Summer 1986).

[27] If the corporation needs to expand, building ownership can be an advantage because, in effect, the corporation has the first option on space in the building it owns when another tenant's lease expires.

real estate investments. That is, would the real estate be considered more valuable if held by a different entity such as a real estate investment trust or a real estate limited partnership? These investment vehicles will be discussed further in later chapters. The point here is that corporations need to determine whether holding real estate as an investment is in the best interests of their shareholders. Shareholders may prefer to have the corporation own only assets related to its core business.

Conclusion

This chapter focused on the decision to own or lease real estate that is used by a corporation as part of its core business. We showed the decision to own versus lease real estate to be similar to the pure real estate investment decision we analyzed extensively in earlier chapters. A key difference, however, is the impact that ownership or sale–leaseback of real estate can have on the corporation's financial statements. Whether a particular corporation should own or lease depends on whether it has a comparative advantage owning real estate relative to other investors or investment vehicles.

CFOs, realizing the importance of property to their bottom line and share price, are increasingly giving corporate real estate more attention. Facilities managers today must justify ownership of real estate against a variety of alternatives that combine the operating control provided by ownership with reduced investment and greater flexibility. Corporations are more likely to accept such alternatives, which include a variety of leasing forms as well as joint-venture ownership, as ownership becomes unnecessary to maintaining operating control of real estate.

Key Terms

capital lease, *516*
corporate real estate, *503*
hidden value, *517*
lease-versus-own analysis, *504*
off-balance-sheet financing, *516*
operating lease, *516*
residual value, *509*
sale–leaseback, *518*
special purpose buildings, *514*

Useful Websites

www.reis.com—Provides commercial real estate trends, analytics, market research, and news that support transactions by real estate professionals.

www.corenetglobal.org—Corporate Real Estate Network, or CoreNet Global, is the premier organization for business leaders engaged in the strategic management of real estate for major corporations worldwide.

www.naiop.org—National Association of Industrial and Office Properties. Trade association for developers, owners, investors, and asset managers in industrial, office, and related commercial real estate.

www.equiscorp.com—UGL Equis is a global real estate company that focuses on managing corporate real estate.

Questions

1. What are the main reasons that corporations may choose to own real estate?
2. What factors would tend to make leasing more desirable than owning?
3. Why might the cost of a mortgage loan be greater than the cost of using unsecured corporate debt to finance corporate real estate?
4. Why might the riskiness of cash flow from the residual value of the real estate differ from the riskiness of cash flow from the corporation's core business? What would cause these cash flows to be correlated?
5. What would cause the rate of return for an investor that purchases real estate and leases it to the corporation to differ from the rate of return earned by the corporation on the incremental investment in owning versus leasing the same property?
6. Why might the decision to own rather than lease real estate have an unfavorable effect on the corporation's financial statements?

7. Why is the value of corporate real estate often considered hidden from shareholders?
8. How does the analysis of a sale–leaseback differ from the analysis of owning versus leasing?
9. Why is the cost of financing with a sale–leaseback essentially the same as the return from continuing to own?
10. Why might it be argued that corporations do not have a comparative advantage when investing in real estate as a means of diversification from the core business?
11. Why has real estate often been a key factor in corporate restructuring?
12. Why might refinancing be considered an alternative to a sale–leaseback?
13. What factors might cause the highest and best use of real estate to change during the course of a typical lease term?
14. Why should corporations have their real estate appraised on a regular basis?
15. What factors would tend to affect the value of a lease?

Problems

1. The ABC Corporation is considering opening an office in a new market area that would allow it to increase its annual sales by $2.5 million. The cost of goods sold is estimated to be 40 percent of sales, and corporate overhead would increase by $300,000, not including the cost of either acquiring or leasing office space. The corporation will have to invest $2.5 million in office furniture, office equipment, and other up-front costs associated with opening the new office before considering the costs of owning or leasing the office space.

   A small office building could be purchased for sole use by the corporation at a total price of $3.9 million, of which $600,000 of the purchase price would represent land value, and $3.3 million would represent building value. The cost of the building would be depreciated over 39 years. The corporation is in a 30 percent tax bracket. An investor is willing to purchase the same building and lease it to the corporation for $450,000 per year for a term of 15 years, with the corporation paying all real estate operating expenses (absolute net lease). Real estate operating expenses are estimated to be 50 percent of the lease payments. Estimates are that the property value will increase over the 15-year lease term for a sale price of $4.9 million at the end of the 15 years. If the property is purchased, it would be financed with an interest-only mortgage for $2,730,000 at an interest rate of 10 percent with a balloon payment due after 15 years.

   a. What is the return from opening the office building under the assumption that it is leased?

   b. What is the return from opening the office building under the assumption that it is owned?

   c. What is the return on the incremental cash flow from owning versus leasing?

   d. In general, what other factors might the firm consider before deciding whether to lease or own?

2. Refer to Problem 1. Suppose that five years ago the corporation had decided to own rather than lease the real estate. Assume that it is now five years later and management is considering a sale–leaseback of the property. The property can be sold today for $4,240,000 and leased back at a rate of $450,000 per year on a 15-year lease starting today. It was purchased five years ago for $3.9 million. Assume that the property will be worth $5.7 million at the end of the 15-year lease.

   a. How much would the corporation receive from a sale–leaseback of the property?

   b. What is the cost of obtaining financing with a sale–leaseback?

   c. What is the return from continuing to own the property?

   d. In general, what other factors and alternatives might the firm consider in order to decide whether to do a sale–leaseback?

3. Refer to Problem 1. ABC realizes that the benefits of leasing versus owning may be sensitive to many of the assumptions being made. The management wants to know how the return on the incremental cash flow from owning versus leasing is affected by different assumptions. (This problem is best done using a spreadsheet.)

   a. How would the return be affected by the corporation being in a zero tax bracket?

   b. How will the return be affected if the property value does not increase over time but remains constant?

   c. How would the return be affected if the mortgage were at an 8 percent (rather than 10%) interest rate?

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4. **Excel.** Refer to the "Ch15 Lease_Own" tab in the Excel Workbook provided on the website. How does each of the following affect the *IRR* on the *ATCF* difference from owning versus leasing?
   a. The property can be leased for $175,000 instead of $200,000.
   b. A loan can be obtained at an 8 percent interest rate instead of 10 percent.

Appendix

Real Estate Asset Pricing and Capital Budgeting Analysis: *A Synthesis*

Introduction

As we have discussed beginning with Chapter 11, real estate income property is usually valued from the point of view of the equity investor. That is, we discount the cash flows (before or after tax) available to the equity investor based on explicit assumptions about the cost and terms of the mortgage used to finance the property. We use an after-tax discount rate to discount the after-tax cash flows. When analyzing the after-tax basis, the calculation of the after-tax cash flow to the equity investor reflects the tax deductibility of interest. The amount of equity an investor is willing to invest represents the value of the equity position. The amount of loan that a mortgage lender will lend on the property represents the value of the mortgage position. The total property value is the sum of the value of the mortgage and equity positions.

In contrast, the traditional capital budgeting procedures shown in corporate finance textbooks suggest that after-tax cash flows produced by the project *before deducting any financing costs* should be discounted by a weighted average cost of capital that considers after-tax cost of debt and equity. Tax deductibility of interest on debt is treated in one of the two ways: (1) the after-tax cost of debt is used when calculating the weighted-average cost of capital or (2) the tax shield created by the interest deduction on debt is added back to the after-tax cash flow produced by the project. In this latter case, the before-tax cost of debt is used to calculate the weighted-average cost of capital. In both of these approaches, the after-tax cost of equity is included in the weighted-average cost of capital.

This appendix demonstrates that all three approaches mentioned above are consistent and result in the same property value when applied correctly.

Mortgage-Equity Approach

As we saw in Chapter 9, the term *mortgage-equity analysis* is often used in real estate to refer to the valuation of real estate income property by explicitly considering how the property will be financed. For simplicity, in this appendix, we assume that all cash flows are a level perpetuity, the loan is interest-only (no amortization), and there is no depreciation allowance.[1] In general, the value of the property can be found with the mortgage-equity approach as follows:

$$V = \frac{(NOI - r_d D)(1 - t)}{R_e} + D$$

where

V = Estimated property value
D = Amount of debt
NOI = Net operating income
t = Tax rate
r_d = Cost of debt (before tax)
R_e = Cost of equity (after tax)

Example

Assume that NOI is $115,000 per year. A loan (D) is available for $800,000 with an interest rate (r_d) of 10 percent. The investor's tax rate (t) is 20 percent and the investor's required after-tax rate of return (R_e) is 14 percent.

Using the preceding formula, we have

$$V = \frac{(115{,}000 - .10 \times 800{,}000)(1 - .20)}{.14} + 800{,}000$$

$$V = 200{,}000 + 800{,}000$$

$$V = 1{,}000{,}000$$

Weighted-Average Cost of Capital—Alternative 1

Use of a weighted average cost of capital assumes that the project will have the same proportion of debt as in other projects. In the above example, debt represented 80 percent of property value. Assuming that another project is undertaken

[1] Assuming that cash flows are not level and that the project is sold after a finite holding period or assuming that there is a depreciation allowance does not change any of the conclusions of this appendix.

with the same proportion of debt, the weighted average cost of capital is as follows:

$$R_a = [D/V \times r_d \times (1 - t)] + [E/V \times R_e]$$

where

R_a = Weighted-average cost of capital
E = Amount of equity
D/V = Proportion of debt
E/V = Proportion of equity

The value of the property is found as follows:

$$V = \frac{NOI(1 - t)}{R_a}$$

For the example considered earlier, we have

$$V = \frac{115,000(1 - .20)}{[.80 \times .10 \times (1 - .2)] + (.20 \times .14)}$$

$$V = \frac{92,000}{.092}$$

$$V = 1,000,000$$

This is obviously the same answer as before.

Weighted-Average Cost of Capital—Alternative 2

An alternative way of valuing the property is to adjust the after-tax cash flows available on the project for the tax shield associated with the deductibility of the debt. This tax shield is equal to the annual interest payment ($r_d \times D$) multiplied by the tax rate (t). In terms of the above symbols, the tax shield is equal to $r_d \times D \times t$. When the cash flows are adjusted by the tax shield, the cost of capital is calculated by using the before-tax cost of debt (r_d) rather than the after-tax cost. The after-tax cost of equity (r_e) is still used. In this case, the value can be expressed as follows:

$$V = \frac{(NOI)(1 - t) + (r_d \times D \times t)}{(D/V \times r_d) + (E/V \times R_e)}$$

Note that the numerator in the above formula is not the cash flow to the equity investor. It represents the cash flow on the entire property plus an adjustment for the additional tax benefit associated with the debt.[2]

[2] This adjustment does not necessarily assume that the use of debt adds to the value of the property relative to an unlevered property. It simply recognizes the fact that interest is tax deductible.

For the same example considered above, we have

$$V = \frac{115,000(1 - .20) + (.10 \times 800,00 \times .20)}{[.80 \times .10] + (.20 \times .14)}$$

$$V = \frac{108,000}{.1080}$$

$$V = 1,000,000$$

Again, the answer is the same as before.

Conclusion

Use of the mortgage-equity approach is consistent with traditional capital budgeting procedures when valuing real estate. When using the mortgage-equity approach, the after-tax cost of equity is used in place of the weighted-average cost of capital when discounting the cash flows produced after payment of interest. When using the traditional weighted-average cost of capital calculation, an after-tax cost of debt and equity is used to discount before-tax cash flows. An alternative to the latter approach is to adjust the after-tax cash flow from the property by adding back an amount that represents the tax savings associated with the debt. When using this approach, a before-tax cost of debt must be used when calculating the weighted-average cost of capital. In either case, the estimated value is the same as the mortgage-equity approach, which is typically used to value real estate.

We simplified the above analysis by assuming that cash flows were perpetuities and that the debt was not amortized. This approach implies that the proportion of debt and equity remains constant over time. Analysts argue that corporations can maintain a target proportion of debt in their capital structure by alternating between issuing debt and equity. Thus, it may not be appropriate to value a *particular* project based on the amount of debt or equity used to finance that project. However, mortgage loans are typically amortized and are usually secured by a specific property. Refinancing is expensive and, therefore, it is not feasible to maintain a constant proportion of debt from year to year. As this appendix points out, the value produced by the mortgage-equity approach is the same as that found with traditional capital budgeting techniques if consistent assumptions are made about the use of financing. However, because real estate is used as security for debt and refinancing to maintain a constant ratio of debt to assets is costly, using the mortgage-equity approach may be more appropriate because it allows financing to be considered explicitly.