26.8 SUMMARY AND CONCLUSIONS

A large fraction of America's equipment is leased rather than purchased. This chapter has described different lease types, accounting and tax implications of leasing, and how to evaluate financial leases.

1. Leases can be separated into two types, financial and operating. Financial leases are generally longer-term, fully amortized, and not cancelable without a hefty termination payment. Operating leases are usually shorter-term, partially amortized, and cancelable.
2. The distinction between financial and operating leases is important in financial accounting. Financial (capital) leases must be reported on a firm's balance sheet; operating leases are not. We discussed the specific accounting criteria for classifying leases as capital or operating.
3. Taxes are an important consideration in leasing, and the IRS has some specific rules about what constitutes a valid lease for tax purposes.
4. A long-term financial lease is a source of financing much like long-term borrowing. We showed how to go about an NPV analysis of leasing to decide whether leasing is cheaper than borrowing. A key insight was that the appropriate discount rate is the firm's aftertax borrowing rate.
5. We saw that the existence of differential tax rates can make leasing an attractive proposition for all parties. We also mentioned that a lease decreases the uncertainty surrounding the residual value of the leased asset. This is a primary reason cited by corporations for leasing.

Chapter Review and Self-Test Problems

26.1 **Lease or Buy** Your company wants to purchase a new network file server for its wide-area computer network. The server costs $75,000. It will be completely obsolete in three years. Your options are to borrow the money at 10 percent or to lease the machine. If you lease, the payments will be $27,000 per year, payable at the end of each of the next three years. If you buy the server, you can depreciate it straight-line to zero over three years. The tax rate is 34 percent. Should you lease or buy?

26.2 **NPV of Leasing** In the previous question, what is the NPV of the lease to the lessor? At what lease payment will the lessee and the lessor both break even?

Answers to Chapter Review and Self-Test Problems

26.1 If you buy the machine, the depreciation will be $25,000 per year. This generates a tax shield of $25,000 × .34 = $8,500 per year, which is lost if the machine is leased. The aftertax lease payment would be $27,000 × (1 − .34) = $17,820. Looking back at Table 26.2, you can lay out the cash flows from leasing as follows:

Lease versus Buy	Year 0	Year 1	Year 2	Year 3
Aftertax lease payment		−$17,820	−$17,820	−$17,820
Lost depreciation tax shield		− 8,500	− 8,500	− 8,500
Cost of machine	+$75,000			
Total cash flow	+$75,000	−$26,320	−$26,320	−$26,320

The appropriate discount rate is the aftertax borrowing rate of $.10 \times (1 - .34) = 6.6$ percent. The NPV of leasing instead of borrowing and buying is:

$$\begin{aligned} NPV &= \$75{,}000 - 26{,}320 \times (1 - 1/1.066^3)/.066 \\ &= \$5{,}420.09 \end{aligned}$$

so leasing is cheaper.

26.2 Assuming that the lessor is in the same tax situation as the lessee, the NPV to the lessor is −$5,420.09. In other words, the lessor loses precisely what the lessee makes.

For both parties to break even, the NPV of the lease must be zero. With a 6.6 percent rate for three years, a cash flow of −$28,370.26 per year has a present value of −$75,000. The lost depreciation tax shield is still −$8,500, so the aftertax lease payment must be $19,870.26. The lease payment that produces a zero NPV is therefore $19,870.26/.66 = $30,106.45 per year.

Concepts Review and Critical Thinking Questions

1. **Leasing versus Borrowing** What are the key differences between leasing and borrowing? Are they perfect substitutes?
2. **Leasing and Taxes** Taxes are an important consideration in the leasing decision. Who is more likely to lease, a profitable corporation in a high tax bracket or a less profitable one in a low tax bracket? Why?
3. **Leasing and IRR** What are some of the potential problems with looking at IRRs in evaluating a leasing decision?
4. **Leasing** Comment on the following remarks:
   a. Leasing reduces risk and can reduce a firm's cost of capital.
   b. Leasing provides 100 percent financing.
   c. If the tax advantages of leasing were eliminated, leasing would disappear.
5. **Accounting for Leases** Discuss the accounting criteria for determining whether or not a lease must be reported on the balance sheet. In each case, give a rationale for the criterion.
6. **IRS Criteria** Discuss the IRS criteria for determining whether or not a lease is tax deductible. In each case, give a rationale for the criterion.
7. **Off–Balance Sheet Financing** What is meant by the term *off–balance sheet financing?* When do leases provide such financing, and what are the accounting and economic consequences of such activity?
8. **Sale and Leaseback** Why might a firm choose to engage in a sale and leaseback transaction? Give two reasons.
9. **Leasing Cost** Explain why the aftertax borrowing rate is the appropriate discount rate to use in lease evaluation.

Refer to the following example for Questions 10 through 12:

In February 1996, Trans World Airlines (TWA) agreed to acquire 20 Boeing 757-200s, in a deal valued at about $1 billion. Of the 20 planes, 10 would be purchased directly from Boeing. However, the remaining 10 were to be obtained through International Lease Finance Corp., a Century City, California, firm, on a 10-year lease.

10. **Leasing versus Purchase** Why wouldn't TWA just purchase all 20 planes? That is, why lease 10?
11. **Reasons to Lease** Why would International Lease Finance Corp. be willing to buy planes from Boeing and then lease them to TWA? How is this different from just loaning money to TWA to buy the planes?
12. **Leasing** What do you suppose happens to the leased planes at the end of the 10-year lease period?

Questions and Problems

Basic
(Questions 1–6)

Use the following information to work Problems 1 through 6:

You work for a nuclear research laboratory that is contemplating leasing a diagnostic scanner (leasing is a very common practice with expensive, high-tech equipment). The scanner costs $2,000,000, and it would be depreciated straight-line to zero over four years. Because of radiation contamination, it will actually be completely valueless in four years. You can lease it for $600,000 per year for four years.

1. **Lease or Buy** Assume that the tax rate is 35 percent. You can borrow at 8 percent before taxes. Should you lease or buy?
2. **Leasing Cash Flows** What are the cash flows from the lease from the lessor's viewpoint? Assume a 35 percent tax bracket.
3. **Finding the Break-Even Payment** What would the lease payment have to be for both lessor and lessee to be indifferent about the lease?
4. **Taxes and Leasing Cash Flows** Assume that your company does not contemplate paying taxes for the next several years. What are the cash flows from leasing in this case?
5. **Setting the Lease Payment** In the previous question, over what range of lease payments will the lease be profitable for both parties?
6. **MACRS Depreciation and Leasing** Rework Problem 1 assuming that the scanner will be depreciated as three-year property under MACRS (see Chapter 10 for the depreciation allowances).

Intermediate
(Questions 7–9)

Use the following information to work Problems 7 through 9:

The Wildcat Oil Company is trying to decide whether to lease or buy a new computer-assisted drilling system for its oil exploration business. Management has decided that it must use the system to stay competitive; it will provide $600,000 in annual pretax cost savings. The system costs $5.5 million and will be depreciated straight-line to zero over five years. Wildcat's tax rate is 34 percent, and the firm can borrow at 9 percent. Lambert Leasing Company has offered to lease the drilling equipment to Wildcat for payments of $1,240,000 per year. Lambert's policy is to require its lessees to make payments at the start of the year.

Intermediate
(*continued*)

7. Lease or Buy What is the NAL for Wildcat? What is the maximum lease payment that would be acceptable to the company?

8. Leasing and Salvage Value Suppose it is estimated that the equipment will have an aftertax residual value of $500,000 at the end of the lease. What is the maximum lease payment acceptable to Wildcat now?

9. Deposits in Leasing Many lessors require a security deposit in the form of a cash payment or other pledged collateral. Suppose Lambert requires Wildcat to pay a $200,000 security deposit at the inception of the lease. If the lease payment is still $1,240,000, is it advantageous for Wildcat to lease the equipment now?

Challenge
(Question 10)

10. Lease versus Borrow Return to the case of the diagnostic scanner used in Problems 1 through 6. Suppose the entire $2,000,000 purchase price of the scanner is borrowed. The rate on the loan is 8 percent, and the loan will be repaid in equal installments. Create a lease versus buy analysis that explicitly incorporates the loan payments. Show that the NPV of leasing instead of buying is not changed from what it was in Problem 1. Why is this so?