

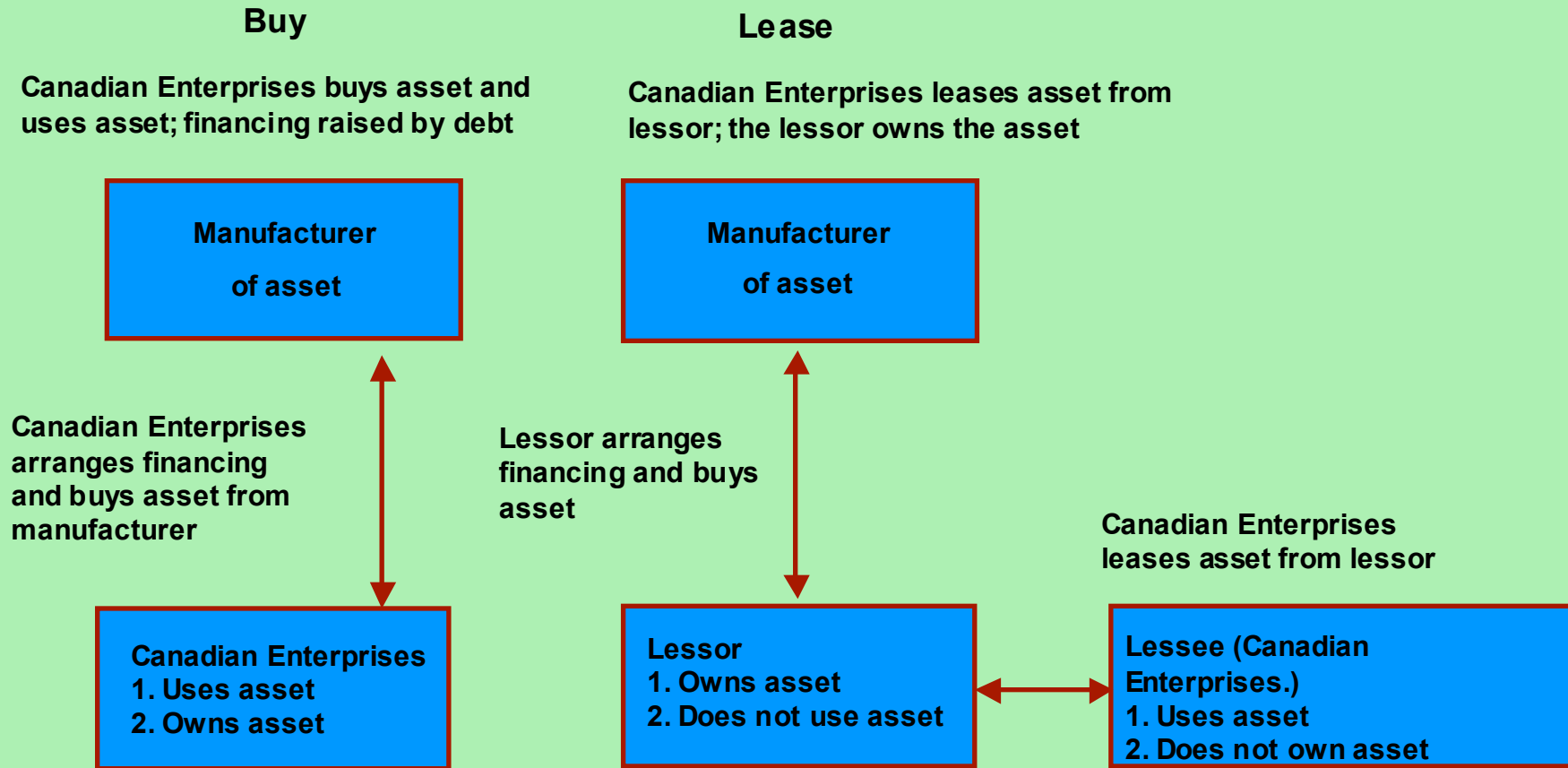
# Chapter 22

## Leasing

### Chapter Organization

- 22.1 Leases and Lease Types
- 22.2 Accounting and Leasing
- 22.3 Taxes, Canada Customs and Revenue Agency (CCRA) and Leases
- 22.4 The Cash Flows from Leasing
- 22.5 Lease or Buy?
- 22.6 A Leasing Paradox
- 22.7 Reasons for Leasing
- 22.8 Summary and Conclusions

## T22.2 Buying versus Leasing (Figure 22.1)



## T22.3 Types of Leases

- Operating lease

*Usually a shorter-term lease under which the lessor is responsible for insurance, taxes, and upkeep.*

- Financial lease

*A longer-term, fully amortized lease under which the lessee is responsible for maintenance, taxes, and insurance.*

- ◆ Tax-oriented leases
- ◆ Leveraged leases
- ◆ Sale-and-leaseback arrangements

## T22.4 Leasing and the Balance Sheet (Table 22.1)

### A. Balance Sheet with Purchase (co. finances \$100,000 truck with debt)

Truck	\$100,000	Debt	\$100,000
Other assets	<u>100,000</u>	Equity	<u>100,000</u>
Total assets	<u>\$200,000</u>	Debt plus equity	<u>\$200,000</u>

### B. Balance Sheet with Operating Lease (co. finances truck with an operating lease)

Truck	\$ 0	Debt	\$ 0
Other assets	<u>100,000</u>	Equity	<u>100,000</u>
Total assets	<u>\$100,000</u>	Debt plus equity	<u>\$100,000</u>

### C. Balance Sheet with Capital Lease (co. finances truck with a capital lease)

Assets under capital lease	\$100,000	Obligations under capital lease	\$100,000
Other assets	<u>100,000</u>	Equity	<u>100,000</u>
Total assets	<u>\$200,000</u>	Debt plus equity	<u>\$200,000</u>

## T22.5 Criteria for a Capital Lease

A capital lease must be disclosed on the balance sheet if *at least one* of the following criteria is met:

The lease transfers ownership of the property to the lessee by the end of the term of the lease.

The lessee can purchase the asset at a price below fair market value (*bargain purchase price option*) when the lease expires.

The lease term is 75 percent or more of the estimated economic life of the asset.

The present value of the lease payments is at least 90 percent of the fair market value of the asset at the start of the lease.

## T22.6 When is a Lease *not* a Lease?

- In order for lease payments to be deductible for tax purposes, the lease must meet certain qualifications as specified by the Canada Customs and Revenue Agency. The general concern is tax avoidance, so the CCRA looks for a business purpose to the lease. If the lease is merely a conditional sales agreement, only the interest portion of the payment is deductible. The CCRA disallows full deduction of lease payments if one or more of the following:
  1. The lessee **automatically acquires title** to the property after payment of a specified amount in the form of rentals.
  2. The lessee is **required to buy** the property from the lessor during or at the termination of the lease.
  3. The lessee has the **right** during or at the expiration of the lease **to acquire** the proper **at a price less than fair market value**.

## T22.7 Depreciation and tax shields for TransCanada Distributors (Table 22.2)

<b>Year</b>	<b>UCC</b>	<b>CCA</b>	<b>Tax Shields</b>
<b>0</b>	\$5,000	\$2,000	\$800
<b>1</b>	8,000	3,200	1,280
<b>2</b>	4,800	1,920	768
<b>3</b>	2,880	1,152	461
<b>4</b>	1,728	691	276
<b>5</b>	1,037		415

## T22.8 Incremental Cash Flows for TransCanada Distributors (Table 22.3)

**Table 22.3**

	Year					
	0	1	2	3	4	5
Investment	\$10,000					
Lease payment	-2,500	-\$2,500	-\$2,500	-\$2,500	-\$2,500	
Payment shield	1,000	1,000	1,000	1,000	1,000	
Forgone tax shield	-800	-1,280	-768	-461	-276	-\$415
Total cash flow	\$7,700	-\$2,780	-\$2,268	-\$1,961	-\$1,776	-\$415

## T22.9 Example: Lease or Buy?

- From the previous slide, leasing will save TransCanada Corp. \$10,000 today. Over the next five years, the firm will incur cash outlays, net of tax, of \$1,500 per year. The firm also loses the depreciation benefit it would have had if it had owned the asset. What is the NPV of leasing?
- The NPV of leasing equals the initial inflow (i.e., the purchase cost avoided by leasing) minus the present value of the subsequent outlays (i.e., the aftertax lease payments and the lost depreciation tax shields). Since the cash flows are contractual, the appropriate discount rate is the firm's aftertax cost of debt.
- Assume TransCanada Corp.'s aftertax borrowing rate is 5 percent. (why do we use the aftertax rate?)  
The present value of the lease arrangement is

$$\$10,000 - 2,330 \times (1 - 1/1.05^5)/.05 = -\$87.68$$

Since the NPV (also called the NAL—Net Advantage to Leasing) is negative, buying is preferred to leasing here.

## T22.10 Leasing paradox (Table 22.5)

Table 22.5	Year					
	0	1	2	3	4	5
Investment	-\$10,000					
Lease payment	2,500	\$2,500	\$2,500	\$2,500	\$2,500	
Payment shield	-1,000	-1,000	-1,000	-1,000	-1,000	
Forgone tax shield	800	1280	768	461	276	\$415
Total cash flow	-\$7,700	\$2,780	\$2,268	\$1,961	\$1,776	\$415

### ■ Indifference Point

Table 22.6	Year					
	0	1	2	3	4	5
Investment	\$10,000					
Lease payment	-2,425	-\$2,425	-\$2,425	-\$2,425	-\$2,425	
Payment shield	970	970	970	970	970	
Forgone tax shield	-800	-1280	-768	-461	-276	-\$415
Total cash flow	\$7,745	-\$2,735	-\$2,223	-\$1,916	-\$1,731	-\$415

## T22.11 Reasons for Leasing

- Good reasons for leasing

*Taxes may be reduced by leasing.*

*The lease contract may reduce certain types of uncertainty that might otherwise decrease the value of the firm.*

*Transactions costs may be lower for a lease contract than for buying the asset.*

*Leasing may require fewer (if any) restrictive covenants than secured borrowing.*

*Leasing may encumber fewer assets than secured borrowing.*

- Bad reasons for leasing

*Using leasing to artificially enhance accounting income*

*100 percent financing*

*Apparent low cost*

## T22.12 Chapter 22 Quick Quiz

1. What are the major differences between operating and financial leases?

*An operating lease is usually a shorter-term, cancelable lease under which the lessor is responsible for insurance, taxes, and upkeep.*

*A financial lease is a longer-term, fully amortized, noncancelable lease under which the lessee is responsible for insurance, taxes, and upkeep.*

2. What is a “sale and leaseback” arrangement?

*A financial lease in which the lessee sells an asset to the lessor and then leases it back.*

3. What is the “NAL?”

*It is the Net Advantage to Leasing—another name for the NPV of leasing.*

## T22.13 Solution to Problem 22.2

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 \$1,000,000 and it qualifies for a 30 percent CCA rate. Because of radiation contamination, it is valueless in four years. You can lease it for \$300,000 per year for four years.

Assume that the tax rate is 40 percent. You can borrow at 8 percent pretax. Should you lease or buy?

## T22.13 Solution to Problem 22.2 (concluded)

Problem 22.2	Year				
	0	1	2	3	4
Investment	\$1,000,000				
Lease payment		-\$300,000	-\$300,000	-\$300,000	-\$300,000
Payment shield		120,000	120,000	120,000	120,000
Forgone tax shield	-60,000	-102,000	-71,400	-49,980	-116,620
Total cash flow	\$940,000	-\$282,000	-\$251,400	-\$229,980	-\$296,620
Discounting at $8\% \times (1 - 0.4) = 4.8\%$					
NAL =	3,685.46				

## T22.14 Solution to Problem 22.3

Refer to the previous problem. What are the cash flows from the lease from the *lessor's* viewpoint? Assume a 40 percent tax bracket.

## T22.14 Solution to Problem 22.3 (concluded)

Problem 22.3	Year				
	0	1	2	3	4
Investment	-\$1,000,000				
Lease payment		\$300,000	\$300,000	\$300,000	\$300,000
Payment shield		-120,000	-120,000	-120,000	-120,000
Tax shield	60,000	102,000	71,400	49,980	116,620
Total cash flow	-\$940,000	\$282,000	\$251,400	\$229,980	\$296,620
Discounting at $8\% \times (1 - 0.4) = 4.8\%$					
NAL=		-3,685.46			

## T22.15 Solution to Problem 22.4

- What would the lease payment have to be for both lessor and lessee to be indifferent about the lease?
- The “breakeven” lease payment would be the payment that results in a zero NPV.

## T22.15 Solution to Problem 22.4 (concluded)

- What would the lease payment have to be for both lessor and lessee to be indifferent about the lease?
- The “breakeven” lease payment would be the payment that results in a zero NPV. Solving for LP gives **\$298,276**. At that lease payment, the NPV is zero for both the lessor and the lessee.

Problem 22.4	Year				
	0	1	2	3	4
Investment	-\$1,000,000				
Lease payment		\$298,276	\$298,276	\$298,276	\$298,276
Payment shield		-119,310	-119,310	-119,310	-119,310
Tax shield	60,000	102,000	71,400	49,980	116,620
Total cash flow	-\$940,000	\$280,965	\$250,365	\$228,945	\$295,585

Discounting at  $8\% \times (1 - 0.4) = 4.8\%$

NAL = 0.00