**Solutions to Questions - Chapter 15**
**Financing Corporate Real Estate**

**Question 15-1**

*What are the main reasons that corporations may choose to own real estate?*

There are a number of reasons a corporation may decide to own (rather than lease) real estate. It may find that owning is less expensive than leasing when considering the cost of leasing and the tax benefits of owning. The corporation may also want to have more control over the real estate than is possible with leasing. It may also feel that owning real estate provides diversification of its asset base.

**Question 15-2**

*What factors would tend to make leasing more desirable than owning?*

The cost of leasing may be less than the cost of owning the space, especially if the company can not use the tax benefits associated with owning. The company may also be concerned about the effect that owning real estate may have on its income and balance sheets. It may also prefer the flexibility associated with leasing, especially if the company only plans to use the space for a short period of time.

**Question 15-3**

*Why might the cost of a mortgage loan be greater than the cost of using unsecured corporate debt to finance corporate real estate?*

Mortgage loans are typically on a non-recourse basis for real estate income property. This means that the risk of default must be built into the mortgage interest rate. A corporation with a high credit rating may find that it can borrow money at a cheaper rate based on the creditworthiness of the corporation. That is, the corporation may be less risky than a specific property that the company wants to finance.

**Question 15-4**

*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?*

The residual value of the real estate depends on factors affecting the supply and demand for space where the property is located. This might be quite different from factors that affect the supply and demand for the products and/or services offered by the corporation.

**Question 15-5**

*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?*

One reason these returns might differ is that the corporation may be taxed quite differently than the investor - e.g. they may have very different marginal tax rates. The cost of financing to the investor may also be quite different that that for the corporation.

**Question 15-6**

*Why might the decision to own rather than lease real estate have an unfavorable effect on the corporation's financial statements?*

Real estate may have a lower current return than the typical investment that the corporation makes. Thus, owning the real estate lowers the company's return on assets. If the real estate is highly levered, it can also make the corporation look more risky.

**Question 15-7**

*Why is the value of corporate real estate often considered "hidden" from shareholders?*

Real estate is shown on the corporation's books at its historical cost less book depreciation. Thus, if the properties owned by the corporation have increased in value rather than decreased, this is not reflected on the company's balance sheet.

**Question 15-8**

*How does the analysis of a sale-leaseback differ from the analysis of owning versus leasing?*

The main difference is that if the property is already owned, capital gains tax must be paid if the property is sold.

**Question 15-9**

*Why is the cost of financing with a sale-leaseback essentially the same as the return from continuing to own?*

Both of these calculations use the same marginal cash flows. The difference is just in how the return is interpreted.

**Question 15-10**

*Why might it be argued that corporations do not have a comparative advantage when investing in real estate as a means of diversification from their core business?*

Corporations do not typically hold real estate in a large number of geographic areas and may not hold a variety of different types of properties. Thus, they cannot diversify their real estate holdings as much as a large institutional investor that holds a much larger and more diversified portfolio.

**Question 15-11**

*Why has real estate often been a key factor in corporate restructuring?*

Many corporations do not understand the value of their real estate holdings, especially based on its highest and best use which could be for a different use than being used by the corporation. Thus, real estate often presents an opportunity for management (or takeover investors) to restructure the way the real estate is used. Excess real estate may be sold as a source of corporate financing.

**Question 15-12**

*Why might refinancing be considered an alternative to a sale-leaseback?*

Sale and leaseback of real estate is essentially a way to obtain financing. Thus, refinancing the real estate without selling it may accomplish the same objective of raising funds.

**Question 15-13**

*What factors might cause the highest and best use of real estate to change during the course of a typical lease term?*

Market conditions can change such that the property and/or the underlying land owned by the corporation is more valuable to someone who wants to use it for a different purpose - e.g. there could be an increase in the demand for office space in an area surrounding a property currently being used for warehouse space.

**Question 15-14**

*Why should corporations have their real estate appraised on a regular basis?*

Having the real estate appraised helps the corporation determine whether property is being used at its highest and best use. The results of the appraisals might also be reported to shareholders in a special report or note to the financial statements to reduce the problem of "hidden value".

**Question 15-15**

*What factors would tend to affect the value of a lease?*

The value of a lease to the corporate lessor will increase if market rental rates rise above the contract rate in the lease. This means that the corporation is benefiting from the below market rental rate.

**Solutions to Problems - Chapter 15**
**Financing Corporate Real Estate**

## INTRODUCTION

The three problems in this chapter parallel the lease versus own and sale-leaseback examples in the chapter. Emphasis should be on the interpretation of the rate of return calculations from the point of view of the corporate decision maker.

### Problem 15-1
(REFER TO TEMPLATE 15_1.XLS)

ASSUMPTIONS:

| | |
|---|---|
| **Increase in sales** | 2,500,000 |
| **Costs of Goods Sold** | 1,000,000 |
| **Increase in Corporate Overhead** | 300,000 |
| **Personal property** | 2,500,000 |
| **Tax rate** | 30.00% |

| **LEASE:** | |
|---|---|
| **Annual lease pmt** | 450,000 |
| **Lease term** | 15 |
| **Operating Expenses** | 225,000 |

| **PURCHASE:** | |
|---|---|
| **Purchase Price** | 3,900,000 |
| **Land** | 600,000 |
| **Building** | 3,300,000 |
| **Depreciable life** | 39 |
| **Resale Value** | 4,900,000 |
| **Interest-only loan:** | |
| **Amount** | 2,730,000 |
| **Interest rate** | 10.00% |

| | Own | Lease | Difference (Own-Lease) |
|---|---|---|---|
| Sales | $2,500,000 | $2,500,000 | $0 |
| Costs of goods sold | 1,000,000 | 1,000,000 | 0 |
| Gross income | 1,500,000 | 1,500,000 | 0 |
| Operating expenses: | | | 0 |
| Business | 300,000 | 300,000 | 0 |
| Real estate | 225,000 | 225,000 | 0 |
| Lease payments | | 450,000 | (450,000) |
| Interest | 273,000 | | 273,000 |
| Depreciation | 84,615 | | 84,615 |
| Taxable income | 617,385 | 525,000 | 92,385 |
| Tax | 185,215 | 157,500 | 27,715 |
| Income after tax | 432,169 | 367,500 | 64,669 |
| Plus: Depreciation | 84,615 | 0 | 84,615 |
| Principal | 0 | 0 | |
| After-tax cash flow | 516,785 | 367,500 | 149,285 |

Cash flow from Sale - Owning

| | | |
|---|---|---|
| Reversion | | $4,900,000 |
| Mortgage Balance | | 2,730,000 |
| Reversion | $4,900,000 | |
| Basis | 2,630,769 | |
| Gain | 2,269,231 | |
| Tax | | 680,769 |
| After-tax Cash Flow | | 1,489,231 |

Incremental Analysis Owning vs. Leasing

| Year | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Own | (3,670,000) | 516,785 | 516,785 | 516,785 | 516,785 | 516,785 | 516,785 | 516,785 | 516,785 | 516,785 | 516,785 | 516,785 | 516,785 | 516,785 | 516,785 | 2,006,015 |
| Lease | (2,500,000) | 367,500 | 367,500 | 367,500 | 367,500 | 367,500 | 367,500 | 367,500 | 367,500 | 367,500 | 367,500 | 367,500 | 367,500 | 367,500 | 367,500 | 367,500 |
| Difference | (1,170,000) | 149,285 | 149,285 | 149,285 | 149,285 | 149,285 | 149,285 | 149,285 | 149,285 | 149,285 | 149,285 | 149,285 | 149,285 | 149,285 | 149,285 | 1,638,515 |

(a)
ATIRR (lease): 12.02%

(b)
ATIRR (own): 12.56%

(c)
ATIRR (owning vs. leasing difference): 13.41%

(d)
Other factors to consider in a lease vs. own decision include space requirements, amount of time space is needed, risk bearing, management expertise, maintenance, special purpose buildings, tax considerations, access to capital markets, control, and effect on financial statements.

**Problem 15-2**
(REFER TO TEMPLATE 15_2.XLS)

ASSUMPTIONS:

| | |
|---|---|
| **Increase in sales** | 2,500,000 |
| **Costs of Goods Sold** | 1,000,000 |
| **Increase in Corporate Overhead** | 300,000 |
| **Tax rate** | 30.00% |
| **Number of years property owned** | 5 |

| **SALE-LEASEBACK** | |
|---|---|
| **Annual lease pmt.** | 450,000 |
| **Lease term** | 15 |
| **Operating Expenses** | 225,000 |
| **Resale Value** | 5,700,000 |

| | |
|---|---|
| **Purchase Price** | 3,900,000 |
| **Land** | 600,000 |
| **Building** | 3,300,000 |
| **Depreciable life** | 39 |
| **Value Today** | 4,240,000 |
| **Interest-only loan:** | |
| **Amount** | 2,730,000 |
| Interest rate | 10.00% |

| | Own | Lease | Difference (Own-Lease) |
|---|---|---|---|
| Sales | $2,500,000 | $2,500,000 | $0 |
| Cost of goods sold | 1,000,000 | 1,000,000 | 0 |
| Gross income | 1,500,000 | 1,500,000 | 0 |
| Operating expenses: | | | |
| Business | 300,000 | 300,000 | 0 |
| Real estate | 225,000 | 225,000 | 0 |
| Lease payments | | 450,000 | -450,000 |
| Interest | 273,000 | | 273,000 |
| Depreciation | 84,615 | | 84,615 |
| Taxable income | 617,385 | 525,000 | 92,385 |
| Tax | 185,215 | 157,500 | 27,715 |
| Income after tax | 432,169 | 367,500 | 64,669 |
| Plus: Depreciation | 84,615 | 0 | 84,615 |
| Principal | 0 | 0 | |
| After-tax cash flow | 516,785 | 367,500 | 149,285 |

| **Cash Flow From Sale - Owning** | **Year 5 (today)** | | | |
|---|---|---|---|---|
| Reversion | | | $4,240,000 | |
| Mortgage balance | | | 2,730,000 | |
| Reversion | | $4,240,000 | | |
| Basis | | 3,476,923 | | |
| Gain | | 763,077 | | |
| Tax | | | | 228,923 |
| After-tax Cash Flow | | | | 1,281,077 |

| **Cash Flow From Sale - Owning** | **Year 20** | | |
|---|---|---|---|
| Reversion | | | $5,700,000 |
| Mortgage balance | | | 2,730,000 |
| Reversion | | $5,700,000 | |
| Basis | | 2,207,692 | |
| Gain | | 3,492,308 | |
| Tax | | | 1,047,692 |
| After-tax Cash Flow | | | 1,922,308 |

Incremental Analysis Sales-Leaseback

| Year | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Own | (1,281,077) | 516,785 | 516,785 | 516,785 | 516,785 | 516,785 | 516,785 | 516,785 | 516,785 | 516,785 | 516,785 | 516,785 | 516,785 | 516,785 | 516,785 | 2,439,092 |
| Lease | | 367,500 | 367,500 | 367,500 | 367,500 | 367,500 | 367,500 | 367,500 | 367,500 | 367,500 | 367,500 | 367,500 | 367,500 | 367,500 | 367,500 | 367,500 |
| Difference | (1,281,077) | 149,285 | 149,285 | 149,285 | 149,285 | 149,285 | 149,285 | 149,285 | 149,285 | 149,285 | 149,285 | 149,285 | 149,285 | 149,285 | 149,285 | 2,071,592 |

ATIRR (owning vs. leasing difference): 12.90%

(a)
After-tax Cash Flow: $1,281,077

The answers to parts (b) and (c) are the same because the cost of obtaining financing and the return from continuing to own the property are essentially the same, the only difference being your perspective, i.e. one person's cost is another person's return.

(d)
In considering a sale-leaseback, the firm should consider the implications for its financial statements; its ability to shelter capital gains; its possible use as an anti-takeover device; its role as a signaling device; and its ability to provide capital to refinance high-priced debt or fund growth opportunities.

**Problem 15-3**

(a) This causes the cost of owning to increase since the corporation can not use the tax benefits.

(b) If the real estate does not increase in value, the lease IRR remains the same but ATIRR associated with owning goes down because there is less benefit of owning.

(c) A lower interest rate increases the benefit of owning.

**Problem 15-4**

(a) The IRR for owning versus leasing drops to 11.15% from 14.1% as a result of the lower lease rate. Owning is less attractive and leasing is more attractive.

(b) The IRR for owning versus leasing increases to 17.44% from 14.1% as a result of the lower interest rate. Owning is more attractive due to the lower cost of financing ownership.