RE 618 / Fin 618 – Real Estate Investment Analysis

Corporate Real Estate Decisions – Practice Problems – Solutions

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1) Five years ago you purchased a strip shopping center with a net cash investment of $314,000. Over the past five years, the property has generated the following after-tax cash flows:

Year	ATCF
1	$37,366
2	37,383
3	37,053
4	36,696
5	35,989

You now have the opportunity to sell it, with an expected after-tax equity reversion of $472,644. Based on your other investment opportunities, you believe that this property should generate a 13 percent return on any funds invested.

a) Assuming you sell the property today, calculate the ex post net present value and internal rate of return you have earned on this investment. Based on these calculations, will this have been a good investment for you if you sell today?

The total ex-post cash flows from this investment are as follows:

Year	ATCF
0	$(314,000)
1	37,366
2	37,383
3	37,053
4	36,696
5	35,989 + 472,644 = 508,633

Entering these into the cash flow worksheet of my calculator with I = 13% gives an NPV = $72,595 and IRR = 18.75%. On a historical basis, if you sell today this will have been a good investment, giving you a return in excess of that required.

b) If you decide not to sell, you have forecasted the property's after-tax cash flows from operations and the potential equity reversion from selling it in each of the next five years. These figures are as follows:

Year	ATCF	ATER if Sold
6	$36,246	$510,174
7	37,246	539,967
8	38,237	571,398
9	39,218	604,567
10	40,185	639,593

Based on these figures, calculate the ex post net present value and internal rate of return on this investment over a 10-year holding period.

The total cash flows over a 10-year holding period would be

Year	ATCF
0	$(314,000)
1	37,366
2	37,383
3	37,053
4	36,696
5	35,989
6	36,246
7	37,246
8	38,237
9	39,218
10	40,185 + 639,593 = 679,778

This gives NPV = $76,997 and IRR = 16.60%.

c) Considering the true opportunity cost of the capital invested in the project, what is the marginal net present value and internal rate of return from holding the property an additional five years?

Recognizing that the after-tax equity reversion you could get from selling it today is the opportunity cost of this investment, enter the following cash flows in your financial calculator:

Year	ATCF
0	(472,644)
6	36,246
7	37,246
8	38,237
9	39,218
10	40,185 + 639,593 = 679,778

This gives NPV = $8,111 and IRR = 13.44%.

d) Calculate the incremental return for holding the property one additional year for each of years 6 through 10.

The incremental return from holding the property an additional year is calculated as follows:

$$(ATCF_t + ATER_t - ATER_{t-1}) / ATER_{t-1}$$

Thus, the incremental returns are:

Year 6: (36,246 + 510,174 – 472,644) / 472,644 = 15.61%
Year 7: (37,246 + 539,967 – 510,174) / 510,174 = 13.14%
Year 8: (38,237 + 571,398 – 539,967) / 539,967 = 12.90%
Year 9: (39,218 + 604,567 – 571,398) / 571,398 = 12.67%
Year 10: (40,185 + 639,593 – 604,567) / 604,567 = 12.44%

e) Based on all of your calculations above, should you sell the property today? If not, when should you sell it? Explain your answer clearly.

Based on these calculations, you should not sell today. Although doing so will lock in a solid return on the investment (18.75 percent), you would forego additional expected appreciation in the property. (Notice that in the future, after-tax cash flows are expected to rise, whereas they have been falling up until now.) The optimal selling period is after year 7. After that point, the incremental return from holding an additional year will fall below the required 13 percent return. Of course, this conclusion is based on projections about what will happen to rents and values in the future, and the assumptions that lie behind these projections should be reevaluated periodically. But assuming these projections are correct, you should continue to hold the property.

_____ 1. Which of the following are real estate decisions faced by corporations? More than one answer may be correct; write down the letter of all correct answers.

A. ***LEASE VS. OWN REQUIRED SPACE***
B. ***BUILD VS. BUY SPACE IT WILL OWN***
C. ***SUBLEASE SPACE IT CURRENTLY LEASES***
D. ***SITE SELECTION DECISIONS***

_____ 2. If the contract rent is greater than the market rent, the tenant's leasehold interest has

A. positive value.
B. ***NEGATIVE VALUE.***
C. zero value.
D. The tenant doesn't have a leasehold interest.

_____ 3. ***TRUE*** or False: Most firms would like to account for real estate leases as operating leases so that they don't appear on their balance sheets.

_____ 4. A pure financial analysis suggests that a company would be better off owning the real estate space it uses. Which of the following factors might cause the firm to choose to lease the space instead. More than one answer may be correct; write down the letter of all correct answers.

A. ***THE FIRM IS RAPIDLY EXPANDING AND PLANS ON OPENING UP A NUMBER OF NEW LOCATIONS IN THE COMING YEAR.***
B. The returns from owning real estate assets are negatively correlated with the returns from the firm's normal business operations.

C. THE AMOUNT OF SPACE THE FIRM REQUIRES IS LESS THAN THE OPTIMAL DEVELOPMENT DENSITY OF THE SITES THE FIRM IS CONSIDERING.

D. The new space will be a special purpose facility with features unique to the firm's needs.

_____ 5. Two years ago, Monera entered into a 10-year lease on 3,500 square feet of space at $18.00 per square foot. Now, comparable space leases for $15.00 per square foot. What is the value of Monera's leasehold interest at a 12 percent discount rate?

A. ($52,160)

B. $52,160

C. ($59,327)

D. $59,327

E. None of the above; the correct answer is _____.

_____ 6. Which of the following statements is most correct about how this figure should be interpreted?

A. This is how much Monera's landlord would be willing to pay to get Monera to terminate its lease early.

B. THIS IS HOW MUCH MONERA WOULD HAVE TO PAY ITS LANDLORD TO GET OUT OF ITS LEASE.

C. Both A and B.

D. This is how much I would pay to get out of this quiz.

_____ 7. Which of the following make it difficult to value a firm with a large amount of real estate assets? More than one answer may be correct; write down all correct answers.

A. Large depreciation allowances associated with the real estate raise the firm's net income and lower its cash flow.

B. REAL ESTATE ASSETS MUST APPEAR ON THE FIRM'S BALANCE SHEET AT THE LESSER OF BOOK VALUE AND MARKET VALUE.

C. MUCH OF THE VALUE FROM REAL ESTATE ASSETS COMES FROM EXPECTED REVERSION VALUE.

D. Mortgage loan limits are based on market values rather than book values, leading to an artificial reduction in the firm's debt ratio.

_____ 8. ***TRUE*** or False: Most firms would like to account for real estate leases as operating leases so that they don't appear on their balance sheets.

_____ 9. ***TRUE*** or False: The primary difference between a traditional lease vs. own analysis and a sale-leaseback analysis is that the company already owns the real estate in a sale-leaseback analysis.

_____ 10. Back Office Services is currently leasing 18,000 square feet of space for $4.50 per square foot. It has found another user willing to sublease its

current space for $6.00 per square foot. If BOS subleases its current facility, it can rent equally suitable space for $4.00 per square foot. All of these leases would have a five year term, the same as BOS's current lease. If moving will cost BOS $65,000, what is the incremental return associated with moving and subleasing its space?

A. 63.26%
B. (11.13%)
C. 47.43%
D. 122.32%
E. None of the above; the correct answer is _____.

_____ 11. Assume that the financial analysis above suggests that BOS should move and sublease its space. List three non-financial factors that might cause BOS to keep its existing space instead.

- Non-financial costs of moving (including the impact on employees)
- Tenant quality of the subleasing tenant
- Tenant improvement costs that may be required to sublease the space
- Differences in the terms of the current lease and the sublease
- Ability to administer the sublease

_____ 12. Five years ago McWalBuy entered into a 10-year lease on 45,000 square feet of industrial warehouse space at $2.50 per square foot. Now, market rent for comparable space over the next five years are $3.50 per square foot. What is the value of McWalBuy's leasehold interest if it's cost of capital is 12 percent?

A. $112,500
B. $405,537
C. $162,215
D. $567,752

_____ 13. Suppose that McWalBuy can find 45,000 square feet of alternative space that suits its needs for $3.00 per square foot over the next five years and that it has a new tenant willing to sublease its space for five years at current market rents. If its costs of moving will be $90,000, what is McWalBuy's incremental return from moving and subleasing it's space?

A. 7.93%
B. 173.86%
C. 41.04%
D. The IRR cannot be calculated

_____ 14. Based solely on the above financial analysis, should McWalBuy move and sublease its space?

A. Yes
B. NO
C. There is not enough information to make a determination

_____ 15. Which of the following make it difficult to value a firm with a large amount of real estate assets? More than one answer may be correct; write down all correct answers.

A. ***REAL ESTATE ASSETS MUST APPEAR ON THE FIRM'S BALANCE SHEET AT THE LESSER OF BOOK VALUE AND MARKET VALUE.***

B. Large depreciation allowances associated with the real estate raise the firm's net income and lower its cash flow.

C. ***MUCH OF THE VALUE FROM REAL ESTATE ASSETS COMES FROM EXPECTED REVERSION VALUE.***

D. Mortgage loan limits are based on market values rather than book values, leading to an artificial reduction in the firm's debt ratio.

_____ 16. ***TRUE*** or False: The primary difference between a traditional lease vs. own analysis and a sale-leaseback analysis is that the company already owns the real estate in a sale-leaseback analysis.

_____ 17.