

Real Estate Investment Analysis

Fall 2004

Final Exam – Version A – December 15, 2004

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MW 9:30-10:45

You have 1 hour and 50 minutes to complete this exam. I've tried to eliminate any ambiguity about how to interpret the questions on the exam. Nevertheless, if you make any assumptions not explicitly stated in the questions, make sure you write them down so I can see what you are doing.

Finally, *remember to show your work*. I can only give partial credit on the first problem if I can tell what you were trying to do.

- 1) (30 points) Brady Enterprises (BE) is planning on opening a new 120,000 square foot call center in Wichita. They have found a suitable building that can be either purchased or leased. The property will be put into service on January 1 of next year and remain in service through December 31 of the 10th year.

The property can be purchased for \$13.8 million, with 85 percent of this value attributable to the building. Financing is available for 75 of the purchase price at 7.00 percent interest with a 25-year amortization schedule. At the end of 10 years, BE believes the property will be worth \$18 million, and that the cost of selling the property will be 4 percent of the gross sale price. The cost of maintaining and operating the facility will be \$540,000 in the first year, a figure that is expected to increase by 2.5 percent per year.

Alternatively, BE can lease the facility at a rate of \$14.00 per square foot on a 10-year gross lease.

BE's weighted average cost of capital is 12.50 percent and it is currently in the 35 percent tax bracket.

- a) Calculate the up-front costs associated with owning and leasing the property, as well as the incremental costs of owning instead of leasing.

Name _____

- b) Calculate the after-tax operating cash flows from owning and leasing the property **FOR THE FIRST YEAR ONLY**. In addition, calculate the incremental costs of owning instead of leasing for the first year.

Name _____

- c) Calculate the terminal cash flows associated with owning and leasing the property, as well as the incremental costs of owning instead of leasing.

- d) The operating cash flows from owning the property in years 2-10 are given in the following table. Enter the missing cash flows into the rest of the table and calculate the IRR of the incremental cash flows from owning rather than leasing. Should BE own or lease the space? Explain your answer.

NOTE: Year 10 operating cash flows from owning are (1,011,913).

<u>Year</u>	<u>Own</u>	<u>Lease</u>	<u>Difference</u>
0	_____	_____	_____
1	_____	_____	_____
2	(884,512)	_____	_____
3	(897,802)	_____	_____
4	(911,628)	_____	_____
5	(926,017)	_____	_____
6	(940,999)	_____	_____
7	(956,606)	_____	_____
8	(972,872)	_____	_____
9	(989,833)	_____	_____
10	_____	_____	_____

Multiple Choice Questions (2 points each)

- _____ 1. You would like to lease 2,500 square feet of usable office space and have two options. Building A has a load factor of 1.05 and is asking \$22 per square foot. Building B has a load factor of 1.1 and is asking \$21 per square foot. Based on this information, which of the following statements is most correct?
- A. Building A is the least expensive alternative because the rent per square foot of usable area is lower.
 - B. Building A is the least expensive alternative because its load factor is smaller.
 - C. Building B is the least expensive alternative because the rent per square foot of usable area is lower.
 - D. Building B is the least expensive alternative because the asking rent is lower.
 - E. Both buildings will cost the same per square foot of usable area.
- _____ 2. Jan would like to lease 35,000 square feet of warehouse space. Her new landlord has offered her two different 5-year leases. Option A would have base rent of \$3.50 per square foot over the entire term of the lease. Option B would charge \$2.00 per square foot of base rent in the first year, with rent increasing by \$1.00 per square foot each year thereafter. Jan's opportunity cost of capital is 12%. Based on this information, which of the following statements is most correct?
- A. The effective rent of Option B is \$4.00 per square foot.
 - B. The effective rent of Option B is \$3.77 per square foot.
 - C. The effective rent of Option B is \$2.00 per square foot.
 - D. The effective rent of Option A is \$3.00 per square foot.
 - E. Both lease options have the same effective rent.
- _____ 3. Which of the following items are included as operating expenses when calculating net operating income. More than one answer may be correct; write down all correct answers.
- A. Advertising expenses
 - B. Cleaning and maintenance
 - C. Depreciation allowances
 - D. Income taxes
 - E. Legal and accounting fees
 - F. Management fees
 - G. Mortgage interest
 - H. Mortgage principal
 - I. Property insurance
 - J. Property taxes
 - K. Utilities

Use the following information to answer the next four questions.

Carol would like to purchase a shopping center property. She has determined that the current market vacancy rate is 6 percent, and that operating expenses will run at about 10 percent of effective gross income. The prevailing market cap rate is 9 percent.

The first shopping center she has analyzed has 35,000 square feet which rents at \$15.50 per square foot. The second shopping center she is considering 40,000 square feet and rents for \$14.00 per square foot.

- _____ 4. Effective gross income for the FIRST center is
- A. \$542,500.
 - B. \$509,950.
 - C. \$32,550.
 - D. \$458,955.
 - E. None of the above; the correct answer is _____.
- _____ 5. Net operating income for the FIRST center is
- A. \$542,500.
 - B. \$509,950.
 - C. \$32,550.
 - D. \$458,955.
 - E. None of the above; the correct answer is _____.
- _____ 6. Based on the current market cap rate, the market value of SECOND center is
- A. \$6.222 million.
 - B. \$5.264 million.
 - C. \$473,760.
 - D. \$4.264 million.
 - E. None of the above; the correct answer is _____.
- _____ 7. A third shopping center is available for purchase at an 8.50 percent cap rate. Under what circumstances might this be a good investment? More than one answer may be correct; write down all correct answers.
- A. The income of this center is expected to grow at a faster rate in the future than other centers in the market.
 - B. This income from this center is expected to grow at a slower rate in the future than other centers in the market.
 - C. This property is currently in foreclosure.
 - D. Estimates of future income for this center are less certain than they are for other centers in the market.
 - E. Jan has a higher required rate of return than other investors in the market.

Use the following information to answer the next five questions:

Consider a property with the following pro forma operating statement:

PGI	\$1,200,000
– V&C	60,000
EGI	1,140,000
– OE	456,000
NOI	\$684,000

This property can be purchased for \$8.55 million. Financing is available for 75 percent of the purchase price over 25 years at 6.50 percent interest with annual debt service payments of \$519,572.

- _____ 8. What is this property's net income multiplier?
- A. 7.50
 - B. 12.50
 - C. 8.00
 - D. 13.33
 - E. None of the above. The correct answer is _____.
- _____ 9. What is this property's operating expense ratio?
- A. 5.00%
 - B. 40.00%
 - C. 38.00%
 - D. 57.00%
 - E. None of the above. The correct answer is _____.
- _____ 10. What is this property's debt-coverage ratio?
- A. 1.32
 - B. 2.31
 - C. 1.17
 - D. 0.86
 - E. None of the above. The correct answer is _____.
- _____ 11. What is this property's breakeven ratio?
- A. 1.32
 - B. 2.31
 - C. 1.17
 - D. 0.86
 - E. None of the above. The correct answer is _____.

- _____ 12. What is this property's cash-on-cash return?
- A. 8.00%
 - B. 1.92%
 - C. 7.69%
 - D. 12.5%
 - E. None of the above. The correct answer is _____.
- _____ 13. Alice owns a single-tenant retail property with 5,000 square feet of leasable area. The terms of the lease specify base rent of \$18.00 per square foot with percentage rents of 5% of gross sales over the natural breakpoint. For what level of sales will Alice begin to receive overage rent payments?
- A. \$90,000
 - B. \$1.8 million
 - C. \$100,000
 - D. \$2 million
 - E. There is not enough information to answer this question.
- _____ 14. An expense stop
- A. limits the amount of operating expenses the landlord will pay.
 - B. limits the amount of operating expenses the tenant will pay.
 - C. prohibits the landlord from charging common area maintenance charges.
 - D. limits the amount of tenant improvements the landlord will provide.
 - E. None of the above
- _____ 15. Suppose there is a sudden new interest among businesses in being located downtown, so that the demand for commercial office space in downtown increases. Which of the following outcomes will most likely follow in the short run?
- A. Both rents and vacancies will rise
 - B. Both rents and vacancies will fall
 - C. Rents will fall and vacancies will rise
 - D. Rents will rise and vacancies will fall
 - E. None of the above
- _____ 16. True or False: A recourse loan is one in which the interest rate can change in the future based on market conditions.

- _____ 17. Sam is purchasing a retail center for \$14 million. Expected first-year net operating income for this center is \$1.25 million. Butcher's Financial will provide 25-year, 8.75 percent fixed rate financing with monthly payments, a maximum loan-to value ratio of 80 percent, and a minimum debt-coverage ratio of 1.30. Based on these terms, what is the maximum loan amount Sam can expect?
- A. \$11,200,000
 - B. \$9,746,254
 - C. \$116,955,045
 - D. \$10,136,104
 - E. \$16,471,169

Use the following information to answer the next three questions:

Marcia is selling a property for \$425,000 million. Her adjusted basis in the property is \$110,000 and her transaction costs for the sale will be \$40,000. Her depreciation allowances on this property have totaled \$150,000.

- _____ 18. What is Marcia's realized gain on this sale?
- A. \$425,000
 - B. \$315,000
 - C. \$275,000
 - D. \$235,000
 - E. None of the above; the correct answer is _____.
- _____ 19. How much of Marcia's gain is due to cost recovery (taxed at the 25 percent rate)?
- A. \$150,000
 - B. \$110,000
 - C. \$70,000
 - D. \$40,000
 - E. None of the above; the correct answer is _____.
- _____ 20. How much of Marcia's gain is due to appreciation (taxed at the 15 percent rate)?
- A. \$235,000
 - B. \$165,000
 - C. \$275,000
 - D. \$125,000
 - E. None of the above; the correct answer is _____.

- _____ 21. Which of the following statements is true for a property that exhibits positive financial leverage? More than one answer may be correct; write down all correct answers.
- A. The mortgage constant is greater than the cap rate.
 - B. The cash-on-cash return is greater than the cap rate.
 - C. The mortgage constant is greater than the cash-on-cash return.
 - D. The property has too much debt.
 - E. Additional debt will raise the investor's cash-on-cash return.
- _____ 22. You have purchased a property for \$3.75 million, and you incurred \$250,000 in acquisition costs in this transaction. A recent appraisal valued the improvements on this property at \$2.5 million and the land at \$250,000. The County Appraiser's office indicates that the land is worth \$200,000 while the improvements are worth \$3 million. What is your depreciable basis in this property?
- A. \$3,515,625
 - B. \$3,409,091
 - C. \$3,750,000
 - D. \$3,636,364
 - E. None of the above; the correct answer is _____.
- _____ 23. Five years ago Peter 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 Peter's leasehold interest if his cost of capital is 12 percent?
- A. \$112,500
 - B. \$405,537
 - C. \$162,215
 - D. \$567,752
 - E. None of the above; the correct answer is _____.
- _____ 24. Suppose that Peter can find 45,000 square feet of alternative space that suits his needs for \$3.00 per square foot over the next five years and that he has a new tenant willing to sublease his space for five years at current market rents. If its costs of moving will be \$90,000, what is Peter'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.
 - E. None of the above; the correct answer is _____.

- _____ 25. 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.
 - E. The firm intends to establish a long-term visible presence at its new location.
- _____ 26. (Freebe) What do all of the names used in this exam have in common?
- A. They are all WSU athletes.
 - B. They are all characters from the television show "The Brady Bunch."
 - C. Nothing. They are just made-up names.
 - D. Who cares, just give me the free points!
 - E. All of the above.