

Real Estate Investment Analysis
Fall 2003

Final Exam – Solutions

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Tu-Th 8:00-9:15

Multiple Choice/True-False Questions (2 points each)

- _____ 1. 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
- _____ 2. Consider a 45,000 square foot office property in which 25,000 square feet of this space rents for \$20 per square foot gross, while the remaining space rents for \$22 per square foot gross. The market vacancy rate is approximately 10%, and operating expenses are expected to be 30% of effective gross income. What is the expected first-year NOI for this property?
- A. \$846,000
 - B. \$567,000
 - C. \$623,700
 - D. \$564,000
 - E. **\$592,200**
- _____ 3. Blitzen would like to purchase an office property that has a first-year expected NOI of \$1.75 million; this figure is expected to increase by 3 percent per year indefinitely. If Blitzen's required rate of return from an investment of this sort is 11 percent, how much would he be willing to pay for this property?
- A. \$15.91 million
 - B. \$17.50 million
 - C. **\$21.88 MILLION**
 - D. \$16.39 million
 - E. \$22.53 million

- _____ 4. All other factors being equal, a company would prefer to lease rather than own under which of the following conditions?
- A. The company's ability to effectively use the building is highly sensitive to the level of maintenance.
 - B. The company needs highly specialized space that requires special modifications to meet its needs.
 - C. The company's identity will be strongly attached to the particular location of the building.
 - D. THE EXPECTED LIFE OF THE BUILDING FAR EXCEEDS THE COMPANY'S PROJECTED PERIOD OF USE.**
 - E. All of the above are conditions under which a company will generally prefer to lease a building rather than own it.
- _____ 5. Which of the following is NOT a factor considered by lenders when underwriting a commercial property loan?
- A. Geographic location of the property
 - B. Creditworthiness of the tenants in the property
 - C. TAX INCENTIVES PROVIDED BY THE LOCAL GOVERNMENT TO THE DEVELOPER**
 - D. How the property fits into its overall portfolio of loans
 - E. Size and age of the property
- _____ 6. Dasher is purchasing an office building for \$5 million. Expected first-year NOI is \$600,000. Kringle Mortgage will provide 20-year financing at 7.50% interest; Kringle requires a 60 percent loan-to-value ratio and a 1.30 debt-coverage ratio (DCR). Based on this information, what is the largest loan Kringle will provide?
- A. \$5 million
 - B. \$3 MILLION**
 - C. \$4.77 million
 - D. \$57.29 million
 - E. None of the above
- _____ 7. Based on the loan amount you calculated in the previous question, what is Dasher's DCR?
- A. 1.24
 - B. 2.07**
 - C. 1.30
 - D. 1.67
 - E. None of the above

Use the following pro forma operating statement to answer the next three questions:

PGI	\$3,750,000
– V&C	<u>300,000</u>
EGI	3,450,000
– OE	<u>1,207,500</u>
NOI	\$2,242,500

- _____ 8. If the property can be purchased for \$16 million, what is its gross income multiplier?
- A. **4.64**
 - B. 14.02
 - C. 7.13
 - D. 10.00
 - E. 35.00
- _____ 9. Suppose that 80% loan-to-value financing is available for this property with a 15-year term, 9.5% interest, and annual debt service payments of \$1,603,929. What is the cash-on-cash return for this property?
- A. 14.02%
 - B. 9.50%
 - C. **19.96%**
 - D. 80.00%
 - E. None of the above
- _____ 10. This investment exhibits
- A. **POSITIVE LEVERAGE.**
 - B. negative leverage.
 - C. neutral leverage.
 - D. real leverage.
 - E. There is not enough information to determine the financial leverage of this investment.
- _____ 11. 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. Rents will fall and vacancies will rise
 - B. **RENTS WILL RISE AND VACANCIES WILL FALL**
 - C. Both rents and vacancies will fall
 - D. Both rents and vacancies will rise
 - E. None of the above

- _____ 12. True or **FALSE**: The debt-coverage ratio guideline is used by lenders to ensure that the investor's equity position in the property does not become negative.

Use the following information to answer the next three questions:

An apartment property's first-year NOI is expected to be \$100,000. This figure is expected to grow by \$10,000 per year in each of the next 6 years. If you purchase this property today, you expect that you will be able to sell it in 5 years at a 10% terminal cap rate.

- _____ 13. Under these assumptions, what is the most you would be willing to pay for this investment if your discount rate is 15 percent?

A. \$1,000,000
B. \$1,379,079
C. \$1,500,000
D. \$1,138,732
E. \$1,100,000

- _____ 14. If you purchase it at this price, what is your going-in cap rate

A. 10.00%
B. 7.25%
C. 6.67%
D. 8.78%
E. 9.09%

- _____ 15. True or **FALSE**: The difference between the discount rate and your going-in cap rate in the above questions reflects the investment's positive financial leverage.

- _____ 16. **TRUE** or False: Development loans are typically interest-only loans, with the principal repaid once the project is completed.

- _____ 17. In a _____ the tenant is responsible for some or all of the property's operating expenses.

A. gross lease
B. NET LEASE
C. step lease
D. percentage lease
E. indexed lease

Use the following information to answer the next three questions:

Christmas-R-U's (CRU) is going to open a new retail facility and is trying to decide whether to lease or own its space. It has determined that annual cash flows from the new store will be as given below, and these will be constant for the next 10 years (the expected life of the new store).

Startup costs (personal property) for the new store are estimated to be \$600,000, which will be the same whether CRU owns or leases. If the building is purchased, the company will invest \$1 million in equity and finance the remainder with an interest-only loan that has a balloon payment due in year 10. The after-tax cash flow from sale of the property at the end of year 10 is expected to be \$1.4 million.

	<u>Own</u>	<u>Lease</u>
Sales	\$2,000,000	\$2,000,000
Cost of goods sold	(1,000,000)	(1,000,000)
Gross income	1,000,000	1,000,000
Operating expenses:		
Business operations	(260,000)	(260,000)
Real estate operations	(120,000)	(120,000)
Lease payments	0	(240,000)
Interest	(180,000)	0
Depreciation	(70,000)	<u>0</u>
Taxable income	370,000	380,000
Tax	(111,000)	(114,000)
Income after tax	259,000	266,000
Plus: Depreciation	<u>70,000</u>	<u>0</u>
After-tax cash flow	329,000	266,000

- _____ 18. If CRU's weighted average cost of capital is 15 percent, what is the net present value of this investment if CRU owns the facility?
- A. \$1,997,233
 - B. \$2,561,323
 - C. \$997,233
 - D. \$397,233**
 - E. There is not enough information to calculate the net present value.
- _____ 19. What is the incremental return on equity to CRU if it decides to own rather than lease this facility?
- A. 8.94%**
 - B. 2.84%
 - C. 16.58%
 - D. 15.00%
 - E. There is not enough information to calculate the incremental return on equity from owning instead of leasing.

- _____ 20. Based on the above information, which of the following statements is most correct?
- A. CRU should own this facility because it has a positive net present value.
 - B. CRU should not open this facility at all because it has a negative net present value.
 - C. CRU should own this facility because the incremental return on the added equity required investment is positive.
 - D. CRU SHOULD LEASE THIS FACILITY BECAUSE THE INCREMENTAL RETURN ON THE ADDED EQUITY IS LESS THAN ITS COST OF CAPITAL.**
 - E. CRU should lease this facility because the project has a positive net present value when it leases.
- _____ 21. True or **FALSE**: Limited liability companies are not as useful as limited partnerships for owning real estate because they result in “double taxation” of the real estate investment.
- _____ 22. Which of the following lenders are most likely to provide long-term permanent financing for commercial real estate investments?
- A. Life insurance companies
 - B. Commercial banks
 - C. Pension funds
 - D. BOTH A AND C**
 - E. All of the above
- _____ 23. Comet 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 Comet 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
- _____ 24. Suppose instead that the lease in the previous question required overage rents of 4% of gross sales over \$1.5 million. If the tenant’s gross sales were \$2 million in a given year, what is the total rent Comet would receive from that tenant?
- A. \$90,000
 - B. \$20,000
 - C. \$110,000**
 - D. \$80,000
 - E. There is not enough information to answer this question

- _____ 25. 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 its load factor is smaller.
 - B. Building B is the least expensive alternative because the asking rent is lower.
 - C. Building A 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 rent per square foot of usable area is lower.
 - E. **BOTH BUILDINGS WILL COST THE SAME PER SQUARE FOOT OF USABLE AREA.**
- _____ 26. Cupid would like to lease 35,000 square feet of warehouse space. His new landlord has offered him 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. Cupid'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 A is \$3.00 per square foot.
 - B. The effective rent of Option B is \$4.00 per square foot.
 - C. **THE EFFECTIVE RENT OF OPTION B IS \$3.77 PER SQUARE FOOT.**
 - D. The effective rent of Option B is \$2.00 per square foot.
 - E. Both lease options have the same effective rent.
- _____ 27. Suppose an office building recently sold at a 9% cap rate, while other office buildings in the market have been selling at a 10% cap rate. Which of the following statements is most true.
- A. Investors appear to believe this building is riskier than other office buildings in the market.
 - B. Investors appear to believe that net operating income for this property will increase at a slower rate than it will for other office buildings in the market.
 - C. Investors appear to believe that operating expenses for this property will be higher than they will for other office buildings in the market.
 - D. **THE SALE PRICE OF THIS BUILDING WAS HIGHER THAN THAT OF OTHER OFFICE BUILDINGS WITH SIMILAR NET OPERATING INCOME.**
 - E. Cap rates give us no information on which to evaluate the quality of the investment opportunity.

Use the following information to answer the next four questions:

Dancer has purchased an apartment complex with a \$2 million cash down payment and a \$6 million mortgage at 7.25% interest with a 5-year term and monthly payments amortized over 20 years. Total closing costs for the purchase included \$150,000 for due diligence and purchase expenses, and 2 points for the mortgage. It will be put into service on March 1 of next year, and the first mortgage payment will occur on the same date.

- _____ 28. What the initial tax basis for this property?
- A. **\$8.15 MILLION**
 - B. \$8.00 million
 - C. \$8.12 million
 - D. \$8.27 million
 - E. \$2.15 million
- _____ 29. If the total depreciable basis is \$5 million, what is the depreciation allowance for the FIRST tax year?
- A. \$128,205
 - B. \$101,496
 - C. \$181,818
 - D. **\$143,939**
 - E. \$159,091
- _____ 30. Using the same depreciable basis of \$5 million, what is the depreciation allowance in the SECOND tax year?
- A. \$128,205
 - B. \$101,496
 - C. **\$181,818**
 - D. \$143,939
 - E. \$159,091
- _____ 31. How much will Dancer be allowed to claim as amortized expenses in the FIRST tax year?
- A. **\$20,000**
 - B. \$12,000
 - C. \$24,000
 - D. \$19,000
 - E. \$18,000

Use the following information to answer the next three questions:

Prancer owns an apartment building with a fair market value of \$10 million and an adjusted tax basis of \$8 million. His outstanding mortgage balance on this property is \$7 million.

He would like to exchange this property for a shopping center owned by Vixen. The shopping center has a fair market value of \$16 million and Vixen's adjusted basis in it is \$11 million. Vixen's outstanding mortgage balance is \$8 million.

Both expect to incur transaction costs totaling 5% of the fair market value of their original properties

- _____ 32. If cash will be used to balance the equities, who must pay how much cash to whom on this exchange?
- A. **PRANCER MUST PAY VIXEN \$5 MILLION IN CASH TO BALANCE THE EQUITIES.**
 - B. Vixen must pay Prancer \$5 million in cash to balance the equities.
 - C. Prancer must pay Vixen \$8 million in cash to balance the equities.
 - D. Vixen must pay Prancer \$8 million in cash to balance the equities.
 - E. Neither need pay any cash; the equities are already balanced.
- _____ 33. What is Prancer's realized gain from this exchange?
- A. \$2 million
 - B. \$5 million
 - C. \$4.2 million
 - D. \$2.5 million
 - E. **\$1.5 MILLION**
- _____ 34. What is Prancer's substitute basis in his new property after this exchange?
- A. \$16 million
 - B. \$8.5 million
 - C. **\$14.5 MILLION**
 - D. \$14 million
 - E. \$11.8 million
- _____ 35. Net operating income measures the
- A. before-tax cash flow available to equity investors.
 - B. after-tax cash flow available to equity investors.
 - C. **CASH AVAILABLE TO DISTRIBUTE TO ALL OF THE INVESTORS.**
 - D. gross income generated by the investment.
 - E. anticipated sale price of the property.

Use the following information to answer the next three questions:

Nicholas is purchasing an office building for \$14 million. North Pole Financial will provide 70% loan-to-value financing for this purchase. This will be a 10-year balloon mortgage amortized over 20 years with monthly payments at an interest rate of 7.25%. The first payment on this mortgage will be due on November 1st.

- _____ 36. What will be the annual debt service on this mortgage?
- A. \$110,653
 - B. \$11,380,636
 - C. \$1,327,832
 - D. \$77,457
 - E. **\$929,482**
- _____ 37. How much interest will Peter pay during the first tax year? (Assume that the tax year corresponds with the calendar year.)
- A. **\$118,306**
 - B. \$177,294
 - C. \$122,500
 - D. \$703,075
 - E. \$36,607
- _____ 38. How large will the balloon payment be at the end of the loan's term?
- A. \$9,425,184
 - B. \$1,380,636
 - C. \$0
 - D. \$14,000,000
 - E. **\$6,597,628**
- _____ 39. You have five years remaining on a 40,000 square foot lease that requires to you pay \$3.50 per square foot next year, with step increases of \$0.25 per square foot in each future year (e.g., \$3.75 in year 2, \$4.00 in year 3, etc.). Comparable space would now cost you \$5.00 per square foot, and you would incur \$100,000 in moving costs if you moved to this new space. Your landlord would like to buy out your lease to redevelop the property. If your opportunity cost of capital is 15%, what is the minimum you would accept to give up your current lease?
- A. \$143,378
 - B. \$201,129
 - C. \$670,431
 - D. \$301,129
 - E. **\$243,378**

Use the following information to answer the next three questions:

You are currently leasing 7,500 square feet of space at \$12.00 per square foot; there are 4 years left on your lease. You have been approached by another company that would like to sublease your space from you and is willing to pay \$15.00 per square foot in the first two years and \$17.50 in the final two years. You have determined that you equally suitable space for your current needs would cost you \$14.00 per square foot over the next four years. Moving would cost you \$35,000, and your cost of capital is 18%.

- _____ 40. If you sublease this space, what would be your return on this “investment”?
- A. 18.00%
 - B. 68.54%
 - C. – 5.89%
 - D. 24.99%**
 - E. 64.84%
- _____ 41. Based on the information in the previous question, what is the net present value of this “investment”?
- A. \$46,609
 - B. \$6,258**
 - C. \$70,614
 - D. \$20,175
 - E. –\$14,825
- _____ 42. Based on these calculations, which of the following statements is most correct?
- A. Although the NPV is positive, the IRR is negative, so you should not sublease your current space.
 - B. Although the IRR is positive, the NPV is negative, so you should not sublease your current space.
 - C. ALTHOUGH THE IRR IS VERY HIGH, THE NPV IS RATHER SMALL; NON-FINANCIAL FACTORS MAY DETERMINE WHETHER YOU DECIDE TO SUBLEASE.**
 - D. Both the IRR and the NPV are very high, so you should sublease your current space.
 - E. The IRR and the NPV are both negative, so you should not sublease your current space.
- _____ 43. True or **FALSE**: The profit ratio is used to determine how much of an investor’s realized gain must be recognized at the time of sale on a tax-deferred exchange.

Use the following information to answer the next three questions:

Mrs. C 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.

- _____ 44. What is Mrs. C's realized gain on this sale?
- A. \$425,000
 - B. \$275,000**
 - C. \$315,000
 - D. \$385,000
 - E. \$235,000
- _____ 45. How much of Mrs. C's gain is due to cost recovery (taxed at the 25 percent rate)?
- A. \$110,000
 - B. \$150,000**
 - C. \$40,000
 - D. \$70,000
 - E. None of the above
- _____ 46. How much of Mrs. C's gain is due to appreciation (taxed at the 20 percent rate)?
- A. \$125,000**
 - B. \$165,000
 - C. \$235,000
 - D. \$275,000
 - E. None of the above
- _____ 47. Four years ago you entered into a 10-year lease for 3,000 square feet of space at \$18.50 per square foot gross. The current market rent for similar space is now \$15.00 per square foot. If your opportunity cost of capital is 13%, what is the value of your leasehold interest?
- A. \$3.50 per square foot
 - B. -\$41,974**
 - C. \$41,974
 - D. \$63,000
 - E. None of the above

- _____ 48. Frosty owns an investment property that has generated a tax loss in each of the seven years he has owned it. As he had no other passive income against which to offset these losses, he has accumulated a sizable passive loss carry-forward. What will happen to these unclaimed losses when he sells the property?
- A. Frosty must forfeit the unused passive losses.
 - B. Frosty may immediately claim the losses to offset active income in the year of sale.
 - C. The passive losses reduce Frosty's gain from the sale of the property, but cannot be used to generate a capital loss.
 - D. THE PASSIVE LOSSES REDUCE FROSTY'S GAIN FROM THE SALE OF THE PROPERTY, AND CAN BE USED TO GENERATE A CAPITAL LOSS ON THE PROPERTY.**
 - E. The passive losses must be carried forward to use against passive income from other real estate investments.
- _____ 49. The United Confederation of the Brotherhood of Elves that Makes Your Christmas Possible (the UCBEMYCP) has determined that it makes financial sense to sublease its current offices to a consortium of reindeer. Which of the following is NOT a factor that might cause them to change this conclusion?
- A. The creditworthiness of the prospective tenants (reindeer are notorious deadbeats)
 - B. Whether the term of the sublease is different from the term of their current lease
 - C. The ease with which the UCBEMYCP members can access their new facility
 - D. Their willingness and ability to administer the sublease
 - E. ALL OF THE ABOVE ARE FACTORS THE UCBEMYCP SHOULD CONSIDER IN DECIDING WHETHER TO SUBLEASE THEIR CURRENT SPACE.**
- _____ 50. Santa has active (salary) income of \$245,000. In addition, he has one rental property that generated positive income of \$112,000 and a second rental property that generated a loss of \$74,000. He also has \$45,000 of unused passive losses that he has carried forward from prior years. Which of the following statements is most correct?
- A. SANTA'S TAXABLE INCOME IS \$245,000 AND HE HAS A PASSIVE LOSS CARRY-FORWARD OF \$7,000.**
 - B. Santa's taxable income is \$360,000 and he has a passive loss carry-forward of \$119,000.
 - C. Santa's taxable income is \$200,000 and he has a passive loss carry-forward of \$38,000.
 - D. Santa's taxable income is \$283,000 and he has a passive loss carry-forward of \$45,000.

- E. Santa is a tax exempt operation and therefore does not have to pay income taxes.