

**Real Estate Investment Analysis**  
**Fall 2005**

Midterm Exam 1 – Version A

*Dr. Stanley D. Longhofer*  
*MW 9:30-10:45*

You have 1 hour and 15 minutes to complete this exam. I know its long; don't worry, just do the best you can in the time allotted. I would spend a few minutes looking it over before you begin; start with the questions you know best and work on the others last. The number of points for each question is intended to indicate how much time you should spend on each. This weighting incorporates both the time it should take you to answer the question and its relative importance.

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 for incorrect answers if I can tell what you were trying to do.

- 1) (14 points) Irene is estimating value of a 22,000 square foot office building. The property is currently leased to a single tenant with a gross lease at \$5.50 per square foot; this payment is scheduled to increase to \$7.50 per square foot after five years (beginning in year six) and remain at that rate for ten more years. The current market vacancy rate is 10 percent, while operating expenses for the property are expected to be \$2.75 per square foot. Irene uses an expected holding period of five years, and the market discount rate is 14 percent.
  - a) (8 points) Estimate the current market value of this property using discounted cash flow analysis assuming that the property will be sold in five year at a 9 percent cap rate.

Name \_\_\_\_\_

- b) (6 points) Estimate the current market value of this property assuming that its reversion value will be based on a 3 percent increase in market value per year.

- 2) (20 points) Katrina is considering investing in an apartment complex located in New Orleans. The complex has 140 units, broken down as follows:

<u>Bedrooms</u>	<u>Number</u>	<u>Monthly Rent</u>
1	30	\$650
2	80	\$850
3	30	\$950

Currently, the market vacancy rate for similar apartment complexes is 12 percent. The prior owner's records show the following expenses:

Salaries for on-site staff	\$85,000
Utilities	\$97,000
Maintenance & lawn care	\$135,000
Property management	10% of EGI
Mortgage interest	\$450,000
Property taxes	\$280,000
Depreciation	\$225,000

The asking price for this property is \$4.2 million.

- a) (8 points) Write out the pro forma operating statement for this property. What is its expected net operating income?

- b) (2 points) At what cap rate is the seller offering this property?

- c) (4 points) Similar apartment buildings have recently been selling at a 10 percent cap rate. Based solely on a comparison of cap rates, does this appear to be a good investment at the current asking price? Explain.
- d) (4 points) Provide two specific reasons why the cap rate may be a misleading indicator of a property's true value as an investment. That is, what factors might cause you to change your answer in part (c) above?
- e) (2 points) If Katrina were to buy this property at a 9.0 percent cap rate, what price would she pay?

- 3) (16 points) Rita would like to rent retail space in Houston, and is evaluating two different lease alternatives. The first is a gross lease with steps. The base rent for this lease is \$32.00 per square foot (psf) in the first year, with steps of \$1.00 psf in years 3 and 5. The second option is a gross percentage lease with base rent of \$20.00 psf and overage rent of 5 percent of sales over \$40 psf. Sales are expected to be \$250 psf in the first three years and rise to \$350 psf after that. Either of these leases will have a six-year term.
- a) (6 points) Calculate the effective cost of the gross lease with steps. Assume a discount rate of 12 percent.



- 4) (6 points) Bret owns a vacant piece of land and has determined that there are two feasible development alternatives for the parcel. The first is a retail use that will generate annual NOI of \$335,000. The current market cap rate for similar retail buildings is 9.5 percent, and the building will cost \$3 million to construct.

The second alternative is an office building. This will generate annual NOI of \$450,000. The current market cap rate for similar office buildings is 8.5 percent, and the building will cost \$4.5 million to construct.

Calculate the value of the land for each of these alternatives and determine the property's highest-and-best use.

Multiple Choice Questions (2 points each)

- \_\_\_\_\_ 1. Real estate space markets are typically segmented by
- A. size, geographic location, and investor.
  - B. property type, geographic location, and size.
  - C. property type, geographic location, and quality.
  - D. geographic location, investor, and quality.
  - E. property type, quality, and investor.
- \_\_\_\_\_ 2. Unlevered real estate returns are most comparable to \_\_\_\_\_, while equity investments in real estate (levered returns) are most comparable to \_\_\_\_\_.
- A. corporate bonds, stock market investments
  - B. stock market investments, Treasury securities
  - C. corporate bonds, Treasury securities
  - D. Treasury securities, corporate bonds
  - E. stock market investments, corporate bonds
- \_\_\_\_\_ 3. In \_\_\_\_\_ markets, properties trade based on the utility they provide, whereas in \_\_\_\_\_ markets, properties based on the cash flows they can generate.
- A. residential property, commercial property
  - B. real estate space, real estate asset
  - C. commodity, financial
  - D. rural, urban
  - E. None of the above
- \_\_\_\_\_ 4. Which of the following items are NOT included as operating expenses when calculation 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

- \_\_\_\_\_ 5. True or False: Contract rent is usually lower than market rent.
- \_\_\_\_\_ 6. In a \_\_\_\_\_, the landlord is responsible for all of the operating expenses of the building.
- A. percentage lease
  - B. gross lease
  - C. operating expense lease
  - D. net lease
  - E. loaded lease
- \_\_\_\_\_ 7. In a \_\_\_\_\_, the rent is adjusted at period intervals by specific amounts specified in the lease.
- A. step lease
  - B. gross lease
  - C. loaded lease
  - D. indexed lease
  - E. percentage lease
- \_\_\_\_\_ 8. True or False: In an indexed lease, the amount by which base rent will change in the future is uncertain at the time the contract is written.
- \_\_\_\_\_ 9. 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
- \_\_\_\_\_ 10. A building has an efficiency percentage of 0.85. The landlord is asking for rent of \$45.00 per square foot of rentable area in the building. What is the total rent per square foot of usable area?
- A. \$45.00
  - B. \$52.94
  - C. \$38.25
  - D. None of the above; the correct answer is \_\_\_\_\_.
  - E. None of the above; there is not enough information to calculate the answer.

- \_\_\_\_\_ 11. The fifth floor of an office building has three office suites each with 5,000 square feet. The elevator lobby, restrooms and other common area total 2,000 square feet. What is the load factor for this floor?
- A. 0.882
  - B. 1.133
  - C. 0.867
  - D. 1.154
  - E. None of the above; the correct answer is \_\_\_\_\_.
- \_\_\_\_\_ 12. A different office building has a main lobby with 10,000 square feet. Other than this lobby, the building contains 80,000 square feet of rentable area. Suppose that the load factor of the second floor of this building is 1.10. What is the total load factor for a tenant on the second floor?
- A. 1.238
  - B. 1.125
  - C. 0.889
  - D. 0.808
  - E. None of the above; the correct answer is \_\_\_\_\_.
- \_\_\_\_\_ 13. Dennis has leased 20,000 square feet of retail space with base rent of \$4.00 per square foot and percentage rent of 4 percent of gross sales above the natural breakpoint. What is the natural breakpoint on this lease?
- A. \$2 million
  - B. \$500,000
  - C. \$80,000
  - D. \$320,000
  - E. None of the above; the correct answer is \_\_\_\_\_.
- \_\_\_\_\_ 14. Suppose instead that the lease in the previous question specified a breakpoint of \$400,000. How much total rent will Dennis pay if he has total sales of \$1.5 million?
- A. \$96,000
  - B. \$44,000
  - C. \$80,000
  - D. \$16,000
  - E. None of the above; the correct answer is \_\_\_\_\_.
- \_\_\_\_\_ 15. True or False: The cap rate is generally larger than the discount rate.

Use the following pro forma to answer the next four questions.

Potential gross income	\$2,400,000
– Vacancy & collections	192,000
Effective gross income	2,208,000
– Operating expenses	662,400
Net operating income	1,545,600
– Annual debt service	1,236,480
Before-tax cash flow	309,120

This property has a market value of \$12.88 million and the loan on the property is \$10 million.

\_\_\_\_\_ 16. What vacancy allowance is used in this statement?

- A. 8.00%
- B. 92.00%
- C. 10.00%
- D. 35.60%
- E. None of the above; the correct answer is \_\_\_\_\_.

\_\_\_\_\_ 17. What is this property's cap rate?

- A. 8.33%
- B. 11.73%
- C. 10.00%
- D. 2.40%
- E. None of the above; the correct answer is \_\_\_\_\_.

\_\_\_\_\_ 18. What is the (effective) gross income multiplier for this property?

- A. 8.00
- B. 5.83
- C. 12.00
- D. 11.04
- E. None of the above; the correct answer is \_\_\_\_\_.

\_\_\_\_\_ 19. What is the net income multiplier for this property?

- A. 8.00
- B. 12.00
- C. 5.83
- D. 11.04
- E. None of the above; the correct answer is \_\_\_\_\_.

- \_\_\_\_\_ 20. What is the operating expense ratio for this property?
- A. 42.86%
  - B. 14.00%
  - C. 8.00%
  - D. 27.60%
  - E. None of the above; the correct answer is \_\_\_\_\_.
- \_\_\_\_\_ 21. What is the breakeven ratio for this property?
- A. 1.25
  - B. 0.80
  - C. 0.86
  - D. 1.16
  - E. None of the above; the correct answer is \_\_\_\_\_.
- \_\_\_\_\_ 22. What is the cash-on-cash return for this property?
- A. 12.00%
  - B. 8.33%
  - C. 11.04%
  - D. 9.06%
  - E. None of the above; the correct answer is \_\_\_\_\_.
- \_\_\_\_\_ 23. (Freebe) What do all of the names used in this exam have in common?
- A. They are all names of faculty in the Barton School.
  - B. They are all names used for tropical storms this year.
  - C. They are all names of students in this class.
  - D. They are all names of Dr. Longhofer's relatives.
  - E. None of the above; the correct answer is \_\_\_\_\_.