

RE 618/890 – Real Estate Investment Analysis
Fall 2001

Midterm Exam #1 – October 2

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T-Th 8:00-9:15

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) (5 points) Consider an investment with the following cash flows:

n	\$
0	(20,000)
1	1,806
2	1,900
3	(4,000)
4	1,000
5	1,000
6	53,000

a) Calculate the NPV of this project using a 10% discount rate.

b) Calculate the IRR of this project.

c) Calculate the MIRR of this project assuming a 10% cost of capital.

- 3) (15 points) You are considering purchasing apartment complex. Current rent rolls indicate the following:

Unit Size	Number of Units	Monthly Rent	Number Occupied
1 BR	25	\$525	23
2 BR	45	\$650	40
3 BR	30	\$700	20

An analysis of the apartment market suggests that these rents are competitive. The average vacancy rate in the market is currently 10 percent.

Operating expenses include \$95,000 in salaries and benefits for employees, \$87,000 in property taxes, and \$44,250 for repairs and maintenance.

The asking price for this property is \$5 million.

- a) Write out the pro forma operating statement for this property based on its current situation. What is the cap rate for this property?

- b) What is the gross rent multiplier for this property?

- c) Create a forecasted pro forma based on current market conditions. What is your cap rate based on this information?
- d) Suppose that market cap rates for similar apartment properties are 11%. Is this property a good buy at the current asking price? Explain.
- e) How much could you pay for the property in order to ensure an 11% cap rate?
- f) Why might the cap rate you calculated in part (c) be a misleading of the investment's true potential?

- 4) (18 points) You are considering investing in a small, retail strip center in west Wichita. The gross leasable area is 20,000 square feet, and it rents for \$12.50 per square foot (psf). All of its leases are gross leases. Currently, the average vacancy rate for retail space in west Wichita is 15%. The asking price for this property is \$1,062,500.

Annual operating expenses are expected to be as follows:

Utilities	\$30,000
Maintenance	14,375
Management expenses	10% of EGI
Property insurance	10,000
Property taxes	20,000

You can obtain 20-year, 7.50% financing from Friendly Bank for up to 75% of the purchase price. The annual debt service for this loan will be \$77,035.

- a) Construct the pro forma operating statement for this center. What is the net operating income you would anticipate in the first year if you purchase this center?

b) Based on your calculation in part (a), what is the cap rate for this property?

c) What is the operating expense ratio for this property?

d) What is the equity dividend rate for this property? Explain briefly any difference between this rate and the cap rate you calculated in part (b). Does this property exhibit positive, negative, or neutral leverage?

e) What is the debt-coverage ratio for this property?

f) What is the breakeven ratio for this property?

g) What is the gross income multiplier for this property?

h) What is the net income multiplier for this property?

- 5) (15 points) You are considering developing a Class A office building. Your preliminary estimate of value is \$2 million. Your lender is willing to provide a 5-year balloon loan at 9% on a 30-year amortization schedule and monthly payments. The minimum debt coverage ratio (DCR) is 1.2 and the maximum loan-to-value (LTV) ratio is 75%.

Recent sales for Class A office buildings have indicated that cap rates are in the 9.5% range. Your forecast of stabilized NOI is \$190,000, which reflects a 4% vacancy allowance, and \$102,800 in operating expenses.

- a) Based on your preliminary forecast and your lender's underwriting criteria, what is the maximum loan amount you can expect?
- b) After looking at your application package, your lender informs you that its underwriting guidelines require a minimum 7% vacancy allowance. After adjusting the NOI to reflect the increased vacancy, what is the maximum loan amount you can expect now? [Hint: You will want to recalculate the maximum loan amounts based on both the LTV and DCR ratios.]

c) Based on the loan amount you calculated in part (b), what is the annual debt service on this loan? What is the resulting debt coverage ratio?

d) What is the balloon payment that will be due on this loan at the end of 5 years?

6) (12 points) Consider the following two mutually exclusive projects:

Project A		Project B	
n	\$	n	\$
0	(100,000)	0	(50,000)
1	20,000	1	10,000
2	10,000	2	30,000
3	(15,000)	3	(10,000)
4	250,000	4	30,000
		5	100,000

a) Calculate the NPV and IRR for each of these projects. Assume a 12% discount rate. Which project is preferred based on its NPV? Which is preferred based on its IRR?

- b) Use the capital accumulation method to determine which of the projects is preferred. Assume a reinvestment rate of 12% and a safe rate of 4%.