

Real Estate Investment Analysis
Fall 2005

Midterm Exam 2 – Version A – Solutions

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MW 8:00-9:15

- 1) (10 points) Lucy owns two real estate investments that are expected to have taxable income as follows over the next five years:

<u>Year</u>	<u>Property A</u>	<u>Property B</u>
1	\$300,000	\$50,000
2	(130,000)	50,000
3	(100,000)	50,000
4	75,000	50,000
5	135,000	50,000

Assuming that Lucy has no other passive income, calculate the income on which she will be required to pay taxes in each of these years.

<u>Year</u>	<u>Property A</u>	<u>Property B</u>	<u>Taxable Income</u>	<u>Loss Carry Forward</u>
1	\$300,000	\$50,000	\$350,000	– 0 –
2	(130,000)	50,000	– 0 –	80,000
3	(100,000)	50,000	– 0 –	130,000
4	75,000	50,000	– 0 –	5,000
5	135,000	50,000	180,000	– 0 –

- 2) (80 points) Peter is considering investing in a 135,000 square foot warehouse property. The building is currently leased at \$4.00 per square foot, triple net; this rent will stay constant over the remaining 10 years on the lease. Because the tenant is a high-quality, national tenant, Peter believes that a 2.5 percent vacancy and collection allowance is appropriate for this analysis.

The tax assessor's office currently estimates the total value of the property to be \$4 million, with \$1 million of this value attributable to land. A recent appraisal estimated this property's building value at \$3.5 million and the land at \$1.5 million.

Peter expects to purchase this building for \$4.5 million, with acquisition costs of 2 percent of the purchase price. A 7-year balloon loan is available amortized over 25 years at 7.25 percent interest with monthly payments. The lender's maximum loan-to-value ratio is 70 percent, while its minimum debt coverage ratio is 1.25; the lender will charge 1.5 points in conjunction with this loan.

The property will be put in service on January 1, 2006. The expected holding period is 5 years (expected sale date of December 31, 2010), at which time it will be sold at an 11 percent terminal cap rate. Transaction costs at the time of sale are expected to be 4 percent of the gross sale price.

Peter is in the 28 percent marginal tax bracket for ordinary income, while depreciation recapture will be taxed at 25 percent and long-term capital gains will be taxed at 15 percent.

- a) Write out this property's pro forma operating statement *for the first year*.
 - What is the first year NOI?
 - At what cap rate is Peter purchasing this property?
- b) Based on the lender's underwriting guidelines outlined above, what is the largest loan amount Peter can expect on this property?
 - What is the annual debt service on this loan?
 - What is the debt coverage ratio?
 - What is Peter's first-year before-tax cash flow?
 - What is Peter's cash-on-cash return on this property?
 - What is the (annual) mortgage constant?
 - Does this property exhibit positive or negative leverage? How do you know? What does this tell you about this investment?
- c) Calculate the taxable income and after-tax cash flow for this property for the **FIRST YEAR ONLY!** Clearly label each of the elements required to derive taxable income and show your work. Remember, I can only give partial credit if I can follow what you have done.
- d) Calculate the before- and after-tax equity reversion from the sale of this property at the end of year 5. Once again, clearly label each of the figures you calculate to derive these figures.
- e) Assume that the after-tax cash flow from operations will be \$195,010, \$193,963, \$192,839, \$190,599 in years 2 through 5, respectively. Calculate the after-tax NPV of this investment at a 13 percent discount rate. What is the after-tax IRR of this investment? Based on this analysis, is this a worthwhile investment for Peter?

For solutions, see the accompanying PDF printout.

Multiple Choice Questions (2 points each)

_____ 1. 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 LESS 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.**

Use the following information to answer the next three questions.

Edmund LLC is purchasing an office building for \$5 million. Aslan Financial is providing a \$3,000,000 mortgage to help finance this purchase. This will be a 10-year balloon mortgage amortized over 30 years with monthly payments at an interest rate of 7.25 percent.

The first payment on this mortgage will be due on March 1st.

_____ 2. How much interest will Brownback pay during the first tax year? (Assume that the tax year corresponds with the calendar year.)

- A. \$216,548
- B. \$180,312
- C. **\$180,603**
- D. \$181,250
- E. None of the above. The correct answer is _____.

_____ 3. How much interest will Edmund pay during the second tax year?

- A. \$214,371
- B. \$232,538
- C. **\$214,745**
- D. \$217,500
- E. None of the above. The correct answer is _____.

_____ 4. How large will the balloon payment be at the end of the loan's term?

- A. \$544,165
- B. \$2,831,363
- C. \$2,000,000
- D. \$0
- E. **NONE OF THE ABOVE. THE CORRECT ANSWER IS \$2,589,311.**

- _____ 5. Which of the following factors do commercial lenders typically consider when underwriting existing income properties. More than one answer may be correct; write down all correct answers.
- A. **THE PROPERTY'S NET OPERATING INCOME**
 - B. **THE CREDITWORTHINESS OF THE TENANTS WITH LEASES ON THE PROPERTY**
 - C. **THE APPRAISED VALUE OF THE PROPERTY IN RELATION TO THE LOAN AMOUNT**
 - D. The investor's creditworthiness
 - E. **THE MIX OF THE TENANTS IN THE PROPERTY**
 - F. **THE TERMS AND CONDITIONS OF THE LEASES IN THE PROPERTY**
 - G. **THE QUALITY, SIZE AND AGE OF THE PROPERTY**
- _____ 6. (Freebe) What do all of the names used in this exam have in common?
- A. They are all cartoon characters.
 - B. **THEY ARE ALL CHARACTERS FROM C.S. LEWIS' THE LION, THE WITCH, AND THE WARDROBE.**
 - C. They are all local politicians.
 - D. They all need to take Dr. Longhofer's real estate classes.
 - E. All of the above.