

RE 310 – Principles of Real Estate
How Do You Invest in Real Estate?
Practice Homework Problems

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- 1) A class B commercial office building has 25,000 square feet gross leasable area. Of this, 20,000 square feet is currently leased for \$10 per square foot (psf), while the remaining 5,000 is leased at \$9.50 psf. On average, commercial office buildings of this class in this area are experiencing a 15% vacancy rate. Each of the leases are gross leases, and the operating expense ratio for this property has been running at around 40% for the last several years.

You are considering purchasing this building for \$1.4 million. Acme Life has indicated that it will provide 75% loan-to-value (LTV) ratio financing at 7.5% interest with a 20-year term. Annual debt service on this loan will be \$101,505.

- a) Construct the pro forma operating statement for this shopping center. What is the net operating income and cap rate for this property?
 - b) If office buildings like this are current selling at a 8.5% cap rate, is this property a good buy? Explain.
 - c) Under these assumptions, how much should you be willing to pay for this property and still earn an 8.5% return?
 - d) Why might the cap rate you calculated in part (a) be a misleading indicator of the property's true worth?
 - e) Calculate the cash-on-cash return for this property. Does this exhibit positive or negative leverage? Explain.
 - f) Calculate the break-even ratio.
 - g) Calculate the debt coverage ratio.
- 2) You are considering investing in a strip shopping center sitting on a 1.5 acre site. The gross leasable area of the center is 15,000 square feet. Of this, 7,000 square feet is currently leased for \$12 per square foot (psf), 5,000 is leased at \$12.50 psf, and the remaining 3,000 square feet is leased at \$15.00 psf. Each of these leases are net leases, with the tenants paying utilities and some common area maintenance charges. Last year, operating expenses for the center totaled \$90,000, while the average vacancy rate for similar retail space in the area is 15%.

The asking price for this property is \$661,500. You have determined that 70% loan-to-value (LTV) ratio financing is available at 8.5% interest with a 20-year term. Annual debt service on this loan will be \$48,222.

- a) Construct the pro forma operating statement for this shopping center. What is the net operating income and cap rate for this property?
- b) If shopping centers like this are current selling at a 13% cap rate, is this property a good buy? Explain.

- c) Under these assumptions, how much should you be willing to pay for this property and still earn a 13% return?
 - d) Why might the cap rate you calculated in part (a) be a misleading indicator of the property's true worth?
 - e) Calculate the equity dividend rate for this property. Does this exhibit positive or negative leverage? Explain.
 - f) Calculate the operating expense ratio.
 - g) Calculate the break-even ratio.
 - h) Calculate the debt coverage ratio.
- 3) You are considering investing in a warehouse that sits on a 2 acre site. The total gross building area of the warehouse is 75,000 square feet. The gross leasable area is 70,000 square feet. Currently, the entire space is leased to one tenant at \$6 per square foot (psf), gross, with one year left on the lease. Total operating expenses, taxes, and reserves on this property are expected to be \$150,000 per year. The asking price for this property is \$2.5 million.
- Other information that may be useful includes the fact that similar warehouse space in the area is renting for \$10 psf, gross, with an average vacancy rate of 10%.
- a) Construct the pro forma operating statement for this space based on its current situation. What is the net operating income and cap rate for this property?
 - b) If you require a 12% return on your investment, is this property a good buy? Explain.
 - c) Under these assumptions, how much should you be willing to pay for this property and still earn your 12% return?
 - d) Why might the cap rate you calculated in part (a) be a misleading indicator of the property's true worth?
 - e) Construct a new pro forma for the property using inputs that more accurately reflect the true earning potential for the property. Under these new assumptions, is the property a good investment using your same 12% required rate of return? Explain.
- 4) The Silver Fox apartment complex is up for sale with an asking price of \$4.5 million dollars. It contains 150 units, 50 of which rent for \$750 per month and the rest of which rent for \$600 per month. Lately, there has been a great deal of overbuilding in the apartment market, and consequently current vacancy rates are around 15%. The operating expense ratio for this property is 45%.
- a) Construct the pro forma statement for this property and calculate its cap rate. If apartment complexes are currently selling at a 10% cap rate, does this apartment appear to be overpriced, underpriced, or about right?
 - b) You decide to purchase this property, and can obtain a loan for 80% of the purchase price with annual debt service of \$366,668. Using this information, calculate the following for this property:

- The mortgage constant;
 - The equity dividend rate;
 - The breakeven ratio;
 - The debt coverage ratio.
- c) If the lender requires a debt coverage ratio of 1.2 in order to approve the loan, will this property qualify?
- 5) An apartment complex has 50 units. Thirty of these units rent for \$500 per month and the rest rent for \$600 per month. The allowance for vacancy and bad debts is 10%. Operating expenses are 35% of effective gross income. You may acquire this property for \$1.5 million.
- Financing will consist of a 75% LTV loan with a 20-year term, monthly payments, and an interest rate of 9.5%.
- a) Construct the annual pro forma operating statement for this property and calculate the net operating income it generates.
- b) Calculate the cap rate, the equity dividend rate, the breakeven ratio, and the debt-coverage ratio for this property.
- 6) You can purchase an office building for \$1.5 million today. Relevant data include: potential gross income = \$340,000; vacancy and collection allowance = 15%; operating expenses = 45% of effective gross income.
- What is the NOI for this property? What is the cap rate?
- 7) You are considering the purchase of a quadruplex apartment for \$200,000. Each of the four units is expected to rent for \$800 per month. Expected vacancy allowance is 12.5%, and operating expenses are expected to be 40% of effective gross income.
- a) What is the expected NOI and cap rate for this property?
- b) Suppose Biggie Bank will lend you \$140,000 to purchase this property. The loan will have a 30-year term, monthly payments, and an 8% interest rate.
- What is the annual debt service required on this loan?
 - What is the equity dividend rate on this property?
 - What is the debt coverage ratio?
 - What is the breakeven ratio?