

**RE 618 / Fin 618 – Real Estate Investment Analysis**  
 Homework – NOI, Cap Rates and Multiplier Analysis – Solutions

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- 1) Vinnie is considering investing in a commercial office building in downtown Wichita. The building has 140,000 square feet of gross leasable area. Of this, 55,000 square feet rent for \$22.50 per square foot (psf), 65,000 square feet rent for \$18.00 psf, while the remaining 20,000 square feet rent for \$15.25 psf. All leases in this building are gross leases. Currently, the average vacancy rate for similar office space in east Wichita is 12%. The asking price for this property is \$10 million.

Based on the prior owner’s past tax returns, Vinnie has forecasted the following expenses for the property:

Depreciation allowances	225,000
Utilities	195,000
Maintenance	215,000
Management expenses	10% of EGI
Mortgage interest	220,000
Property insurance	155,000
Property taxes	360,000

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

Potential gross income		
55,000 @ 22.50	\$1,237,500	
65,000 @ 18.00	1,170,000	
20,000 @ 15.25	305,000	2,712,500
Less: Vacancy & collection		(325,500)
Effective gross income		2,387,000
Operating expenses		
Utilities	195,000	
Maintenance	215,000	
Management expenses	238,700	
Property insurance	155,000	
Property taxes	360,000	(1,163,700)
Net operating income		1,223,300

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

$$R = NOI / V = 1,223,300 / 10,000,000 = 0.1223 = 12.23 \text{ percent.}$$

- c) Similar office buildings have recently been selling at an 10.00 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.

Based solely on its cap rate, this does appear to be a good investment. For the price you must pay, the income it is generating appears to be high relative other office properties in the market. In other words, if you purchased a

different office building in the market you would not be able to obtain \$1.2 million in annual income for your \$10 million investment.

- d) 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?

Cap rates only consider first year net operating income. If the income generated by this property is expected to grow at a faster rate than other properties in the market, it could sell for a lower cap rate.

In addition, cap rates do not fully account for a property's risk. If this building is in a superior location with high-credit tenants committed to long-term leases, then this property might also command a higher than typical price (e.g., a lower cap rate).

- e) If Vinnie were to buy this property at an 10.00 percent cap rate, what price would he pay?

To obtain an 10.00 percent cap rate, you would need to purchase the property at  $V = NOI / R = 1,223,300 / 0.10 = \$12,233,000$ , or just over \$12 million.

- f) Calculate the gross income multiplier for this property based on the asking price (using effective gross income).

$$GIM = V \div EGI = 10,000,000 \div 2,387,000 = 4.19.$$

- g) If the market gross income multiplier for similar office buildings is 5.0, estimate this building's market value.

$$V = GIM \times EGI = 5.0 \times 2,387,000 = \$11.935 \text{ million.}$$

- h) Calculate the operating expense ratio for this building. If the typical operating expense ratio for similar office buildings is 55 percent, what does the ratio you calculated tell you about this office building?

$OER = OE \div EGI = 1,163,700 \div 2,387,000 = 48.75\%$ . This office building appears to have lower operating expenses than other similar buildings. To fully understand why, you would need to investigate several other factors, such as whether the current manager is effectively serving the tenants, whether the current leases are significantly different from those in other buildings, or whether this building is more energy efficient. All else equal, however, this would suggest that the property should command a higher price than others with a similar gross income.

- i) Assume that 70 percent financing (\$7 million) is available at 7.25 percent interest over 20 years with annual debt service of \$663,916. Calculate the breakeven ratio for this building.

$$BER = (OE + ADS) \div EGI = (1,163,700 + 663,916) \div 2,387,000 = 76.57\%.$$

- j) Calculate the debt coverage ratio for this property.

$$DCR = NOI \div ADS = 1,223,300 \div 663,916 = 1.84.$$

k) Calculate the cash-on-cash return for this property.

$$COCR = (NOI - ADS) \div (V - Loan) = (1,223,300 - 663,916) \div (10,000,000 - 7,000,000) = 18.65\%.$$