

RE 618 / Fin 618 – Real Estate Investment Analysis Valuation Fundamentals Lecture Notes

1) Pro Forma Operating Statement – The pro forma is the key tool used in calculating cash flows from operations.

a) The operating statement can be

– Retrospective

– Prospective

There will be slight differences in how you lay out the pro forma for these purposes.

b) Basic Layout of the Pro Forma –

Potential gross income (PGI)
– Vacancy and credit losses (V&C)
Effective gross income (EGI)
– Operating expenses (OE)
Net operating income (NOI)
– Annual debt service (ADS)
Before-tax cash flow (BTCF)
– Income tax from operations (Tax)
After-tax cash flow (ATCF)

- Potential Gross Income (PGI)

- Vacancy and collection allowance (V&C)

- Effective Gross Income

- Suppose you have an apartment building with the following information:

Size	Rent	Total Units	Occupied
2 BR	\$650	25	23
3 BR	\$750	15	10

- What is the potential gross income for the property?

- What is the effective gross income for the property (under the current conditions)?

- Suppose that the market vacancy rate for similar apartment buildings is 12%. What is the effective gross income for the property?

- Capital expenditures and leasing costs
 - Capital expenditures are

 - Leasing costs are

 - How are these handled in the pro-forma?

- Net Operating Income (NOI)
 - How is NOI best defined?

2) Office building example: Consider Century I, a Class B office building in Downtown Wichita

b) Property assumptions:

- 98,000 square feet of gross leasable area
 - 60,000 sf rent for \$8.50 psf
 - 38,000 sf rent for \$10.50 psf
- Current vacancy is 20%
- The building can be purchased for \$3.5 million
- 70% financing is available at 7% interest over 30 years; Loan = \$2.45 million; ADS = \$195,600

c) Operating Expenses: Last year, the owner incurred the following expenses on the property:

Maintenance	\$165,000
Property taxes	51,000
Depreciation	41,000
Insurance	24,000
Income taxes	85,000
Management	23,000
Resurfaced parking lot	14,000
Utilities & cleaning	151,000
Interest expense	94,000

d) Calculating NOI

3) What is the building worth?

- a) In general, the value of the property ought to be equal to the discounted present value of the NOI forever into the future.

$$V = \frac{NOI_1}{1+r} + \frac{NOI_2}{(1+r)^2} + \frac{NOI_3}{(1+r)^3} + \dots$$
$$= \sum_{t=1}^{\infty} \frac{NOI_t}{(1+r)^t}.$$

To calculate the value of the property, you estimate the expected NOI for each year in the future and discount it back to today.

b) Cap Rates

- If we assume that NOI is constant forever into the future, this formula simplifies to

$$V = \frac{NOI}{r}$$

This can be rearranged to write

$$R = \frac{NOI}{V}$$

- This shorthand, known as the capitalization (cap) rate, is simply ratio between a property's net operating income (first year) and its value (acquisition price)

c) Using Cap Rates

- Measuring the rate of return on an investment

– What is the cap rate for the Century I office building?

- Comparing different investment alternatives

- Estimate the value of a property

– How much is Century I worth if the current market cap rate is 9 percent?

d) Cap Rate Limitations

- How much faster must Century I's income be growing compared to other properties in the market in order for the \$3.5 million asking price to be its true market value

4) Multiplier analysis

a) Gross Income & Rent Multipliers

- $$GIM = \frac{\text{Market Price}}{\text{Gross Income}} \quad GRM = \frac{\text{Market Price}}{\text{Monthly Gross Income}}$$

- Strengths & weaknesses

b) Net income multiplier

- $$NIM = \frac{\text{Market Price}}{\text{Net Operating Income}}$$

- Strengths & weaknesses

5) Financial ratios

a) Operating expense ratio

- $$OER = \frac{\text{Operating Expenses}}{\text{Effective Gross Income}}$$

b) Breakeven ratio

- $$BER = \frac{OE + ADS}{EGI}$$

c) Debt coverage ratio

- $DCR = \frac{NOI}{ADS}$

6) Profitability Measures

a) Cash-on-cash return

- $COCR = \frac{NOI - \text{Annual Debt Service}}{\text{Acquisition Cost} - \text{Loan Amount}}$

b) Payback period