

Chapter 10

Valuation of Income Properties: Appraisal and the Market for Capital

Real Estate Finance

- The nuts and bolts of the real estate business



Valuation Fundamentals

- Market Value is the most probable price given the following conditions
 - Buyer and seller are typically motivated
 - Parties are well informed/well advised and acting in their best interest (“arms’ length”)
 - Reasonable time in the market
 - Payment in cash or its equivalent
 - Traditional financing

Appraisal Process

- Physical and legal identification
- Identify property rights
- Purpose of the appraisal
- Specify effective date of value estimate
- Apply techniques to estimate value

Appraisal Process

- The appraisal process is performed by appraisers and others seeking to establish value.
 - Physical and legal identification
 - Identify property rights to be valued
 - Specify the purpose of the appraisal
 - Specify effective date of value estimate
 - Gather and analyze market data
 - Apply techniques to estimate value

Appraisal Process

- The Three Approaches
 - Sales Comparison Approach
 - Income Capitalization Approach
 - Cost Approach

For most of this textbook, we will focus on the income capitalization approach, but the other two have substantial validity also.

Sales Comparison Approach

- Use data from recently sold “comparables” to derive a “subject” market value
- Adjust comparable sales prices for feature, age, and size differences, etc.
- Lump sum adjustments and square foot adjustments
- Subjective process

Valuation Fundamentals

- Reconciliation of Value Estimates
 - The sales comparison and income approaches should yield similar value estimates.
- Changing Market Conditions and “Going in” Cap Rates
 - Supply & demand
 - Capital markets
 - Capital markets & spatial market changes

Cost Approach

- Estimate the construction cost if new
- Account for physical deterioration, functional obsolescence, and/or external obsolescence
- Add land cost
- The rationale is that no informed buyer would pay more for a property than it would cost to build a new one. This assumes, of course, that they took the time to construct a new asset into account, and the relative risks of ground up development.
- The cost approach is often used for real estate assets that do not have an efficient market for tenants to lease space. A common example would be heavy manufacturing facilities; there is not a deep or broad market in automobile manufacturing facilities.

Income Approach

- Gross Income Multipliers (GIM)
- Direct Capitalization Method
- Discount Present Value Method

- Note: The first two methods rely on current market transactions. As a matter of practice, GIM is only used with residential.

Gross Income Multiplier

- **Potential Gross Income (PGI)***
 - Less **Vacancy and Collection Loss (VC)**
 - **Effective Gross Income (EGI)**
 - Less **Operating Expenses (OE)**
 - **Net Operating Income (NOI)**
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- $GIM = \text{Sales Price} / \text{Gross Income}^*$

What are common operating expenses?

- Real estate taxes
- Insurance
- Utilities
- Repair and maintenance
- General and administrative
- Management and leasing
- Salaries
- Reserves
- Other

GIM

- 1st Income Method: Gross Income Multiplier (“GIM”)

$$\text{GIM} = \frac{\text{Sales Price}}{\text{Gross Income}}$$

- Apply GIM to the subject property
- Example 10-1: Recent sales of similar property

	<u>1</u>	<u>2</u>	<u>3</u>
Sales Price	\$600,000	\$750,000	\$450,000
Gross Income	\$100,000	\$128,000	\$74,000
GIM	6x	5.86x	6.08x

GIM

- Selecting the GIM from the comparables is an education opinion
 - Which is most similar to the subject?
 - How should they be weighted?
 - If 6x is determined to be the GIM and the subject has gross income = \$120,000;
Value Estimate = $6 \times \$120,000 = \$720,000$

Direct Cap Approach

- 2nd Income Method: Capitalization Rate

$$\text{Value} = \frac{\text{NOI}}{\text{R}}$$

- Example 10- 2: Recent similar property sales

	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>
Sales Price	\$368,500	\$425,000	\$310,000	\$500,000
NOI	\$50,000	\$56,100	\$42,700	\$68,600
R	13.57%	13.20%	13.77%	13.72%

Direct Cap Approach

- Capitalization Rate Range:
 - $13.20\% < R < 13.77\%$
- The cap rate choice is an educated opinion of the appraiser
 - Which property is most similar to the subject?
- Note: For any two properties that you compare, the higher the cap rate, the lower the value given the same amount of NOI.

Where Do Cap Rates Come From?



- Investor Surveys
- Derived from Comparable Sales

The Cap Rate is a market driven number.
It is essentially a measure of risk and reward.

Cap Rates

- Rates for typical property types
 - Downtown Office 8.5%
 - Suburban Office 9.1%
 - Industrial 8.9%
 - Research & Development 9.2%
 - Apartments 8.5%
 - Full-service Hotel 9.8%
 - Limited-service Hotel 11.1%
 - Community Shopping Center 9.1%
 - Regional Mall 8.5%

Cap Rates and Market Conditions

- Lower cap rates (higher property values)
- Unanticipated increases in demand relative to supply
- Higher cap rates (lower property values)
- Unanticipated increases in supply relative to demand
- Unanticipated increases in interest rates
- Change in broader economic markets and desirability of other investment classes

Direct Cap Approach

- If the subject NOI = \$58,000, the value estimate could be
 - $\frac{\$58,000}{.1377} < V < \frac{\$58,000}{.1320}$
 - $\$421,205 < V < \$439,394$
- Care must be taken when determining R

Direct Cap Approach

- Considerations when determining R
- Consider the comparables
 - Similarity to subject
 - Physical Attributes
 - Location
 - Lease Terms
 - Operating Efficiency

Direct Cap Approach

- Consider the comparables
 - How is NOI determined?
 - Stabilized NOI
 - Nonrecurring capital outlays
 - Lump Sum
 - Averaged
 - Was NOI skewed by a one-time outlay?
 - Depending on the analyst, leasing commissions, tenant improvements, and recurring capital outlays may or may not be including in the calculation of net operating income.

Income Approach



- 3rd Income Method:
Discounted Present Value
 - Compute the present value of future cash flows
 - Forecast NOI
 - Choose holding period
 - Select discount rate based on risk and return of comparable investments (r)
 - Determine reversion value of property

Simple Formula

- Present value of an increasing annuity
 - Value = $\text{NOI}_1 / (\text{discount rate} - \text{growth rate})$
 - NOI_1 is Net Operating Income (rent less expense) during the first year of ownership
 - Discount rate is the required rate of return (IRR)
- Growth rate is the expected growth in income
- Simple model assumes income and value will grow at the same rate forever (or until sold)

Income Approach

- Estimating reversion value
 - Not an exact science
 - Method 1: Discount remaining cash flows using a terminal cap rate (R_T)
 - $R_T = (r - g) \rightarrow$ average long-run growth in NOI is positive
 - $R_T = (r) \rightarrow$ growth is zero
 - $R_T = (r + g) \rightarrow$ growth is negative

Income Approach

$$REV_{10} = \frac{NOI_{11}}{r - g}$$

Note that if you are calculating the reversion at the end of year 10, you use year 11's NOI to do so. The idea is we're looking at stabilized long-term cash flows.

Income Approach

- Estimating reversion value
 - Method 2: Estimate R_T from sales data
 - 5 year holding period for a new property
 - In general, as properties age, they become less able to produce income relative to their younger peers. As a result, the cap rate should be higher for older properties.
 - What are current cap rates for 5 year old property?
 - Use this as the terminal cap rate
 - Method 3: Estimate resale value from expected changes in property value

Example

- Income is expected to be \$100,000 per year for the next 5 years due to existing leases. Starting in year 6 the income is expected to increase to \$120,000 due to lease rollovers and increase at 2% per year thereafter. Investors want a 12% return. What is the value?

Solution

- First estimate resale using cap rate concept:
 - Resale or “terminal” cap rate
 $12\% - 2\% = 10\%$
 - Apply this to income in year 6 (first year of ownership to next owner)
 - Resale = $(\$120,000 / .10) = \$1,200,000$
- Now discount the NOI and resale price
 - PMT = \$100,000
 - FV = \$1,200,00
 - N = 5
 - i = 12%
- Note that the “Going in Cap Rate” would be
 $\$100,000 / \$1,041,390 = 9.6\%$

Year	1	2	3	4	5	6
NOI	100,000	100,000	100,000	100,000	100,000	120,000
Resale					1,200,000*	
Cash Flow	100,000	100,000	100,000	100,000	1,300,000	

NPV @ 12% \$1,041,390 *Yr 6 NOI/ terminal cap rate of (120,000/.10)

Income Approach

- Example:
 - A property has a projected year 1 NOI of \$200,000. NOI is projected to grow by 4% per year for the following 2 years, then by 2% per year for the subsequent 2 years at a 1% constant rate afterward. Given a required return of 13%, what is the value of the property?

Income Approach

- $\text{NOI}_1 = \$200,000$
- $\text{NOI}_2 = \$208,000$
- $\text{NOI}_3 = \$216,320$
- $\text{NOI}_4 = \$220,646$
- $\text{NOI}_5 = \$225,059$
- Constant 1% growth begins

Income Approach

$$\begin{aligned}\text{Terminal Value}_5 &= \frac{\text{NOI}_6}{r - g} = \frac{\$227,310}{.13 - .01} \\ &= \$1,894,250\end{aligned}$$

Income Approach

- Example 10-3:

C0	= 0
C1	= \$200,000
C2	= \$208,000
C3	= \$216,320
C4	= \$220,646
C5	= \$225,059 + \$1,894,250
i	= 13
CPT	NPV = \$1,775,409

Highest & Best Use

- Land prices are volatile relative to income producing real estate.
- The land price is determined by its highest and best use, which is the use that results in the highest residual land value.

Highest & Best Use

- Residual Land Value
 - $PV - \text{Building Cost} = \text{Land Value}$
 - Step 1: Compute the present value of the estimated cash flows for all alternatives.
 - Step 2: Subtract building cost
 - Step 3: Select highest value among the alternatives

Mortgage-Equity Capitalization

- Property Value = Mortgage Value + Equity Value
- Determining the discount rate to use for the equity value is challenging
 - It should be greater than the discount rate for the lender.
 - It should be higher than the rate of return for the property.
 - It should be competitive when compared to other investments.