Published in Spring 1985 Issue
The Real Estate Appraiser & Analyst
Society of Real Estate Appraisers[1]

Capitalization & Valuation Process

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Introduction

Capitalization is essentially a procedure by which income is converted into an expression of value. While the process is fundamental to the valuation of all income producing properties, there appears to be a basic misunderstanding between derivation and application of overall capitalization rates in the valuation process. Capitalization rates, developed from past income performance, can not be directly applied to capitalize anticipated future income streams. Both the capitalization rate and the income stream must pertain to the same time frame before capitalization can be properly executed.

The following examples demonstrate the development of overall capitalization rates, unadjusted and adjusted, and how they impact on the value of past and future income streams in the capitalization process.

Development of Overall Capitalization Rates

Detailed as follows are the overall capitalization rates based on the historical operating results of five recent apartment building transactions.

Chart of Overall Capitalization Rates – Apartment Building Sales

	1		2		3		4		5	
EGI	100.00%	$611,357	100.00%	$559,220	100.00%	$411,300	100.00%	$571,000	100.00%	$913,272
- OpEx	52.58%	321,425	54.50%	304,793	52.44%	215,700	53.41%	305,000	52.10%	475,835
NOI	47.42%	$289,932	45.50%	$254,427	47.56%	$195,600	46.59%	$266,000	47.90%	$437,437
Price	$3,880,000		$3,510,000		$2,632,250		$3,600,000		$5,810,000	
OAR	7.47%		7.25%		7.43%		7.39%		7.53%	

As analyzed, the statistical results of the capitalization rates are:

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[1] Subsequently merged with the American Institute of Real Estate Appraisers to form The Appraisal Institute.

Mean7.41%
Median: 7.43%

Both the mean and median values are similar. While either measurement is acceptable, the median factor of 7.43 percent has been adopted. Before proceeding with the valuation process, remember that the derived capitalization rates are based on the most recent year of performance and consequently are historical in nature.

Valuation Process

The subject property is a 95 suite apartment complex. For the year just ended, Year 0, and for the ensuing year of operation, Year 1, the historical and projected financial performances of the subject property are summarized as follows:

	Year 0		Year 1	
Effective Gross Income	100.00%	$387,250	100.00%	$410,481
Less: Operating Expenses	52.89%	204,798	53.76%	220,656
Net Operating Income	47.11%	$182,452	46.24%	$189,825

Since value is the present worth of future income, conventional appraisal practice requires that the income in the ensuing year of operation, Year 1, be converted into an indication of value as opposed to the income in the year just ended, Year 0. At this point, the mathematical procedure required to convert the Year 1 income into an indication of value appears to be straightforward. Taking the net income of $189,825 and dividing it by the overall capitalization rate of 7.43% results in a value estimate of $2,555,000, calculated as follows.

Year 1 Net Income		$189,825
Overall Capitalization Rate		7.43%
Indicated Property Value		$2,554,845
($189,825 ÷ 0.0743 = $2,554,845)	Say	**$2,555,000**

On the surface, the answer appears to be correct. However, there is a fundamental flaw in the capitalization procedure. As previously stated, the capitalization rates obtained from the market are based on past income without adjustment. Future dollars have an inflated value which must be recognized in the capitalization process by being discounted at higher overall capitalization rates.

The equalization of historical capitalization rates based on the most recent year of financial performance, to future income based on the ensuing year of financial performance, is a relatively simple exercise. As shown, the subject property generated a net income of $182,452 in Year 0 and is expected to achieve $189,825 in Year 1. This

indicates an annual increase in net income of 4.04 percent, representing inflation and perhaps some real growth. By increasing the capitalization rates at the anticipated rate of inflation and/or real growth, the relationship between past income capitalization and future income capitalization is equalized. The method of adjustment is shown as follows:

Sale No.	Overall Capitalization Rate	x	Adjustment Factor	=	Adjusted Overall Capitalization Rate
1	7.47%		1.0404		7.77%
2	7.25%		1.0404		7.54%
3	7.43%		1.0404		7.73%
4	7.39%		1.0404		7.69%
5	7.53%		1.0404		7.83%

After adjustment and equalization, the statistical mean and median measures are:

Mean7.71%
Median: 7.73%

While both factors are similar, to be consistent the median factor of 7.73 percent has been adopted. Again recognizing Year 1 income, but applying the adjusted capitalization rate, the indicated value of the property is $2,456,000, calculated as follows:

Year 1 Net Income		$189,825
Overall Capitalization Rate (adjusted)		7.73%
Indicated Property Value		$2,455,692
($189,825 ÷ 0.0773 = $2,455,692)	Say	**$2,456,000**

Had the capitalization rates not been adjusted to reflect processing of future income, the value of the property would have been overstated by approximately $99,000, or 4.04%, the actual rate of annual inflation and/or income growth.

Alternatively, Year 0 income of $182,452 could have been used in conjunction with the unadjusted or historical capitalization rate of 7.43%. This would have resulted in an identical value estimate of $2,456,000, calculated as follows:

Year 0 Net Income		$182,452
Overall Capitalization Rate (unadjusted)		7.43%
Indicated Property Value		$2,455,612
($182,452 ÷ 0.0743 = $2,455,612)	Say	**$2,456,000**

To illustrate the mechanics of capitalizing both past and future income the following proof has been developed.

Mathematical Proof

Past Income:	Assuming Year 0 income of $100 capitalized in perpetuity at 8.00%: $100 ÷ 0.08 = $1,250
Future Income:	Let Year 1 income grow by 10.0%: $100 x 1.10 = $110
	Adjust capitalization rate by indicated growth rate: 8.00% x 1.10 = 8.80%
	Therefore $110 ÷ 0.088 = $1,250
Alternative:	Projected Year 1 income of $110 capitalized in perpetuity at 8.00%: $110 ÷ 0.08 = $1,375
	Actual Value: $1,250
	Therefore value overstated by [($1,375 - $1,250) ÷ $1,250] 10.0% which is equal to the income growth projection.

Summary

In all valuations pertaining to income producing properties, the application of capitalization rates in the capitalization process must be handled consistently. If the capitalization rates obtained from comparable transactions reflect actual operating income and expenses, then the capitalization rates can only be applied to the net income generated by the subject property during the most recent year of operation. Conversely, if the income and expenses for the subject property reflect the upcoming year of operation, the comparable sales must be analyzed in a similar fashion. However, projecting incomes and expenses for the comparable sales would be tedious and time consuming, and the determination of overall capitalization rates no longer market derived, but purely estimates. By adjusting the capitalization rates to correspond with the magnitude of the anticipated annual percentage increase in net income for the subject property, the transition from past income capitalization to future income capitalization is achieved.