**Unit 14 Outline**

**Learning Objectives**

Study of this unit should enable the student to

* identify the two ways of capitalizing income;
* compare and contrast direct capitalization and yield capitalization;
* develop a capitalization rate;
* develop a cap rate using the band of investment method;
* explain the relationship between cap rate and risk;
* compute the value of a property using the building, land, and property residual techniques;
* explain the effects of the annuity and straight-line methods of recapture on income; and
* find the present worth of a property using the annuity method of capitalization.

**Unit Outline**

I. Overview

II. Direct Capitalization

A. Based on premise that there is a relationship between the income a property can earn and the property's value

B. Formula: net operating income divided by capitalization rate equals value

C. Data needed includes potential gross income, effective gross income, net operating income and capitalization rate

III. Capitalization Rate or Overall Capitalization Rate—rate of return investor receives

* Net Operating Income divided by Value equals capitalization rate
* Capitalization Rate multiplied by Value equals Net Operating Income
* Net Operating Income divided by Capitalization Rate equals Value

Overall capitalization rate—may be developed by evaluating net income figures and sales prices of comparable properties

### Exercise 14-1

A. Building a Capitalization Rate—analyzing capitalization rate’s component parts and estimating each of those components for the subject property

1. Return of investment—right to get back the purchase price at the end of the term of ownership and is ordinarily expressed as an annual rate; appraisers refer to this as capital recapture

2. Return on investment—investor's profit on money used to purchase property—interest rate (also called risk rate or "return on" rate)

B. Selecting the Rate for Capital Recapture

1. Straight-line method of recapture—total accrued depreciation (100%) divided by the building's years of useful life

2. Requires accurate information regarding building's useful life

3. Recapture period is also referred to as estimated remaining economic life

C. Selecting the Interest Rate by the Market Extraction Method—interest rate of a comparable property is found by subtracting net operating income attributable to building recapture from total net operating income, with remainder divided by property's selling price

### Exercise 14-2

D. Band of Investment Method--Mortgage and Equity Elements—takes into account both the rate required by the lender (mortgage constant) and the rate necessary for the equity investor's desired pretax cash flow (equity capitalization rate)—each portion of the property's ownership or interest is multiplied by the rate of return required for that position

E. Relationship of Capitalization Rate and Risk

1. High risk = high cap rate = low value

2. Low risk = low cap rate = high value

### Exercise 14-3

IV. Capitalization Techniques Using Residual Income

A. Building Residual Technique

1. Land value must be known—usually found by analyzing comparable sales

2. Deduct the amount of net operating income that is earned by the land to determine its value; the balance of the NOI is earned by the building

3. Building net operating income is then capitalized at the interest rate plus the rate of recapture to find building value

4. Most useful when land values are stable and can be determined by recent sales of similar sites or when the construction cost of the building and the amount of accrued depreciation are difficult to measure accurately because of the building's age or unusual design

### Exercise 14-4

B. Land Residual Technique

1. Reverses building and land calculations of the building residual technique

2. Useful when the land value cannot be estimated from comparable sales or when the building is new or in its early life and represents the land's highest and best use

### Exercise 14-5

C. Valuing the Land and Building as a Whole

1. Land and building are valued together

2. Net operating income is developed for each comparable property analyzed and a range of overall capitalization rates are computed—from this range a rate appropriate to the subject property is selected

3. Useful when the building is very old or when it is difficult to make reliable estimates of either land or building value

### Exercise 14-6

V. Yield Capitalization—investment property value is considered the present worth of the right to receive a fixed return of both the amount invested and the interest on that amount

VI. Value of One Dollar—Figure 14.1 shows the six functions of a dollar

A. Future value of $1

B. Future value of an annuity of $1 per year

C. Sinking fund factor

D. Present value of a $1 reversion

E. Present value of annuity of $1 per year

F. Payment to amortize $1

VII. Annuity Method of Capitalization

A. Annuity—fixed yearly return on investment

B. Annuity factors table—provides factor (based on interest rate and period of investment) to be multiplied by desired level of yearly income to find present worth of the investment

1. Investment should be stable

a. Financially sound tenant

b. Long-term lease

C. Financial calculator—keystrokes required to solve elementary financial problems using the HP 12 C financial calculator are shown

D. Building Residual Technique

1. Land value estimated separately

2. Interest on estimated land value deducted from annual net operating income to find annual net income residual to building

3. Annuity factor based on desired interest and desired term is applied to building's annual net income residual to find building value

4. Building value and land value are added to find total estimated property value

### Exercise 14-7

E. Land Residual Technique—follows the same procedure as the building residual technique—but with the building and land calculations reversed

**Exercise 14-8**

F. Valuing the Property as a Whole

1. Annuity factor applied to total income stream

2. Value of reversion is found by applying a factor from a reversion table to present estimated land value

3. Present worth of reversion is added to present worth of net income stream to find property value

### Exercise 14-9

VIII. Recapture rate—result of different assumptions depending on method of recapture

A. Annuity method

1. Income stream assumed to be constant for each year of building's economic life

2. Interest accrues each year on decreasing principal

3. Recapture accounts for increasing share of income each year

B. Straight-line method

1. Income is assumed to decrease each year by the same amount

2. Interest accrues each year on decreasing property value

3. Recapture remains constant for each year

### Exercise 14-10

### Summary

## Review Questions