

ASSESSORS' HANDBOOK  
SECTION 502

ADVANCED APPRAISAL

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CALIFORNIA STATE BOARD OF EQUALIZATION

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## **PREFACE**

This revision of Assessors' Handbook Section 502, *Advanced Appraisal*, is a complete rewrite of the original manual (formerly titled *The Income Approach to Value*) written in 1988. This rewritten manual includes the addition of material concerning subjects not previously covered, a complete reorganization of topics, and the revision of the existing text. This rewrite was undertaken by staff members of the Policy, Planning, and Standards Division (PPSD) of the State Board of Equalization and is the product of PPSD authors writing at the direction of the Board.

The objective of this manual is to give property tax appraisers, and other interested parties, an understanding of the advanced issues concerning property assessment and property appraisal for tax purposes. If there is an inconsistency resulting from the absence of some technical data in this manual and more advanced information in another more specific manual, the more specific manual controls. In the interest of accuracy and thoroughness, appraisers and other interested parties are advised to consult with qualified experts and other authoritative sources regarding the technical aspects of valuing any complex property.

As part of the process of producing this manual, meetings were held with industry representatives and assessors. Conflicts regarding the content of the manual were identified and most were resolved. Those issues not resolved by meeting with industry and assessors were voted on by Members of the Board of Equalization after hearing testimony from interested parties and Board staff. The results of the voting are reflected as Board positions on issues in the manual.

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December 1998

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## CHAPTER 1: DEFINING THE APPRAISAL PROBLEM

The "appraisal process" is a systematic, multi-step approach to the problem of valuation. Like most problem-solving methodologies, it begins with a definition of the problem to be solved. The purpose of "defining the appraisal problem" is to eliminate ambiguity regarding the appraisal and to establish the premises upon which the value estimate is to be based. The definition involves consideration of such fundamental appraisal concepts as the standard of value (i.e., the nature of the value sought), the appraisal unit, and the property rights to be appraised. This chapter reviews some of these fundamental concepts, which were discussed in detail in *Assessors' Handbook Section 501 (AH 501), Basic Appraisal* (September 1997), Chapters 1-3.

The definition of the appraisal problem comprises five sub-steps, which are discussed in the following sections. These steps are:

1. Property identification
2. Identification of the property rights involved
3. Purpose and function of the appraisal
4. Valuation date
5. Definition of value

### PROPERTY IDENTIFICATION

#### PHYSICAL IDENTIFICATION

At a basic level, identification of the property refers to a precise description of the property's physical location and boundaries. This can be specified in several ways: street address, legal description, or assessor's parcel number. In property tax appraisal, the assessor's parcel number is the most common means of describing the real property to be appraised.

Identification of the property also refers to a physical description of the *land*<sup>1</sup>, *improvements*, and any other property within the appraisal unit (defined below).<sup>2</sup> Moreover, depending upon the composition of the appraisal unit, the property to be appraised may comprise a single parcel or multiple parcels, and may include several forms of property (e.g., real property, personal property, or fixtures).

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<sup>1</sup> Words included in the Glossary of Terms are italicized when they first appear.

<sup>2</sup> This aspect is, however, often addressed in the next step of the appraisal process, preliminary analysis and data collection, in which specific data regarding the subject and comparable properties are obtained.

## APPRAISAL UNIT

On a more abstract level, the identification of the property requires a determination of the *appraisal unit*.<sup>3</sup> That is, the appraiser must answer the threshold question, "What is the unit of property to be valued?"

Determining the proper appraisal unit is a problem to be solved on a case-by-case basis. In most appraisals, the definition of the appraisal unit is straightforward. The value standard in property tax appraisal is market value, and it is the market that determines the appraisal unit. In other words, the appraisal unit is the unit that people typically buy and sell in the relevant market or market segment.

This conceptualization of the appraisal unit is supported by section 51(d)<sup>4</sup>, which provides that when estimating the fair market value of real property the assessor shall consider "that appraisal unit that persons in the marketplace commonly buy and sell as a unit, or that is normally valued separately." Further, Rule 324(b)<sup>5</sup>, in the context of assessment appeals, provides that "[a]n appraisal unit of property is a collection of assets that function together and that commonly sell as a unit or that are specifically designated as such by law."

As an illustration of the concept of the appraisal unit, consider, single-family homes. These properties sell in the market as a combination of land and improvements. The separate components are not priced and sold separately, and it would be absurd to say that a buyer paid a certain amount for the plumbing, a certain amount for the electrical system, a certain amount for the roof, and so on. Instead, we know that, for single-family homes, the combination of land and improvements is the typical unit of sale and therefore constitutes the appraisal unit.

### Appraisal Unit and Multiple Parcel Properties

Determination of the proper appraisal unit for multiple-parcel properties is more complex. For example, agricultural properties such as ranches and farms, and commercial properties such as shopping centers, frequently comprise several parcels that could conceivably be sold either individually or as one unit.

Several factors may indicate that multiple parcels should be considered a single appraisal unit. These factors include: (1) the functional and economic integration of the parcels; (2) the attainment of highest and best use when the parcels are analyzed as a single unit; (3) contiguity; (4) common ownership; and, (5) current or prior combined sales of the parcels (i.e., actual transactions in which the parcels transferred as a unit). The final decision as to the appraisal unit is a matter of judgment, and no single factor can be considered controlling. The appraiser's

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<sup>3</sup> The appraisal unit is also variously referred to as "the unit to be appraised," "the unit to be valued," "the unit of appraisal," "the unit of value," or "the economic unit."

<sup>4</sup> According to California Style Manual, the correct citation for subdivisions is "section 51, subdivision (d)." For ease of reference in this handbook, subdivisions may also be referred to as "section 51(d)." All statutory references are to the Revenue and Taxation Code unless otherwise indicated.

<sup>5</sup> The official citation to a Property Tax Rule is "Title 18, California Code of Regulations, Section 324, subdivision (b)" or "18 CCR 324(b)." To reflect the convenience of common usage and practice, and to avoid confusion with Revenue and Taxation Code section citations, Property Tax Rules are simply referred to as "Rule."

determination of the proper appraisal unit should reflect the unit most likely to be sold in view of these five factors, if the property were exposed to the open market.

### **Appraisal Unit and Bulk Sales**

A related problem concerns completed development projects in which the proper appraisal unit could conceivably be either an individual parcel or a group of parcels. For example, although most residential subdivisions, condominium projects, and timeshares are developed with the intent of marketing each lot or unit separately, group sales of multiple lots or units may occur under certain circumstances. Indeed, in some cases, frequently related to conditions of financial distress, the entire project may transfer as a unit.

Determining the proper appraisal unit in these cases is always a matter of judgment. However, the best general criterion is the actual sale or transfer of the subject property. An actual transaction is a very strong indication of the unit recognized by the market and, hence, the proper appraisal unit for property tax purposes. A sales listing is also an indication of an appraisal unit recognized by the market.

In the absence of an actual transaction or other market evidence, the appraisal unit should be the unit most likely to be sold if the property were exposed to the open market. In this regard, the appraiser should attempt to discern the probable economic intent or motivation of typical buyers and sellers of the subject property, acting rationally and in their own self interests.

That the appraisal unit should be determined on a case-by-case basis is true, even for parcels within the same project. For example, if a developer sells a group of parcels in a subdivision to another developer or builder (typically with a quantity discount), the group of parcels transferred is the proper appraisal unit. Assuming the transaction occurred under requisite conditions of market value, the purchase price for the sale should be allocated among the parcels involved. As Rule 2 states, in part:

If a single transaction results in a change in ownership of more than one parcel of real property, the purchase price shall be allocated among those parcels and other assets, if any, transferred based on the relative fair market value of each.

If, in a subsequent transfer, an individual lot is sold (probably at a higher price than the average price under the group sale), the proper appraisal unit is the individual lot, and the parcel should be valued accordingly.

In the case of a change in ownership of a distressed project or an unfinished project, it is highly probable that the proper appraisal unit is the entire project; the typical buyer would view the unit being marketed (hence, the appraisal unit) as the entire subdivision or project.

### **Appraisal Unit and Undivided Interests**

Undivided fractional interests in real property are not separate appraisal units for property tax purposes. In the case of most real property, the typical unit of sale is a one-hundred percent interest, not an undivided fractional interest.

There is statutory authority permitting the separate valuation of undivided interests for the limited purpose of collection on part of an assessment. For such purpose, section 2802(b) provides that, for collection purposes, an undivided interest is a separate parcel from the whole assessment. Further, section 2821 provides that any person filing an affidavit of interest may apply to the tax collector to have fractional interests in a parcel separately valued on the current roll for the purpose of paying taxes. In either case, section 2823 requires the assessor to determine a separate valuation on the parcel such that the sum of the valuations of the parcels shall equal their total value before separation. Thus, even in these limited cases in which an undivided interest may be valued separately, the sum of the value of the parts must equal the value of the whole as a single appraisal unit.

It is sometimes erroneously argued that undivided fractional interests should be valued at less than their proportionate share of the value of the entire interest. The argument for discounting the value of an undivided interest is typically based on the reduced marketability of the undivided interest, the lack of control over the use of the entire property (in the case of a minority interest), or both. Despite these arguments, given that the proper appraisal unit for property tax purposes consists of a one-hundred percent interest, it is inconsistent to discount the value of an undivided interest below its proportionate share of the total value. Indeed, even those who argue for a discount from the proportionate share of the whole usually recognize that it is necessary to first estimate the market value of the whole property as a unit. Thus, although an undivided interest may be a proper appraisal unit for other valuation purposes (e.g., estate and gift taxes), this is not the case for property tax purposes.

Although not related to the appraisal unit concept, an additional argument against fractional interest discounts is based on the legal requirement that all property be taxed at its full value.<sup>6</sup> To illustrate, assume a property whose full value is \$100,000. Further assume that undivided one-quarter interests in this property are transferred to four separate people. If these undivided interests are discounted to a value below their proportionate share of the value of the whole, the result would be a total assessment something less than \$100,000, which is the full value of the whole property. Thus, the proper method for determining the value of fractional interests is to first appraise the proper appraisal unit (i.e., the whole property) and then to allocate value to the undivided interest(s) proportionately.

### **Principle of Unit Valuation**

The "principle of unit valuation" is used by the State Board of Equalization when appraising properties, such as utilities and railroads, pursuant to article XIII, section 19, of the California Constitution. As statutory authority, section 723 expressly provides that "[t]he board may use the principle of unit valuation in valuing properties of an *assessee* that are operated as a unit..."

Under the principle of unit valuation, the board is authorized to recognize the entire operating unit as the proper appraisal unit for certain property, thereby recognizing the high degree of

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<sup>6</sup> Specifically, section 201 provides that all property in this state not otherwise exempt is subject to taxation, and section 401 requires the assessor to assess all property subject to taxation at its full value.



functional and economic integration of such property. When the board appraises a telephone company, for example, the appraisal unit comprises all of the operating property of the telephone company.

### **Fixtures are a Separate Appraisal Unit for Declines in Value**

Specifically, Rule 461(e) explicitly states that for the purpose of determining declines in value, "fixtures and other machinery and equipment classified as improvements constitute a separate appraisal unit." In addition, Letter To Assessors 79/39 advises that a decline in value in one appraisal unit cannot be offset by an increase in value in another appraisal unit. Thus, for example, to arrive at the total *assessed value* of a property containing land, fixtures, and improvements other than fixtures, the assessed value should be the lower of the factored *base year value* or fair market value of land and improvements, plus the lower of the factored base year value or fair market value of the fixtures. A decline in value of fixtures cannot be offset by an increase in value of land and improvements.<sup>7</sup>

### **Property Contained in the Appraisal Unit**

The appraisal unit may contain several forms of property. When appraising a single-family residence, the appraisal unit contains land and improvements. When appraising an apartment building, the appraisal unit typically contains land, improvements, and personal property.

### **Appraisal Unit and Assessed Value Allocation**

Often, the appraisal unit does not correspond with the way that assessed values are allocated for purposes of enrollment. For example, section 607 provides that land and improvements shall be separately assessed. However, as discussed above, when valuing land and improvements these two real property components are typically parts of a single appraisal unit, and the appraiser estimates market value on this basis. To comply with the law, this market value is allocated into two components on the *assessment roll*.

As another example, section 606 provides, with some exceptions, that if a tract of land is situated in two or more revenue districts, the part in each district shall be separately assessed. Again, this legal requirement for separate assessment does not correspond with the concept of a market-derived appraisal unit. The solution is an artificial allocation of value following the boundaries of revenue districts to create the separate assessments.

## **IDENTIFICATION OF THE PROPERTY RIGHTS INVOLVED**

Property may be defined as the aggregate of rights that are guaranteed and protected by government. The fundamental rights associated with the private ownership of property are the rights to possession, control, enjoyment, and disposition. Property rights can be divided and shared, leading to the concept of a "bundle of rights." The full bundle of rights is called the *fee simple estate* (sometimes called the "fee simple absolute" or simply the "fee").

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<sup>7</sup> Valuation of fixtures is thoroughly discussed in Chapters 4 and 5 of Assessors' Handbook Section 504 (AH 504), *Assessment of Personal Property and Fixtures* (December 1998).

Ownership may be defined as the collection of rights to use and enjoy property. According to section 103, "[p]roperty includes all matters and things, real, personal, and mixed, capable of private ownership." Ownership of the fee simple estate is the most complete form of real property ownership under law and is subject only to the limitations imposed by government: police power, right to taxation, right to eminent domain, and right of escheat.

All appraisals involve the valuation of a set of defined property rights. With few exceptions, an appraisal for California property tax purposes involves the valuation of the entire fee simple estate unencumbered by any private interests (e.g., leases, liens, easements, etc.).<sup>8</sup> As a general rule, private parties cannot reduce the taxable value of their property by imposing private encumbrances upon it; only enforceable government restrictions under section 402.1 are recognized as limiting the full fee simple interest. Thus, Rule 2(a) provides, in part:

When applied to real property, the words "full value," "full cash value," "cash value," "actual value," and "fair market value" mean the prices at which the unencumbered or unrestricted fee simple interest in the real property (subject to any legally enforceable governmental restrictions) would transfer for cash or its equivalent....

For example, a property encumbered with a lease containing rental terms that are below or above the current economic, or market, rent should be valued as if not so encumbered. As stated in Rule 4(b)(2), the appraiser must

convert the sale price of a property encumbered with a lease to which the property remained subject to its unencumbered-fee price equivalent by deducting from the sale price of the seller's equity the amount by which it is estimated that the lease enhanced that price or adding to the price of the seller's equity the amount by which it is estimated that the lease depressed that price.

An easement is the right of use over the property of another for a specific purpose. Most easements are not separately recognized for property tax purposes. An exception occurs when the language contained in the grant of the easement effectively transfers an interest "substantially equivalent to the value of the fee," thus giving rise to a change in ownership under section 60. In this case, the easement should be appraised and assessed to the grantee, and the property subject to the easement should be reappraised in a manner that recognizes the effect of the easement.

Private conditions, covenants, and restrictions (CC&R's) are private restrictions or encumbrances that are typically recited in deeds or noted in deeds by reference. Often imposed in residential subdivisions, CC&R's have an effect similar to zoning (an enforceable government restriction under section 402.1) in that they place restrictions on use (e.g., minimum house size requirements and specification of architectural style). In many cases, they are more restrictive

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<sup>8</sup> Encumbrance: "Any right to, or interest in, land that may subsist [i.e., exist] in another to diminution of its value, but consistent with the passing of the fee. A claim, lien, charge, or liability attached to and binding real property; e.g., a mortgage; judgement lien; mechanic's lien; lease; security interest; easement or right of way; accrued and unpaid taxes." (Black's Law Dictionary, 5th edition, s.v. "encumbrance.")

than zoning. Although CC&R's are not enforceable government restrictions under section 402.1, if they are effectively enforced by the owners' association the market will tend to recognize the impact of these restrictions.

In some cases, the appraisal to be made is a partial, or fractional interest in the full fee simple, and the property rights appraised are, therefore, less than the full bundle of rights.<sup>9</sup> Taxable possessory interests; oil, gas, or mineral rights; air rights; transferable development rights; and—under certain conditions—water rights all represent cases where the property rights appraised are less than the full fee simple interest. Further, as discussed above, the rights associated with an easement may be valued and assessed separately under certain circumstances. This does not mean that a portion of the full taxable fee simple interest escapes taxation; the remaining rights are assessed to another owner.

### **PURPOSE OF THE APPRAISAL**

Real estate appraisals are prepared for many purposes; the purpose of each appraisal may affect both the methods used and the appropriate standard of value. An estimate of value for one purpose may not be appropriate for another purpose.

Broadly stated, the purpose of an appraisal for property tax purposes is to render an estimate of value, consistent with property tax law, that will be used to place an assessment on the subject property for the purpose of levying an *ad valorem* tax. "Consistent with property tax law" means consistent with the legal framework embodied in the California Constitution, statutes, and property tax rules. Documents prepared by the State Board of Equalization (e.g., the *Assessors' Handbook*, Letters to Assessors, special topic surveys, and annotated correspondence) provide guidance about property tax valuation and assessment but do not have the authority of law.

Estimates of real property value are made under a number of circumstances. These include reappraisals upon changes in ownership; completion of new construction; disaster, misfortune or calamity; and, declines in value. In addition, under specific constitutional and statutory provisions, the property tax appraiser prepares estimates of value under "restricted value" standards.<sup>10</sup> These valuations involve methodologies—prescribed by law—that result in a value usually less than full cash value. The properties for which such valuations are made include open space properties, historical properties, non-profit golf courses, certain single-family residences, lands within a Timberland Production Zone, and taxable government-owned property.

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<sup>9</sup> The full taxable fee simple interest in the property is still assessed.

<sup>10</sup> Under Rule 460(b)(3) restricted value is defined in a general manner as a value standard other than fair market, or full cash, value.

## VALUATION DATE

The valuation date of an appraisal is critically important; changes in market conditions may cause the market value of property to vary significantly from one date to another. Estimates of market value are valid only for the valuation date specified.

Valuation dates for property tax purposes reflect either a specific event date or the lien date.<sup>11</sup> Event dates include the date of a change in ownership; completed new construction; or, a disaster, misfortune or calamity. The valuation date for a change in ownership is the date on which the change in ownership occurs; the valuation date for completed new construction is the date on which the new construction is completed; the valuation date resulting from a calamity is the date on which the calamity occurred. In each of these cases, the value standard is market value on the event date.

Many valuations are performed as of the lien date, which is January 1 of each year. Most value estimates prepared under a restricted value standard,<sup>12</sup> value estimates prepared in the case of declines in value, and value estimates of unfinished new construction are all prepared as of the lien date.

## DEFINITION OF VALUE

### MARKET VALUE STANDARD

The standard of value for most property tax appraisals is market value. In a general economic sense, market value, or value in exchange, is the power of a commodity to command other commodities in exchange. It is the relative desirability of a commodity as evidenced by the actions of buyers and sellers in an open market at a particular time. In an industrial economy market value is generally measured in terms of money. It is the price (or amount of money) that a property will bring when it is sold in a market. It is value as determined in a market by the forces of supply and demand.

The general economic concept of market value is the basis for the precise legal standard of market value for property tax purposes. Both section 110 and Rule 2 address the concept of market value in the context of the taxable value of the property. Subdivision (a) of section 110 expresses the concept of market value:

Except as is otherwise provided in Section 110.1, "full cash value" or "fair market value" means the amount of cash or its equivalent that property would bring if exposed for sale in the open market under conditions in which neither buyer nor seller could take advantage of the exigencies of the other and both with knowledge of all the uses and purposes to which the property is adapted and for

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<sup>11</sup> The lien date is the date property taxes become a lien against all real property on the secured roll.

<sup>12</sup> A conceivable exception to this is a change in ownership of a single-family residence under section 401.4, in which case the valuation date is the date of the change in ownership.

which it is capable of being used and of the enforceable restrictions upon those uses and purposes.

In addition, section 110(b) establishes a rebuttable presumption that full cash value or *fair market value*, shall be the actual purchase price if the terms were negotiated at arms length between a knowledgeable transferor and transferee neither of which is able to take advantage of the exigencies of the other. Under subdivision (c), this rebuttable presumption shall not apply where an assessee has failed to provide certain information about the conditions of the transaction (e.g., negotiation of terms, the parties' allocation of purchase price).

Rule 2 interprets the statutory definition of market value as follows:

In addition to the meaning ascribed to them in the Revenue and Taxation Code, the words "full value," "full cash value," "cash value," "actual value," and "fair market value" mean the price at which a property, if exposed for sale in the open market with a reasonable time for the seller to find a purchaser, would transfer for cash or its equivalent under prevailing market conditions between parties who have knowledge of the uses to which the property may be put, both seeking to maximize their gains and neither being in a position to take advantage of the exigencies of the other.

Abstracting from the above, market value is the amount the property would bring in cash or its equivalent assuming:

- Exposure on an open market for a sufficient amount of time
- Neither the buyer nor the seller able to take advantage of the exigencies of the other
- Both parties seeking to maximize their gains
- Both buyer and the seller having full knowledge of the property and acting prudently

## **MARKET VALUE AND HIGHEST AND BEST USE**

The market value concept also includes the assumption that sale prices reflect the utilization of the property at its highest and best use. *Highest and best use*, briefly stated, is the legally permissible, physically possible, financially feasible or probable, and maximally productive use that produces the highest residual land value. It is the use that produces the greatest long term net return to the owner. As suggested in Rule 2, market value means the price that property would sell for in a transaction "between parties who have knowledge of the uses to which the property may be put, both seeking to maximize their gains."

In an open market, prices are determined based on a property's highest and best use. Consider a simple example. A choice commercial corner lot is for sale. The property may be used to grow and sell vegetables or, more profitably, as a site for a commercial building (e.g., fast food restaurant or gasoline retailer). In an open, competitive market, the site's value will be determined on the basis of the more profitable, or highest and best, use. Knowledgeable buyers will make their bids on this basis, and knowledgeable sellers will accept only bids made on this basis.

## RESTRICTED VALUE CONCEPT

As previously mentioned, there are certain exceptions to the fair market value standard. These exceptions fall under the "restricted value" concept. Rule 460(b)(3) defines "restricted value" to mean "a value standard other than full cash value prescribed by the Constitution or by statute authorized by the Constitution."

For properties subject to a restricted value standard, the law sets aside the general concept of fair market value based on highest and best use in favor of specific value limitations. In some cases, the statutory appraisal formula is compensation for the owner's agreement to limit the future use of the property; that is, the property value is premised on the restricted use rather than the most profitable or productive use.<sup>13</sup>

## MARKET VALUE, USE VALUE, AND LIMITED MARKET OR SPECIAL PURPOSE PROPERTIES

It is important to distinguish between the concept of market value and another value concept known as "use value" or "value in use."<sup>14</sup> The concept of use value is concerned with the value of property based on its utilization by a particular owner or group of owners. As defined in a current appraisal text:

*Use value is the value a specific property has for a specific use. In estimating use value, the appraiser focuses on the value the real estate contributes to the enterprise of which it is a part, without regard to the property's highest and best use or the monetary amount that might be realized upon its sale.<sup>15</sup> [Emphasis retained.]*

It is clear that the standard of value for property tax purposes is market value and not value in use. However, questions concerning market value in relation to use value sometimes arise when appraising limited market or special use properties. A widely used appraisal text provides the following definition of a limited market property:

A limited-market property is a property that has relatively few potential buyers at a particular time. It may be a limited-market property because of unique design features or changing market conditions. Large manufacturing plants, railroad sidings, and research and development properties are examples of limited-market properties that typically appeal to relatively few potential purchasers.<sup>16</sup>

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<sup>13</sup> Several types of restricted value properties are discussed in Chapter 2 of AH 501, *Basic Appraisal*.

<sup>14</sup> This concept is also sometimes referred to "value to an owner."

<sup>15</sup> Appraisal Institute, *The Appraisal of Real Estate*, 11th ed. (Chicago: Appraisal Institute, 1996), 24.

<sup>16</sup> Appraisal Institute, *The Appraisal of Real Estate*, 25.

Special use property is defined statutorily in section 401.6(b)(3).<sup>17</sup> The definition is very similar to that of limited market property:

"Special use property" means a limited market property with a unique physical design, special construction materials, or a layout that restricts its utility to the use for which it was built.

By definition, there is a very small market for limited use or special use properties; conceivably, the market could be limited to the current owner. Limited market and special purpose properties should be appraised at market value based on their current use or the most likely alternative use. The appraiser may not use a method of valuation designed solely to capture the specific utility of a property to a particular owner, but the appraiser should assume that there is a market composed of potential buyers and sellers who would use the property in a manner similar to the way the current owner uses it, unless it is clearly apparent that the market would adapt the property to another use.

If the appraiser determines that the current use of a limited-market property is the highest and best use and that this use is likely to continue, it is appropriate to consider the current use value (i.e., the value of the property based upon its current use) as the property's market value. If, on the other hand, the appraiser determines that the current use is not the highest and best use and that this use is not likely to continue, the property must be appraised based upon the alternative use that is the highest and best use.<sup>18</sup>

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<sup>17</sup> Section 401.6 concerns entrepreneurial profit and special use properties.

<sup>18</sup> Further discussion of this issue can be found in AH 501, *Basic Appraisal*, under "Valuation of Limited Market Properties."

## **CHAPTER 2: ADVANCED ISSUES IN THE COST APPROACH**

### **INTRODUCTION**

In general, the cost approach may be used when the current cost of replacing a property provides evidence of the property's value. When employing this approach to determine the value of improved properties, the known value of the land or site is added to the current cost of replacing the improvements, less an allowance for any depreciation incurred by the improvements.

The rationale for the use of the cost approach is based on the economic principle of substitution. As discussed in AH 501, this principle holds that a rational person will pay no more for a property than the cost of acquiring a satisfactory substitute, assuming no costly delay. The condition of no costly delay must be satisfied, or the cost of the delay must be added to the cost of a substitute property. If it would not be worthwhile to replace the property (i.e., if the delay in acquiring a substitute is too costly) then the cost of replacement cannot be said to represent the property's market value.

The cost approach is most reliable when the property being appraised is relatively new and has experienced little depreciation. Improvement cost tends to equal value when the improvement is new and reflects the highest and best use of the improved property. In general, the reliability of the approach decreases as the depreciation of the property (i.e., the improvements) increases. This inverse relationship between the reliability of the approach and the extent of depreciation present arises from the difficulty inherent in estimating depreciation.

In the context of real property, the steps employed in the cost approach can be summarized as follows:

1. Estimate the value of the land, or site, as if vacant and available for development to its highest and best use as of the valuation date.
2. Estimate the total cost new of the improvements as of the valuation date.
3. Estimate the total amount of depreciation incurred by the improvements.
4. Subtract the total estimated depreciation from cost new to arrive at the depreciated cost of the improvements.
5. Add the land, or site, value to the depreciated cost of the improvements to arrive at a value indicator for the total property.

### **APPLICABILITY AND LIMITATIONS OF THE COST APPROACH**

Rule 6 makes several statements about the general applicability of the cost approach. Specifically, subdivision (a) of Rule 6 provides that the cost approach is:



1. To be used in conjunction with other value approaches;
2. The preferred approach when neither reliable sales data nor reliable income data are available, or when the income from the property is not so regulated as to make current replacement costs irrelevant to value; and
3. Particularly appropriate for construction work in progress and for property that has experienced relatively little depreciation.<sup>19</sup>

Note that the last of these statements speaks not only to the applicability of the cost approach, but also to an important limitation. Specifically, where the subject property suffers from depreciation, the reliability of a value indicator determined by the cost approach may be severely limited. As discussed later under "Concepts of Depreciation," this limitation comes about because depreciation is, typically, difficult to accurately measure.

### **VALID COMPONENTS OF COST**

AH 501 discusses the concept that costs, for appraisal purposes, may be thought of as "full economic costs."<sup>20</sup> In general, full economic costs are the payments that must be made to secure the supply of all of the agents necessary for production. Full economic costs consist of all expenditures necessary to place the completed property in the hands of the buyer or ultimate consumer. Full economic costs necessary to construct real property and ready it for its intended use include (1) direct costs, (2) indirect costs, and (3) entrepreneurial profit.

#### **DIRECT COSTS**

Direct costs, also called hard costs, are generally thought of as those expenditures required for the labor and materials necessary to develop and construct an improvement. Direct costs would also include other items, such as fees for building permits, contractor's profit and overhead, and charges for equipment rentals, that relate directly to the physical aspects of a construction project.

#### **INDIRECT COSTS**

Indirect costs, or soft costs, are generally thought of as those expenditures for items other than labor and materials typically incurred in bringing the property to a finished state. Indirect costs, which are not normally part of a construction contract, may, depending on the circumstances, include such items as:

- Developer's administrative expenses
- Architectural and engineering fees
- Environmental impact studies
- Construction insurance
- Property taxes during construction
- Interest on borrowed or owner-supplied funds

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<sup>19</sup> Rule 6(a).

<sup>20</sup> AH 501, 74.

## ENTREPRENEURIAL PROFIT

Under subdivisions (b) and (d) of Rule 6 when estimating the current cost to replace a property by reference to the current prices of a property's labor and material components, it may be appropriate to add amounts for entrepreneurial services and other costs that would typically be incurred in bringing the property to a finished state. In this context, *entrepreneurial profit* refers to a market-derived estimate of what the entrepreneur expects to receive for his/her contribution, i.e., the value of the "entrepreneurial services." Thus, entrepreneurial profit does not attempt to measure actual money outlays for entrepreneurial services; instead, it is an estimate of the cost to the entrepreneur of foregoing the opportunity to profit from providing his services to some other development project. In general, entrepreneurial profit reflects the developer's expected reward for his or her expertise and risk-taking (i.e., his or her entrepreneurial services).

There are specific instructions regarding entrepreneurial profit under section 401.6(b)(1), which governs the application of the cost approach in the valuation of special use property.<sup>21</sup> Here entrepreneurial profit means either (1) the amount that a developer would expect to recover with respect to a property in excess of the amount of the development costs or (2) the difference between the fair market value of a property and the total costs incurred with respect to that property. Section 401.6 also provides that the assessor, in valuing special use property, shall not add a component for entrepreneurial profit unless evidence is derived from the market that entrepreneurial profit exists and that it has not been fully offset by physical deterioration or economic obsolescence.<sup>22</sup>

## CONCEPTS OF COST

### Reproduction Cost and Replacement Cost

Rule 6 authorizes an assessor to use a cost approach that is based on either *reproduction cost* or *replacement cost*. Reproduction cost, strictly construed, is an estimate of the cost of replacing the subject property with an exact replica, using costs as of the valuation date. This concept of cost is not often particularly useful to an appraiser, however, since reproduction cost is relevant to an estimate of a property's market value only if the property would actually be replaced by one that is identical in terms of design, materials, and workmanship. An existing building or other type of improvement may incorporate elements that diverge from current market standards, and that would therefore not be replaced by the typical buyer. However, reproduction cost frequently provides a basis for measuring depreciation from various causes.

Replacement cost, in comparison, is the estimated cost to construct a property that is equivalent to the subject in terms of utility as of the valuation date. It is this concept of cost that is validated by the principle of substitution, since, as discussed above, a rational person will pay no more for a property than the cost of acquiring a satisfactory—but not usually identical—substitute property.

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<sup>21</sup> Paragraph (3) of subdivision (b) provides that "[S]pecial use property' means a limited market property with a unique physical design, special construction materials, or a layout that restricts its utility to the use for which it was built."

<sup>22</sup> See also the discussion regarding entrepreneurial profit in Chapter 6.

However, although distinct in concept, for a given property the estimates of replacement cost and reproduction cost may be the same. For example, in the case of a newly built property constructed and designed in accordance with current market standards, the estimates of reproduction cost and replacement cost would tend to be the same.

### **Historical, or Original, Cost**

Historical, or original, cost is the cost of a property when it was originally constructed and/or placed into service. As discussed below, historical cost, combined with a cost trending factor, can be used to estimate reproduction cost.<sup>23</sup>

A cost estimate may differ significantly depending on whether reproduction or replacement cost is used, and the cost concept selected should be clearly understood. Depreciation, which is discussed below, must be measured in a manner that is consistent with the cost concept used. Reproduction cost provides a basis from which to measure depreciation from all causes, while with replacement cost the need to measure some forms of functional obsolescence is eliminated because they are not included in the estimate of replacement cost new.

## **METHODS OF ESTIMATING COST**

### **GENERAL REQUIREMENTS UNDER RULE 6**

Reproduction cost, under subdivision (b) of Rule 6, may be estimated by either (1) adjusting the property's original cost for price level changes and for abnormalities, if any, or (2) applying current prices to the property's labor and material components and adding, as appropriate, amounts for entrepreneurial services, interest on borrowed or owner-supplied funds, and other costs typically incurred in bringing the property to a finished state.

Subdivision (c) of Rule 6 provides that, where reproduction cost is estimated by the first of these methods (i.e., by adjusting the property's original cost for price level changes), costs incurred in a given year shall be multiplied by an appropriate price index factor. Further, where annual costs are not ascertainable, costs over several years may be lumped together and then adjusted by an index factor that represents the assessor's best judgment of the weighted average price change for those years. If the property was not new when it was acquired by its present owner and the original cost is unknown, the property's acquisition cost may be substituted for original cost under this subdivision. Original cost or acquisition cost should reflect the cost of the taxable property, which may or may not be equal to the "booked cost" found in accounting records. Booked cost may include the cost of non-taxable property.

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<sup>23</sup> Some sources distinguish between historical cost and original cost. Historical cost is defined as in the text, but original cost is used to designate the actual cost to the present owner, who may have acquired the property from a previous owner at an amount more or less than historical cost. Rule 6 does not make this distinction (using original cost as synonymous with historical cost) but does use "acquisition cost" in this sense, stating, in subdivision (c), "If the property was not new when acquired by its present owner and its *original cost* is unknown, its *acquisition cost* may be substituted for original cost..." [Emphasis added.]

As to replacement cost, subdivision (d) of Rule 6 provides that this measure of a property's value may be estimated by applying current prices to the labor and material components, not of the subject property, but of a substitute property capable of yielding the same services and amenities. To this estimate would be added amounts, as appropriate, for entrepreneurial services, interest on borrowed or owner-supplied funds, and other costs typically incurred in bringing the substitute property to a finished state as discussed under subdivision (b)(2).

### **SOURCES OF COST DATA**

Collection and classification of cost information is a continuing process for appraisers; costs are constantly changing. Section 401.5 states:

The board shall issue to assessors data relating to costs of property, or with respect to commercial and industrial property, shall, after a public hearing, review and approve commercially available data, and shall issue to assessors other information as in the judgment of the board will promote uniformity in appraisal practices and in assessed values throughout the state. An assessor shall adapt data received pursuant to this section to local conditions and may consider that data together with other factors as required by law in the assessment of property for tax purposes.

Cost tables published by the Board are found in Assessors' Handbook Section 531 (AH 531), *Residential Building Costs*; and Assessors' Handbook Section 534 (AH 534), *Rural Building Costs*. These sections of the Assessors' Handbook are usually updated annually. The costs provided in these handbook sections are intended for use with the Assessors' Standard Classification System. This system provides estimates of square foot building costs according to physical variations in building design, construction type, quality, floor area, and shape.

Board-approved cost guides for commercial and industrial properties should be used for determining current costs of commercial and industrial properties.<sup>24</sup> Adjustments may be necessary, however, in order to achieve a fair market value assessment. Variances from the values indicated by the cost guide should be based on reliable evidence of current replacement costs.

Cost guides provide costs of benchmark properties. Adjustments may be required for differences between the benchmark properties and the subject property. For example, adjustments may be made for differences in interior features, the shape of the building's perimeter, cost changes between the date of the benchmark costs and the effective date of value, and local cost differentials. Proper appraisal requires an analysis of the estimates for all direct and indirect costs applicable to the subject property. Unit costs obtained from a cost guide may exclude some indirect costs.

### **METHODS OF ESTIMATING COST NEW**

Rule 6 provides that any of several measurements of cost (or a combination thereof) may be used in applying current prices to the labor and materials components of the subject property (to arrive

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<sup>24</sup> Letter To Assessors 97/71, *Commercial and Industrial Value Guides*.

at an estimate of reproduction cost) or of a substitute property (to arrive at an estimate of replacement cost). These measurements include (1) square-foot, cubic-foot, or other unit costs; (2) a summation of the in-place costs of all components; and, (3) a quantity survey of all material, labor, and other cost elements. As discussed below, the methods for estimating costs using these measurements are known as the Comparative-Unit Method, the Unit-in-Place Method, and the Quantity Survey Method. Also discussed below is the Trended Historical (or Original) Cost Method, which provides an estimate of reproduction cost, in accordance with Rule 6, by adjusting the property's original cost (or, if necessary, acquisition cost) for price level changes and any abnormalities.

### Comparative–Unit Method

This method produces an estimate based on the dollar cost per unit of area. The appraiser identifies costs of similar structures, adjusting those costs for differences in market conditions, location, and/or physical characteristics in comparison to the subject property. Contractor's overhead and profit may be either included in the cost estimate per unit of area or computed separately. Indirect costs are usually computed separately, as is entrepreneurial profit.

The following example shows how comparative-unit costs can be used to value an 1,800 square foot D7 single-family residence using the AH 531.90 Compact Cost guide:

<b>EXAMPLE 2–1: Single-Family Residence—Comparative Unit Method</b>	
Base cost per sq. ft.	\$ 68.54
Add for central air conditioning	2.12
Subtotal	\$ 70.66
Current cost multiplier	x 1.00
Subtotal	\$70.66
Local cost multiplier (Sacramento)	x 1.00
Total cost per sq. ft.	\$ 70.66
Residence cost new (1,800 sq. ft. x \$70.66)	\$ 127,188
Double garage	12,806
<b>Total cost new</b>	<b><u>\$ 139,994</u></b>

**NOTE:** The above cost estimate includes direct construction costs and some indirect costs. It does not include entrepreneurial profit or the costs of buying or assembling land. Estimated costs of these items are added separately.

### Unit–in–Place Method

The unit-in-place method is a condensed version of the quantity survey method described later in this chapter. Both are time-consuming methods which may not be practical in mass appraisal. Nevertheless, the unit-in-place and quantity survey methods may occasionally be suited for property subject to an assessment appeal, or for appraisals of complex properties. Appraisers should be able to apply either technique when appropriate.

In the unit-in-place method, total costs of installing a common unit of construction are applied to the number of units in a project. Units of measure vary according to standardized costs for each component as installed. For example, floor covering may be counted on a square yard basis;

baseboards or interior partitions on a linear foot basis; doors or plumbing on a door or plumbing fixture basis; air conditioning on a per ton basis; insulation, drywall, or paint on a square foot basis; and excavation on a cubic yard basis. Common sources of unit-in-place cost data are standard cost tables such as those published in a Board-approved cost guide.

Commonly, there are several costs for each unit of construction, with differences explained by variations in the quality or the complexity of an installation. All unit costs are added together to provide a total estimate of direct costs for the subject property's improvements. Contractor's overhead and profit may be included in the direct cost estimate or computed separately. Other indirect costs and entrepreneurial profit are usually computed separately and added to arrive at an estimate of the full cost of the subject property.

The following example shows how the unit-in-place method can be used to estimate cost new for a 20 foot by 20 foot, detached garage with the AH 531.60 cost guide. The garage has a standard concrete foundation and floor. The wall framing is 2" x 4" – 16" on center and the wall height is 8 feet. The roof structure is 2" x 8" – 16" on center ceiling joists and 2" x 6" – 16" on center rafters. The roof covering is asphalt composition shingle. The exterior wall finish is ¾" bevel siding. The interior of the garage is unfinished. The garage has a 16' x 7' aluminum door. There are six - 110 volt electrical outlet and the wiring is Romex.

<b>EXAMPLE 2-2: Garage Building—Unit-in-Place Method</b>				
Foundation	80 Linear Feet	x	\$ 10.50	= \$ 840
Floor	400 Square Feet	x	\$ 3.16	= \$ 1,264
Wall Framing	3,088 Square Feet	x	\$ 1.80	= \$ 5,558
Ceiling Joists	400 Square Feet	x	\$ 1.80	= \$ 720
Rafters	400 Square Feet	x	\$ 2.12	= \$ 848
Roof Sheathing & Decking	400 Square Feet	x	\$ 1.40	= \$ 560
Roof Cover	400 Square Feet	x	\$ 1.49	= \$ 596
Wall Cover	3,088 Square Feet	x	\$ 2.30	= \$ 7,102
Garage Door				= <u>\$ 1,900</u>
Base Cost				= \$19,688
Local Cost Multiplier (Sacramento)				x <u>1.00</u>
<b>Value Indicated by the Unit-in-Place Method</b>				= <b><u>\$19,688</u></b>

**NOTE:** Any applicable indirect costs and entrepreneurial profit would be added to this cost estimate.

### Quantity Survey Method

Similarly, the quantity survey method is time-consuming and may not be practical in mass appraisal, but because of its supporting data, may be well-suited to assessment appeals or appraisals of complex properties. This method comprehensively details the quantity, quality, and cost of all materials and labor required to construct a reproduction of the subject building. Total material and labor costs are combined to indicate total direct costs of the subject building. All applicable indirect costs and entrepreneurial profit are then added to derive a total cost estimate.

The following example summarizes a general contractor's cost breakdown for an apartment building. It is important to note that the table provides only a summary of the results of the quantity survey, and does not show the computations for the materials that would be used in construction.

<b>EXAMPLE 2-3: Apartment Building—Quantity Survey Method</b>	
<b><u>Direct costs</u></b>	
Foundation	\$ 23,000
Frame	191,000
Floor structure	223,000
Floor cover	96,000
Exterior walls	647,000
Interior walls	433,000
Electrical system	59,000
Electrical fixtures	28,000
HVAC	242,000
Roof structure	205,000
Roof cover	51,000
Ceilings	79,000
Painting	18,000
Plumbing system	65,000
Plumbing fixtures	21,000
Onsite improvements and landscaping	1,205,000
Offsite improvements (sidewalks, curbs, gutters, and storm drainage)	75,000
Permits and fees	290,000
Construction overhead	215,400
Payment and performance bond	35,000
	<b>\$4,201,400</b>
<b><u>Indirect costs</u></b>	
Architectural/engineering services	\$ 304,000
Survey	8,000
Soils report	5,000
Toxic assessment	5,000
	<b>\$4,523,400</b>
<b><u>Additional indirect costs</u></b>	
Construction loan fee (\$4,308,000 x 2%)	86,160
Construction loan interest (\$4,308,000 @ 8% interest for 1 year)	188,954
Appraisals	16,000
Legal	25,000
Development consultants	148,000
Title and escrow	19,000
Other bank charges	40,000
Total additional indirect costs	<b>523,114</b>
<b>Total improvement cost</b>	<b>\$5,046,514</b>
Entrepreneurial profit (15% of direct and indirect costs and site value)	783,827
<b>Total improvements cost new</b>	<b>\$5,830,341</b>
Site value	179,000
<b>Total Value Indication by the Cost Approach</b>	<b>\$6,009,341</b>
<b>Rounded to:</b>	<b>\$6,000,000</b>

### Trended Historical (or Original) Cost Method<sup>25</sup>

*Historical cost*, or original cost, means the cost of a property when it was originally constructed and/or placed into service. As discussed above, this measure of cost may be used in estimating the value of property by the reproduction cost approach, under which a property's original construction cost is adjusted for price level changes using a cost index:<sup>26</sup>

$$\text{Historical cost} \quad \times \quad \text{Cost index} \quad = \quad \text{Reproduction cost}$$

If construction occurred during more than one year, expenditures for each year that construction took place are factored separately to compute the reproduction cost as of the valuation date. Historical construction cost data may be found in the official, undepreciated cost accounting records, or book costs, of the initial property owner. However, this data is often difficult to obtain. Further, accounting records may contain errors, or may represent estimates rather than the actual full economic costs. In some cases, book costs must be adjusted to reflect the full economic costs of a property as of initial construction.<sup>27</sup>

In addition, whenever the cost of a single property is used to estimate market value, there is a risk that the cost indicator does not reflect typical costs in the market. The historical cost of a property may be significantly higher or lower than its market value at the time of construction. As the time span between initial construction and the date of value increases, the trended historical cost method yields less reliable indicators of value.

Limitations notwithstanding, the trended historical (or original) cost method may be useful to the appraiser, particularly in dealing with unusual types of construction for which current data are not sufficiently available in the marketplace.

## DEPRECIATION

### DEPRECIATION DEFINED

The most difficult aspect of the cost approach is estimating *depreciation*. In general, depreciation may be thought of as the difference between the present value of the worn or outmoded subject property and the present value of a hypothetical, newly built, modern property of equivalent utility. For purposes of the cost approach, it is the difference between estimated replacement or reproduction cost new as of a given date, and market value as of the same date. Thus, in an appraisal sense, the term "depreciation" refers not to a decline in the original value of the subject

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<sup>25</sup> The trended historical cost method of estimating value under the reproduction cost approach is different from the historical cost approach to value under subdivision (d) of Rule 3, which applies to properties of regulated companies where historical cost, historical cost less depreciation (or, in some cases, trended original cost) is used as a rate base. The historical cost approach is discussed as a special topic in Chapter 6.

<sup>26</sup> The SBE publishes building cost indices in AH Section 533.10, *Building Cost Indices*, and AH 581, *Equipment Index and Percent Good Factors*.

<sup>27</sup> As discussed earlier, Rule 6—as it relates to personal property—provides that acquisition cost may be substituted if historical (original) cost is unavailable.



property, but rather to a measurement of the extent to which the subject property is, at a particular point in time, worth less than a hypothetical new property.

The accounting approach to depreciation is quite different from the appraisal approach. The appraiser does not use the accountant's depreciation estimate in valuation, since it is not market derived. In the accounting approach, the rate of depreciation is established when an asset is new, based on a pre-selected life span and standard periodic depreciation charge in order to write off the original cost. By the end of the asset's life, the value of the asset has been depreciated to a typically nominal or zero salvage value. The book value shown on the accounting records is the asset's acquisition cost reduced by the accrued depreciation charges against it for income tax purposes. By contrast, depreciation for appraisal purposes estimates actual loss in value incurred by the property in the marketplace. An appraiser estimates the market value of a building by adjusting its cost new for estimated depreciation. Market value is unlikely to equal the book value indicated by accounting records.

Differences between the accountant's and the appraiser's depreciation estimates are represented in equation form below:

$$\begin{array}{lclcl}
 \textit{Replacement Cost New} & - & \textit{Depreciation} & = & \textit{Market Value Estimate} & (\textit{Appraiser}) \\
 \textit{Reproduction Cost New} & - & \textit{Depreciation} & = & \textit{Market Value Estimate} & (\textit{Appraiser}) \\
 \textit{Trended Historical Cost} & - & \textit{Depreciation} & = & \textit{Market Value Estimate} & (\textit{Appraiser}) \\
 \textit{Capitalized Cost} & - & \textit{Depreciation} & = & \textit{Book Value} & (\textit{Accountant})
 \end{array}$$

## TYPES OF DEPRECIATION

Appraisers analyze three generally recognized types, or causes, of depreciation: physical deterioration; functional obsolescence; and external, or economic, obsolescence. A property may suffer from more than one form of depreciation at one time.

### Physical Deterioration

*Physical deterioration* is a loss in value due to use or the forces of nature. Physical deterioration occurs to virtually all improvements as they age, lowering their utility and consequently reducing their value. Examples of physical deterioration are peeling paint, metal fatigue, flood damage, and termite infestation. Proper maintenance can slow a building's rate of physical deterioration.

Physical deterioration may be classified as curable or incurable. Curable physical deterioration (also called deferred maintenance) occurs when the value added by a repair equals or exceeds the cost to cure the defect. Incurable physical deterioration occurs when the value added by the repair is less than the cost to cure the defect as of the valuation date—that is, it is not economically feasible to repair the item.

When estimating physical deterioration, the physical components of an improvement are divided into two types: short-lived components and long-lived components. Short-lived components of an improvement (e.g., roof covering, elevators, or mechanical systems) are components that

typically have useful lives shorter than the remaining economic life of the entire improvement (the concepts of useful life and remaining economic life are discussed below). Long-lived components (e.g., concrete foundations and underground plumbing) are components that typically have useful lives at least as long as the entire improvement's remaining economic life.

### **Functional Obsolescence**

A property's functional utility reflects its overall usefulness or desirability—its ability to satisfy the wants and needs of the marketplace. *Functional obsolescence* is the loss in utility and value due to a reduction in the desirability of the property. Functional obsolescence is caused by factors inherent to the property. This form of obsolescence may be attributable to changes in tastes and preferences within the marketplace, changes in building techniques or technology in general, or poor original design that is deficient or excessive when compared to current market standards.

As with physical deterioration, functional obsolescence is classified as curable or incurable, depending on whether or not the cost to cure the functional defect is less than or equal to the anticipated increase in property value resulting from correction of the defect. Functional obsolescence may be caused by a deficiency or a superadequacy. With a deficiency, the improvement is below standard as determined by the market; with a superadequacy, the improvement exceeds market standards. External Obsolescence

### **External Obsolescence**

*External obsolescence* (sometimes called economic obsolescence) is a loss in value caused by negative influences outside of the subject property that are generally beyond the control of the subject property owner or tenant. Unlike physical deterioration and functional obsolescence, which are intrinsic to the property, external obsolescence is caused by extrinsic forces. Negative influences could be economic (e.g., erosion of a community's economic base or a building supply that is in excess of demand), locational (e.g., placement of a medical center adjacent to a railroad crossing), or legal (e.g., a zoning variance that allows for industrial uses in a residential neighborhood, or a wetlands protection law that limits construction). The presence and extent of external obsolescence can be identified by examining the overall market conditions of a property. External obsolescence can affect both a site and its improvements. External obsolescence is generally deemed to be incurable as of the valuation date, but may not be permanent.

### **AGE AND LIFE CONCEPTS**

Any measurement of depreciation must take account of the difference between the present value of the subject property and the present value of a hypothetical, new, substitute property. To do this, an appraiser makes use of specific appraisal concepts that allow comparisons between the expected entire "life" of a new property and the expected remaining "life" of a subject property. These concepts, which include economic life and useful life, remaining economic life and remaining useful life, and actual age and effective age, all serve to represent depreciation as a function of time.

### **Economic Life and Useful Life**

With respect to improvements to real property, *economic life* refers to the period of time over which an improvement or a component thereof contributes to the property's value from the time it is new. To estimate economic life expectancy, the appraiser must identify and analyze all significant attributes of the subject property's market, including typical quality and condition of construction; functional utility of improvements; changes in technology and building design; factors external to the subject property such as supply and demand conditions and the stage of a neighborhood's life cycle.

*Useful life* is the period of time over which an improvement or a component thereof actually performs the function it was designed to perform. It is possible for useful life to extend far beyond economic life, as, for example, in the case of a well-maintained building demolished for development of the site to its highest and best use.

### **Remaining Economic Life and Remaining Useful Life**

*Remaining economic life* is the estimated period of time from the valuation date that an improvement or a component thereof can be expected to continue to contribute to a property's value. Remaining economic life extends from the valuation date of the improvement or component to the end of its economic life.

*Remaining useful life* is the estimated period of time from the actual age (discussed below) of an improvement or a component thereof to the end to the improvement's or the component's useful life expectancy.

### **Actual Age and Effective Age**

The *actual age* of an improvement or a component thereof is simply its chronological age, or the actual number of years since it was constructed. In contrast, *effective age* refers to the stage of an improvement's or component's economic life as reflected by its actual condition and utility on the valuation date. If a subject building, for example, is better maintained than typical buildings in its market, the subject building's effective age will probably be less than its actual age, and vice versa. Remodeling a building tends to reduce its effective age. Effective age is related to remaining economic life:

$$\text{Effective age} + \text{Remaining economic life} = \text{Total economic life}$$

### **METHODS OF ESTIMATING DEPRECIATION**

There are several methods of estimating depreciation. Four methods are discussed in this section: the percent good, age-life, market extraction, and observed condition, or breakdown, methods. Of the four, only the observed condition (breakdown) method measures depreciation according to its separate sources: physical deterioration, functional obsolescence, and external obsolescence. The other methods measure depreciation from all sources in a lump sum. Estimates derived using the market extraction and breakdown methods are time-consuming, and they may not be practical in mass appraisal (particularly the observed condition (breakdown)

method). Nevertheless, these methods may be appropriate for selected assessment appeals or appraisals of complex properties.

### Percent Good Method

The Board publishes percent good tables in AH 531, *Residential Building Costs*, AH 534, *Rural Building Costs*, and Assessors' Handbook Section 581 (AH 581), *Equipment Index and Percent Good Factors*.

Percent good factors complement the percentage of depreciation. For example, if total depreciation on a property is 20 percent, the percent good is 80 percent. Percent good tables applicable to residential buildings are designated as "R," while percent good tables applicable to other-than-residential buildings are designated as "OR." Each designation has a number of tables organized by life expectancy (e.g., the percent good table applicable to a residential building with a 60-year life expectancy is designated as "R-60"). Note that percent good tables are valid only when a subject property has experienced average depreciation for its age, quality, and use type.<sup>28</sup>

### Age-Life Method

In the age-life method, percent depreciation is estimated simply by dividing the estimated effective age of the subject property's improvements by the total economic life of those improvements. Depreciation is then converted to dollars by multiplying the percent depreciation by the cost new of the improvements. An example is given below:

<b>EXAMPLE 2-4: Age-life Method</b>	
Cost new:	\$1,000,000
Effective age:	10 years
Total economic life:	50 years
Percent depreciation:	$10 \div 50 = .20$ (20%)
Depreciation in dollars:	$.20 \times \$1,000,000 = \$200,000$

The age-life method allows an estimate of depreciation to be expressed in annual terms. In the example above, since the improvements have a total economic life of 50 years the annual depreciation is 2 percent (i.e., the reciprocal of 50). Because of the simplicity of the age-life method, it is particularly useful in mass appraisal. However, while an estimate of depreciation is easily achieved, the result is an approximation based on the usually faulty assumption that property depreciates on a straight-line basis throughout its economic life. Therefore, this method should be used in combination with another method or methods.

<sup>28</sup> Use type refers to the current use of a building—for example, residential, commercial, industrial, agricultural, or special purpose.

### Market Extraction Method

The market extraction method (also called the market or comparable sales data method) is the only method that uses comparable sales data to estimate depreciation. The estimate of depreciation for the subject property is based on the amount of depreciation incurred by comparable sales properties. The method requires sales of improved properties that are highly comparable to the subject property. It also requires comparable data concerning site values of the comparable properties and accurate estimates of cost new for the comparable properties. Application of the method is summarized in the following steps:

1. Identify comparable sales properties.
2. Adjust the comparable sales, if necessary, for any differences relating to property rights conveyed, financing, or non-real property items included in the sales price. Adjustment for market conditions is not required; depreciation is estimated as of the sale date of the comparable. Adjustment for physical and locational characteristics is also not required; presumably, these factors are the sources of depreciation in the comparable property.<sup>29</sup>
3. Subtract the estimated value of the land, or site, as of the sale date, from each comparable sale in order to arrive at an estimate of the residual, depreciated value of the improvements.
4. Estimate the cost new of the improvements for each comparable property as of the sale date. The type of cost estimated (i.e., replacement or reproduction cost) should be the same as that used for the subject improvement.
5. Subtract the depreciated value of the improvements (item 3) from cost new (item 4) to arrive at a dollar estimate of total depreciation for each comparable sale property.
6. Convert each dollar estimate of total depreciation into a percentage by dividing it by the cost new of each comparable sale's improvements. (The percentage may be expressed as either (1) overall rates of depreciation, to be applied to the lump sum cost new of the subject improvements, or (2) annual rates of depreciation, to be applied to the subject improvements according to their actual age. Annualizing the results introduces the assumption that depreciation occurs on a straight-line basis over time.) Reconcile the results and select an appropriate percentage to apply to the cost new of the subject property's improvements; this produces the estimate of total depreciation for the subject property's improvements.

The following example illustrates the application of the market extraction method:

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<sup>29</sup> Adjusting comparable sales for elements of comparison is discussed in Chapter 3.

<b>EXAMPLE 2-5: Market Extraction Method</b>			
	<b><u>Sale 1</u></b>	<b><u>Sale 2</u></b>	<b><u>Sale 3</u></b>
Sales Price	100,000	130,000	120,000
Less Land Value	<u>40,000</u>	<u>70,000</u>	<u>55,000</u>
Market Value of Improvements	60,000	60,000	65,000
Replacement Cost New	90,000	110,000	120,000
Less Market Value of Improvements	<u>60,000</u>	<u>60,000</u>	<u>65,000</u>
<b>Lump Sum Depreciation</b>	<b>30,000</b>	<b>50,000</b>	<b>55,000</b>
<b>Percentage Depreciation</b>	<b>33%</b>	<b>45%</b>	<b>46%</b>

In reconciling these results, the appraiser might estimate that the subject property's improvements have depreciated 45 percent, 33 percent, or some other amount based upon the relative comparability of the sales and the subject property.

### **Observed Condition (Breakdown) Method**

The observed condition, or breakdown, method is the most comprehensive of the three depreciation methods discussed here. It is the only method that separately measures each source of depreciation. The method is complex; however, a working knowledge of it provides the appraiser with a better understanding of the causes of depreciation and the relationship between these causes and market value. The following discussion attempts to merely describe the method rather than provide a complete exposition. For more detailed information, the appraiser is referred to standard appraisal texts.<sup>30</sup>

Under a traditional application of this method, an appraiser would attempt to measure depreciation from:

1. Curable Physical Deterioration
2. Incurable Physical Deterioration (Long-lived items and short-lived items)
3. Curable Functional Obsolescence
4. Incurable Functional Obsolescence
5. External Obsolescence

### **ESTIMATING PHYSICAL DETERIORATION**

As previously discussed, physical deterioration is a form of depreciation that reduces the value and utility of virtually all improvements as they age. In the observed condition (breakdown) method, the components of improvements are analyzed in three categories: curable physical deterioration, incurable physical deterioration (short-lived items), and incurable physical deterioration (long-lived items). Physical deterioration may occur in any of these categories. Each item of physical deterioration is separately estimated.

<sup>30</sup> For example, Appraisal Institute, *The Appraisal of Real Estate*, 378-394; or International Association of Assessing Officers, *Property Assessment Valuation*, 2nd ed. (Chicago: International Association of Assessing Officers, 1996), 164-180.

### **Curable Physical Deterioration**

Curable physical deterioration, also referred to as deferred maintenance, consists of items in need of repair or replacement as of the valuation date. Typical examples of deferred maintenance are a leaky roof, peeling paint, a broken or stuck window, a non-working air conditioner, faulty plumbing, interior decorating, pest control, fire or safety hazards, etc.

There are two tests for determining whether physical deterioration is curable. First, the appraiser must determine whether the cost to cure an item of deferred maintenance will result in added value equal to, or greater than, the cost to cure. Second, even when the cost to cure exceeds the added value, if curing the item will allow the entire property to maintain its value, the item is generally considered curable.

This type of physical deterioration is measured by the "cost to cure" the defect—that is, the cost to restore the item to new or relatively new condition. The cost to cure is sometimes higher than cost new. This occurs, for example, when costs are incurred to remove a non-working item before a replacement can be installed, or when a bulk unit discount is unavailable when replacing only one unit.

### **Incurable Physical Deterioration**

Incurable physical deterioration is physical deterioration that is not economical to repair as of the valuation date—that is, the cost to cure the defect exceeds the added value of the repair. Incurable physical deterioration includes both short-lived and long-lived physical components. As discussed earlier, a short-lived component (e.g., roof covering, exterior paint, interior decorating, floor covering, water heater, furnace, and kitchen appliances) has a remaining useful life shorter than the remaining economic life of the primary improvement (such as a building). Most short-lived items will become deferred maintenance items before the end of the primary improvement's remaining economic life expectancy. A long-lived component (e.g., a building's structural and electrical systems) has a remaining useful life at least as long as the remaining economic life of the primary improvement. Since it is normally not economically feasible to replace such components before the economic life of the primary improvement ends, physical deterioration incurred by long-lived components is considered incurable.

To measure the loss in value caused by physical deterioration for each short-lived component, the appraiser calculates an age-life ratio from its actual age and total useful life expectancy. The age-life ratio is then applied to the cost new to replace each item as of the valuation date. A similar procedure is followed for long-lived components; however, the actual age and useful life expectancy of the primary improvement may be assigned to all long-lived items. Thus, all long-lived items are analyzed together. Data sources for estimating total useful life of the primary improvement and all long-lived items include: (1) the age of other primary improvements (buildings) when torn down for redevelopment to a similar use; (2) information provided by construction experts; (3) data obtained from demolition permits; and, (4) analysis of sales comparables. Physical deterioration must be calculated separately for short-lived and long-lived components in order to avoid the double depreciation of short-lived components.

## ESTIMATING FUNCTIONAL OBSOLESCENCE

As defined previously, functional obsolescence is a loss in utility and value due to a reduction in the desirability of an improvement or a component thereof, as measured by market standards on the valuation date. Functional obsolescence may be curable or incurable and may result from a deficiency or a superadequacy. A deficiency results from an improvement component that is below market standards; a superadequacy results from an improvement component that exceeds market standards. The tests for determining the curability of functional obsolescence are the same as the tests for the curability of physical deterioration. That is, an item of functional obsolescence is considered curable if (1) the value added will be equal to or greater than the cost to cure, and (2) curing the item will allow the entire property to maintain its value. When it is possible to cure an item, but without any economic advantage to do so, the item is considered incurable. As a result, most superadequacies are considered incurable.

There are three types of curable functional obsolescence and two types of incurable functional obsolescence estimated in the observed condition (breakdown) method, as shown in the table below:

<b>Curable</b>	<b>Incurable</b>
<ul style="list-style-type: none"> <li>• A deficiency requiring addition of a new item;</li> <li>• A deficiency requiring replacement/modernization of an existing item; and,</li> <li>• A superadequacy that is economically feasible to cure.</li> </ul>	<ul style="list-style-type: none"> <li>• A deficiency that is not economically feasible to cure; and</li> <li>• A superadequacy that is not economically feasible to cure.</li> </ul>

### Curable Functional Obsolescence

As noted in the above table, there are three types of curable functional obsolescence: a deficiency requiring an addition, a deficiency requiring replacement or modernization, and a superadequacy economically feasible to cure.

**Deficiency Requiring An Addition.** This type of functional obsolescence is characterized by the lack of an item in the subject improvement that would typically be found in comparable improvement and that would be economically feasible to add. A deficiency requiring an addition is not included in the estimate of cost new. Depreciation in this case is measured by how much the cost of the addition exceeds the cost of the item if it had been installed during the construction of the improvement—this is sometimes called the "excess cost to cure."

**Deficiency Requiring Replacement/Modernization.** This type of functional obsolescence involves a property component needing replacement (e.g., an older HVAC system below current standards), where the obsolescence is curable.

A deficiency requiring replacement or modernization is included in the estimate of cost new. Depreciation is measured as the cost of the existing item in the cost new estimate, less any physical deterioration of the item already charged, less any salvage value of the replaced item, plus the cost to install the new item (including the removal costs for the old item).

**Superadequacy Economically Feasible to Cure.** This type of functional obsolescence involves a property component in excess of market standards that does not significantly contribute to



value. Most superadequacies are incurable; that is, even when a cure is physically possible, there is typically no economic advantage to do so.

Depreciation caused by a curable superadequacy is measured differently depending on the cost basis used. If replacement cost is used, the cost of the superadequacy is not included in the estimate of cost new, and depreciation is simply the cost to cure the superadequacy—that is, the cost to remove the item, less any salvage value. If reproduction cost is used, the cost of the superadequate item is included in the estimate of cost new. In this case, the measure of depreciation is the cost new of the item, less any physical deterioration already charged, plus the removal cost of the item, less any salvage value of the item.

### **Incurable Functional Obsolescence**

There are two types of incurable functional obsolescence: a deficiency that is not economically feasible to cure, and a superadequacy that is not economically feasible to cure.

**Deficiency Not Economically Feasible to Cure.** The most common type of incurable deficiency is a one that was not included in the estimated cost new but should have been. In this case, the depreciation, or loss in value, is measured by the loss in value attributable to the deficiency, less the cost of the deficient item had it been included in the estimate of cost new.

The loss in value attributable to the deficiency is generally measured in two ways: (1) capitalization of the net (i.e., after allowable expenses) income loss, or (2) analysis of otherwise comparable sales, with some containing the deficiency and others not containing it. The annual income loss can be capitalized into an estimate of value loss using either direct capitalization or gross income multiplier analysis. The second method attempts to isolate the value loss through direct sales comparisons; this method is also called paired sales analysis. Paired sales analysis, or paired data analysis, is a quantitative technique where nearly identical properties are analyzed to determine a single characteristic's effect on value. This analysis is relevant, for example, where a comparable sale suffers the same negative influence as the subject property (e.g., proximity of residential property to large fuel tanks) and can be compared to a similar comparable sale located away from the negative influence. The accuracy of this method depends in part on the comparability of the properties. When land sales are used, paired sales analysis will measure external obsolescence attributable to the land value. But when improved property sales are used, they measure external obsolescence attributable to the property as a whole.<sup>31</sup>

**Superadequacy Not Economically Feasible to Cure.** This type of functional obsolescence involves a property component in excess of market standards, for which there is no apparent economic advantage to cure. The presence of a superadequacy can create additional costs of ownership such as higher utility, maintenance, and repair expenses.

As is the case with a curable superadequacy, depreciation caused by an incurable superadequacy is measured differently depending on the cost basis used. If replacement cost is used, the cost of the superadequacy is not included in the estimate of cost new, and the measure of depreciation is

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<sup>31</sup> Paired sales analysis is discussed in Chapter 3, in the context of the comparative sales approach.

the extra cost of ownership resulting from the superadequacy, less the added value, if any, due to the superadequacy. If reproduction cost is used, depreciation is measured as the reproduction cost of the superadequacy, less any physical deterioration already charged, plus the extra cost of ownership resulting from the superadequacy, less the added value, if any, resulting from the superadequacy.

### **ESTIMATING EXTERNAL OBSOLESCENCE**

As discussed earlier, external obsolescence is a loss in value caused by negative influences outside of the subject property that are beyond the control of the subject property's owner or tenant to correct. External obsolescence can affect both a site and its improvements.

Depreciation resulting from external obsolescence is generally estimated using the two methods described above under incurable functional obsolescence: namely, capitalization of the net income loss or market comparison (i.e., paired sales analysis). However, external obsolescence generally affects the entire property—that is, both land and improvements—but obviously only the loss in value attributable to the improvement should be counted as depreciation. Correctly estimated, land, or site, value used in the cost approach should already reflect the portion of value loss attributable to the site. Thus, with external obsolescence that affects the entire property, it is necessary to make an allocation of a portion of the total value loss to the improvement in order to avoid a double counting of depreciation.

As the above discussion demonstrates, the estimation of depreciation using the observed condition (breakdown) method is a relatively complicated undertaking. The essence of the method is that each type of depreciation, or loss in value, is estimated separately, taking care to not double count any depreciation. The measure of depreciation in a given circumstance may be affected by the cost basis used—i.e., replacement or reproduction cost—and whether the item was or was not included in the estimate of cost new. Again, the reader is referred to standard appraisal texts for more information regarding this method.

### **LAND VALUATION IN THE COST APPROACH**

In the cost approach, the value of the subject land, or site, is generally estimated as of the valuation date as though vacant and available to be developed to its highest and best use. Site value is then added to depreciated cost of the subject improvements as of the valuation date to arrive at an indicator of value. Additionally, both the California Constitution, article XIII, section 13 and the Revenue and Taxation Code, section 607, direct that an appraisal for property tax purposes requires an allocation of the value between the land and the improvements, even though the property is appraised as a single integral unit. Thus, the appraiser must estimate the value of land when preparing an appraisal.

For property tax purposes, land is generally valued under a highest and best use analysis, as discussed in detail in Assessors' Handbook AH 501, *Basic Appraisal*. Even when a subject property is improved, the site is valued as though vacant and available for development to its highest and best use. The highest and best use analysis answers several important questions

regarding the most productive use of land, the contribution of various types of improvements which could be constructed on the land, and selecting comparable properties with the same highest and best use as the subject. For these reasons, it is helpful to periodically review the highest and best use concepts in AH 501.

The comparative sales approach is the most reliable method of valuing land. However, when a sufficient number comparable sales are not available, four other valuation procedures may be used: (1) allocation; (2) extraction; (3) land residual; (4) ground rent capitalization; and, (5) subdivision development analysis. To support the market analyses required to value land without comparable sales, it is important for appraisers to maintain an ample database of cost data, sales, rents, and rates of return over time. The techniques of land valuation are provided in AH 501, Chapter 5: Measurement of Value, and are also described briefly here.

### **COMPARATIVE SALES**

The comparative sales approach to value requires analysis, comparison, and adjustment of comparable sales to provide an indication of value for the subject site. A comparison is made based on analysis of the similarity or dissimilarity of the comparables. Elements of comparison include:

- Property rights conveyed (e.g., fee simple);
- Financing terms (above, at, or below typical market financing);
- Conditions of sale (e.g., arm's length sale versus foreclosure);
- Market conditions (e.g., a decline in value since the sale);
- Location (e.g., corner, freeway frontage, or downtown);
- Zoning and legal encumbrances, restrictions, or entitlements (e.g., construction density allowance; or city approval to rezone to highest and best use); and,
- Physical characteristics (e.g., parcel size, shape, and topography; and level of on- and offsite improvements).

Measurements of adjustments, such as paired sales analysis, are discussed in Chapter 3: Advanced Issues in the Comparative Sales Approach.

### **ALLOCATION**

In the allocation method, the appraiser estimates a ratio of site value to total property value. This estimate is based on the ratios of site value to total value from comparable sales of both vacant and improved properties. The ratio is then applied to the total value estimate for the subject property to estimate the subject property's site value. Allocation ratios may be obtained from mass appraisals performed by assessors offices. When a site value percentage is estimated from past trends, the appraiser is cautioned that the ratio of site value to total property value can change over time. This method is typically used to estimate the site value of improved properties.

### **EXTRACTION**

The extraction method is a variation of the allocation method. In this method, land value is extracted from the total value of an improved property by deducting the contributory value of the improvements from the sale price or total property value. This method is most reliable for properties with limited improvements.

## **LAND RESIDUAL**

The land residual technique may be used to: (1) estimate the profitability of alternative land uses to determine highest and best use; or, (2) estimate land value when insufficient comparable land sales are available from the market.

To apply the land residual approach, the appraiser must: (1) reliably estimate the property's improvement value and net operating income (both under the premise of highest and best use), and (2) extract appropriate capitalization rates for both land and improvements from the market.

Using the improvement capitalization rate, the appraiser estimates the portion of the property's total income attributable to the improvements, and subtracts that amount from the net operating income. What remains is the income attributable, or residual, to the land. To estimate the land value, the appraiser capitalizes the income attributable to the land at the market-derived land capitalization rate.

When appraising land in a depressed market, the highest and best use is sometimes holding the land for future development. Past sales can be used to estimate a land value that is discounted over an estimated marketing period.

## **GROUND RENT CAPITALIZATION**

Like the land residual technique, ground rent capitalization<sup>32</sup> is a form of direct capitalization in the income approach. If the subject property's ground rent is similar to ground rents typically found in the market, the indicator of value will be the estimated market rent less expenses, capitalized at the land capitalization rate. However, if the subject property's ground rent is not at market levels, that rent must be adjusted to derive a proper estimate of market value of the fee simple interest in the subject property's site.

## **SUBDIVISION DEVELOPMENT ANALYSIS**

Subdivision development analysis is a specific application of discounted cash flow analysis (DCF) when applied to land valuation. This analysis considers the development potential of vacant land to its highest and best use as a subdivision or a higher use. This land valuation technique may be used when market data on sales of vacant tracts of land are inadequate, but sales of developed lots are available. DCF may also provide a useful cross-check to the comparative sales approach.

First, the appraiser estimates the number of lots that will be developed (e.g., into single-family homes), considering legal and physical constraints (e.g., zoning and topography) and market demand for development. As part of this estimate, the appraiser should conduct an absorption study (1) to determine market supply and demand and (2) to project a marketing time frame for the sale of the developed units.

Second, the appraiser then estimates the retail market values of the subject property's hypothetical units upon sale to individual owners. (As opposed to a sale to intermediate owners,

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<sup>32</sup> Ground rent is the rent paid for the right to use and occupy land.

such as bulk purchasers, who will sell the land later to individual owners.) The retail market values of those units may be estimated from comparable sales using the comparative sales approach.

Third, the appraiser estimates the full economic cost to develop the subdivision, including these components: direct costs, indirect costs, and entrepreneurial profit. Marketing costs should be included with the indirect costs. A more in-depth discussion of full economic cost appears earlier in this chapter.

Fourth, cash flows from revenues and costs are projected over regular intervals (e.g., annually, semi-annually, or quarterly) during the absorption time frame, beginning with the property in its current condition and continuing until all units are sold. When projecting cash flows, the appraiser should consider possible changes to revenues and/or costs during the absorption period (e.g., due to declining or strengthening market conditions).

Finally, net cash flows over the absorption time frame are discounted at a rate extracted from the market to estimate the net present value of those cash flows. The discount rate selected should reflect the risks associated with development of the subject property. The total net present value of the cash flows reflects the estimated land value of the subject property.

For further information on discounted cash flow analysis, refer to Chapter 4: Advanced Issues in the Income Approach.

## **CHAPTER 3: ADVANCED ISSUES IN THE COMPARATIVE SALES APPROACH**

### **INTRODUCTION**

In the comparative sales approach, the appraiser: (1) selects comparable properties based on their similarity to the property being appraised (i.e., the subject property); (2) compares the selected properties to the subject property; and, (3) adjusts the sales prices of the comparable properties to reflect significant differences between the subject and comparable properties. The standards for comparison should be those of the market in which the subject and comparable properties compete; that is, the adjustments to the comparable sales prices should be market-derived. The adjusted sales prices of the comparable properties represent estimates of what each comparable property would have sold for had it possessed all of the significant characteristics of the subject property. Each adjusted comparable sale price thus becomes a value indicator for the subject property. These separate indicators of value are finally reconciled into a single indicator of value.<sup>33</sup>

The primary theoretical basis for the comparative sales approach is the principle of substitution, i.e., the concept that an informed market participant would not pay more for a property than the cost of acquiring a substitute property of equal utility. The comparative sales approach is summarized in the following steps:

1. Investigate and research market data (e.g., sales, listings, and pending offers to purchase) concerning properties comparable to the subject property;
2. Verify and select the comparable sales data;
3. Analyze the comparable sales data for significant differences between the subject and comparable properties, adjusting the sale price of each comparable property as necessary;
4. Convert the adjusted sales prices of the comparable properties into relevant units of comparison (e.g., price per square foot, price per acre, price per unit, price per room, etc.) and further adjust the unit prices as necessary in order to derive value indicators; and,
5. Reconcile the value indicators from the group of comparable sales into a single value indicator for the subject property.

### **APPLICABILITY AND LIMITATIONS**

The comparative sales approach is applicable when there is an active market for the type of property being appraised and an adequate amount of verified, reliable sales data regarding comparable properties. Comparable sales that require fewer and less significant adjustments produce the most reliable indicators of value. Support for the adjustments made in this approach must be derived from market data. Under Rule 4, the comparative sales approach is preferred when reliable market data are available.

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<sup>33</sup> The comparative sales approach is also referred to as the sales comparison approach or the direct sales comparison approach.

In practice, the comparative sales approach is the primary approach for valuing single-family residential properties, smaller multi-residential properties, and smaller commercial and industrial properties. It may be difficult to apply the comparative sales approach to special-purpose properties (e.g., a ski resort) because of the frequent lack of comparable sales data. For larger income-producing properties when reliable sales are not available and, which are typically purchased based on expected future cash flows, the income approach is generally the primary approach.

## **COMPARABLE SALES DATA**

### **COMPARABILITY**

The appraiser's primary task in the comparative sales approach is finding comparable sales data. A threshold consideration in determining comparability is whether or not the sale meets the conditions of a fair market value transaction. Fair market value is defined in Rule 2 as:

[T]he price at which a property, if exposed for sale in the open market with a reasonable time for the seller to find a purchaser, would transfer for cash or its equivalent under prevailing market conditions between parties who have knowledge of the uses to which the property may be put, both seeking to maximize their gains and neither being in a position to take advantage of the exigencies of the other.

This is, essentially, the "open-market, arm's length" concept with which most appraisers are familiar. If a sale does not meet the conditions of a market value transaction, it should not be used as a comparable sale in the comparative sales approach.

Section 402.5 establishes basic criteria for comparability. It provides:

When valuing property by comparison with sales of other properties, in order to be considered comparable, the sales shall be sufficiently near in time to the valuation date, and the properties sold shall be located sufficiently near the property being valued, and shall be sufficiently alike in respect to character, size, situation, usability, zoning or other legal restriction as to use unless rebutted pursuant to Section 402.1, to make it clear that the properties sold and the properties being valued are comparable in value and that the cash equivalent price realized for the properties sold may fairly be considered as shedding light on the value of the property being valued. "Near in time to the valuation date" does not include any sale more than 90 days after the lien date.

Thus, comparable sales must be sufficiently comparable in terms of location, physical characteristics (e.g., utility, size, age, quality, condition, amenities) and use (zoning and other enforceable government restrictions) so as to "shed light" on the value of the subject property. In addition, the comparable sales prices must reflect a cash equivalent amount and have occurred no

more than 90 days after the valuation date.<sup>34</sup> The appraiser's objective, or course, is to find sales data that require as few adjustments as possible.

Comparable properties are those properties that effectively compete with (i.e., are close substitutes for) the subject property. The type of property being valued and the nature of the market in which it is traded define the geographic scope from which comparable properties can be drawn. For many properties, particularly single-family residences, neighborhood is an important determinant of comparability; that is, comparable properties are typically located within the subject property's neighborhood or within comparable neighborhoods. Some types of properties, however, compete in regional, national, or even international markets.<sup>35</sup>

### **DATA REQUIREMENTS AND SOURCES**

Application of the comparative sales approach requires detailed, verified data regarding the subject and comparable properties. Whenever possible, sales data should be verified with the buyer, seller, or authorized agent of either. Comparable data includes data regarding the transaction (e.g., date of sale, sale price, terms of financing, and conditions of sale) and data regarding the locational, physical, and economic characteristics of the subject and comparable properties. There is no strict rule in appraisal regarding the number of comparable sales required. Typically, several comparable sales are preferred. The objective is to obtain sufficient market data to render a supportable value estimate. It is often necessary to research and investigate several sales for each comparable sale that is finally selected.

Sales data can be obtained from many sources. Each assessor's office should have a wealth of data regarding transactions in its particular county. Commercial data sources offer sales data that is available by county or by region for many different property types. Multiple-listing services contain data concerning completed transactions. Finally, real estate brokers and other appraisers are often sources of sales data.

### **ELEMENTS OF COMPARISON**

It is unlikely that the appraiser will find sales data so closely comparable to the subject property that no adjustments will be required. The types of differences for which adjustments are often required are referred to as *elements of comparison*. Elements of comparison, which are enumerated in section 402.5 (above) and also in Rule 4, are the important factors that should be separately considered and adjusted for, if necessary, when analyzing comparable properties.<sup>36</sup>

<sup>34</sup> Section 402.5 uses the term "lien date" and not "valuation date." However, section 75.54 defines lien date for real property to mean the date of the change in ownership or completion of new construction. Thus, lien date is synonymous with valuation date.

<sup>35</sup> Rule 4 also includes sales of the subject property as potential sales data for valuing the subject property. This includes sales data relating to a prior or subsequent sale of the subject property (i.e., prior or subsequent to the transaction for which the subject property is being valued) and sales data relating to the transaction for which the subject property is being valued. In the latter case, Rule 2 is pertinent. Under conditions described in Rule 2(a), and as provided in subdivision (b), the cash equivalent sale price of a property is rebuttably presumed to be the market value of the property.

<sup>36</sup> Courts have held that Rule 4 is mandatory and must be strictly followed. In the context of an assessment appeal, this means that the assessor must give explicit, separate consideration to each element of comparison described in



Rule 4 provides that when using the sales prices of the appraisal subject or of comparable properties in valuation, the assessor shall:

(a) Convert a non-cash sale price to its cash equivalent by estimating the value in cash of any tangible or intangible property other than cash which the seller accepted in full or partial payment for the subject property and adding it to the cash portion of the sale price and by deducting from the nominal sale price any amount which the seller paid in lieu of interest to a lender who supplied the grantee with part or all of the purchase money.

(b) When appraising an unencumbered fee interest, (1) convert the sale price of a property encumbered with a debt to which the property remained subject to its unencumbered fee price equivalent by adding to the sale price of the seller's equity the price for which it is estimated that such debt could have been sold under value indicative conditions at the time the sale price was negotiated and (2) convert the sale price of a property encumbered with a lease to which the property remained subject to its unencumbered fee price equivalent by deducting from the sale price of the seller's equity the amount by which it is estimated that the lease enhanced that price or adding to the price of the seller's equity the amount by which it is estimated that the lease depressed that price.

(c) Convert a sale to the valuation date of the subject property by adjusting it for any change in price level of this type of property that has occurred between the time the sale price was negotiated and the valuation date of the subject property.

(d) Make such allowances as he deems appropriate for differences between a comparable property at the time of sale and the subject property on the valuation date, in physical attributes of the properties, location of the properties, legally enforceable restrictions on the properties' use, and the income and amenities which the properties are expected to produce. When the appraisal subject is land and the comparable property is land of smaller dimensions, and it is assumed that the subject property would be divided into comparable smaller parcels by a purchaser, the assessor shall allow for the cost of subdivision, for the area required for streets and alleys, for selling expenses, for normal profit, and for interest charges during the period over which it is anticipated that the smaller properties will be marketed.

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Rule 4. An opinion of value from within a "range of values" or an opinion of value based on an "overall adjustment" is not in accord with Rule 4 and does not provide the assessment appeals board with an evidentiary foundation for its assessment. (See *Main and Von Karman Associates v. County of Orange* (1994) 23 Cal.App.4th 337, 342; *Midstate Theatres, Inc. v. County of Stanislaus* (1976) 55 Cal.App.3d 864, 880-881; and *Prudential Ins. Co. v. City and County of San Francisco* (1987) 191 Cal.App.3d 1142, 1149.)

Elements of comparison that must be considered by the appraiser are summarized as follows:

1. Property rights and interests conveyed;
2. Cash equivalence;
3. Non-real property items included in the sale, such as tangible personal property (e.g., equipment and furnishings) and non-taxable intangible assets and rights;
4. Market conditions;
5. Highest and best use and legally enforceable restrictions; and,
6. Location and physical and economic characteristics.

### **PROPERTY RIGHTS CONVEYED**

Property rights appraised are those legally associated with the subject property. If the rights associated with the subject and a comparable property differ, the comparable sales price must be adjusted to reflect this difference. In cases where the subject or comparable properties are subject to legally enforceable governmental restrictions, or other limitations or enhancements of property rights, the appraiser must also adjust for these differences. In the vast majority of property tax appraisals, the complex of rights appraised is the full bundle of rights—that is, the unencumbered or unrestricted full fee simple interest. The sales prices of both the subject and comparable properties must either reflect the full fee simple interest or be adjusted to reflect this interest.

The most common adjustment for property rights conveyed involves income-producing property subject to a lease. The sale price of a property sold subject to an existing lease or leases (i.e., the leased fee interest) reflects the rent to be obtained under existing leases. If the subject or a comparable property is encumbered with a lease that enhances the sale price of the property—the typical example of such enhancement being a property leased at a rental rate above the current market rent—an estimate of the amount of this enhancement must be deducted from the sale price. If the subject or a comparable property is subject to a lease that depresses the sale price of the property—the typical example being a property leased at a rental rate below the current market rent—an estimate of the amount the lease depressed the sale price must be added to the sale price.

To estimate an adjustment for lease terms, data regarding existing and current market lease terms and conditions for both the subject and comparable sales must be obtained and analyzed. The adjustment is typically accomplished by discounting (using compound interest factors) the difference between current market rent and contract rent (i.e., the rent under the existing lease) over the remaining term of the lease(s) and then adjusting by adding or subtracting this amount from the sale price as appropriate.

## **CASH EQUIVALENCE<sup>37</sup>**

Section 110 defines fair market value in terms of "cash or its equivalent." In using sales prices of the subject or comparable properties for the purpose of valuation, Rule 4 provides that the appraiser shall adjust purchase prices to reflect amounts equivalent to cash. That is, any non-cash components of a sale must be converted to a cash equivalent amount. A cash equivalent adjustment may be required for sales involving (1) assumed loans or new loans (i.e., promissory notes) that reflect non-market, or atypical, financing terms; (2) seller-paid loan points paid to a third party (e.g., an institutional lender) as part of the buyer's financing; (3) tangible or intangible property other than cash that the seller accepted as full or partial consideration for the property and (4) improvements financed under 1911, 1913, and 1915 Bond Acts.

### **Loans Not at Market Terms**

The necessity for a non-market financing adjustment depends on the interest rate of the new or assumed loan. If the loan's stated interest rate is not equal to the market rate of interest for similar loans at the time of the sale, an adjustment for financing terms is necessary. If the stated interest rate is lower than the market rate at the time of sale, it is assumed that the seller compensated for the lower rate by increasing the sale price of the property, in which case the value of the loan should be discounted (i.e., reduced) to its cash equivalent amount in order to estimate the market value of the property. If the stated interest rate is higher than the market rate, it is assumed that the seller compensated by reducing the sale price, in which case the loan's value exceeds its nominal (or face) value, requiring an upward cash equivalent adjustment to estimate the market value of the property. An adjustment for financing terms is not required in the case of a third-party loan (i.e., a loan made by someone other than the seller), because such a loan is cash to the seller.

### **Seller-Paid Points**

A seller may incur costs in order to obtain third-party financing for the buyer. Such costs are referred to as "seller's points." Seller's points may be paid as part of government guaranteed or insured loan programs.<sup>38</sup> If the market interest rate is above the current maximum allowed by such programs, the seller may pay loan points to an institutional lender to compensate for the difference in rates. Points may also be paid by the seller/builder in "buydown programs" so that loans can be offered to buyers at below-market interest rates. When points are paid, the seller receives less than the nominal sale price by the amount of the points. Accordingly, an adjustment to the sale price for the points paid by the seller is required.

### **Non-Cash Items as Part of the Purchase Price or Consideration**

Non-cash items accepted by the seller as all or part of the consideration for the property must also be converted to cash equivalence. For example, a seller may accept \$10,000 in cash and an

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<sup>37</sup> A further discussion of cash equivalence, including techniques for calculating cash equivalent adjustments using compound interest formulas or tables, is contained in Assessors' Handbook Section 503, *Cash Equivalent Analysis*.

<sup>38</sup> One point equals one percent of the loan amount.

automobile for a parcel of real estate. In order to use the sale price as an indicator, the value of the automobile in terms of money (i.e., its cash equivalent value) must be estimated and included as part of the purchase price.

### **1911, 1913, and 1915 Improvement Act Bonds**

Local governments sometimes assist private parties in financing the development of land by participating in the formation of special assessment districts. To obtain improvement bond financing, land parcels benefiting from the improvements must be pledged as a security for the bonded debt. In the case of the 1911, 1913, or 1915 Bond Acts, the indebtedness is tied to specific parcels for certain designated improvements; in other words, at any point in time it is possible to identify the benefits these parcels received and to determine and to pay off the exact bond principal outstanding against each parcel.

"Purchase price" is defined in section 110(b) as "the total consideration provided by the purchaser or on the purchaser's behalf, valued in money, whether paid in money or otherwise." Consequently, it may appear that the sale price of a property encumbered by a 1911, 1913, or 1915 Act improvement bond must automatically be adjusted to reflect the fair market value of the outstanding improvement bond, as a form of cash equivalent adjustment.

However, recent legislation amending Section 110(b) provides as follows:

There is a rebuttable presumption that the value of improvements financed by the proceeds of an assessment resulting in a lien imposed on the property by a public entity is reflected in the total consideration, exclusive of that lien amount, involved in the transaction. This presumption may be overcome if the assessor establishes by a preponderance of the evidence that all or a portion of the value of those improvements is not reflected in that consideration.<sup>39</sup>

The above, in effect, precludes a cash equivalent adjustment to a purchase price *unless* there is a preponderance of evidence sufficient to overcome the presumption that the value of improvements financed by the proceeds of a bond is already reflected in the total consideration paid for a property, exclusive of any outstanding improvement bond lien amount, in any given transaction.

An analysis of market sales data, using otherwise comparable properties from areas developed without the use of improvement bonds, or otherwise comparable properties with retired improvement bonds, must be undertaken in order to determine whether there is sufficient evidence to rebut the presumption. When otherwise comparable properties not subject to improvement bonds sell for the same price or less, the presumption cannot be overcome and a sales price adjustment should not be made. On the other hand, when a difference in sales prices between two or more otherwise comparable properties is clearly attributable to an improvement

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<sup>39</sup> SB 1997 (Johnson), effective September 22, 1998.

bond, the presumption could be overcome and a sale price adjustment justified. The value enrolled must be fair market value.

Cash equivalent adjustments, when justified, can be estimated using discounting formulas or tables or through paired sales analysis.<sup>40</sup> A cash equivalent adjustment should, whenever possible, be derived from and supported by direct market evidence. Mathematical calculations using compound interest formulas or tables may not reflect actual market behavior.

### **ADJUSTMENT FOR NON-REAL PROPERTY ITEMS INCLUDED IN THE PURCHASE**

Non-real property items include financial assets (e.g., cash, stocks, bonds), tangible personal property, and intangible assets and rights.<sup>41</sup> In complex transactions, the sale price may include rent guarantees, post-sale performance requirements, and other non-real property elements. When the sale price of the subject and/or a comparable property includes non-real property items, the estimated market value of these items must be removed from the sale price.

### **MARKET CONDITIONS AND PRICE LEVEL**

Comparable sales may require adjustment so that they reflect the same market conditions that exist on the valuation date of the subject property. Market conditions change due to shifts in supply and demand and/or inflationary or deflationary economic forces. Although the adjustment for market conditions is commonly referred to as the "time" adjustment, the need for this adjustment is not caused by the simple passage of time. Shifting economic variables affecting supply and demand and/or inflationary or deflationary forces in the economy create the need for this adjustment.

Market condition adjustments can be estimated in two primary ways: (1) by measuring the difference in sales prices when the same property sells more than once over a period of time and no significant change in the property has occurred between sales; and (2) by measuring the difference in sales prices for different but very similar properties that sell at different times. The market conditions adjustment is typically stated as a percentage change in value per time period (e.g., per month or per year). Because different types of property may be subject to different economic forces, the market conditions adjustment should be estimated using data from the same property type as the subject. The adjustment for market conditions is complex and can have a significant impact on the estimated value. It is preferable to use comparable sales occurring near the valuation date (sale) of the subject property.

### **HIGHEST AND BEST USE AND LEGALLY ENFORCEABLE RESTRICTIONS**

An estimate of market value for property tax purposes must be premised on the property's highest and best use, and the appraiser must make a determination of highest and best use as part of the appraisal process.<sup>42</sup> As discussed earlier, there are two distinct concepts in highest and best use: (1) highest and best use of the land as though vacant and (2) highest and best use of the

<sup>40</sup> Paired sales analysis is discussed in a later section.

<sup>41</sup> The treatment of intangible assets and rights is addressed in a chapter 6.

<sup>42</sup> However, as discussed in AH 501, *Basic Appraisal*, there are several statutory exceptions to the highest and best use assumption in property tax appraisal.

property as improved. Highest and best use as though vacant applies to both vacant and improved properties. It attempts to identify the type of building or other improvement that should be constructed on the parcel (which may or may not actually be vacant) in order to realize the highest land value. Land or site value should always be based on the highest and best use as though vacant. In contrast, the analysis of highest and best use as improved addresses the question of how an already-improved property should be utilized. Highest and best use as improved thus applies only to improved properties. It attempts to determine whether the existing use of the property should be intensified, changed, or remain the same. The determination of highest and best use as improved might involve the expansion and/or renovation of the existing improvement or perhaps its demolition and replacement. It is possible for a given property to have a highest and best use of the land as though vacant, that is different from the same property's highest and best use as improved.

Highest and best use is an important consideration in the selection of comparable properties. In particular, since a property's highest and best use must be legally permissible, enforceable government restrictions, notably zoning, are an important aspect in highest and best use determination. The highest and best use (both as though vacant and as improved) should be the same or highly similar for the subject and comparable properties. If this is not the case, an adjustment for a difference in "use potential" must be made. A difference in use potential generally results in a significant difference in value, but an adjustment for this difference may be very difficult to quantify. It is preferable to select comparable properties with the same highest and best use as the subject property.

## **LOCATION AND PHYSICAL AND ECONOMIC CHARACTERISTICS**

### **Location**

An adjustment for location is required when the locational characteristics of a comparable property differ from that of the subject property. The location of a real estate parcel can be analyzed and compared to that of other parcels by evaluating (1) its convenience relative to competing parcels (in moving or transferring people, goods, and services to and from other parcels with which they are spatially linked) and (2) the neighborhood, or external, characteristics of the parcels.

Since real estate is immobile—that is, it occupies a fixed point in geographic space—a given parcel of real estate must be spatially linked to other parcels having complementary land uses. Each type of land use, and hence each real estate parcel, faces a particular set of linkage requirements (e.g., a residence is spatially linked to schools, stores, and places of employment; a business is spatially linked to its customers, suppliers, and work force). The cost (as measured in time or money) of meeting its linkage requirements is an important measure of a parcel's locational quality.

Also because of its immobility, a real estate parcel is sensitive to neighborhood effects or influences, both positive and negative. This is why the concept of neighborhood is so important in appraisal. Neighborhood effects originate from outside the parcel and are thus an aspect of the parcel's location. The characteristics of a parcel's neighborhood, typically evaluated by

considering a variety of social, economic, political, and physical factors, is a key determinant of the parcel's locational quality.

Properties within the same neighborhood often have similar locational characteristics, but sometimes even small locational differences within a neighborhood can have a significant effect on value. For example, one parcel located in a residential development may have a lakefront or wooded view, while another parcel, located on an adjacent street, may have only a street view. Although geographically close and within the same neighborhood, the parcels may have significantly different values. Similarly, in the case of commercial property, a corner location is generally significantly more valuable than an otherwise similar, and even contiguous, parcel.

An adjustment for location can be estimated using the "paired sales" technique.<sup>43</sup> However, location has such a profound influence on the value of real property that a significant difference in the locational characteristics of the subject and a potential comparable property—even if they are highly similar in other attributes—may remove the other property from consideration as a valid comparable.

### Physical Characteristics

The adjustment for salient differences between the physical characteristics of the subject and comparable properties is perhaps the most obvious type of adjustment in the comparative sales approach. As with all types of adjustments, an adjustment based on a physical characteristic should reflect the marginal, or contributory, effect of the characteristic on value, not simply the cost to reproduce or remove the characteristic.

Physical characteristics can be classified as either variables, which can be reduced to a unit basis (e.g., size or number of rooms) or attributes, which are qualitative in nature (e.g., condition or quality of design). Which physical characteristics are significant may vary depending on the type of property being appraised. Some types of commercial or industrial properties, for example, often require specialized physical features. A relatively general list of significant physical characteristics includes the following:<sup>44</sup>

- Building size
- Construction quality
- Style and design
- Functional utility
- Age
- Condition
- Size of site
- Site amenities
- On-site environmental conditions

Environmental contamination, which may be viewed as a negative physical characteristic of a property, often has a substantial effect on property value. An adjustment should be made to comparable sales prices to reflect differences between the subject and comparable properties relating to this property characteristic.

<sup>43</sup> See the later discussion under "Paired Sales Analysis."

<sup>44</sup> Locational and physical characteristics are discussed greater detail in AH 501, *Basic Appraisal*, in chapter 4 under "Nature of Real Estate Productivity."

## Economic Characteristics

Economic characteristics include all property attributes that affect its income stream. This element of comparison is generally applicable only to income-generating properties. Significant economic characteristics include the following:

- Level of operating expenses
- Quality of management
- Tenant quality (e.g., credit rating)
- Certain lease provisions (rent concessions, expense stops and recoveries, lease expirations, renewal options, etc., but not including above- or below-market rents)

Adjustments for economic characteristics should not be confused with adjustments for differences in property rights conveyed (e.g., rents that are not at current market) or market conditions. Frequently, adjustments for economic characteristics are difficult to isolate and measure within the comparative sales approach. A paired sales analysis, for example, would require two comparable sales that differ only in the economic characteristic whose marginal value is being measured. This is a very rigorous data requirement. Whenever possible, the appraiser should identify comparable properties with economic characteristics similar to the subject and thereby avoid the need for this type of adjustment.

## UNITS OF COMPARISON

When comparing the subject and comparable properties, it is often desirable to reduce the properties to a common or standard unit and express sales prices on the basis of this unit. These standard units are referred to as "units of comparison." Units of comparison can be based on physical components of a property (e.g., sale price per square foot or sale price per cubic foot) or, with income-producing property, on units of use or operation that are closely related to the property's income-producing ability (e.g., sales price per bed or sales price per seat). The unit of comparison may also be the entire property.

Any unit of comparison chosen by the appraiser should reflect market behavior; that is, the appraiser should reflect the thinking and behavior of actual buyers and sellers. The unit should be useful in identifying a pattern of prices. Depending on the market, there may be more than one meaningful unit of comparison for a given type of property. Because many properties can be analyzed using several units of comparison, the appraiser should derive all appropriate units of comparison, compare the results, and examine the reasons for variations. This will help in the selection of the most reliable unit.

The need to explicitly adjust for a size difference between properties is often eliminated if sales prices are converted to size-related unit of comparison. Relatively small differences in size can then be considered in value reconciliation within the comparative sales approach. However, if properties differ significantly in size, they may not compete in the same market.



Standard units of comparison and the property type(s) with which they are generally associated include the following (this list is illustrative, not all inclusive):<sup>45</sup>

<b>TABLE 3-1: Common Units of Comparison</b>		
<b>Property Type</b>	<b>Common Units of Comparison</b>	
Agricultural	• Sale price per acre	
Commercial and Industrial	• Sale price per square foot of gross building area • Sale price per cubic foot	• Sale price per square foot of net leasable area
Multi-Family Residences	• Sale price per unit • Sale price per square foot	• Sale price per room
Hotels and Motels	• Sale price per room	
Hospitals	• Sale price bed	
Movie Theaters, Convention Centers, and Civic Auditoriums	• Sale price per seat	
Golf Courses	• Sale price per round • Sale price per hole	• Sale price per member
Tennis/Racquetball Clubs	• Sale price per court	
Manufactured Home Parks	• Sale price per pad	
Marinas and Docks	• Sale price per boat slip	
Vacant Land	• Sale price per square foot • Sale price per front foot	• Sale price per acre
Single-Family Residential Dwellings	• Sale price of the total property	• Sale price per square foot of gross living area

<sup>45</sup> Gross income or rent multipliers are sometimes regarded as units of comparison in the comparative sales approach. An income or rent multiplier compares properties through the ratio of sales prices to gross income or rent; that is, the unit, or variable, by which the subject and comparable properties are compared is the income generated by the properties. In this manual, gross income or rent multiplier analysis is discussed in the chapter on the income approach.

## ESTIMATING ADJUSTMENT AMOUNTS

Several quantitative techniques can be used to estimate adjustment amounts. Recognized techniques discussed below include the following:<sup>46</sup>

- Paired sales analysis
- Statistical analysis
- Cost analysis
- Capitalization of rent difference (gain or loss)
- Discounting and time value of money concepts

### PAIRED SALES ANALYSIS

Paired sales analysis is perhaps the most common method for estimating adjustments. The technique requires sales properties that are identical in all characteristics except the characteristic, or element of comparison, that is being measured. Alternatively, and less reliably, if the sold properties differ in more than one characteristic, adjustments must already have been made for characteristics other than the one being measured. The adjustment is estimated by simply subtracting one sale price from the other. In theory, paired sale analysis can be used to estimate the adjustment for any element of comparison, provided sufficient data are available.

Paired sales analysis is a popular technique for estimating the market conditions adjustment. Sales and resales of the same property or of highly similar properties are required. To make the adjustment, the appraiser should: (1) list the sales, (2) calculate the percentage change between the sale and resale prices, (3) divide this percentage change by the number of months between sales dates, and (4) apply this monthly estimate of the change in market conditions to comparable properties.

Paired sales analysis is also used for estimating adjustments for differences in physical characteristics. The paired sales must have occurred at the same time or have been adjusted for market conditions. To estimate an adjustment for physical characteristics, the appraiser first selects a sale property with a given set of characteristics. This sale property is then paired with another sale property (or properties) identical in all characteristics, except the one whose value is being estimated. The sale price of the first property is subtracted from the sale price of the second property in order to obtain an estimate of the value of the isolated characteristic.

In theory, paired sale analysis is a sound analytical technique. However, often there is an insufficient number of applicable paired sales—especially in the case of commercial properties. In addition, an estimated adjustment amount derived from only a single pair of sales may not be valid. However, when there are sufficient market data to apply the technique, paired sales analysis is practical and useful.

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<sup>46</sup> In addition to quantitative techniques of adjustment, some appraisal texts discuss qualitative techniques. Qualitative techniques compare comparable properties with the subject property by ranking them as "superior" or "inferior" (or similar terms) to the subject; adjustments not explicitly stated as either lump-sum dollar amounts or percentages. The subject property is then placed within the qualitatively ranked array of comparable sales in order to estimate its value. Appraisers often refer to this as "bracketing" the subject property. While this may be a widely used and valid appraisal technique, it is not in accord with provisions of Rule 4. Also, see footnote 34.

## STATISTICAL ANALYSIS

Statistical techniques (e.g., linear and multiple regression) can be used in the measurement of adjustments. If an adequate database of sales data is available, multiple regression analysis is a valid technique for estimating the contributory value of selected elements of comparison that does not require the strict similarity between parcels required in most other methods of estimating adjustments. Using multiple regression analysis for this purpose involves the same methodology as valuation models based on multiple regression. A discussion of this technique is beyond the scope of this manual.<sup>47</sup>

## COST ANALYSIS

An appraiser can use a cost analysis to estimate adjustment amounts, particularly for physical characteristics. Cost indicators such as an estimate of replacement or reproduction cost less estimated *depreciation*, an estimate of cost to cure, an estimate of deferred maintenance, etc., are used as the basis for adjustments in cost analysis. Although this method is widely used, its shortcoming is that the adjustment is not market derived—that is, estimated cost may or may not equal fair market value.

## CAPITALIZATION OF RENT DIFFERENCE

Differences in rent (either a gain or loss) due to a specific property characteristic may be capitalized into an estimate of an adjustment amount. This technique is typically used to make adjustments for differences in physical characteristics, although it can be used for any difference between properties for which a permanent rent difference can be estimated. Obviously, an estimated capitalization rate is also required. For example, the subject property may have an elevator while a comparable property does not. Using market rental data, a rent differential for the two properties is estimated and capitalized—using direct capitalization—into an estimate of the adjustment. Both the rent difference and the capitalization rate should be market supported.

## DISCOUNTING AND TIME VALUE OF MONEY CONCEPTS

An adjustment for above- or below-market leases (a property rights adjustment) can be estimated by discounting the difference between market and contract rent over the remaining term of the lease into a present value estimate. This technique requires an estimate of both the difference between market and contract rent and an appropriate discount rate. For example, assume that the sale price of a comparable property reflects a contract rent that is above market and that the lease has a remaining term of five years. A lump-sum adjustment is estimated by discounting the difference between contract and market rent at a market-derived discount rate over the five-year period.

An adjustment for non-market financing (a cash equivalent adjustment) can be estimated using discounting and time value of money concepts. Essentially, this technique involves discounting the periodic payment of the non-market loan into a cash equivalent, present value amount. The

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<sup>47</sup> See International Association of Assessing Officers, *Property Appraisal and Assessment Administration*, (Chicago: International Association of Assessing Officers, 1990), 159 and chapter 14.

payments are discounted at the market interest rate over either the remaining term of the loan or a shorter assumed holding period.<sup>48</sup>

## **ADJUSTMENT PROCESSES AND METHODS**

As noted above, adjustments are made to the comparable sales prices to account for differences between the comparable properties and the subject property. The final result is a set of adjusted comparable sales prices representing estimates of what the comparable properties would have sold for had they possessed all of the important characteristics of the subject property. The adjusted sales prices thus become value indicators for the subject property. The process by which adjustments are made is sometimes referred to as "comparative analysis." This process involves several considerations, which include: (1) the direction and sign of adjustments; (2) the sequence of adjustments; (3) whether adjustments should be made in lump-sum dollar amounts or percentages; and, (4) whether adjustments should be made to the total property sale price or to a unit of comparison.

### **Direction and Sign of Adjustments**

Adjustments to a comparable sale price are made toward, or relative to, the subject property. When a characteristic of a comparable property is inferior to that of the subject property, the adjustment to the comparable sale price is positive (i.e., the adjustment amount is added to the comparable sale price). When a characteristic of a comparable property is superior to that of the subject property, the adjustment to the comparable sale price is negative (i.e., the adjustment amount is deducted from the comparable sale price). This procedure applies to both lump-sum dollar adjustments and to percentage adjustments.

### **Adjustment to Total Sale Price or Unit of Comparison**

Adjustments can be made to a total sale price, an appropriate unit of comparison, or both. Sometimes, adjustments are made to the total sale price for property rights conveyed, market conditions, cash equivalence, and non-real property items. This adjusted sale price is then converted into a unit of comparison (per square foot, per unit, per acre, etc.) that is further adjusted for the remaining elements of comparison (i.e., location, use, and physical and economic characteristics). Alternatively, all adjustments can be made to the entire property first, then this adjusted sale price can be divided by the relevant unit to derive a unit of comparison. The second method is more direct and preferable.

### **Lump Sum or Percentage Adjustments**

Adjustments can be made as lump-sum dollar amounts or as percentage amounts. A general principle regarding adjustments is that they should be applied in the adjustment process based on the manner in which they were derived. Since most adjustments are derived in the form of dollar amounts (exceptions are the market conditions, i.e., time adjustment and perhaps the location adjustment), this leads to a general preference for dollar adjustments. Further, the particular sequence is not significant in the case of dollar adjustments, which is not always the case with percentage adjustments.

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<sup>48</sup> See Assessors' Handbook Section 503, *Cash Equivalent Analysis*.

If multiple percentage adjustments are used, they can sometimes be applied in either an additive or multiplicative manner, producing different net adjustment amounts. "Additive" simply means that the percentages are added to arrive at a net percentage adjustment. "Multiplicative" means that the percentages are multiplied to arrive at a net percentage adjustment. A multiplicative adjustment implies that the factors considered in the adjustment process are causally related and hence correlated with each other. Multiplicative percentage adjustments should not be used unless this correlation can be verified, which is not often the case.

### **Sequence of Adjustments**

A suggested sequence for adjustments is as follows: (1) property rights and interests conveyed; (2) cash equivalence; (3) non-real property items; (4) market conditions; (5) highest and best use and legally enforceable restrictions; and (6) location and physical and economic characteristics.

Adjustments for the first three items—property rights and interests, cash equivalence, and non-real property items—are made, typically, in terms of dollars. The result is an adjusted sale price that reflects property rights and financing terms equivalent to the subject property, and that reflects only real property. This provides an appropriate amount from which to apply the market conditions adjustment, since this adjustment is typically derived in a manner that does not reflect property rights and interests, cash equivalence, and non-real property items.

Next, the market conditions adjustment, typically a percentage adjustment, is made to the adjusted sale price described above. This provides an appropriate amount from which to apply the adjustments for highest and best use and for location and physical and economic characteristics.

Finally, adjustments for highest and best use and for location and physical and economic characteristics are made to the adjusted sale price that was further adjusted for market conditions as described above. If percentage adjustments are used, they should be applied as additives to this amount.

### **Presentation of Adjustments—Sales Adjustment Grids**

The sales comparison approach uses a "column and row" (i.e., spreadsheet) format to organize the data for comparison and presentation. The sample sales adjustment grid on page 49 arrays the previously discussed elements of comparison in a standard sequence. The grid includes separate rows for each element of comparison and the adjustment relating to that element. Rows may be added as necessary in a given appraisal (e.g., several rows might be required to adjust for more than one physical characteristic). A row could also be added if the appraiser wishes to convert the adjusted sales prices to a unit of comparison (e.g., sale price per square foot, sale price per unit, etc.). The final two rows are designed to help the appraiser analyze the degree of comparability of each sale. They are used in the reconciliation of the adjusted sales prices into a single estimate of value. One row contains the absolute gross adjustment for each comparable sale. The other expresses the absolute gross adjustment as a percentage of sale price. The sample adjustment grid presented here is generalized. Particularly in the case of physical characteristics, attributes for which adjustments are made depend on the property type being appraised. Applicable units of comparison also vary by property type.

In many appraisals, a narrative discussion provides detailed transaction and property data regarding the subject and comparable properties, as well as an explanation of the adjustments made to the comparable sales. This discussion complements the information provided on the sales adjustment grid.

<b>TABLE 3–2: Sample Sales Adjustment Grid</b>					
	<b>Subject</b>	<b>Sale 1</b>	<b>Sale 2</b>	<b>Sale 3</b>	<b>Sale 4</b>
<b>Sale Price</b>					
Property rights conveyed					
<i>Adjustment</i>					
Cash equivalency					
<i>Adjustment</i>					
Non-real property items					
<i>Adjustment</i>					
<b>Adjusted Sale Price</b>					
Market conditions					
<i>Adjustment</i>					
<b>Adjusted Sale Price</b>					
Location					
<i>Adjustment</i>					
Physical characteristics					
<i>Adjustment</i>					
Economic characteristics					
<i>Adjustment</i>					
Highest and best use					
<i>Adjustment</i>					
Other					
<b>Final Adjusted Sale Price</b>					
Gross adjustment					
Total adjustment as % of total sale price					

## Reconciliation within the Comparative Sales Approach

Reconciliation is the last analytical step in any valuation in which two or more value indicators have been estimated. In reconciliation, the appraiser reviews and summarizes the data and analyses that resulted in each of the value indicators. The separate indicators are then resolved, or reconciled, into a single value estimate. Reconciliation is performed both (1) within a value approach, to produce a single value estimate within that approach; and (2) among indicators from alternative approaches, to value to produce a final value estimate. Value indicators may be reconciled to a range of value or to a single value estimate. In property tax appraisal, value indicators are reconciled to a single, or point, estimate.

In the comparative sales approach, each adjusted sale price is a separate value indicator of the subject property. Typically, the comparative sales approach involves the estimation of several value indicators—i.e., the set of adjusted sales prices—that must be reconciled to arrive at a single value estimate for the approach. Generally, the appraiser should not use a simple arithmetic average of the separate value indicators, since to do so would presume that the adjusted sales prices have equal validity. Rather, greater emphasis should be placed on the adjusted sales prices for the properties that are most comparable to the subject property.

Two guides to comparability are (1) the number of adjustments required and (2) the "absolute gross adjustment" made for each sale. As previously noted, one rule of thumb is that the greater the number of adjustments, the less comparable the sale. The absolute gross adjustment is perhaps a better indicator of comparability. This amount is the sum of the absolute values of all adjustments made to a sale. It measures the differences between the subject and comparable property based on the market-derived adjustment made for each element of comparison. The adjustments are thus weighted by market factors. Absolute gross adjustments, as a percentage basis of the sale price, can be compared. The sale that requires the least significant absolute gross adjustment (i.e., the sale for which this represents the lowest percentage of sale price) is often the most comparable sale and the one that should be given the most weight.

### Sales Adjustment Example

The subject property is a 2,800 square foot, D7.5 two-story residence. It contains nine total rooms, four bedrooms, three bathrooms, a three-car garage, covered entry and patio, and central air conditioning. It sits on a 12,000 square foot site with typical improvements. The comparable properties are described as follows:

The first comparable is a 2,800 square foot, D7.5 two-story residence located in the subject's tract. It contains nine total rooms, four bedrooms, three bathrooms, a three-car garage, covered entry, wood deck, and central air conditioning. It sits on a 12,500 square foot site with typical improvements. It sold for \$267,000 three months prior to the effective date of appraisal, with non-market financing.

The second comparable is a 3,100 square foot, D7.5 two-story residence located in the subject's tract. It contains nine total rooms, four bedrooms, three and one-half bathrooms, a three-car garage, covered entry and patio, and central air conditioning. It sits on a 11,500 square foot site with typical improvements. It sold for \$277,000 three months prior to the effective date of appraisal with non-market financing.

The third comparable is a 2,800 square foot, D7.5 two-story residence located in the subject's tract. It contains eight total rooms, four bedrooms, three bathrooms, a three-car garage, covered entry and wood deck, and central air conditioning. It sits on a 12,500 square foot site with typical improvements. It sold for \$258,000 one month prior to the effective date of appraisal with conventional financing.

The fourth comparable is a 2,800 square foot, D7.5 two-story residence located in a competing neighborhood. It contains nine total rooms, four bedrooms, three and one-half bathrooms, a two-car garage, covered entry and patio, central air conditioning, pool, and spa. It sits on a 12,105 square foot site with typical improvements. It sold for \$268,000 one month prior to the effective date of appraisal with conventional financing.

The fifth comparable is a 2,600 square foot, D7.5 one-story residence located in a competing neighborhood. It contains eight total rooms, four bedrooms, two and one-half bathrooms, a two-car garage, covered entry and wood deck, central air conditioning, pool, and spa. It sits on a 12,000 square foot site with typical site improvements. It sold for \$264,000 one month prior to the effective date of appraisal with conventional financing.

The following sales adjustment grid shows that the subject property differs from the comparable properties in these elements of comparison: financing terms, gross living area, garage parking, and pool/spa. Adjustments for these elements are estimated as follows: (1) non-market financing, \$10,000; gross living area, \$36.00 per square foot; garage adjustment, \$3,500/car; and pool/spa adjustment, \$12,500. These adjustments will be used in the analysis to reconcile the value indicators into a single estimate of value.



<b>TABLE 3-3: Sales Adjustment Grid</b>						
	<b>Subject</b>	<b>Sale 1</b>	<b>Sale 2</b>	<b>Sale 3</b>	<b>Sale 4</b>	<b>Sale 5</b>
Sale Price		\$267,000	\$277,000	\$258,000	\$268,000	\$264,000
Financing		Non Mkt.	Non Mkt.	Market	Market	Market
<i>Adjustment</i>		<\$10,000>	<\$10,000>	0	0	0
<b>Adjusted Sale Price</b>		\$257,000	\$267,000	\$258,000	\$268,000	\$264,000
Living Area	2800 SF	2800 SF	3100 SF	2800 SF	2800 SF	2600 SF
<i>Adjustment</i>		0	<\$10,800>	0	0	+\$7,200
Garage	3-car	3-car	3-car	3-car	2-car	2-car
<i>Adjustment</i>		0	0	0	+\$3,500	+\$3,500
Pool/Spa	None	None	None	None	Pool/Spa	Pool/Spa
<i>Adjustment</i>		0	0	0	<\$12,500>	<\$12,500>
<b>Final Adjusted Sale Price</b>		\$257,000	\$256,200	\$258,000	\$259,000	\$262,200
Absolute gross adjustment		\$10,000	\$20,800		\$16,000	\$23,200
Gross adjustment as % of sale price		3.75%	7.6%	0.0	5.9%	8.8%

With this data, the value range is from \$256,200 to \$262,200. When reconciling the indicators into a single value estimate, the appraiser should consider the number of adjustments required for each comparable sale, any large adjustments for any comparable sale, the absolute gross adjustment for each sale, and any other relevant factors. Most reliance is typically placed on the comparable sale(s) that required the fewest adjustments and/or the smallest gross dollar adjustment. In this hypothetical appraisal, comparable sale #3 required no adjustments, while all other sales required between one to three adjustments. Accordingly, comparable sale #3 should be given the most weight, indicating an estimate value of the subject property of \$258,000.

Alternatively, using the same data as above, the appraiser might explicitly weight each value indicator. The most comparable sale is given a weight of 5 and the least comparable sale is given a weight of 1. Thus:

**TABLE 3-4: Reconciliation of Value Indicators**

<u>Adjusted Price</u>	<u>Weighting</u>	<u>Numerical Product</u>
Sale 1 \$257,000	X 4	\$1,028,000
Sale 2 \$256,200	X 3	\$768,600
Sale 3 \$258,000	X 5	\$1,290,000
Sale 4 \$259,000	X 2	\$518,000
Sale 5 \$262,200	X 1	\$262,200

Total of numerical products: \$3,866,800

Total of weightings: 15

Weighted average and estimated value of subject property:

$$\$3,866,800 \div 15 = \$257,787, \text{ or } \$258,000$$

## **CHAPTER 4: ADVANCED ISSUES IN THE INCOME APPROACH**

### **INTRODUCTION**

The income approach includes any method of converting an income stream into an indicator of market value. The income approach is also called the capitalization approach because capitalization is the process of converting an expected income into an indicator of market value.

The approach requires careful application because small variations in its key variables can be mathematically leveraged into a wide range of estimated value. The accuracy of the approach depends on the validity of the assumptions used to estimate its key variables. Mathematical techniques used in the approach, which are sometimes complex, are merely tools for converting these assumptions into an estimate of market value.

Although several appraisal principles are relevant to the income approach, the principle of anticipation is fundamental. The principle of anticipation states that value is created by the anticipation of future benefits, which leads in fact to one definition of value as the present worth of future benefits. All income capitalization methods and techniques are attempts to convert expected future benefits into an estimate of present value.

### **APPLICABILITY, LIMITATIONS, AND ASSUMPTIONS**

Rule 8(a) addresses the applicability of the income approach:

The income approach to value is used in conjunction with other approaches when the property under appraisal is typically purchased in anticipation of a money income and either has an established income stream or can be attributed a real or hypothetical income stream by comparison with other properties. It is the preferred approach for the appraisal of land when reliable sales data for comparable properties are not available. It is the preferred approach for the appraisal of improved real properties and personal properties when reliable sales data are not available and the cost approaches are unreliable because the reproducible property has suffered considerable physical depreciation, functional obsolescence or economic obsolescence, is a substantial over or underimprovement, is misplaced, or is subject to legal restrictions on income that are unrelated to cost.

The three fundamental assumptions of the income approach are that (1) value is a function of income; (2) value depends on the size, shape, duration, and risk of the income stream; and (3) future income is less valuable than present income. If the nature of the property being appraised is not consistent with these assumptions, the income approach to value should not be given great weight as an indicator of its market value.

## **VALUE IS A FUNCTION OF INCOME**

A basic assumption of the income approach is that people purchase property for the income that the property will yield. That is, a property's value depends on the income that it will produce. To apply the income approach, the property being appraised must be of a type that is commonly bought and sold on the basis of its income stream.

Income from rental of properties is preferred over income derived from property operation—the latter may be influenced by managerial skills or may arise in part from nontaxable property or other sources. Where income from operating a property is used, adjustments must be made to exclude income that is not attributable to the taxable property pursuant to Rule 8(e).<sup>49</sup>

The income that is capitalized is expected future income; past income should only be a guide for estimating, or forecasting, future income. The income to be capitalized is the income that a typical, prudent buyer would expect the property to yield over the income projection period.

## **VALUE DEPENDS ON THE SIZE, SHAPE, DURATION AND RISK OF THE INCOME STREAM**

The prudent investor estimates the size, shape (i.e., how the size of the income changes over time), duration, and risk of a property's income stream before purchasing it. The income stream may remain level, increase, or decrease over time. The duration of the projected income stream may be perpetual or finite. The income from land is generally considered to be perpetual; however, improvements have finite economic lives and the expected income stream for improved properties is finite. The risk of an income stream refers to its certainty—that is, the likelihood of its receipt. The greater the uncertainty of the income, the higher the capitalization rate applied to the income capitalized. Not all investments are subject to the same level of risk, with the result that not all income streams should be capitalized at the same rate.

## **FUTURE INCOME IS LESS VALUABLE THAN PRESENT INCOME**

The third assumption of the income approach is that future income is less valuable than present income. Future income must be discounted to make it equivalent to present income. Discounting is the process of finding the present value of an amount receivable at some future date. The present value is the amount that, when compounded, usually at an annual rate, will accumulate to the future sum. Because investors prefer immediate returns to future returns (essentially because money in hand can be invested to end up with more money in the future), they discount future income, or reduce its value, when analyzing investments.

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<sup>49</sup> See a later section of this manual, "Treatment of Intangible Assets and Rights," for further discussion about excluding income that cannot be attributed to the taxable property.

## CONVERSION OF INCOME INTO VALUE

In its most basic form, income capitalization is represented by the equation  $V = I / R$ , where  $V$  is the indicated present value of the income stream,  $I$  is the income to be capitalized, and  $R$  is the capitalization rate. If any two of these three variables are known, the third can be calculated. That is,  $I = V \times R$  or  $R = I / V$ .

An income stream can also be converted into an indicator of value using a capitalization factor. The basic capitalization formula is then modified to  $V = I \times F$ , where  $F$  is a capitalization factor. In this variation, capitalization becomes a matter of multiplication rather than division. Arithmetically, a factor is the reciprocal of a rate—that is,  $F = 1 / R$ . Capitalization factors are often taken from compound interest or annuity tables.

Finally, an income stream can be converted into an indicator of value using an income multiplier, which is also a factor, but one derived from the ratio of a sales price to annual gross income. With an income multiplier,  $V = I \times M$ , where  $I$  is again income and  $M$  is the market-derived income multiplier. Most common is the gross income multiplier, in which case  $V = GI \times GIM$ , where  $GI$  is gross income and  $GIM$  is a market-derived gross income multiplier.

## TIME VALUE OF MONEY

Financial decision-making involves the analysis of costs and benefits spread out over time. Time value of money concepts and techniques are used to calculate and to compare the values of sums of money at different points in time. The "time value of money" refers to the fact that a dollar today is worth more than a dollar in the future. The fundamental reason for this is that one can invest money in hand and end up with a greater amount of money in the future.

### FUTURE VALUE AND COMPOUNDING

Compounding is the process of going from today's value to a value in the future. Today's value is referred to as the present value, and the value in the future is referred to as the future value. The future value of \$1 is the amount to which \$1 will grow at a given periodic interest rate and number of compounding periods. The formula for the future value (or worth) of \$1 (FV\$1) is:

$$FV\$1 = S^n = (1 + i)^n$$

where

- |       |   |  |
|-------|---|--|
| FV\$1 | = | future value of \$1  |
| $i$   | = | periodic interest rate, usually expressed in percent per year or percent per month |
| $n$   | = | number of periods, usually expressed in years or months                            |

(The periodic interest rate must match the length of the period selected. For example, if  $n$  is stated in years,  $i$  must be stated in as annual percentage rate; if  $n$  is stated in month,  $i$  must be stated as the monthly percentage rate; etc.)

**EXAMPLE 4-1: Future Value**

\$1,000 is placed into a savings account earning a compound interest rate of 10% per year. What is the future value of the account at the end of five years?

$$\begin{aligned} \text{FV}\$1 &= (1 + i)^n \\ (1.10)^5 &= 1.61051 \\ (\$1,000) (1.61051) &= \mathbf{\$1,610.51} \end{aligned}$$

**Distinguish Between Compound Interest and Simple Interest**

Compound interest should be distinguished from simple interest. With compound interest, interest is earned on the original principal plus the subsequent interest payments. In other words, interest is earned on interest already earned. With simple interest, interest is only earned on the original principal amount. In the above example, at simple interest, \$100 would have been earned each year (\$1000 x 10%) and the amount accumulated after 5 years would have been only \$1500 (\$1000 + \$500). Simple interest is not an important concept in finance and investment analysis, which rely on compound interest.

**PRESENT VALUE AND DISCOUNTING**

Discounting is the process of going from a value in the future to today's value; that is, from future value to present value. The present value of \$1 is the amount one would have to invest today in order for it to accumulate to \$1, assuming a given a periodic interest rate and number of periods. Calculating present value is the reverse of calculating future value. The formula for the present value of \$1 (PV\$1) is:

$$\text{PV}\$1 = \frac{1}{S^n} = \frac{1}{(1 + i)^n}$$

**EXAMPLE 4-2: Present Value**

How much must be invested today at an annual compound interest rate of 10% in order to have \$1,000 five years from now?

$$\begin{aligned} \text{PV}\$1 &= \$1,000 / (1 + i)^n = \\ & \$1,000 / (1.10)^5 = \\ & \$1,000 / 1.61051 = \mathbf{\$620.92} \end{aligned}$$

**ANNUITIES**

The preceding discussion addresses only single payments or cash flows. However, many investments involves multiple payments over time. An annuity is a series of equal payments made at fixed periods for a specified number of periods. For example, the distribution of a \$10 million Lotto winning by equal periodic payments (e.g., monthly payments over 20 years) is an example of an annuity. Annuity payments can be made at the end of each period (an ordinary annuity) or at the beginning of each period ( an immediate annuity, or annuity due). In appraisal,

payments are typically assumed to occur at the end of each period—that is as an ordinary annuity. The following discussion and examples pertain to ordinary annuities.

### Future Value of an Annuity

The future value of an annuity is the amount to which a series of periodic level payments will accumulate at a given interest rate over a given number of payment periods. The future value of an annuity is the sum of the future values of each single payment in the series. The formula for the future value of an annuity of \$1 (FV\$1/P) is:

$$FV\$1/P = s_{\overline{n}|i} = \frac{[(1+i)^n - 1]}{i}$$

If \$1,000 is invested at the end of each of the next 3 years, assuming an annual interest rate of 10%, what is the resulting sum at the end of year 3?

$$FV\$1/P = [(1+i)^n - 1] / i = \\ [(1.10)^3 - 1] / 0.10 = 3.310000$$

$$\$1,000 \times 3.310000 = \mathbf{\$3,310}$$

### Present Value of an Annuity

The present value of an annuity is the sum of the present values of each future annuity payment, assuming a given rate of interest and number of payment periods. The formula for the present value of an annuity of \$1 (PV\$1/P) is:

$$PV\$1/P = a_{\overline{n}|i} = \frac{[1 - (1+i)^{-n}]}{i}$$

#### EXAMPLE 4-4: Present Value of an Annuity

If \$1,000 is received at the end of each of the next three years, assuming an annual interest rate of 10%, what is the present value of this annuity?

$$PV\$1/P = [1 - (1+i)^{-n}] / i = \\ [1 - (1.10)^{-3}] / 0.10 = 2.486852$$

$$\$1,000 \times 2.486852 = \mathbf{\$2,486.85}$$

### Perpetual Annuity

A special type of annuity is a perpetual annuity or perpetuity. A perpetuity is a stream of equal payments that continues forever. Despite having an infinite number of payments, however, a perpetuity does have a finite, determinable value. The formula for the present value of a level perpetuity is:

$$PV = \frac{C}{i}$$

where

$C$  = periodic perpetuity payment  
 $i$  = interest rate

What is the present value of a perpetuity (or perpetual annuity), assuming an annual interest rate of 10%, that pays \$1,000 per year forever?

$$PV = C / i = \\ \$1,000 / 0.10 = \$10,000$$

By way of illustration: \$10,000 deposited in a bank account earning 10% per year will grow to \$11,000 after one year. One could take out \$1,000 at the end of the first year and leave \$10,000 in the account for the second year. During the second year, the account would again grow to \$11,000, and one could again withdraw \$1,000. If the interest rate stays at 10% this process could continue in perpetuity.

### Variable Payments

Annuities involve equal payments in each period. In many appraisal situations, payments are variable. For example, the net income received from an apartment building may fluctuate from year to year. The present or future value of a variable series of payments (or cash flows) is the sum of the present or future values of the individual cash flows. The most direct way to calculate the present value of a series of variable cash flows is to calculate the present value for each individual cash flow using the present value of \$1 factor and then to add these present values together. Similarly, the future value of a variable series of cash flows can be calculated by calculating the future value of each individual cash flow using the future value of \$1 factor and then adding them together. Calculating the present value of a series of variable cash flows is the basis for discounted cash flow analysis, which is discussed in a latter section.

### PERIODIC REPAYMENT

The present value of \$1 per period is used to calculate the present value of an annuity. Its reciprocal, the periodic repayment, is used to calculate the periodic amount necessary to amortize, or pay off, a loan of \$1, given a periodic interest rate and the number of repayment periods. Part of the periodic repayment is interest on the outstanding loan balance and part is repayment of loan principal. The formula for the periodic repayment of \$1 (PR) is:

$$PR = 1/a_{\overline{n}|i} = i / [1 - (1 + i)^{-n}]$$



**EXAMPLE 4-6: Periodic Repayment**

What is the annual payment on a fully amortized \$75,000 loan with a term of 7 years and an interest rate of 10%?

$$PR = i / [1 - (1 + i)^{-n}] = 0.10 / [1 - (1 + 0.10)^{-7}] = 0.10 / 0.48684 = 0.20540$$

$$0.20540 \times \$75,000 = \mathbf{\$15,405}$$

**SINKING FUND FACTOR**

The future value of \$1 per period is used to calculate the future value of an annuity. Its reciprocal, the sinking fund factor, is used to calculate the periodic payment required, at a given interest rate and number of periods, such that the series of payments accumulates to a future amount of \$1. The formula for the sinking fund factor for \$1 (SFF) is:

$$SFF = S_{\overline{n}|i} = i / [(1 + i)^n - 1]$$

**EXAMPLE 4-7: Sinking Fund Factor**

An apartment is scheduled to have the roof replaced in 5 years at an estimated future cost of \$10,000. If an amount is set aside each month and deposited in a bank earning 10% per year, how much is required to be saved each year?

$$SFF = i / [(1 + i)^n - 1] = 0.10 / [(1 + 0.10)^5 - 1] = 0.10 / 0.61051 = 0.163797$$

$$(0.163797) (\$10,000) = \mathbf{\$1,637.97}$$

**ANNUAL LOAN CONSTANT**

The annual loan constant is the ratio of the annual loan payment to the principal amount of the loan. In real estate, the annual loan constant is called the mortgage constant. It is also referred to as the "mortgage capitalization rate," or  $R_M$ . The mortgage constant is calculated by multiplying the *monthly* periodic repayment by 12. In real estate appraisal, annual amounts are typically capitalized, and the mortgage constant annualizes monthly mortgage payments.

**COMPOUND INTEREST TABLES**

The preceding discussion used formulas for presenting time value of money concepts and for solving examples. Fortunately, published tables of time value of money factors exist covering a range of interest rates and amortization periods. The tables typically contain:

1. Future Worth of \$1 (FW\$1,  $S^n$ )
2. Future Worth of \$1 Per Period (FW\$1/P,  $S_{\overline{n}|i}$ )
3. Sinking Fund Factor (SFF,  $1/S_{\overline{n}|i}$ )
4. Present Worth of \$1 (PW\$1,  $1/S^n$ )
5. Present Worth of \$1 Per Period (PW\$1/P,  $a_{\overline{n}|i}$ )
6. Periodic Repayment (PR,  $1/a_{\overline{n}|i}$ )

Assessors' Handbook Section 505 (AH 505), *Capitalization Formulas and Tables*, contains compound interest factors for the functions listed above. Both monthly and annual factors are presented for interest rates from 1 to 25 percent. It also contains factors for the annual mortgage constant ( $R_M$ ). In addition to financial tables, financial calculators and most spreadsheet software are programmed to include time value of money functions.

### **RETURN ON AND RETURN OF CAPITAL**

An investor's expected return must include both an economic reward and a recovery of invested capital. The economic reward is the *return on* capital, which is the amount an investor receives for the use of his or her capital until it is recovered. The return on capital is also referred to as the investment yield. Except in the case of the income from land, which is capitalized in perpetuity, real property income is capitalized over a finite period. Capitalization over a finite period requires a recovery of capital, which is referred to as the *return of* capital (or capital recapture or recovery). All capitalization rates, factors, and income multipliers (excluding the case in which income from land is capitalized in perpetuity) provide, explicitly or implicitly, for both the return on and the return of capital.

In income capitalization, capital is recovered over an income projection period that matches the capital recovery period. There are several possible income projection/capital recovery periods in appraisal. The most important are (1) income projected over the remaining economic life of the improvements and (2) income projected over a market-derived investment holding period. The remaining economic life of the improvements is the period of time (as of the valuation date) that the improvements are expected to contribute to the value of the property. The investment holding period is the period of time (projected forward from the valuation date) that the investor expects to hold the property before selling it.

Depending on the capitalization technique, capital recovery may be accomplished in several ways (e.g., straight-line, sinking fund, and level annuity capital recovery and recovery all or in part from the value of the property at the end of the income projection period).

### **COMPONENTS OF RETURN ON INVESTMENT OR INVESTMENT YIELD**

Conceptually, the return on investment, or investment yield, comprises several separate return components: time preference; investment management; liquidity preference; and risk.

#### **Time Preference**

The return for time preference is the yield component investors demand for forgoing present consumption. Time preference reflects the pure time value of money. The minimum, or "risk free," rate is the lowest yield rate that would be acceptable given no requirement for management effort, perfect liquidity, and no risk.

## **Investment Management**

Investment Management is the yield component that compensates the investor for personal efforts involved in making decisions regarding alternative investments. It is not compensation for the day-to-day management efforts, which is an operating expense of the property.

## **Liquidity Preference**

An asset is liquid if it can be readily converted to cash at its current market value. All else being equal, investors prefer to hold assets that are liquid. The return for liquidity preference is the yield component required for holding assets that are not readily convertible to cash. Most financial assets are liquid. Real estate and most business assets, however, are relatively illiquid, and real estate investors must be compensated for this reduced liquidity.

## **Risk**

### **Risk and Uncertainty**

Uncertainty exists when one does not know exactly what will happen in the future. As a result of uncertainty, things may not turn out as well as expected. In an economic context, risk is the possibility of earning less than the expected return on an investment or incurring a negative return.

Most investors are risk averse. This does not mean that they avoid risk entirely; but it does mean that they require a higher expected return as compensation for bearing risk. Investors have the option of investing in risk-free investments such as U.S. Treasury securities. If they choose to invest in risky investments, such as real estate (or a risky financial asset such as corporate stock), they require a risk premium, or added return, for doing so.

### **Modern Financial Theory and Risk**

Modern financial theory defines risk in terms of the variability of expected returns and quantifies risk through the use of probability distributions and related statistical concepts. Financial theory also makes an important distinction between total risk, which is the relevant risk for assets held in isolation or on a "stand-alone" basis, and portfolio risk, which is the relevant risk for assets held in a portfolio.

### **Financial Leverage and Risk**

Financial leverage is the use of borrowed funds when financing an asset. Most real estate investments involve the use of financial leverage, which creates an equity and a debt (or mortgage) interest in the property. Financial leverage increases the risk to the equity interest because it increases the variability of possible equity returns; that is, the possible spread of equity returns is widened. Leverage is favorable, or positive, as long as the rate of return on the total investment in the property exceeds the cost of borrowing; positive leverage increases the rate of return on equity. However, leverage is unfavorable, or negative, when the cost of borrowing exceeds the rate of return on the total investment; negative leverage decreases the rate of return on equity.

Financial leverage also increases the risk to the lender's interest (i.e., the mortgage interest) because it raises the break-even occupancy rate for a property. This increases the probability that actual net income—should it not equal the forecasted amount due to one of the business risks discussed above—will not be sufficient to meet the required debt service. This increases the default risk to the lender.

## CAPITALIZATION RATES AND INCOME MULTIPLIERS

### COMMONLY APPLIED CAPITALIZATION RATES

A capitalization rate is any rate used for the conversion of net income into value.<sup>50</sup> Although there are several types of capitalization rates used in appraisal, they can be classified as either *income rates* (also known as cash flow rates) or *yield rates*.

An income rate expresses the relationship between a single year's net income and the value of the entire property or a specified property component (e.g., the equity or mortgage interest). Income rates are derived from sales and implicitly provide for both the return on and the return of capital.

The *overall capitalization rate* ( $R_O$ ) is perhaps the most commonly used income rate. It represents the relationship between a single year's total property net income and total property value. The *equity capitalization rate* ( $R_E$ ) represents the relationship between a single year's pre-tax cash flow (net income minus debt service) and the value of the equity interest in a property. The "mortgage capitalization rate" ( $R_M$ ), or "annual mortgage constant," represents the relationship between a single year's debt service to the principal amount of the loan, that is, to the value of the debt interest in a property. Both  $R_E$  and  $R_M$  are used in the band-of-investment technique to derive  $R_O$ .

A yield rate is a rate of return on capital; it is usually expressed as a compound annual percentage rate. A yield rate considers all expected benefits from the property over the income projection period, including both annual net income and any remaining value, or sale proceeds, at the termination of the investment. This remaining value is referred to as the reversion, reversionary interest, or terminal value. When a yield rate is used in yield capitalization to discount future income payments into a value indicator, it is also referred to as a discount rate. In appraisal, the terms *yield rate* and *discount rate* are virtually synonymous. Although a yield rate, per se, includes only the return on capital, in the capitalization process yield rates are almost always used in conjunction with a corresponding compound interest or annuity factors that explicitly provide for the return of investment, or capital recovery.<sup>51</sup>

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<sup>50</sup> The term "net income" is used here in a general sense to refer to a level of income after certain operating expenses have been deducted. Subsequent sections will discuss the various levels of income used in the income approach more precisely.

<sup>51</sup> The exception, which was mentioned earlier, is the capitalization of income from land. Since land is assumed to be a non-wasting asset, no capital recovery is required. The income from land is capitalized in perpetuity using a yield rate only.

The overall yield rate ( $Y_o$ ) is perhaps the most commonly used yield rate. It is the required rate of return on total invested capital and is used to discount the annual net income of the entire property and any income derived from the reversion into an indicator of total property value. The *equity yield rate* ( $Y_E$ ) is the required rate of return on equity capital. It is used to discount the annual net income attributable to the equity interest (i.e., net income minus debt service) and the equity reversion (i.e., the total property reversion less any outstanding debt claims) into an indicator of value for the equity interest only. Finally, the yield rate on the mortgage ( $Y_M$ ) is the required rate of return on the mortgage. It is referred to simply as the interest rate. It is the rate at which mortgage payments can be discounted into the present value of the mortgage.  $Y_E$  and  $Y_M$  are also used in the band of investment technique to derive an overall yield rate, or  $Y_o$ .

The *internal rate of return* (IRR) is a yield/discount rate that makes the present value of future income payments equal to the present value of the property. An IRR can be calculated for the total property or for only the equity interest. In order to compute an IRR, the present value of the total property or equity interest must already be known. The IRR calculation is used to derive a yield/discount rate from sales data.

### **INCOME MULTIPLIERS**

Income can also be converted into an indication of value using an income multiplier. An income multiplier is an income factor that is used to convert a single year's gross income into an indication of property value. The most commonly used income multiplier is the *gross income multiplier* (GIM). The gross income of the a property is multiplied by a GIM to estimate the value of the entire property. As with income rates, the GIM implicitly provides for both the return on and the return of the investment.

Depending on the technique, income capitalization can be applied to a variety of property interests and the incomes attributable to those interests. Appraisal for property tax purposes generally involves the valuation of the full fee simple interest in the entire property rather than separate valuations of various property interests. For this purpose, the most common rates used to convert income into value are the overall capitalization rate ( $R_o$ ) and the overall yield rate ( $Y_o$ ). Both of these rates are applied to the total net income attributable to the property being appraised. The overall capitalization rate applies to a single year's income and the overall yield rate applies to a projected income stream.

A fundamental principle of income capitalization, which applies when either deriving a capitalization rate or valuing property using a capitalization rate, is that the level and type of income must be correctly matched to the type of capitalization rate that is being derived or used in valuation. The capitalization rate or income multiplier must be consistent with the income to be capitalized or the income from which the capitalization rate or income multiplier is being derived. This point will be emphasized in subsequent sections.

## METHODS OF INCOME CAPITALIZATION

From a historical perspective, income capitalization methods and techniques have been classified in a changing and often confusing number of ways. In the contemporary appraisal, there are two primary income capitalization methods: *direct capitalization* and *yield capitalization*.

### DIRECT CAPITALIZATION

Direct capitalization is an income capitalization method in which a single year's income is converted into an indicator of property value by either (1) dividing the single year's income by an appropriate capitalization rate (i.e.,  $V = I / R$ ) or (2) multiplying the single year's income by an appropriate income multiplier (i.e.,  $V = I \times M$ ). The capitalization rate or income multiplier is derived from the sales of comparable properties and represents the relationship between a single year's projected income and value. Direct capitalization has two defining characteristics: (1) it does not explicitly consider the projected size, shape, and duration of the income stream and any projected change in the value of the property; and (2) it does not explicitly differentiate between the return on and the return of capital. These elements, however, are implicitly considered in the sense that they are reflected in the sales prices from which the rates or multipliers are derived. The only two variables in direct capitalization are a single year's income and a sale price. It is necessary to match the definition of income used to determine the capitalization rate with the income of the subject property. If the definition of income is not the same, an error may be introduced into the valuation process.

### YIELD CAPITALIZATION

Yield capitalization is an income capitalization method in which income is converted into an indicator of value by forecasting each future year's income (including any income derived from the estimated terminal, or reversionary, value of the property) over an income projection period, discounting these future income payments at an appropriate yield, or discount, rate into present value amounts, and then summing these amounts to produce a value indicator for the property. The discount rate represents a rate of return that a prudent investor would require to invest in the property given its level of risk. The mechanics of discounting the income is accomplished through the use of compound interest or annuity factors (i.e.,  $V = IF$ ). Thus, in contrast to direct capitalization, yield capitalization explicitly considers the size, shape, and duration of the income stream and any change in the value of the property. It also considers, through the compound interest and annuity factors used to discount future income, both the return on and the return of capital; the provision for return of capital is built into the mathematics of the factors. Yield capitalization is also referred to discounted cash flow analysis.

### Variation of Yield Capitalization

In a variation of yield capitalization, an overall capitalization rate is mathematically developed, through the use of yield capitalization formulas or "models," reflecting a property's forecast income pattern, value change, and yield rate. A projection of a single-year's income is then divided by this overall capitalization rate to arrive at an indicator of value. This variation of yield

capitalization resembles direct capitalization mechanically (i.e.,  $V = I / R$ ) but not conceptually.<sup>52</sup> The Ellwood mortgage equity formula is a notable example of this variation of yield capitalization.

## **ESTIMATING THE INCOME TO BE CAPITALIZED**

### **GENERAL CONSIDERATIONS**

This section discusses some general issues related to estimating the income to be capitalized. These are income and expenses as a forecast, the treatment of inflation, the cash flow basis of forecast income and expenses, and the market basis of forecast income and expenses.

#### **Income as a Forecast**

The income to be capitalized should be based on a forecast; that is, the estimate should be oriented toward the future. This requires a forecast of the gross income a property is expected to produce and a forecast of future operating expenses. Although the past and current experience of the subject and comparable properties can be used as guide, a forecast should not be a simple projection of past experience.

A forecast of gross income should be based on a consideration of factors that influence the future rent- or income-generating potential of the subject property. These factors include the locational and physical characteristics that affect the subject property's relative desirability, the rent levels and availability of competing properties, possible changes in factors affecting the demand for the subject and competing properties, and possible changes in factors affecting the supply of competing properties. Cost trends relating to the components of operating expenses should be studied to estimate the future level of operating expenses.

Forecasts of income and expenses can be for a single year or multiple years. In direct capitalization, only the next year's income is forecast. In yield capitalization, income is forecast for multiple years. In discounted cash flow analysis, for example, income and expenses are forecast for each year of the holding period, and the terminal, or reversionary, value of the property at the end of the holding period is also forecast.

#### **Income Forecasting and Inflation**

Inflation is an increase in the general level of prices; it can also be expressed as a decrease in the purchasing power of the dollar. For example, if the annual inflation rate is 5 percent, this means that the purchasing power of the dollar has annually declined by 5 percent. There can also be deflationary changes in the general price level, but this has not been a common occurrence.

Analysts distinguish between nominal prices and real prices. Nominal prices have not been adjusted for a decrease in the purchasing power of money caused by inflation. Real prices have been adjusted for a decrease in purchasing power of dollars. A similar distinction is made

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<sup>52</sup> It is conceptually different because yield capitalization formulas explicitly consider income pattern, change in property value, and return on and return of capital. Furthermore, unlike the overall capitalization rate in direct capitalization, this overall capitalization rates is not derived from sales data.

between capitalization rates expressed in nominal terms and rates expressed in real terms. Nominal rates include a premium for expected inflation. Real rates are nominal rates that have been adjusted for expected inflation. For example, if the nominal rate of return is 8 percent per year and the inflation rate is 2 percent per year, the real rate of return is approximately 6 percent.<sup>53</sup>

There are two ways to treat inflation: (1) use a nominal rate to discount income estimated in nominal terms or (2) use a real discount rate to discount income estimated in real terms. The important point is that the type of rate must be matched to the type of income. The conventional method, at least in real estate valuation, is to use nominal rates and nominal income. Most real estate investors think in terms of nominal cash flows and each of the conventional rate-derivation techniques derives a nominal rate.

Not all of the forecasted changes in income and expenses are due to expected inflation. In part, they reflect expected changes in supply and demand factors only partially related to the general inflation rate. For example, rental income may be forecast to increase due to an expected increase in demand, not inflation, or utility costs may be forecast to decrease because of increasing competition in the power generation industry. Thus, an income and expense forecast requires consideration of both inflation and relevant supply and demand factors.

### **Cash Flow Basis**

The income and expenses in appraisal analysis are cash flows. They are based on "cash in and cash out." They are not based on accounting income and expenses, which are developed using accrual methods. Cash flows reflect cash receipts and expenditures in the period when they are forecast to be received or expended. Although cash receipts and expenditures occur throughout the year, cash flows are conventionally expressed as annual flows occurring at the end of the year. In direct capitalization, this concept is adjusted slightly to annualize certain expenditures. For example, if an insurance premium is prepaid for a number of years, a pro-rated annual amount would be used as annualized expense. Another example is the treatment of replacement reserves, which is discussed below.

### **Market (or Economic) Income and Expenses**

When estimating the income to be capitalized, income and expenses are estimated on a market, or economic, basis. Market income, which is generally income from property rental, is based on market rent, which is the rent that a property would command, assuming prudent management, if placed for rent on the market as of the appraisal date. It is the rental rate prevailing in the market for comparable properties, in contrast to contract rent, which is the actual rental income of a property as specified by the terms of a lease. Market expenses reflect the level of operating expenses that a prudent buyer would expect to pay assuming prudent management.

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<sup>53</sup> The expected real rate of return is approximately equal to the expected nominal rate of return minus the expected inflation rate. The formula relating the real rate of return to the nominal rate of return and the rate of inflation is

$$(1 + \text{real rate}) = (1 + \text{nominal rate}) / (1 + \text{expected rate of inflation}).$$



## PROCESSING THE ANNUAL INCOME STREAM

Processing an income stream refers to subtracting out amounts of income from the total, or gross, income that a property is expected to produce. At each level of income, expense item(s) are subtracted from the previous level. In estimating the income to be capitalized, income is processed, on an annual basis, to the following levels:

$$\begin{array}{r}
 \text{Market Potential Gross Income (MPGI)} \\
 - \text{Market Vacancy and Collection Losses} \\
 \hline
 = \text{Market Effective Gross Income (MEGI)} \\
 - \text{Market Operating Expenses} \\
 \hline
 = \text{Market Net Income Before Recapture} \\
 \text{and Property Taxes (MNIBR\&T)}
 \end{array}$$

### Estimating Market Potential Gross Income

Potential gross income is the total income attributable to a property before any allowance for vacancy and collection loss and before deductions for any operating expenses. Rule 8(c) refers to potential gross income as "gross return." Gross return is defined as "any money or money's worth which the property will yield over and above vacancy and collection losses, including ordinary income, return of capital, and the total proceeds from sales of all or part of the property." Gross income is forecast on an annual basis.

With most income-producing properties, potential gross income is primarily in the form of rent. Rule 8(e) recommends using income from property rental rather than business operation, since income derived from operation is more likely to be influenced by managerial skills and may arise in part from nontaxable property or other sources. If operating income must be considered, sufficient income must be excluded to provide a return on working capital and other nontaxable operating assets and to compensate unpaid or underpaid management. In the case of owner-occupied properties, rental income can often be imputed by reference to rental data from comparable properties.

As discussed, when valuing property for tax purposes, the relevant rent is market, or economic, rent. Market rent is the rent a property would command, assuming prudent management, if placed for rent on the market as of the appraisal date. It is the rental rate prevailing in the market for comparable properties. Market rent is typically estimated using recently negotiated rents for the subject and comparable properties.<sup>54</sup>

A rental rate is applied to a spatial unit in order to calculate the rental amount (e.g., gross building area, net leasable area, or a unit of occupancy).<sup>55</sup> Corresponding rental units of

<sup>54</sup> Market rent is in contrast to contract rent, which is the actual rental income of a property as specified by the terms of a lease.

<sup>55</sup> Gross building area (GBA) is the total floor area, generally measured from the outside walls; net leasable area (NLA) is the floor area that can be occupied by tenants and typically includes a pro-rata share of common areas. The appraiser should be familiar with common rental units of comparison used in his or her market area.

comparison (similar to units of comparison used in the comparative sales approach) can be developed (e.g., rent per square foot of gross building area, net leasable area, or net usable area or rent per apartment unit or single-family residence). Rental units of comparison may vary depending on the conventions of a given market. When estimating market rent, rental units of comparison should be applied consistently to the subject and comparable properties.

Because the property interest being appraised is the unencumbered fee simple interest, the estimate of market rent must be made without regard to actual lease arrangements. Rule 8(d) states that in "valuing property encumbered by a lease, the net income to be capitalized is the amount the property would yield were it not so encumbered, whether this amount exceeds or falls short of the contract rent and whether the lessor or the lessee has agreed to pay the property tax."

In addition to rental income, some properties generate income from sources other than rent. Depending on the property type, non-rental income may include income from laundry facilities, parking, concessions, equipment rental, etc. In most cases, the unit to be valued (i.e., the appraisal unit) is the real property only. If non-rental income is present, the appraiser must determine whether the additional income is attributable to real property, personal property, or, perhaps, to intangible assets and rights.<sup>56</sup>

The estimate of market rent derived from comparable rental properties should reflect the same pattern of services as those provided by the subject property. The responsibility for paying expenses (e.g., property taxes, insurance, utilities, repairs, and maintenance) varies depending on lease terms. In a gross lease, all operating expenses are paid by the lessor. In a net lease, all expenses are paid by the lessee. Other lease terms lie between a gross and net rental basis. Rent should be estimated on the same basis for both the subject and comparable properties. For example, if rent is estimated for the subject property on a gross basis, rental data stated on a net basis is obviously not directly comparable. An analysis of comparable rents should also consider the effects of any rent concessions. Rent concessions are discounts or other additional benefits given by the landlord. Rent concessions include free or reduced rent for a specified period of time, extra tenant improvements, and other inducements. Rent concessions effectively lower the quoted market rental rate.

### **Estimating Market Vacancy and Collection Loss**

Vacancy and collection loss is an annual allowance for the reduction in potential gross income due to vacancy, tenant turnover, and nonpayment of rent. Almost all income-producing properties experience losses of this type over their economic lives. Vacancy and collection loss is typically stated as a percentage of annual potential gross income.

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<sup>56</sup> According to section 110, the value of intangible assets and rights relating to the going concern value of a business using taxable property shall not enhance or be reflected in the value of the taxable property. Taxable property may be assessed and valued by assuming the presence of intangible assets and rights necessary to put the taxable property to beneficial or productive use. The treatment of intangible assets and rights is discussed in a subsequent chapter.

The recent history of the subject and comparable properties is the starting point for estimating vacancy and collection loss. The appraiser should also consider projected market conditions and neighborhood trends. Vacancy studies are sometimes published by trade or research groups, often by property type and geographic area.

The method of estimating vacancy and collection loss varies depending on whether direct capitalization or yield capitalization (i.e., discounted cash flow analysis) is used. In direct capitalization, the estimate typically reflects stabilized occupancy. Stabilized occupancy is a level of occupancy expected when any transitory market conditions cease to exist; it reflects an occupancy level for which the property was designed and an occupancy level that is expected to continue over the economic life of the property. Stabilized occupancy may or may not reflect actual vacancy conditions in the subject property's market/submarket or the actual vacancy of the subject property on the valuation date. By contrast, in discounted cash flow analysis, the estimate of vacancy and collection loss reflects a forecast of the subject property's actual vacancy for each year of the income projection period used in the analysis.<sup>57</sup>

### **Estimating Market Effective Gross Income**

Effective gross income is the level of income that remains after deducting vacancy and collection loss from potential gross income. Effective gross income, in addition to rental income, may include non-rental income attributable to the real property being appraised.

### **Estimating Market Operating Expenses**

Operating expenses are expenditures necessary to maintain the real property and continue the production of gross income. They are typically estimated on an annual basis. Rule 8(c) refers to operating expenses as "gross outgo" Gross outgo is defined as "any outlay of money or money's worth, including current expenses and capital expenditures (or annual allowances therefor) required to develop and maintain the estimated income." Depending on the terms of the lease, the tenant may directly pay certain operating expenses or reimburse the landlord for certain operating expenses paid by the landlord. Operating expenses paid or reimbursed by the tenant should not be deducted from rental income when estimating the income to be capitalized.

Operating expenses are estimated at a market level—i.e., on the basis of what a prudent owner/investor would expect—which may differ significantly from the subject property's current or historical operating expenses. Although the starting point for estimating operating expenses is often the subject property's recent history, this information should be checked against recent data from comparable properties and, perhaps, published data regarding typical expense levels and ratios. Operating expenses can be estimated as a lump-sum amount, an amount per square foot, an amount per unit, or as percentage of effective gross income.

The treatment of some operating expenses may vary depending on whether direct capitalization or yield capitalization (i.e., discounted cash flow analysis) is used. In direct capitalization, expenses are annualized, even though some expenditures may not actually occur on an annual

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<sup>57</sup> Valuing properties not at stabilized occupancy is discussed in a later section of this chapter.

basis. This is a slight deviation from the typical cash flow basis of real estate income and expense analysis. It is necessary because in direct capitalization only a single year's income is capitalized. For example, property insurance may be prepaid for three years, but the appraiser would annualize this expense in direct capitalization. By contrast, in discounted cash flow analysis, expenditures for expenses are typically deducted in the years the expenditures are actually forecast to occur—that is, expenses are reflected on an actual cash flow basis. Thus, in discounted cash flow analysis, the full expenditure for three years of prepaid property insurance would be deducted in the year that the expenditure is forecast to occur.

### **Allowable Expenses**

Allowable operating expenses include, but are not limited to, outlays for property management, insurance, leasing expenses, maintenance and repair, utilities, security, janitorial and cleaning, garbage removal and pest control, grounds and parking area maintenance, and replacement allowance.<sup>58</sup> Several of these expenses are elaborated on below.

**Property management.** All property management expenses are deductible, whether paid directly by the owner or indirectly through payment to outside management. All properties incur management expenses, even if they are owner managed. Management expenses do not include expenses to manage or operate the investment entity (e.g., a limited partnership or corporation) or any non-property-related personal expenses of the owner. Insurance expenses include only those insurance costs associated with operating the property.

**Leasing expenses.** Leasing expenses are costs associated with securing tenants, and often include commissions paid to leasing agents and/or costs for tenant improvements incurred by the lessor. Recurring leasing expenses (i.e., leasing expenses related to tenant turnover after stabilized occupancy has been reached) are allowable expenses; however, initial leasing expenses to achieve stabilized occupancy are part of the original cost of the property and are not allowable expenses.

In direct capitalization, recurring leasing expenses are sometimes annualized as described earlier. However, more frequently, deductions for such expenses are not made in direct capitalization. If a capitalization rate is derived from comparable sales in which no deduction is made from the anticipated income for recurring leasing expenses, the impact of such expenses is reflected in the capitalization rate. When using a capitalization rate derived in this manner to value the subject property, no deduction for recurring leasing expenses should be made from the income to be capitalized.

In yield capitalization (i.e., discounted cash flow analysis), all expected leasing expenses over the anticipated holding period are allowable expenses (whether or not stabilized occupancy has been reached); they would typically be deducted when forecast to occur.

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<sup>58</sup> Expenses are often classified as either fixed or variable. Fixed expenses do not vary with the level of occupancy or use (e.g., property insurance or maintenance contracts); variable expenses vary with the level of occupancy or use (e.g., utilities).

**Maintenance and Repair.** Maintenance and repair expenses are expenditures to preserve a property's condition and operating efficiency. Typical maintenance and repair expenses include roof repair, painting, maintenance of heating, ventilating, and air conditioning equipment, and plumbing and electrical repair. Maintenance and repair does not include the replacement of significant components of an improvement or a change in its form.

**Replacement allowance.** Replacement allowance (also called reserve for replacement) is an expense to replace components of an improvement that must be replaced at least once, and often several times, during the improvement's economic life. Examples of such components include, but are not limited to, roof covering, paving, and heating, ventilating, and air conditioning equipment. Tenant improvements paid for by the lessor on tenant turnover (but not tenant improvements constructed during the initial lease-up) are also sometimes treated as replacement items.

In direct capitalization, an annual amount for replacement allowance is estimated and deducted as an expense. There are a number of ways of doing this, but all essentially involve estimating the cost of the replacement items over the economic life of the improvement and then annualizing this cost. It is necessary to annualize the cost since, as discussed above, in direct capitalization only a single year's income is capitalized. In yield capitalization (i.e., discounted cash flow analysis), an annual replacement allowance can be estimated as in direct capitalization. Alternatively, and perhaps more typically, expected expenditures for replacement items can be deducted as expenses in the years the expenditures are actually forecast to occur over the holding period. That is, they are reflected on an actual cash flow basis. In addition, the reversionary, or terminal, value of the property would also, presumably, reflect any necessary expenditures for replacement items that were imminent.

A deduction for replacement allowance is not always made. Whether or not the appraiser makes such a deduction typically depends on market practice. It is important, however, to treat replacement allowance consistently in both capitalization rate derivation and property valuation. If a capitalization rate has been derived from an income stream that includes a deduction for replacement allowance, it should be applied, when valuing property, to an income stream from which replacement allowance has been similarly deducted.

### **Non-Allowable Expenses**

Rule 8(c) explicitly excludes certain items as expenses. Excluded from "gross outgo" are property taxes, amortization or depreciation, debt payments (i.e., both the interest on debt and the retirement, or repayment, of debt), and corporate and personal income taxes.

**Ad valorem property taxes.** When estimating the income to be capitalized, *ad valorem* ("according to value") property taxes should not be deducted as an expense because to do so assumes that the value of the subject property is already known.<sup>59</sup> Rather, in accordance with

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<sup>59</sup> In some instances, primarily dealing with railroad and utility properties, the Valuation Division deducts ad valorem property taxes as an expense prior to income capitalization; therefore, no adjustments for property taxes in the rate or multiplier are necessary.

Rule 8(f), a component for property taxes is added to the capitalization rate. Under a net lease, the tenant pays the property taxes, and the addition of a component for property taxes is not required.<sup>60</sup>

However, only ad valorem property taxes should be excluded as an expense. Some property taxes are non-ad valorem, including Mellos-Roos bond payments, which are considered a property tax, and other "special taxes" which are also non-ad valorem (i.e., levied as lump-sum amounts rather than part of the general tax rate). The previously noted rationale for excluding property taxes as an expense does not apply to non-ad valorem property taxes.

**Accounting depreciation.** The reference to depreciation and amortization in subdivision (c) refers to the accounting concept of depreciation (in this context, amortization is a synonym for depreciation). Accounting depreciation and amortization charges are non-cash expenses designed to spread, or match, the cost of a previously incurred cash expenditure over future accounting periods.

There are at least two theoretical reasons for the exclusion of accounting depreciation charges as expenses. First, doing so incorporates the recognized cash flow concept of the amount of income to be capitalized. Second, accounting depreciation is a means of capital recovery based on past expenditures. However, in real estate valuation the point is not to recover past expenditures, but rather to estimate the value that future income will be able to recover. In appraisal, an allowance for recovery of capital is reflected in the capitalization rate or income multiplier.

**Debt payments.** Debt payments reflect the return on and return of the debt, or mortgage, interest in a property. They reflect the contractual share of property income received by creditors. However, the amount of income that a property is capable of producing is not affected by the way in which the returns to the property are allocated between debt and equity interests. Since, for property tax purposes, the entire interest in the property is being appraised (i.e., the value of both debt and equity interests), and not the equity interest only, debt payments are not an allowable expense.

**Federal and state taxes on income.** Federal and state taxes on income, corporate or individual, are determined in significant measure by a corporation's or individual's particular tax position, which may be affected by a number of factors extraneous to the operating results of the property being appraised. For this reason, taxes on income should not be deducted as an expense. Income taxes are reflected in the capitalization rate or income multiplier. For example, when a capitalization rate is derived from sales using a level of income before a deduction for income taxes, and the rate or multiplier is applied to an income at the same level, any effect of income taxes on property value is included in the market-derived capitalization rate.<sup>61</sup>

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<sup>60</sup> Property taxes are treated differently when processing the income stream to derive capitalization rates or income multipliers. When deriving rates or multipliers, anticipated property taxes are treated as an expense. This point will be reiterated in the sections addressing rate and multiplier derivation.

<sup>61</sup> Although subdivision (c) is silent on the exclusion of personal income taxes (it addresses only corporate income taxes), the exclusion of personal income taxes as an expense is logically implicit.

## **Estimating Market Net Income Before Recapture and Property Taxes**

Market net income before recapture and taxes is the level of income that remains after deducting all allowable operating expenses from market effective gross income. This level of income is capitalized into an estimate of value. In Rule 8(c) this level of income is referred as the "net return"—that is, the difference between gross return and gross outgo.

### **PROCESSING THE REVERSION**

Yield capitalization requires the selection of an income projection period. Typically, this is either the expected remaining economic life of the improvements or, in discounted cash flow (DCF) analysis, an investor's anticipated holding period—that is, the period of time the investor expects to own the property before selling it. In DCF analysis, the anticipated holding period is also sometimes called the investment horizon.

At the end of the income projection period, something of value will remain—either the land at the end of the economic life of the improvements, or the improved property at the end of an investor's anticipated holding period. The value of what remains at the end of the income projection period is referred to as the reversion. In DCF analysis, it is also called the terminal value, or the "going out" value. The value of the reversion, or more precisely, the net value of the reversion, which reflects any related disposition costs, is part of the income to be capitalized. Estimating the value of the reversion (or terminal value) is discussed in a subsequent section in the context of discounted cash flow analysis.

### **DIRECT CAPITALIZATION**

The direct capitalization method is relatively straightforward. A single year's income estimate is converted into a value indicator by either dividing the income to be capitalized by a capitalization rate or multiplying it by an income multiplier. The income used is usually the next year's income (i.e., the income in the year following the valuation date). Direct capitalization requires no assumptions regarding the pattern of income, change in value of the property, investment holding period, or the return on and return of (i.e., capital recovery) of the investment. In essence, the method simply expresses value as a ratio between income and a rate or multiplier. Direct capitalization is commonly applied where capitalization rates are derived from sales of comparable properties; it is not appropriate to apply this method when recent comparable sales are not available.

The following sections address (1) estimating the income from which an overall capitalization or income multiplier can be derived, (2) derivation of a gross income multiplier from sales data, (3) derivation of an overall capitalization rate from sales data, (4) derivation of an overall capitalization rate using the band of investment, and (5) valuation using a gross income multiplier or overall capitalization rate.

## ESTIMATING THE INCOME FROM WHICH AN OVERALL RATE OR INCOME MULTIPLIER IS DERIVED

As previously discussed, when estimating the income to be capitalized, income and expenses are forecast on a "market" basis. However, when deriving an income multiplier or capitalization rate, the relevant income and expenses are those anticipated by the buyer, which may or may not be the same as market income and expenses. The objective when deriving a rate or multiplier is to ascertain the buyer's anticipated rate of return, and for this only the buyer's anticipated income and expenses are relevant.<sup>62</sup>

As previously discussed, when estimating the income to be capitalized, ad valorem property taxes are not deducted as an expense, because to do so would assume that the value being estimated is already known. However, when deriving a capitalization rate, this reasoning does not apply. Consequently, the buyer's anticipated property tax expense is deducted from the income stream when deriving a rate. Thus, when deriving a rate or multiplier, income is processed as follows:

$$\begin{array}{r}
 \text{Anticipated Potential Gross Income (APGI)} \\
 - \text{ Anticipated Vacancy and Collection Losses} \\
 \hline
 = \text{ Anticipated Effective Gross Income (AEGI)} \\
 - \text{ Anticipated Operating Expenses} \\
 \hline
 = \text{ Anticipated Net Income Before Recapture} \\
 \text{ and Property Taxes (ANIBR\&T)} \\
 - \text{ Anticipated Property Taxes} \\
 \hline
 = \text{ Anticipated Net Income Before Recapture (ANIBR)}
 \end{array}$$

## DERIVING A GROSS INCOME MULTIPLIER FROM SALES DATA

Rule 8(i) addresses gross income multipliers:

Income may be capitalized by the use of gross income, gross rent, or gross production multipliers derived by comparing sales of closely comparable properties (adjusted, if necessary, to cash equivalents), with their gross incomes, gross rents, or gross production.

To derive a gross income multiplier, the sale price is divided by the buyer's anticipated gross income. The sale must meet the conditions of a market value transaction set forth in section 110(a) ("willing buyer, willing seller," "open market," etc.) and should be adjusted, if necessary, for cash equivalence. Thus,

$$GIM = \frac{SP}{APGI}$$

<sup>62</sup> The only way to determine a buyer's anticipated income and expenses is to ask the buyer.



where

- GIM = gross income multiplier  
 SP = cash equivalent selling price of the property  
 APCI = buyer's anticipated potential gross income for the property (which may differ from its actual income or market income)

A property sold for \$1,000,000 on a cash equivalent basis. The buyer's anticipated gross income was \$125,000. A gross income multiplier is derived from this transaction as follows:

$$\begin{aligned} \text{GIM} &= \text{SP} / \text{APGI} \\ \$1,000,000 / \$125,000 &= \mathbf{8.0} \end{aligned}$$

When appraising smaller residential properties, a gross *rent* multiplier is commonly used because such properties typically have no, or very little, non-rental income. A gross *income* multiplier is used for properties (e.g., large apartment projects) that produce significant non-rental income attributable to the real property (e.g., income from parking, laundry facilities, or rental of storage areas, etc.). Gross production multipliers, mentioned in Rule 8, are multipliers based on measures other than income. They are seldom used in real property appraisal.

### DERIVING AN OVERALL CAPITALIZATION RATE FROM SALES DATA

Rule 8(g)(1) states that a capitalization rate may be developed:

By comparing the net incomes that could reasonably have been anticipated from recently sold comparable properties with their sales prices, adjusted, if necessary, to cash equivalents (the market-derived rate). This method of deriving a capitalization rate is preferred when the required sales prices and incomes are available.

Subtracting the buyer's anticipated expenses, including anticipated property taxes, from anticipated effective gross income produces anticipated net income before recapture. The overall capitalization rate ( $R_o$ ) derived from sales data is the buyer's anticipated net income before recapture divided by the sale price. Again, the sale price should meet the conditions of a market value transaction according to section 110(a) and be adjusted, if necessary, for cash equivalence. Thus,

$$R_o = \frac{\text{ANIBR}}{\text{SP}}$$

where

- $R_o$  = overall capitalization rate derived from sales data  
 ANIBR = buyer's anticipated net income before recapture for the property, which may differ from actual or market income  
 SP = cash equivalent sale price.

**EXAMPLE 4-9: Overall Capitalization Rate**

A property sold for \$800,000 on a cash equivalent basis. The buyer's anticipated potential gross income is \$120,000. Anticipated vacancy and collection losses are 3% of anticipated potential gross income. Anticipated operating expenses, including anticipated property taxes, are \$40,000. The overall capitalization rate ( $R_o$ ) derived from this transaction is as follows:

Anticipated potential gross income	\$120,000
Less: Anticipated vacancy and collection losses (3%)	<u>3,600</u>
Anticipated effective gross income	\$116,400
Less: Anticipated operating expenses (incl. ant. prop taxes)	<u>40,000</u>
Anticipated net income before a deduction for recapture	<u>\$ 76,400</u>

$$R_o = \text{ANIBR} / \text{SP}$$

$$= \$76,400 / \$800,000 = 0.0955, \text{ or } \mathbf{9.55\%}$$

This rate expresses the relationship between the value of the entire property and the income stream. An overall rate should only be used in the appraisal of properties that are comparable to the properties from which the rate was derived. The ratio of land to improvement value and the remaining life of the improvements are particularly important aspects of comparability.

**DERIVING AN OVERALL CAPITALIZATION RATE USING THE BAND OF INVESTMENT**

Rule 8 (g)(2) provides that a capitalization rate may also be developed by deriving a weighted average of the capitalization rates for debt and equity, with the weights based on the typical proportions of debt and equity—that is, based on a typical loan-to-value ratio for the property being appraised.

**Band of Investment**

This technique is called the band of investment, which has been described more generally as "a technique in which the capitalization rates attributable to components of a capital investment are weighted and combined to derive a weighted-average rate attributable to the total investment." The "bands" in this case are based on the components of financing—that is, debt and equity.<sup>63</sup> Because most properties are purchased with both debt and equity capital, the overall capitalization rate must satisfy the market return requirements of both debt and equity interests.

**Debt Capitalization Rate**

As previously discussed, the debt capitalization rate ( $R_M$ ) is the ratio of the annual debt service to the principal amount of a loan. In real estate appraisal, it is called the mortgage constant. The mortgage constant is a function of the interest rate, the frequency of amortization, and the term of the loan. Given prevailing mortgage terms for the type of property being appraised, the mortgage constant can be readily calculated using a financial calculator or obtained from published financial tables.

<sup>63</sup> Appraisal Institute, *The Dictionary of Real Estate Appraisal*, 3rd ed. (Chicago: Appraisal Institute, 1993), 27. A band of investment capitalization rate can also be developed using the physical components of a property (i.e., land and improvements), which is an important feature in the land and building residual techniques.

## Equity Capitalization Rate

The equity capitalization rate ( $R_E$ ) is the ratio between the buyer's anticipated pre-tax cash flow to equity (typically, for the next year) and the equity investment in the property.<sup>64</sup> The pre-tax cash flow to equity is the buyer's anticipated net income before recapture less the annual debt service. The equity investment is the total property value less the outstanding loan balance. Equity capitalization rates can be derived from comparable sales or, secondarily, by surveying investors.<sup>65</sup>

The formula for developing an overall capitalization rate using the band of investment can be expressed as

$$R_o = M \times R_M + (1-M) \times R_E$$

where

- M = debt proportion;
- (1-M) = equity proportion;
- $R_M$  = debt capitalization rate (mortgage constant); and
- $R_E$  = equity capitalization rate.

### EXAMPLE 4-10: Band of Investment

A typical loan for the property being appraised has a term of 30 years, a loan to value ratio of 75%, fully amortized level payments, and an interest rate of 10%. The equity capitalization rate, estimated from comparable sales, is 5%. An overall capitalization rate ( $R_o$ ), using the band of investment, is developed as follows:

$$\begin{aligned} R_o &= M \times R_M + (1-M) \times R_E \\ &= 0.75 \times 0.105309 + (1 - 0.75) \times 0.05 \\ &= 0.078982 + 0.0125 \\ &= 0.091482, \text{ say } 0.0915, \text{ or } 9.15\% \end{aligned}$$

In an alternative format:

Capital Source	Weighting		$R_M$ or $R_E$	=	Weighted Amount
Debt	0.75	x	0.105309	=	0.0789820
Equity	0.25	x	0.05	=	0.0125
<b><math>R_o</math> (overall rate) =</b>					<b>0.091482, say 0.0915 or 9.15%</b>

<sup>64</sup> The equity capitalization rate is also called the cash-flow rate, the cash-on-cash rate, or the equity dividend rate.

<sup>65</sup> Thus: Annual pre-tax cash flow to equity = anticipated net income before recapture – annual debt service  
Equity capitalization rate = annual pre-tax cash flow to equity / equity investment

## OTHER METHODS OF DERIVING AN OVERALL CAPITALIZATION RATE

In addition to derivation from comparable sales and the band of investment using financial components, standard real estate texts discuss the following additional methods for deriving an overall capitalization rate: (1) derivation using an effective gross income multiplier and net income ratios; (2) derivation by the band of investment using physical property components (i.e., land and improvements); (3) derivation using a debt coverage formula; and (4) derivation using yield capitalization formulas.

Method (1) uses "standard" operating expenses to derive an overall rate from a transaction wherein anticipated operating expenses are not available. This is not always reliable because when deriving a rate the buyer's anticipated expenses are relevant, not "standard" expenses. Method (2) is difficult to apply because market-derived land and improvement (i.e., building) capitalization rates are extremely difficult to obtain. It is discussed in a later section addressing residual techniques. Method (3) uses a typical *debt coverage ratio* in conjunction with the mortgage constant and the loan-to-value ratio to derive an overall capitalization rate.

$$R_o = DCR \times R_M \times M$$

where

$R_o$	=	overall capitalization rate
DCR	=	debt coverage ratio
$R_M$	=	mortgage constant
M	=	loan-to-value ratio

Method (4) is actually a form of yield capitalization and is discussed in the next section.

## DIRECT CAPITALIZATION: VALUATION

### Valuation Using a Gross Income Multiplier

The formula for valuing property using a gross income multiplier requires multiplying the estimated market potential gross income (MPGI) by a gross income multiplier derived from the sales of comparable properties. Note that market income, not the buyer's anticipated income, is used. Thus,

$$MV = GIM \times MPGI$$

where

MV	=	indicated market value of the subject property
GIM	=	gross income multiplier selected from multipliers derived from comparable properties
MPGI	=	market potential gross income of the subject property

**EXAMPLE 4-11: Valuation Using a Gross Income Multiplier**

The estimated annual market potential gross income of the subject property is \$720,000. Based on an analysis of gross income multipliers derived from comparable properties, a gross income multiplier of 6.25 is selected to value the subject property. The market value of the subject property is estimated as follows:

$$\begin{aligned} MV &= \text{GIM} \times \text{MPGI} \\ &= 6.25 \times \$720,000 = \mathbf{\$4,500,000} \end{aligned}$$

Gross income multipliers are easily applied, but they should be used only when the comparable sales are very similar to the subject property. Thus, each comparable sale must be comparable to the subject property in terms of its income potential, expense ratios, location, land to building ratio, and physical characteristics.

When using a GIM, an appraiser capitalizes the market potential gross income of the subject property before allowing for property related expenses. Any variance in the relationship of net income to gross income, between the subject property and each comparable sale, will not be reflected in the resulting value estimate. Such a variance may distort the value estimate.

**Valuation Using an Overall Capitalization Rate**

The formula for valuing property by direct capitalization using an overall capitalization rate is to divide the estimated market net income before recapture and taxes by the sum of the overall rate obtained from the sales of comparable properties and the effective ad valorem property tax rate. As previously discussed, since ad valorem property taxes cannot be deducted as an expense in arriving at the income to be capitalized, the capitalization rate includes both the overall capitalization rate derived from comparable sales or the band of investment and an added component for ad valorem property taxes. Thus:

$$MV = \text{MNIBR\&T} / R_o + \text{ETR}$$

where

MV	=	indicated market value of the subject property
MNIBR&T	=	market net income before recapture and property taxes of the subject property
R <sub>o</sub>	=	overall capitalization rate derived from comparable sales or the band of investment
ETR	=	effective ad valorem property tax rate

**EXAMPLE 4–12: Valuation Using an Overall Capitalization Rate**

The subject property's estimated market net income before recapture and property taxes is \$780,000. The overall capitalization rate selected from OAR's derived from comparable sales (or the band of investment) is 9.50%. The effective ad valorem property tax rate is 1.10%. The market value of the property is estimated as follows:

$$\begin{aligned} MV &= \text{MNIBR\&T} / R_o + \text{ETR} \\ &= \$780,000 / 0.095 + 0.011 \\ &= \$780,000 / 0.106 \\ &= \$7,358,490 \text{ say } \$7,355,000 \end{aligned}$$

Although overall rates account for differences in property related expenses, they also require the comparable sales to be very similar to the subject property. Thus, each comparable sale must be comparable to the subject property in terms of its income potential, location, land to building ratio, and physical characteristics.

When using an OAR, an appraiser capitalizes the market net income before recapture and property taxes of the subject property—allowing for property related expenses other than property taxes. Any variance in the relationship of net income to gross income, between the subject property and each comparable sale, will be reflected in the resulting value estimate.

**VALUATION OF PROPERTIES NOT AT STABILIZED OCCUPANCY****General**

A property in stabilized condition has reached the level of utility for which it was designed. For income-producing property this generally means *stabilized occupancy*. Stabilized occupancy is a level of occupancy that is expected to continue over the remaining economic life of the property.

A property reaches stabilized occupancy when the vacancy rate has reached a state of equilibrium—that is, when the vacancy rate is not expected to increase or decrease dramatically over the foreseeable future. Typically, stabilized occupancy reflects the investor's anticipated rent loss due to average market vacancy and tenant turnover. This is sometimes called "normal vacancy."

A lower level of occupancy resulting from conditions of supply and demand or other transitory factors is not stabilized occupancy. Situations associated with a non-stabilized occupancy level may include new construction prior to initial lease-up, significant loss of tenants in a soft or overbuilt market, and properties undergoing significant renovations.

Occupancy level has a significant effect on market value. All else being equal, a property at stabilized occupancy is more valuable than a property at a lower level of occupancy. Consider two otherwise identical properties. One is at a stabilized occupancy of 90 percent (i.e., the normal vacancy), the other at a non-stabilized occupancy of 40 percent. Most buyers would pay more for the property at the higher, stabilized occupancy level. The property with the lower

occupancy level would sell for less because of the additional costs most prudent buyers would anticipate as necessary to bring it to stabilized occupancy. If a property is at a non-stabilized occupancy level, the market value estimate should reflect this condition.

The direct capitalization method of the income approach assumes that the income to be capitalized is at a stabilized level and does not reflect transitory conditions. It also assumes that the comparable sales properties from which capitalization rates or income multipliers are derived are also operating at stabilized occupancy. Direct capitalization should only be used when these assumptions are met.

### **Methods for Valuing Property Not at Stabilized Occupancy**

The value of a property not at stabilized occupancy can be estimated using the following methods:

1. Estimate a hypothetical value of the subject property as if stabilized using the comparative sales approach and/or direct capitalization, and then deduct a market-derived discount from the value as if stabilized to estimate the market value of the property in its current, non-stabilized condition.
2. Use discounted cash flow analysis to directly estimate the value of the property at its current (i.e., non-stabilized) level of occupancy. This requires estimates of the periodic cash flows during the absorption period necessary to reach stabilized occupancy and an estimate of the terminal, or reversionary, value of the property at the point in time stabilized occupancy is reached.
3. Use the comparative sales approach to directly value the property in its non-stabilized condition. This requires an adequate number of comparable sales properties that, in addition to being comparable in terms of physical and locational characteristics, also have a level of occupancy similar to the subject property.

Method 2 is simply an application of discounted cash flow analysis to a property not at stabilized occupancy. Method 3 is simply a special application of the comparative sales approach. Method 1 is discussed in greater detail below.

Method 1 compares the estimated cash flows of the subject property as if stabilized with the estimated cash flows during the absorption period required to reach stabilized occupancy. Typically, the two sets of cash flows will differ because of rent loss, leasing commissions, landlord improvements, and different operating expenses paid by the owner during lease-up vis-a-vis those at stabilized occupancy. Rent loss, leasing commissions, and landlord improvements are all added costs to the property owner relative to stabilized occupancy. Operating expenses, some of which generally increase with the level of occupancy, may be lower for a property that is not at stabilized occupancy. The present value sum of the incremental cost for each year is subtracted from the value as if stabilized in order to estimate the non-stabilized, or as is, value. The method involves the following steps:

1. Estimate a hypothetical value of the subject property as if stabilized on the valuation date using the comparative sales approach or the direct capitalization method of the income approach.
2. Estimate the amount of space to be absorbed. This requires an estimate of the "excess vacancy"—that is, the difference between the current, non-stabilized level of occupancy and stabilized occupancy. The average excess vacancy per period is half the sum of the beginning excess vacancy and the ending excess vacancy. This assumes that the space is absorbed uniformly during the period. The average excess vacancy is used to estimate the rental loss.
3. Estimate the absorption period and the pattern of absorption. The absorption period is the expected length of time required to achieve stabilized occupancy. The length and pattern of absorption should be based on current and forecast market conditions for the subject property.
4. Estimate the market rent for the subject property over the absorption period.
5. Estimate the rent loss for each period during absorption. This is the average excess vacancy per period multiplied by the market rent.
6. Estimate leasing commissions and any other marketing costs associated with achieving stabilized occupancy. The amount and payment schedule for leasing commissions may vary depending on the conventions of the respective market.
7. Estimate the cost of landlord improvements (also called tenant improvements) paid for by the landlord as part of the lease contract.
8. Estimate any difference in operating expenses paid by the property owner over the absorption period relative to expenses at stabilized occupancy. The estimate of differential expenses should take into account the structure of the lease (i.e., gross or net). For example, under a gross lease the owner pays all operating expenses, and variable expenses may be less than those at stabilized occupancy. In effect, lower expenses at non-stabilized occupancy represent a "cash inflow" to the owner in this analysis.
9. Estimate the differential cash flows for each year of the absorption period (i.e., the difference between the cash flows assuming stabilized occupancy and those during the period required to reach stabilized occupancy, or the sum of 5, 6, 7, and 8).
10. Calculate the present value sum of these cash flows using an appropriate discount rate. If the absorption rate is properly forecast, the risk of the cash flows during the absorption period should not exceed the risk of cash flows with a stabilized property. The present value sum is the estimated adjustment amount. If the absorption period is short, the adjustment could be made without discounting the cash flows; this, of course, results in a slightly larger adjustment.
11. Subtract the adjustment amount from the estimated stabilized value of the subject property. The result is the estimate of subject property's non-stabilized value.



The above is summarized in the following worksheet, which shows a 3-year absorption period.

<b>EXAMPLE 4-13: Method for Valuing Property Not at Stabilized Occupancy</b>			
	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>
Beginning Excess Vacancy			
Ending Excess Vacancy			
SF Leased			
Avg. Excess Vacancy			
Rent Loss			
Leasing Comm. and other Marketing Expenses			
Landlord Improvements			
Differential Operating Expenses			
<b>Total Income Loss</b>			

**EXAMPLE 4-14: Sample Valuation of a Property Not at Stabilized Occupancy****Assume the Following Property Data:**

Total Rental Area	100,000 sf
Stabilized Occupancy	90,000 sf
Current Occupancy	60,000 sf
Excess Vacancy	30,000 sf
Market Rent	\$30/sf/year (gross basis)
Landlord Improvements	\$20/sf
Leasing Comm. <sup>1</sup>	6% of first year's rent
Absorption Period	3 years
Differential Expenses <sup>2</sup>	1st year: <\$75,000>; 2nd year: <\$45,000>; 3rd year: <\$15,000>
Est. Stabilized Value <sup>3</sup>	\$16,715,000

<sup>1</sup> This may vary by market.

<sup>2</sup> That is, operating expenses will be lower by these estimated amounts relative to expenses at stabilized occupancy.

<sup>3</sup> By comparative sales and/or direct capitalization.

**Adjustment Worksheet:**

	Year 1	Year 2	Year 3
Beginning Excess Vacancy (SF)	30,000	20,000	10,000
Ending Excess Vacancy	20,000	10,000	0
SF Leased	10,000	10,000	10,000
Avg. Excess Vacancy (SF)	25,000	15,000	5,000
Rent Loss <sup>4</sup>	\$750,000	\$450,000	\$150,000
Leasing Comm. and other Marketing Expenses	24,000	24,000	24,000
Landlord Improvements	200,000	200,000	200,000
Differential Operating Expenses (minus)	<u>- 75,000</u>	<u>- 45,000</u>	<u>- 15,000</u>
<b>Total Income Loss</b>	<b>\$899,000</b>	<b>\$629,000</b>	<b>\$359,000</b>

<sup>4</sup> For example, for year 1, 25,000 SF x \$30/SF = \$750,000

**Present Value Calculations** (all cash flows are assumed to occur at year's end):

Year	Cash Flow		PV Factor	=	PV
1	\$899,000	x	0.892857	=	\$802,678
2	\$629,000	x	0.797194	=	501,434
3	\$359,000	x	0.711780	=	<u>255,529</u>
	<b>Total Present Value</b>				<b>\$1,559,641</b>

**Estimated Value of Subject Property:**

Estimated Value of Subject Property =	Estimated Stabilized Value	-	Adjustment
=	\$16,715,000	-	\$1,559,641
=	<b>\$15,155,359</b>		<b>say \$15,155,000</b>

## YIELD CAPITALIZATION

In yield capitalization, future income is discounted into an estimate of present value by either discounting each future income payment at a specified yield, or discount rate or developing an overall capitalization rate that explicitly reflects the investment's income pattern, value change, and yield rate. The primary application of yield capitalization is discounted cash flow (DCF) analysis. A secondary application of yield capitalization involves yield capitalization formulas, which are used to develop an overall capitalization rate given assumptions regarding the pattern of income and a yield rate.

The following sections address (1) DCF analysis and yield capitalization formulas in greater detail, (2) yield rate derivation, and (3) valuation using discounted cash flow analysis and yield capitalization formulas.

### DISCOUNTED CASH FLOW ANALYSIS

In DCF analysis, each future income payment (cash flow) is separately discounted to a present value amount, and these amounts are then summed to arrive at an indicator of total property value. Since each year's cash flow is discounted separately, the forecast can reflect expenditures as they are expected to occur, making DCF analysis appropriate for irregular as well as regular patterns of cash flows. DCF analysis is succinctly described as follows:<sup>66</sup>

Property value = Present value of annual cash flows + Present value of reversion

The primary steps in DCF analysis are:

1. Determine a typical holding period for the type of property being appraised based on market behavior;
2. Forecast the future cash flows over the holding period, including the reversionary cash flow;
3. Select an appropriate yield/discount rate, given the risk of the cash flows;
4. Convert each cash flow into its present value amount through the discounting process;
5. Sum these present values to arrive at an estimate the value of the property.

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<sup>66</sup> Or, more formally, in the following equation:

$$PV_0 = \frac{CF_1}{(1+Y)^1} + \frac{CF_2}{(1+Y)^2} + \dots + \frac{CF_t}{(1+Y)^t} + \dots + \frac{CF_n}{(1+Y)^n} = \sum_{t=1}^n \frac{CF_t}{(1+Y)^t}$$

where

- PV<sub>0</sub> = the present value, or estimated market value, of the property;
- CF<sub>t</sub> = the expected cash flow at time t, including any reversionary cash flow;
- Y = the yield/discount rate; and
- n = the number of periods over which the cash flows are expected to be generated.

As with all capitalization methods or techniques, the assumptions concerning the key variables on which the estimated value is based are more important than the mathematical aspects of the process. In DCF analysis, these assumptions involve the pattern of annual cash flows, the amount of the reversionary cash flow, and the yield/discount rate used to discount the cash flows to present value. The actual discounting is done using compound interest and/or annuity factors corresponding to the selected yield rate. The computational aspect, given financial calculators and spreadsheet software, is a relatively insignificant part of the analysis.

The present value of the reversion often represents a significant portion of the total value estimate for the property being appraised in DCF analysis. The reversion value is generally based on the estimated net proceeds from the sale of the property at the end of the expected holding period. The most common method for estimating the value of the reversion uses direct capitalization. As discussed earlier, in direct capitalization a single year's income, typically the expected first year's income, is capitalized into a value estimate using an overall capitalization rate ( $R_o$ ). Direct capitalization can also be used to estimate a reversionary value by capitalizing the forecast income (i.e., NIBR&T) for the year following the end of the expected holding period. For example, if the expected holding period were 5 years, the forecast income from year 6 would be capitalized.<sup>67</sup> When an overall capitalization rate is used within DCF analysis in this manner, it is called a terminal capitalization rate and the estimated value is sometimes called a terminal value.

A latter section contains a valuation example using DCF analysis.

### **YIELD CAPITALIZATION FORMULAS AND INCOME MODELS**

In addition to discounted cash flow analysis, yield capitalization includes a number of other techniques for converting income into value. Yield capitalization formulas (also called "property models") are a form of yield capitalization involving the development of an overall capitalization rate ( $R_o$ ) given a specified yield rate ( $Y_o$ ) and certain assumptions regarding expected changes in a property's income and/or value. The Ellwood mortgage equity formula, for example, is a yield capitalization formula that incorporates financing considerations.

In addition to yield capitalization formulas, yield capitalization also includes a related group of techniques called "income models." Whereas yield capitalization formulas, or property models, can incorporate expected changes in property value, income models can only be used to value "standard" types of income streams such as a single income payment, a level perpetual income stream, a level terminating income stream, and others; any property reversion must then be separately valued. Essentially, income models are just applications of standard compound interest and annuity factors and time value of money concepts put in a context of valuation.

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<sup>67</sup> Consider the point of view of a hypothetical buyer for the property being appraised at the end of the expected holding period. That buyer, using direct capitalization, would estimate the value of the property by dividing the income for the following year by an overall capitalization rate.

The following two sections discuss the basic yield capitalization formula and the Ellwood mortgage equity formula. In a latter section, valuation examples involving both yield capitalization formulas and income models will be presented.

### Basic Yield Capitalization Formula

An appraiser may wish to base a value estimate on the assumption that the value of the subject property will change by a certain percentage amount (annual or total) over a given holding period. Yield capitalization formulas provide a way of solving problems of this type; they might be called percentage change in value formulas. The value estimate produced using a yield capitalization formula is the same as that produced by discounting a set of cash flows based on the same assumptions. That is, a value estimate based on a yield capitalization formula can always be proved through DCF analysis.<sup>68</sup>

Capitalization using yield capitalization formulas resembles direct capitalization because the conversion of income to value is done in one step (using the basic capitalization formula  $V = I/R$ ); however, the derivation of the overall capitalization rate is completely different. In direct capitalization,  $R_o$  is derived directly from market data, without explicitly considering the income pattern and the return on and return of investment.

The basic yield capitalization formula is:

$$R_o = Y_o - \Delta a$$

where

$R_o$	=	overall capitalization rate
$Y_o$	=	total property yield rate
$\Delta$	=	change in property value over the holding period
$a$	=	annual conversion factor such as an annual sinking fund factor or other annual capital recovery rate

If property value increases,  $\Delta a$  is positive and the overall yield rate,  $Y_o$ , is greater than the overall capitalization rate,  $R_o$ ; if property value decreases,  $\Delta a$  is negative and the yield rate,  $Y_o$ , is less than the overall rate,  $R_o$ .

In a special case, if both income and value are expected to change at a constant annual rate, the annual compound rate of change,  $CR$ , replaces  $\Delta a$  in the general formula above, and an overall capitalization rate can be obtained using the following formula:

$$R_o = Y_o - CR.$$

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<sup>68</sup> However, note the difference in logic compared to discounted cash flow (DCF) analysis. In DCF analysis a forecast set of cash flows, including the reversionary cash flow, is discounted at a given yield/discount rate. With a yield capitalization formula, typically, a beginning cash flow, percentage change in income/value (not a dollar amount), and yield rate are given, from which an overall rate is derived to value the property.

The basic yield capitalization formula will be used in a latter section concerning valuation applications.

### Mortgage Equity Formula

Mortgage financing creates both a mortgage (i.e., debt) and an equity interest in the property, and each of these interests can be analyzed and valued separately. The total value of a property is the sum of the values of these two financial components. *Mortgage-equity analysis*, broadly defined, refers to any income capitalization or investment analysis procedure that explicitly considers how mortgage terms and equity yield requirements affect the value of a property. Mortgage-equity analysis thus includes both the band of investment procedure for estimating a capitalization rate and discounted cash flow analysis when that technique is used to separately value cashflows to the equity interest.

A well-known application of mortgage equity analysis is the use of the mortgage-equity (or Ellwood) formula for developing an overall capitalization rate. The Ellwood formula is similar in kind to the basic yield capitalization formula discussed earlier, but is different in two ways: first, it requires a given *equity* yield rate ( $Y_E$ ) rather than an *overall* yield rate ( $Y_O$ ); and second, it incorporates assumptions regarding the terms of financing (interest rate, length of loan, loan-to-value ratio) in addition to those regarding an expected holding period and change in property income and/or value. Similar to the basic yield capitalization formula, the mortgage equity formula provides a direct method of solving for the present value of the property, given the set of assumptions described above, even though both the future value of the property (i.e., the property's expected value at the end of the holding period) and the loan amount are based on the property's present value. The basic mortgage-equity formula is as follows:

$$R_O = Y_E - M(Y_E + P 1/S_N - R_M) - \Delta_O 1/S_n$$

where

$R_O$	=	overall capitalization rate
$Y_E$	=	equity yield rate
$M$	=	loan-to-value
$P$	=	percentage of loan paid off
$1/S_n$	=	sinking fund factor (SFF) at the equity yield rate
$R_M$	=	mortgage capitalization rate (mortgage constant)
$\Delta_O$	=	percentage change in total property value over the holding period.

The basic mortgage-equity formula can be used only with a level income stream. However, it can be modified to accommodate changes in income using income stabilization factors (so-called "J" and "K" factors). A series of tables containing solutions for many of the variables needed to solve the basic Ellwood formula and its refinements are also available, although these tables are now largely obsolete given programmable financial calculators and spreadsheet software.<sup>69</sup>

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<sup>69</sup> An alternative to the algebra-based Ellwood approach is an arithmetic analogue developed by Charles Akerson known as the "Akerson format." Given the same assumptions, both methods produce the same results.

**EXAMPLE 4-15: Mortgage Equity Formula**

Assume a level income stream for 5 years, an increase in the value of the property of 15 percent over the 5 year projection period, a loan at 10.25 percent for 30 years, loan-to-value ratio of 75 percent, and a 15 percent before-tax equity yield rate. Derive the overall capitalization rate.

$$R_o = Y_E - M(Y_E + P 1/S_n - R_M) - \Delta_o 1/S_n$$

$Y_E = 0.15$	$1/S_n = 0.148316$
$M = 0.75$	$R_M = 0.107532$
$P = 0.032688$	$\Delta_o = 0.15$

$$R_o = 0.15 - 0.75 [0.15 + (0.032688) (0.148316) - 0.107532] - 0.15 (0.148316)$$

$$= 0.092266$$

$$= \mathbf{9.23\%}$$

**DERIVING YIELD, OR DISCOUNT, RATES****Estimating the Income from which Yield, or Discount, Rates are Derived**

When deriving yield/discount rates, the level and type of income used is the same as was discussed in an earlier section concerning the derivation of an overall rate or income multiplier. That is, the buyer's anticipated income and expenses are used, and the income is processed to the level of anticipated net income before recapture. With the exception of ad valorem property taxes, allowable income and expenses are the same as when estimating the income to be capitalized. Thus, when deriving a yield/discount rate, income is again processed as follows:

	Anticipated Potential Gross Income (APGI)
–	Anticipated Vacancy and Collection Losses
<hr/>	
=	Anticipated Effective Gross Income (AEGI)
–	Anticipated Operating Expenses
<hr/>	
=	Anticipated Net Income Before Recapture and Property Taxes (ANIBR&T)
–	Anticipated Property Taxes
<hr/>	
=	Anticipated Net Income Before Recapture (ANIBR)

**Deriving Discount Rates from Sales Data**

As previously discussed, Rule 8(g)(1) describes a method for developing a capitalization rate (a "market-derived" rate) from actual sales of properties. While subdivision (g)(1) is in the context of direct capitalization, the language can also be applied to yield capitalization. Discounted cash flow (DCF) analysis can be used to derive overall yield/discount rates from sales of comparable properties by calculation of the yield/discount rate that equates the present value of a buyer's anticipated cash inflows from a property with its sale price. (As described later, this requires the calculation of the internal rate of return (IRR) of the property's anticipated cash flows.) When sufficient data are available, the preferred method of developing a yield/discount rate is from sales data.

Deriving a discount rate from a sale requires the following steps:

1. Determine that the sale meets the conditions of section 110(a) ("open market" conditions and cash equivalency);
2. Obtain the buyer's anticipated income and expenses (i.e., the anticipated cash flows) and reconstruct the buyer's anticipated income and expense data into a format consistent with Rule 8(c), if necessary;
3. Calculate the overall yield/discount rate that equates the present value of the buyer's anticipated cash flows to the cash equivalent sale price (i.e., calculate the IRR for the anticipated cash flows).

### **Sales Data**

The sales from which discount rates are derived must meet the requirements of an open market transaction and cash equivalency as set forth in section 110(a).

### **Anticipated Income and Expenses**

In order to derive a yield rate from a sale, detailed information concerning the buyer's anticipated income and expenses must be obtained. The appraiser must use the buyer's anticipated income and expenses—not those of the appraiser or the "typical" market participant—in order to derive a valid yield/discount rate.

Income should be processed to the level of anticipated net income before recapture (NIBR). In addition to annual cash flows, most forecasts will include a reversionary cash flow. Allowable income and expenses—with the exception of ad valorem property taxes, which are allowable as an expense when deriving a rate but not when capitalizing income into a value estimate—are the same as described in the earlier section regarding estimating the income to be capitalized. In many cases, the data from the buyer may have to be reconstructed to restate income and expenses in proper manner for property tax valuation.<sup>70</sup>

### **Computation of the IRR, or Yield/Discount Rate**

Although DCF analysis is typically used to discount future payments into an estimate of present value given a yield/discount rate, it can also be used to solve for a yield/discount rate given a sale price and a set of future cash flows. When it is used for this purpose, DCF analysis is called internal rate of return (IRR) analysis.

The IRR can be defined in a general manner as the yield/discount rate that equates the present value of expected cash inflows to the present value of expected cash outflows. In the context here, the IRR is the yield/discount rate that equates the present value of the anticipated income (cash flows) from the property with the cash equivalent sale price of the property. Thus:

$$\text{Cash equivalent sale price of the property} = \text{PV of anticipated income (cash flows)}$$

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<sup>70</sup> See the previous section "Estimating the Income to be Capitalized."



The calculation of the IRR (that is, the yield/discount rate) is typically done with the assistance of a financial calculator or spreadsheet software. Using anticipated net operating income before recapture, the rate derived is a total property yield rate ( $Y_o$ ).

#### EXAMPLE 4–16: Calculation of IRR

The sale price of the property is \$2,000,000. The buyer's anticipated cash flows, over a 5 year anticipated holding period are as stated below, including an expected net proceeds of \$2,400,000 from the sale of the property at the end of the holding period. What is the internal rate of return, that is, the yield/discount rate derived from the sale?

	Year 1	2	3	4	5
APGI	280,000	290,000	300,000	310,000	320,000
	<u>20,000</u>	<u>21,000</u>	<u>22,000</u>	<u>23,000</u>	<u>24,000</u>
AEGI	260,000	269,000	278,000	287,000	296,000
Ant. Operating Exp.	<u>50,000</u>	<u>55,000</u>	<u>60,000</u>	<u>65,000</u>	<u>70,000</u>
ANIBR&T	210,000	214,000	218,000	222,000	226,000
Ant. Prop. Taxes	<u>10,000</u>	<u>10,000</u>	<u>10,000</u>	<u>10,000</u>	<u>10,000</u>
ANIBR	200,000	204,000	208,000	212,000	216,000
Reversion Value					2,400,000

The internal rate of return is the rate at which the sum of the present values of 200,000, 204,000, 208,000, 212,000, and 2,616,000 (which includes the 2,400,000 reversion at the end of year 5) is equal to the sale price of \$2,000,000. Using a financial calculator, the IRR calculated from these cash flows is **13.41%**. This market derived discount rate reflects the return expectations of market participants and can be used to discount an income stream of comparable risk.

### Deriving Yield Rates Using the Band of Investment

In a previous section, an overall capitalization rate ( $R_o$ ) was derived using the band of investment technique. As discussed, the band of investment is based on the premise that a capitalization rate can be derived using a weighted average of the different financing "bands," or components, used in a real estate investment—namely, the equity component and the mortgage component.

The band of investment can also be used to derive an overall yield rate ( $Y_o$ ). Recall that a capitalization rate must provide for both a return on and a return of the investment while a yield rate provides for only the return on the investment (with the return of the investment, or capital recovery, typically provided for in the compound interest or annuity factor used in conjunction with the yield rate). In the case of an overall capitalization rate derived using the band of investment, the return of the investment is provided for in the amortization component of the mortgage constant ( $R_M$ ) and, implicitly, in the equity dividend rate ( $R_E$ ) derived from the market. Since a yield rate does not provide for return of the investment, the parameters used in the band of investment when estimating a yield rate are slightly different from the parameters used when estimating an overall capitalization rate. Instead, of using the mortgage constant for the debt component, the interest rate ( $I$ ) on the loan is used; instead of using an equity capitalization rate, an equity yield rate ( $Y_E$ ) is used. Thus:

$$Y_o = M \times I + (1-M) \times Y_E$$

where

M	=	debt proportion
I	=	interest rate on the mortgage
(1-M)	=	equity proportion
$Y_E$	=	equity yield rate

Mortgage interest rates are available from a variety of sources. However, an equity yield rate is much more difficult to obtain; and this is the basic weakness of the method. Also, if an equity yield rate can be obtained from market data, usually an overall yield rate can also be obtained. If this is the case, there is not much point in deriving an overall yield rate using the band of investment. The next section discusses a technique closely related to the band of investment that uses capital market data to estimate an equity yield rate.

#### **EXAMPLE 4-17: Deriving a Yield Rate Using the Band of Investment**

A typical loan for the property being appraised has an annual interest rate of 10%. A typical loan-to-value ratio is 0.75. The equity yield rate, derived from comparable sales, is 18%. An overall yield rate ( $Y_o$ ), using the band of investment, is developed as follows:

$$\begin{aligned}
 Y_o &= M \times I + (1-M) \times Y_E \\
 &= 0.75 \times 0.10 + (1 - 0.75) \times 0.18 \\
 &= 0.75 \times 0.10 + 0.25 \times 0.18 \\
 &= 0.07500 + 0.0450 \\
 &= 0.1200, \text{ say } \mathbf{12.0\%}
 \end{aligned}$$

### **Deriving a Discount Rate Using the Weighted Average Cost of Capital and Data from the Capital Market**

As discussed in the previous section, a capitalization rate can be developed by weighting the separate rates of return associated with the financial components of a real estate investment—that is, the mortgage component and the equity component—using the band of investment technique. A related concept from corporate finance is the weighted average cost of capital (WACC). A WACC is developed by weighting the costs of a firm's permanent sources of financing—typically common stock, bonds, and, perhaps, preferred stock—obtained from capital market data, with the weights based on the relative market values of these components. This section provides an overview of the WACC and a limited discussion of its applicability in property tax valuation. Appendix A addresses this subject in greater detail.

A primary application of the WACC is in corporate capital budgeting. Capital budgeting is the process by which corporations generate proposals for investment projects, evaluate the proposals, and decide which ones to accept. Most capital budgeting proposals involve investments in real assets—a new factory or other facility, a new product, etc. Project valuation

is a key aspect of capital budgeting. To estimate a project's value, its expected cash flows are discounted at a risk-adjusted discount rate, or cost of capital, for the project.<sup>71</sup>

### **Pure Play, or Comparable Company, Method**

A given firm's WACC reflects the average risk of the firm. The WACC is the minimum rate of return that the firm should expect on an investment of average firm risk. A publicly traded firm estimates its WACC using rate of return data relating to its own securities taken from the capital market. However, an important point is that a particular project's cost of capital should reflect the risk of that project, which may or may not reflect the average risk of the firm. Some projects considered by a given firm will be of above-average risk; some will be of below-average risk. Thus, the firm's WACC is not the correct discount rate for the firm to use when valuing a project that differs from the average risk of the firm. The "pure play," or comparable company, variation of the WACC method provides a means of estimating a discount rate for a specific project—that is, a discount rate that matches the risk of the project. In this variation of the, the appraiser attempts to find several publicly traded, single product companies in the same line of business as the project or property being valued. Capital market return data from this sample of companies is then used to estimate a WACC, or discount rate, for the project. It is this variation of the WACC that is most often used in property tax valuation.

### **Estimating Parameters for the WACC**

Estimating a WACC requires estimates for three parameters: capital structure, the cost of debt, and the cost of equity. The following sections briefly describe the estimation of these parameters in the comparable company variation of the WACC.

#### ***Capital Structure***

Capital structure refers to the relative proportions of a firm's permanent financing components, with the proportions based on market values outstanding (i.e., not book values). Typically, a firm's significant permanent financing components are limited to common stock, preferred stock, and bonds. Data from the sample of comparable companies relating to capital structure is used to derive a representative financial structure for the property being valued.

#### ***Cost of Debt***

The cost of debt is typically based on the yield to maturity or interest rate on new debt issues for the comparable companies as of the valuation date. Debt rate information is obtained from published sources. A cost of debt is estimated for each of the comparable companies and used to estimate a cost of debt for the asset or entity being valued.

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<sup>71</sup> This is an application of DCF analysis quite similar to DCF analysis in a real estate valuation. The sources of the cash flows and the methods of estimating them, of course, are different.

### *Cost of Equity*

Although other methods are available, the cost of equity is typically estimated using the Capital Asset Pricing Model (CAPM), the Dividend Growth Model, and the Bond Yield Plus Risk Premium Method. Based on these methods, a cost of equity is estimated for each of the comparable companies. This data is then reconciled into an estimate of the cost of equity for the property being valued.

**Capital Asset Pricing Model.** The CAPM is a financial/economic model that quantitatively relates risk and return. Although the model was developed in the context of security valuation, it is also applicable to the valuation of real assets (it is widely used, for example, in corporate capital budgeting).

The primary insight of the CAPM is that risk-taking is rewarded. Investors are risk averse; in order to assume greater risk, they must be rewarded with a greater returns. Financial theory defines and measures risk in terms of the variability of returns. For example, the expected return on a savings account is relatively low but highly predictable. The expected return on an average share of common stock is significantly higher, but the return is also much less predictable (i.e., more variable, or risky) than the return on a savings account. Risk is also defined in a portfolio context. In a portfolio, some of the risks of the portfolio's constituent securities cancel each other out; that is, an event that reduces the return on one security in the portfolio may increase the return on another security in the portfolio, or vice versa. The only risk that matters in a portfolio context is risk that cannot be eliminated through diversification, which, in CAPM theory, is called systematic risk.

According to the CAPM, the size of the risk premium offered by a risky security (i.e., the increment of return above that available on a risk-free security) is proportional to its systematic risk, as measured by the security's beta. Beta measures the degree of co-movement of a security with the "market as a whole," which, in the CAPM, is referred to as the market portfolio.<sup>72</sup> The market portfolio has a beta of 1. Stocks that are more volatile than the market portfolio have betas greater than 1; stocks less volatile than the market portfolio have betas less than 1. The amount by which investors expect the future return on the market portfolio to exceed the return on a risk-free security (i.e., a security whose return is certain) is called the market risk premium.

The cost of equity for a firm (i.e., the required rate of return on the firm's common stock) is related to the risk-free rate, beta (the systematic risk measure), and the expected market risk premium as follows:

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<sup>72</sup> Theoretically, the market portfolio contains not only common stock, but all investable assets. Real estate, for example, in theory, should be included in the market portfolio. In practice, the market portfolio is proxied by a broad stock index such as the Standard and Poor's 500, which includes only common stock. A fundamental criticism of the CAPM is that it cannot be tested because no good proxy for a true market portfolio exists.

$$r_E = r_f + \beta \times \text{MRP}$$

where

$r_E$	=	cost of equity
$r_f$	=	risk-free rate of return
$\beta$	=	expected beta
MRP	=	expected market risk premium

The risk-free rate is directly observable as a rate of return on a U. S. Treasury security; betas are available from several published sources, and the expected market risk premium is usually estimated from historical data—that is, average annual returns on a broad stock index subtracted from average annual returns on a U. S. Treasury security, with the averages calculated over a long period. Forward looking (ex ante) models can also be used to determine the expected market risk premium.

**Dividend Growth Model.** The dividend growth model (also called the discounted cash flow model) is based on the idea that the value of a share of common stock is the present value of all future dividends attributable to it. This rationale follows the basic present value rule—that is, the value of any asset is the present value of the future income, or cash flows associated with it. The value of a share of stock can be thought of as the present value of its dividends in perpetuity. For a firm in stable growth, the cost of equity, that is the required rate of return on a firm's common stock, can be estimated according to the following equation:

$$r_E = D_1 / P_0 + g$$

where

$r_E$	=	cost of equity
$D_1$	=	next year's expected dividend
$P_0$	=	current price of the company's stock
$g$	=	estimated constant growth rate in dividends <sup>73</sup>

The expected dividend is typically estimated using analysts' published dividend forecasts. The current price of a publicly traded stock is readily available. It is more difficult to estimate the long-term growth rate in dividends, and unfortunately, the estimated cost of equity is very sensitive to this variable.

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<sup>73</sup> Methods for estimating the long-term growth rate,  $g$ , are discussed in the Appendix A. The basic dividend growth model is only applicable to firms in stable growth, although a refinement of the model allows consideration of multi-stage growth.

**Bond Yield Plus Risk Premium Method.** The bond yield plus risk premium method estimates the cost of equity (or required return on common stock) by first estimating a long-term debt cost for the firm and then adding an estimated equity-over-debt risk premium. Thus,

$$r_E = r_d + RP$$

where

$r_E$	=	cost of equity
$r_d$	=	estimated bond yield for the subject property
RP	=	estimated equity-over-debt risk premium

The bond rate is based on either the current yield to maturity on long-term debt for the firm or on corporate debt of comparable rating. The equity-over-debt risk premium is the return the firm's common stock investor requires in excess of the firm's bond investor. It can be estimated using historical data by subtracting the long-term average return on common stock from the average bond returns.

### Calculating the WACC

As mentioned at the outset, the WACC is a weighted average of the component costs of financing, with the weights based on capital structure proportions. However, the WACC is typically calculated on an after-corporate income tax basis, requiring an adjustment to the cost of debt. Since interest payments are deductible, a firm's true cost of debt is its after-corporate income tax cost. The after-corporate income tax cost of debt equals the before-tax interest rate multiplied by the marginal corporate income tax rate (i.e., the tax rate paid on each incremental dollar of income). Given this adjustment the WACC is calculated as follows:

$$r_C = (w_E) (r_E) + (w_D) (r_D) (1 - T_C)$$

where

$r_C$	=	after-tax weighted average cost of capital
$w_E$	=	proportion of equity in the capital structure
$r_E$	=	after tax cost of equity
$w_D$	=	proportion of debt in the capital structure
$r_D$	=	before-tax cost of debt
$T_C$	=	combined state and federal marginal corporate income tax rate

To be in accord with Rule 8, a capitalization rate must be a before-income tax rate because the income to be capitalized for property tax purposes is before income taxes. This can be accomplished by first estimating an after-corporate income tax WACC considering the tax effect on the cost of debt as described above, and then converting this WACC to a before-corporate income tax WACC. In addition, a property tax component must also be added to the before-income tax WACC. A discussion of these two adjustments is contained in Appendix A.

**Applicability and Limitations of the WACC in Property Tax Valuation**

The Property Taxes Department's Valuation Division uses a variation of the comparable company method in its annual capitalization rate study. The study collects data regarding the parameters needed to estimate a WACC (i.e., capital structure proportions, cost of debt, and cost of equity) from a large sample of firms, groups this data by industry groups/subgroups, estimates representative values for the WACC parameters by industry group/subgroups, and finally, uses these representative values to estimate a discount rate for each industry group/subgroup that is used in the unit valuation of state assessed property in each industry group/subgroup.

In theory, the pure play, or comparable company, method could also be used to value individual real estate properties, if one could find pure plays, or publicly traded comparable companies, whose earnings, and hence rates of return, were closely related in terms of risk and return to the earnings of the property being valued. One possible application involves the estimation of discount rates used in the valuation of natural resource properties—for example, oil and gas properties. Using the WACC approach, a discount rate could be estimated using capital market data from a sample of companies in that industry.

Using data from the capital markets to estimate a discount rate to be used in the valuation of "traditional" investment real estate (e.g., office buildings, shopping centers, etc.) is also possible, but involves several limitations, which are discussed in Appendix A. To date, however, this approach has not been widely used in the valuation of such "traditional" real estate.

**YIELD CAPITALIZATION: VALUATION****Valuation Using Discounted Cash Flow Analysis****EXAMPLE 4-18: Valuation Using Discounted Cash Flow Analysis**

Set forth below are the assumptions on which the valuation is based. As with direct capitalization, the income to be capitalized is estimated on a market basis and is processed to the level of net operating before recapture and taxes (NIBR&T). The reversionary value is estimated as described below. A component for ad valorem property taxes must be added to both the yield rate and the overall capitalization rate.

**Assumptions**

Expected holding period	5 years
Rentable area	60,000 sf
Annual rent (gross rent basis)	\$24.00/sf rentable area
Annual vacancy and collection loss	6% of anticipated gross income
Annual operating expenses (excl. property taxes)	\$8.00/sf rentable area
Market rents to grow at 4% a year	
Operating expenses to grow at 2% a year	
Terminal overall capitalization rate ( $R_o$ )	10.0%
Overall yield rate ( $Y_o$ )	14.0%
Ad valorem tax rate	1.0%

**Estimated Annual Cash Flows**

	<b>Year 1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
MPGI	1,440,000	1,497,600	1,557,504	1,619,804	1,684,596	1,751,980
V&C Loss	86,400	89,856	93,450	97,188	101,076	105,119
MEGI	1,353,600	1,407,744	1,464,054	1,522,616	1,583,521	1,646,861
Operating Exp.	480,000	489,600	499,332	509,380	519,567	529,959
NIBR&T	873,600	918,144	964,662	1,013,236	1,063,953	1,116,903

**Estimated Value of the Reversion Using Direct Capitalization**

The value of the reversion, or terminal value, is estimated by capitalizing the 6th year's income at an overall capitalization rate of 11.0%. ( $R_o$  of 10.0% and effective ad valorem tax rate of 1%). For simplicity, the example assumes that this estimated reversion value is net of any disposition costs.

$$\begin{aligned}
 \text{Reversion/terminal value} &= 6\text{th year's income} / R_o + \text{ETR} \\
 &= 1,116,903 / 0.10 + 0.01 \\
 &= 1,116,903 / 0.11 \\
 &= 10,153,663
 \end{aligned}$$

**Present Value Calculations**

The present value factors are based on the yield rate plus the effective tax rate (in this case, 14%+1%=15%).

<b>Year</b>	<b>Cash Flow</b>		<b>PV Factor</b>	<b>=</b>	<b>PV</b>
1	873,600	x	0.869565	=	759,652
2	918,144	x	0.756144	=	694,249
3	964,662	x	0.657516	=	634,281
4	1,013,236	x	0.571753	=	579,321
5	1,063,953	x	0.497177	=	528,973
Reversion	10,153,663	x	0.497177	=	<u>5,048,163</u>
			Total present value		<u>8,244,639</u>

The estimated value of the property is \$8,244,639, say **\$8,244,500**.



## Valuation Using Yield Capitalization Formulas and Income Models

In addition to discounted cash flow analysis, yield capitalization includes a number of other techniques for converting income into value. Yield capitalization formulas were described in a preceding section. Other yield capitalization techniques are actually just applications of standard compound interest and annuity factors put in a context of valuation. They are used to value "standard" income streams such as a single income payment, a level income stream in perpetuity, a level terminating income stream, and a straight-line declining terminal income stream.

### Capitalization of a Single Income Payment (Reversion)

The discounting of a single income payment due some time in the future is the basic building block of all capitalization procedures—any income stream is, in fact, a series of single payments. In appraisal, a single income payment is also called a reversion.

To capitalize a single income payment, the expected payment is multiplied by the compound interest factor for the present value of \$1 at the selected discount rate. A component for ad valorem property taxes is added to the discount rate. Thus:

$$PV = \text{NIBR\&T (Single payment)} \times \text{PW\$1 (@ } Y_o + \text{ETR)}$$

where

PV	=	Present value of the payment
NIBR&T	=	Net income before recapture and taxes
PW\$1	=	Present worth (or value) of \$1
$Y_o$	=	overall yield rate
ETR <sup>74</sup>	=	effective tax rate

Assume that a single income payment prior to the deduction for property taxes (i.e., NIBR&T) of \$100,000 is to be received 10 years from today. The overall yield rate ( $Y_o$ ) is 15.0% and the effective ad valorem tax rate is 1.0%. The income is capitalized as follows:

$$\begin{aligned}
 PV &= \text{NIBR\&T (Single payment)} \times \text{PW\$1 (@ } Y_o + \text{ETR)} \\
 &= \$100,000 \times \text{PW\$1 (@ } 15.0\% + 1.0\%) \\
 &= \$100,000 \times \text{PW\$1 (@ } 16.0\%) \\
 &= \$100,000 \times 0.226684 \\
 &= \mathbf{\$22,668.40}
 \end{aligned}$$

<sup>74</sup> Ad valorem property taxes are not deducted as an expense from the income stream because they are based on the value being sought. This requires that a before-tax discount rate be used; hence, a property tax component equal to the ad valorem property tax rate must be added to the yield, or discount, rate.

### Capitalization of Level Perpetual Income Stream (Level Perpetuity)

Since income stream is perpetual, there is no need to provide for the recovery of capital; the capitalization rate reduces to the overall yield rate ( $Y_o$ ). In real estate valuation, capitalization in perpetuity is typically applied only to land.

To capitalize income into perpetuity, the net income is divided by a capitalization rate composed of an overall yield rate plus the effective ad valorem tax rate. Thus:

$$PV = \text{NIBR\&T} / (Y_o + \text{ETR})$$

where

PV	=	Present value
NIBR&T	=	Net income before recapture and taxes
$Y_o$	=	overall yield rate
ETR	=	effective tax rate

#### EXAMPLE 4–20: Capitalization of Level Perpetual Income Stream

What is the capitalized value of a perpetual net income before recapture and property taxes of \$100,000, given an overall yield rate of 8%, and an effective ad valorem property tax rate of 1%?

$$\begin{aligned} PV &= \text{NIBR\&T} / (Y_o + \text{ETR}) \\ &= \$100,000 / 8.0\% + 1.0\% \\ &= \$100,000 / 9.0\% \\ &= \mathbf{\$1,111,111.11} \end{aligned}$$

### Capitalization of a Level Terminal Income Stream

This income stream is a series of level, terminating payments; there is no reversionary value. This income stream can be capitalized into a value indicator by using the annuity factor for the present worth of \$1 per period. The general formula is  $V = I \times F$ , where  $V$  is present value,  $I$  is the relevant income and  $F$  is the appropriate annuity factor for the present worth of \$1 per period at the given overall yield rate for the given number of periods. The annuity factor itself provides for the recovery of capital.

To capitalize a level terminal series of payments, net income before recapture and property taxes is multiplied by an annuity factor based on the sum of the overall yield rate and the effective ad valorem property tax rate. Thus:

$$PV = \text{NIBR\&T} \times \text{PW\$1/P} (@ Y_o + \text{ETR})$$

where

PV	=	Present value
NIBR&T	=	Net income before recapture and taxes
PW\$1/P	=	Present worth of \$1 per period for the requisite number of years
$Y_o$	=	overall yield rate
ETR	=	effective tax rate

**EXAMPLE 4-21: Capitalization of a Level Terminal Income Stream**

What is the present value given an annual net income before recapture and property taxes of \$100,000 for 5 years, a yield rate of 8%, and an ad valorem tax property tax rate of 1%?

$$\begin{aligned}
 PV &= \text{NIBR\&T} \times \text{PW\$1/P} (@ Y_o + \text{ETR}) \\
 &= \$100,000 \times 3.88965 (\text{PW\$1/P, @ } 9\%, 5 \text{ years}) \\
 &= \mathbf{\$388,965}
 \end{aligned}$$

**Capitalization of Constant Level Income with a Change in Property Value**

This technique can be used to capitalize a level income stream together with an expected percentage change (increase or decrease) in property value. An overall capitalization rate with which to capitalize this income stream can be developed using the basic yield capitalization formula,  $R_o = Y_o - \Delta a$ , discussed earlier. In this application, the annualizer ( $a$ ) is the annual sinking fund factor ( $1/s_n$ ) at the specified overall yield rate, and  $\Delta$  is the percentage change in property value (positive if value increases, negative if value decreases). The tax rate is added to the yield rate and the sinking fund factor is based on the yield rate plus the tax rate. Thus:

$$R_o = Y_o + \text{ETR} - \Delta 1/S_n (@ Y_o + \text{ETR})$$

where

$$\begin{aligned}
 R_o &= \text{overall capitalization rate} \\
 Y_o &= \text{overall yield rate} \\
 \text{ETR} &= \text{effective ad valorem tax rate} \\
 \Delta 1/S_n &= \text{sinking fund factor at } Y \text{ plus the effective tax rate for the requisite} \\
 &\quad \text{number of years}
 \end{aligned}$$

To capitalize this income stream, net income before recapture and taxes for the first year is divided by the overall capitalization rate as developed above. This overall capitalization rate does not require an adjustment for ad valorem property taxes because the adjustment was made in the yield rate and sinking fund factor in the above formula. Thus:

$$PV = \text{NIBR\&T} / R_o$$

where

$$\begin{aligned}
 PV &= \text{Present value} \\
 \text{NIBR\&T} &= \text{Net income before recapture and taxes} \\
 R_o &= \text{overall capitalization rate as developed above}
 \end{aligned}$$

**EXAMPLE 4-22: Capitalization of Constant Level Income with a**

Assume a property will generate a level NIBR&T of \$25,000 for 10 years. The property is expected to increase in value by 40% over this time period. The overall yield rate is 15%. The ad valorem property tax rate is 1%. Estimate the value of the property.

$$\begin{aligned}
 R_o &= Y_o + ETR - \Delta 1/S_n (@ Y_o + ETR, 10 \text{ years}) \\
 &= 15.0\% + 1.0\% - (0.40 \times 1/S_n (@ 16.0\%, 10 \text{ years})) \\
 &= 15.0\% + 1.0\% - (0.40 \times 0.046901) \\
 &= 16.0\% - 1.8761\% \\
 &= 14.1239\% \\
 PV &= \text{NIBR\&T} / R_o \\
 &= \$25,000 / 14.1239\% \\
 &= \mathbf{\$177,004.93}
 \end{aligned}$$

**Capitalization of a Terminating Series of Straight-Line Declining Income Payments**

This income stream declines an equal amount each period until the income terminates. It is most often associated with the straight-line capitalization in which an equal amount of capital is recovered each period (straight-line recapture). The rate of capital recovery is the reciprocal of the property's remaining economic life, or 1/REL. This type of income stream is associated with a wasting asset with no reversion value.

The most direct way to value this income stream is to again develop an overall capitalization rate using the basic yield capitalization formula,  $R_o = Y_o - \Delta a$ . In this case,  $\Delta$  is  $-1.0$  since the property is assumed to lose all its value; and the annualizer ( $a$ ) is 1/REL. The ad valorem property tax rate is again added to the yield rate. Thus:

$$R_o = Y_o + ETR + (1/REL)$$

where

$R_o$	=	overall capitalization rate
$Y_o$	=	overall yield rate
ETR	=	effective ad valorem tax rate
1/REL	=	capital recovery rate, the reciprocal of the property's remaining economic life

To capitalize this income stream, the first year's net income before recapture and taxes is divided by the overall capitalization rate as developed above. Again, this overall capitalization rate does not require an adjustment for ad valorem property taxes because the adjustment was made in the above formula. Thus:

$$PV = \text{NIBR\&T} / R_o$$

where

PV	=	Present value
NIBR&T	=	Net income before recapture and taxes
R <sub>o</sub>	=	overall capitalization rate as developed above

**EXAMPLE 4–23: Capitalization of a Terminating Series of  
Straight-Line Declining Income Payments**

What is the present value of a straight-line declining terminal income stream given a first year's net income before recapture and property taxes of \$20,000, a yield rate of 14.0%, an ad valorem property tax rate of 1.0% percent, and a remaining economic life of property of 10 years.

$$\begin{aligned} R_o &= Y_o + \text{ETR} + (1/\text{REL}) \\ &= 0.14 + 0.01 + 0.10 \\ &= 0.25 \end{aligned}$$

$$\begin{aligned} PV &= \text{NIBR\&T} / R_o \\ &= \$20,000 / 0.25 \\ &= \mathbf{\$80,000} \end{aligned}$$

### RESIDUAL CAPITALIZATION TECHNIQUES

Residual income capitalization techniques allow an appraiser to capitalize the income attributable to an investment component with an unknown value. Assuming that the value of one property component is known or can be estimated, residual techniques can be applied to physical components of a property (land and improvements), financial components (debt and equity), and ownership components (leased fee and leasehold). Residual capitalization concepts are applicable to both direct and yield capitalization. Residual techniques involving the physical and financial components are used in direct capitalization; techniques involving ownership estates are used in yield capitalization.

When using residual techniques, the appraiser:

1. Applies an appropriate capitalization rate to the value of the known property component in order to determine the amount of income needed to support the investment in that component;
2. Deducts this amount from the total economic, or market, net income before recapture and property taxes (MNIBR&T) of the subject property to derive the residual income attributable to the unknown component;
3. Capitalizes the residual income into an estimate of value of the unknown component using an appropriate capitalization rate for that component; and
4. Obtains a value indicator for the total property by adding the value of the known component to the estimated value of the unknown component.

### Building Residual Technique

The building residual technique is used when the value of the land is known, but the value of the building is unknown. After processing the income of the subject property to the level of MNIBR&T, deduct the income attributable to the land (the land value multiplied by the appropriate capitalization rate for land.) The residual income is attributable to the building (or improvements) and may be converted to an estimate of the building's value by capitalizing it, using an appropriate building capitalization rate.

The capitalization rate for the land, which assumes a constant perpetual income stream, is a combination of a yield rate and an ad valorem property tax rate. The capitalization rate for the building is a combination of a yield rate, a recapture rate for the return of the investment in the building, and an ad valorem property tax rate.

<b>EXAMPLE 4-24: Building Residual</b>	
Assume the following: (1) MNIBR&T is \$50,000; (2) the value of the land, which must be known to use the method, is \$200,000; (3) the yield rate is 8 percent; (4) the estimated remaining economic life of the improvements is 50 years; (5) the recapture rate for the building is 2 percent (based on a straight-line declining income premise); and (6) the ad valorem tax rate is 1 percent.	
NIBR&T (first year)	\$ 50,000
Less income imputable to land: (.09 x \$200,000)	<u>18,000</u>
Income attributable to building	<u>32,000</u>
Indicated building value: ( $\$32,000 \div .11$ )	290,909
Land value	<u>200,000</u>
Indicated total property value	<u>\$490,909</u>

The building residual technique assumes that the land value remains constant and that land income is a perpetual series of level payments. The recapture rate for the building reflects the income premise and corresponding recapture method selected.

### Land Residual Technique

The land residual technique is used when the value of the building is known or can be estimated, but the value of the land is unknown. The income attributable to the building (the building value multiplied by an appropriate capitalization rate) is deducted from the estimated MNIBR&T of the subject property. The residual income is attributable to the land and may be converted into an estimate of land value using an appropriate land capitalization rate. The land residual technique is not appropriate when the land and building are part of an operating business which contains other significant tangible and intangible assets and the estimated MNIBR&T is from the entire business enterprise. (See a later section of this manual, "Treatment of Intangible Assets and Rights," for further discussion about excluding income that cannot be attributed to taxable property).

The capitalization rate for the land, which assumes a constant perpetual income stream, is a combination of a yield rate and an ad valorem property tax rate as above. Also as above, the capitalization rate for the building is a combination of a yield rate, a recapture rate for the return of the investment in the building, and an ad valorem property tax rate.

**EXAMPLE 4-25: Land Residual**

Assume the following: (1) MNIBR&T is \$40,000; (2) the value of the building, which must be known to use the method, is \$300,000; (3) the yield rate is 8 percent; (4) the recapture, or capital recovery rate for the building is 2 percent (based on a straight-line declining income premise); and (5) the ad valorem tax rate is 1 percent.

Net income in the first year	\$40,000
Less income imputable to building	
$\$300,000 \times .11 (.08 + .01 + .02)$	<u>33,000</u>
Income attributable to land	<u>7,000</u>
Land value: $\$7,000 \div .09 (.08 + .01)$	77,778
Building value	<u>300,000</u>
Total property value	<u>\$377,778</u>

The land residual technique allows an appraiser to estimate land value when comparable land sales data are not available—for example, in built-up areas where few vacant land sales are available. In such cases, the appraiser must hypothesize an improvement representing highest and best use, projecting income based on this use (in the case of recently constructed improvements the existing use may be the highest and best use of the site). In a similar manner, this technique can be used as a test for highest and best use of the land as though vacant—that is, to identify highest and best use.

The technique can also be used to estimate the value of the total property (i.e., land and building) in the limited case where the existing improvements reflect the highest and best use of the land or site and does not suffer from depreciation. If these conditions cannot be met, the technique cannot be used to estimate a total property value.

## **CHAPTER 5: RECONCILIATION AND FINAL VALUE ESTIMATE**

Typically, more than one approach to value is used in an appraisal, and each approach typically produces a different value indicator. The process of resolving the differences among value indicators is called reconciliation. In reconciliation, the appraiser should consider the various factors influencing value that are either not reflected or only partially reflected in the indicators. The result of reconciliation should be a meaningful, defensible conclusion concerning the final value estimate.

Since more than one value indicator may be developed within a single approach to value, reconciliation occurs both within and among the value approaches. In the comparative sales approach, for example, each comparable sale produces an adjusted sale price, which is, technically, a separate indicator of value. Similarly, within the income approach, different value indicators may result from direct capitalization and discounted cash flow analysis. Multiple value indicators within a given approach are usually resolved within that approach. In fact, each time the appraiser makes a selection or choice among various alternatives in the appraisal process, a form of reconciliation occurs. Much of the following discussion applies to the concept of reconciliation both within and among approaches to value.

Reconciliation and final value estimate are usually treated as one topic. To provide a more thorough treatment of the subject matter, the following discussion divides this topic into three sections: (1) reviewing the appraisal; (2) reconciliation criteria; and, (3) reaching and presenting the final value conclusion.

### **REVIEWING THE APPRAISAL**

Reviewing the appraisal is not reconciliation; however, it provides a basis for reconciliation. In reviewing the appraisal, all previous work and analysis is checked and verified. A good starting point is a reconsideration of the appraisal problem. The appraiser should review the fundamental premises on which the estimate of value is based in order to avoid basic conceptual errors.

In reviewing the appraisal problem, the appraiser should again consider:

1. The identification of subject property to be appraised;
2. The identification of property rights to be valued;
3. The purpose and use of the appraisal;
4. The definition of value to be estimated;
5. The date of value estimate; and,
6. Highest and best use of the subject and comparable properties.



Other important aspects of the review process include checking all mathematical calculations for accuracy, and ensuring the consistent use of data in each value indicator. An independent check of calculations is preferred. Calculations should also be checked in a logical framework in order to prevent duplicate adjustments. For example, in the comparative sales approach, an adjustment for an age difference might be partially duplicated in an adjustment for physical condition.

The relationship and consistency of the data and reasoning applied in each approach and the correlation between the approaches should also be examined in the review process. For example, depreciation reflected in the cost approach should be consistent with related adjustments made in the comparative sales approach. Similarly, the effective age and condition of the property reflected in the cost approach should be consistent with the physical condition (quality, age and condition) used as the basis for adjustments to comparable sales in the comparative sales approach.

### **RECONCILIATION CRITERIA**

In theory, the valuation approaches and methods used should produce a reasonably narrow range of value indications. This is not always the case, however, and value indicators may be divergent. Several criteria are presented below for analyzing value indicators and reconciling them to arrive at a final estimate of value. These criteria are (1) appropriateness of the approach; (2) accuracy of data and adjustments in the approach; and, (3) the quantity of evidence available in the approach.

#### **APPROPRIATENESS OF APPROACHES**

Rule 3 requires that, in estimating value, the assessor shall consider one or more of the approaches to value "as may be appropriate for the property being appraised." The appropriateness of an approach is often related to the type of property being appraised and the available data. For example, an appraisal to estimate the market value of a 20-year-old single-family residence would ordinarily emphasize the comparative sales approach, with the cost and income approaches being less applicable. On the other hand, an appraisal of a special-purpose property with few or no comparable sales and no indicators of economic rent, such as a church building, would typically emphasize the cost approach.

Rules 4, 6, and 8 provide direction concerning the appropriateness of each value approach. In general, that direction is based on the nature of the property being appraised and the availability and reliability of pertinent data.

For example, Rule 4 expressly provides that the comparative sales approach is preferred when reliable market data are available:

When reliable market data are available with respect to a given real property, the preferred method of valuation is by reference to sales prices.

Rule 6(a) states that the cost approach is preferred when neither reliable sales data nor income data are available:

The reproduction or replacement cost approach to value is used in conjunction with other value approaches and is preferred when neither reliable sales data (including sales of fractional interests) nor reliable income data are available and when the income from the property is not so regulated as to make such cost irrelevant. It is particularly appropriate for construction work in progress and for other property that has experienced relatively little physical deterioration, is not misplaced, is neither over- nor underimproved, and is not affected by other forms of depreciation or obsolescence.

Rule 8(a) prescribes that the income approach should be used in conjunction with other approaches when the property being appraised is typically purchased in anticipation of a money income and has an established income stream or can be attributed a real or hypothetical income stream by comparison with other properties:

It is the preferred approach for the appraisal of land when reliable sales data for comparable properties are not available. It is the preferred approach for the appraisal of improved real properties and personal properties when reliable sales data are not available and the cost approaches are unreliable because the reproducible property has suffered considerable physical depreciation, functional obsolescence or economic obsolescence, is a substantial over- or underimprovement, is misplaced, or is subject to legal restrictions on income that are unrelated to cost.

### **ACCURACY OF VALUE INDICATORS**

The accuracy of a value indicator is based on the reliability of the data and in any adjustments made. That is, the accuracy of a value indicator depends on the amount of comparable data, the number and type of adjustments, and the dollar amount of adjustments.

If a large amount of comparable data is available for a given approach, the appraiser may have more confidence in that approach. For example, if there is an abundance of sales of properties similar to the subject property being appraised, the appraiser may attribute significant accuracy to the comparative sales approach. If income, expense, and capitalization rate data can be obtained from many properties comparable to the subject, the appraiser may attribute significant accuracy to the income approach. If a large amount of data is available relating to land values and development costs (including market-derived estimates of entrepreneurial profit) regarding recently developed or newly constructed properties similar to the subject, the appraiser may attribute significant accuracy to the cost approach.

The number and type of adjustments made to comparable properties within an approach should also affect the appraiser's confidence in the approach. If many adjustments are required, the appraiser may conclude that the approach is unreliable. The type of adjustments may also reflect the accuracy of an approach. For example, it may be especially difficult to find market data to support an adjustment for location.

The dollar amount of adjustments also reflects the accuracy of an approach. For example, in the comparative sales approach, an appraiser may analyze five comparable sales, each requiring several adjustments. The total dollar amount of the adjustments required, however, may vary significantly from one comparable sale to another. In general, less accuracy should be attributed to comparable properties requiring larger adjustments.

### **QUANTITY OF DATA**

As an additional criterion for reconciliation, the appraiser should consider the quantity of the data. When using any generally accepted approach to value, the quantity of the data used should be adequate to provide reasonable support for the value indicator. For example, if an apartment is being appraised, and there are numerous sales of closely-comparable properties, and the sales prices are well confirmed, there is a substantial quantity of data supporting a comparable sales approach. If the quantity of data regarding income and expenses is more limited, however, greater weight might logically be given to the value indicator from the comparative sales approach over the value indicator from the income approach.

## **REACHING AND PRESENTING THE FINAL VALUE ESTIMATE**

### **REACHING THE FINAL VALUE ESTIMATE**

The final value estimate is an appraiser's opinion of value. There is no mathematical formula or statistical technique to which the appraiser can ultimately refer in order to reach the final value estimate. It is an opinion that should be based on the appraiser's application of generally accepted appraisal methods and procedures.

It is generally inappropriate to use the arithmetic mean of the value indicators as the final value estimate. Simply calculating an average implies that all the value indicators have equal validity. While this may occur in certain instances, it is usually not the case. Appraisers must follow Rule 3, noted above, and consider the appropriateness of the value approaches, the relative accuracy of the value indicators, and the quantity and quality of the data available when reconciling value indicators to reach the final value estimate.

### **PRESENTING THE FINAL VALUE ESTIMATE**

#### **Point Estimates and Rounding**

In property tax appraisal, the final value estimate is expressed as a single amount. This is referred to as a *point estimate* of value. Since the appraisal objective is to reach a value on which a tax will be levied, a final value conclusion stated as a "range" is not feasible or permitted. The final value estimate should, however, be rounded to reflect the standards of the market and the price level or range within which the value estimate falls. Rounding should be accomplished in a manner reflecting the degree of precision associated with a value estimate. Generally, the more confidence the appraiser has in the accuracy of the value estimate, the less need there is for rounding.

### Implicit or Explicit Weighting of Value Indicators

As noted above, the greatest reliance should be placed on that approach or combination of approaches that best measures the type of benefits the subject property yields. The final value estimate reflects the relative weight that the appraiser assigned, either implicitly or explicitly, to each approach.

As an example of explicit weighting, assume an appraiser valuing a commercial building obtains value indicators from the comparative sales and income approaches of \$12,000,000 and \$10,000,000 respectively. Assume further that the income approach is assigned 60 percent of the total weight and that the comparative sales approach is assigned 40 percent, as shown below:

<b>TABLE 5-1: Explicit Weighting of Value Approaches</b>			
<b>Valuation Approach</b>	<b>Value Indicator</b>	<b>Weight</b>	<b>Total</b>
Comparative Sales	\$ 12,000,000	0.40	\$ 4,800,000
Income Capitalization	10,000,000	<u>0.60</u>	<u>6,000,000</u>
	<b>Final Value Conclusion</b>	1.00	<b><u>\$10,800,000</u></b>

The shortcoming of explicit weighting is that it may imply a degree of quantitative accuracy or assurance that is not present. Even though the weighting is ultimately based on analysis and judgment and not a formal quantitative model, explicit weighting forces the appraiser to present his or her opinions in quantitative terms. The benefit of explicit weighting is that it motivates the appraiser to clearly indicate the relative emphasis placed on the value indicators.

With implicit weighting, the appraiser presents the value indicators for each approach, along with the final value estimate. As an example, assume that an appraiser valuing a commercial building obtains value indicators from the cost, comparative sales, and income approaches of \$8,000,000, \$12,000,000, and \$10,000,000, respectively, as shown below:

<b>TABLE 5-2: Implicit Weighting of Value Approaches</b>	
<b>Valuation Approach</b>	<b>Value Indicator</b>
Cost	\$ 8,000,000
Comparative Sales	12,000,000
Income Capitalization	<u>10,000,000</u>
<b>Final Value Estimate</b>	<b><u>\$ 10,500,000</u></b>

This analysis clearly presents the value conclusion. However, the analysis may be considered incomplete unless the appraiser addresses the relative emphasis given to each of the value indicators.

## **CHAPTER 6: SPECIAL TOPICS**

### **ASSESSMENT OF NEW CONSTRUCTION**

#### **MEANING OF "NEWLY CONSTRUCTED" OR "NEW CONSTRUCTION"**

Section 2 of article XIII A of the California Constitution provides that the full cash value of real property includes the appraised value of that property when "newly constructed:"

The full cash value means the county assessor's valuation of real property as shown on the 1975-76 tax bill under "full cash value" or, thereafter, the appraised value of real property when purchased, newly constructed, or a change in ownership has occurred after the 1975 assessment.

Both the Legislature and the Board of Equalization have sought to provide clear definitions of the terms "newly constructed" and "new construction." The statutory definitions in section 70 read, in part:

(a) "Newly constructed" and "new construction" means:

(1) Any addition to real property, whether land or improvements (including fixtures), since the last lien date; and

(2) Any alteration of land or of any improvement (including fixtures) since the last lien date which constitutes a major rehabilitation thereof or which converts the property to a different use.

(b) Any rehabilitation, renovation, or modernization which converts an improvement or fixture to the substantial equivalent of a new improvement or fixture is a major rehabilitation of such improvement or fixture.

The Board adopted Rule 463 to provide the practical guidelines for the statutory definitions of newly constructed and new construction. Rule 463 reads, in part:

(b) "Newly constructed" or "new construction" means and includes:

(1) Any substantial addition to land or improvements, including fixtures, such as adding land fill, retaining walls, curbs, gutters or sewers to land or constructing a new building or swimming pool or changing an existing improvement so as to add horizontally or vertically to its square footage or to incorporate an additional fixture, as that term is defined in this section.

(2) Any substantial physical alteration of land which constitutes a major rehabilitation of the land or results in a change in the way the property is used.

Examples of alterations to land to be considered new construction are:

Site development of rural land for the purpose of establishing a residential subdivision.

Altering rolling, dry grazing land to level irrigated crop land.

Preparing a vacant lot for use as a parking facility.

In any instance in which an alteration is substantial enough to require reappraisal, only the value of the alteration shall be added to the base year value of the pre-existing land or improvements. Increases in land value caused by appreciation or a zoning change rather than new construction shall not be enrolled, for example:

1. Land value 1975	=	\$10,000	
2. Land value 1978	=	\$20,000	
3. Value of alteration 1978	=	\$5,000	
4. Value of structure added 1978	=	\$75,000	
1979 roll value (1+3+4)	=	\$90,000	(must be adjusted to reflect appropriate indexing)

Alterations to land which do not constitute a major rehabilitation or which do not result in a change in the way the property is used shall not result in reappraisal.

(3) Any physical alteration of any improvement which converts the improvement or any portion thereof to the substantial equivalent of a new structure or portion thereof or changes the way in which the portion of the structure that had been altered is used, e.g., physical alterations to an old structure to make it the substantial equivalent of a new building without any change in the way it is used or alterations to a warehouse that makes it usable as a retail store or a restaurant. Only, the value, not necessarily the cost, of the alteration shall be added to the appropriately indexed base year value of the preexisting structure.

(4) Excluded from alterations that qualify as "newly constructed" is construction or reconstruction performed for the purpose of normal maintenance and repair, e.g., routine annual preparation of agricultural land or interior or exterior painting, replacement of roof coverings or the addition of aluminum siding to improvements or the replacement of worn machine parts.

(5) Any substantial physical rehabilitation, renovation or modernization of any fixture which converts it to the substantial equivalent of a new fixture or any substitution of a new fixture.

Substantial equivalency shall be ascertained by comparing the productive capacity, normally expressed in units per hour, of the rehabilitated fixture to its original productive capacity.

(c) For purposes of this section, "fixture" is defined as an improvement whose use or purpose directly applies to or augments the process or function of a trade, industry, or profession.

## **Terms Related to the Meaning of "Newly Constructed" and "New Construction"**

Section 70 and Rule 463 make repeated references to certain terms related to the meaning of "newly constructed and "new construction." These related terms require clear definitions to properly guide the assessment of new construction.

### **Addition**

"Addition" is the act or process of adding; also, the unit or component of a unit that is added. The act of adding implies that there is a pre-existing structure or base to which something is added. For property tax purposes, an addition to real property—whether land or improvements—is considered new construction. An addition does not, however, result in a change in either the base year or base value of the pre-existing portion of the property.

### **Alteration**

"Alteration" is the act or procedure of altering; also, a modification or a change. Under Rule 463(b)(2), an alteration qualifies as new construction when it either (1) rehabilitates real property to the point that it is "substantially equivalent to new" or (2) converts the real property to a different use.

### **Change in Use**

Subdivision (a)(2) of section 70 and Rule 463 (b)(2) state that physical alterations that lead to "a change in the way property is used" qualifies as newly constructed. While the value added by the physical alteration is assessable, the value attributable solely to the change in use is not.

There are five basic use types: agricultural, residential, commercial, industrial, and recreational. Any physical alteration of land or improvements that leads to a change from one of these use types to another would qualify as new construction.

Within each general use type, there are sub-uses. Any physical alteration that leads to a change from one sub-use to another also qualifies as new construction, as indicated in the examples under Rule 463 (b)(2). Thus, leveling dry farm land for use as irrigated row cropland, or laying gravel on a vacant lot for use as RV storage, would both qualify as new construction. An alteration that does not lead to a change in use may nevertheless qualify as new construction. For example, a change from a peach orchard to a prune orchard would result in new construction not because of the change in use, but because one improvement is removed and another improvement, substantially equivalent to new, is added. Additionally, even an alteration that does qualify as a change in use will not cause reappraisal unless there is a substantial physical alteration leading to that change. When that occurs, only the additional value created by the new construction that facilitates the change in use may be assessed.

The following table lists general use types and sub-uses within each of the five basic classifications. It is not intended as an all-inclusive list, but rather as an illustration. For example, a change from apartment to condominium would not require reappraisal unless there were physical alterations necessary for the conversion. Even with a physical alteration, only the newly constructed portions of the conversion would be subject to reappraisal.

<b>TABLE 6-1: List of Use Types</b>		
<b>Use Type</b>	<b>Sub-Uses</b>	
Agricultural	<ul style="list-style-type: none"> <li>• Undeveloped Land</li> <li>• Dry Farm</li> <li>• Orchards and Groves</li> <li>• Kiwis</li> <li>• Jojoba Beans</li> </ul>	<ul style="list-style-type: none"> <li>• Irrigated Row and Field Crops</li> <li>• Grape Vines</li> <li>• Asparagus</li> <li>• Bush Berries</li> </ul>
Residential	<ul style="list-style-type: none"> <li>• Single Family</li> <li>• Multi-Family</li> </ul>	<ul style="list-style-type: none"> <li>• Condominium</li> <li>• Time Share</li> </ul>
Industrial	<ul style="list-style-type: none"> <li>• Mining or Extraction</li> <li>• Manufacturing</li> </ul>	<ul style="list-style-type: none"> <li>• Processing</li> <li>• Warehouse</li> </ul>
Commercial	<ul style="list-style-type: none"> <li>• Office Buildings</li> <li>• Financial Buildings</li> <li>• Retail Stores</li> <li>• Professional Buildings</li> <li>• Food Services</li> </ul>	<ul style="list-style-type: none"> <li>• Cocktail Lounges</li> <li>• Food Sales</li> <li>• Automotive Sales</li> <li>• Service and Repair Shops</li> </ul>
Recreational	<ul style="list-style-type: none"> <li>• Courts</li> <li>• Clubhouses</li> <li>• Ranges</li> <li>• Tracks</li> </ul>	<ul style="list-style-type: none"> <li>• Swimming Pools</li> <li>• Rinks</li> <li>• Fields</li> </ul>

### **Modernization**

"Modernization" means taking corrective measures to bring a property into conformity with changes in style, whether interior or exterior, or additions necessary to meet standards of current demand. It normally involves replacing parts of the structure or mechanical equipment with modern replacements of the same kind. If modernization results in a property that is substantially equivalent to new, it qualifies as new construction. Thus, for property tax purposes, modernization implies curing functional obsolescence and physical deterioration to the degree that the structure or fixture is "substantially equivalent to new" after the modernization has been completed.

### **Portion Thereof**

Both section 70 and Rule 463 use the term "portion thereof" in the context of new construction. A "portion" is a component of a land parcel, an individual structure or fixture easily recognized by an appraiser. A "portion" is part of an individual structure designed for independent, separate use within that structure.<sup>75</sup>

<sup>75</sup> See LTA 79/204 "Newly Constructed Property"



For example, a farmer might level only 40 acres of a 640 acre section. In homes, a "portion" might be a bedroom or kitchen. Within a hydroelectric plant, a portion could be the penstock that channels flowing water into a generator. On a large industrial machine, it could be the attached stairway and maintenance platform.

Correct identification of the newly constructed portion, or portion "substantially equivalent to new," requires appraisal judgment. Similarly, estimating the value of that portion or alteration is also a matter of appraisal judgment.

Rule 463(b)(4) excludes physical alterations performed for the purpose of normal maintenance and repair, including replacement, from the definition of new construction. For determining whether a physical alteration of a "portion thereof" of an existing improvement is new construction, a physical alteration that is the replacement of existing property with similar new property is not new construction. For example, the replacement of a roof, a kitchen cabinet, or a toilet with similar new property is not new construction.<sup>76</sup>

### **Rehabilitation**

"Rehabilitation" means the restoration of a property to satisfactory condition without changing the plan, form, or style of a structure. It usually involves curing physical deterioration. If rehabilitation brings about the "substantial equivalent of new" condition of a structure or fixture, it qualifies as new construction for property tax purposes.

### **Renovation**

"Renovation" is a "making into new condition." Like rehabilitation, renovation involves curing items of physical deterioration. When renovation restores a structure or fixture to the "substantial equivalent of new," there is new construction for property tax purposes.

### **Substantially Equivalent to New**

Under Rule 463(b)(3), new construction is assessable when that new construction has converted a fixture or any other improvement, or a portion thereof, to a state "substantially equivalent to new." For example, a very old house is stripped to its studs and rebuilt from the foundation up. The restoration is such that the old house has been converted into a state comparable to that of a new house. The value added by such a conversion would be assessable as new construction.

Whether or not new construction activity transforms an improvement, fixture, or a portion thereof into a state that is substantially equivalent to new (i.e., into a state where its utility is comparable to new) is a factual determination that must be made on a case-by-case basis.

### **Common Types of New Construction**

While not all additions and alterations qualify as new construction under section 70, the following table provides examples of common situations that usually do qualify as new construction:

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<sup>76</sup> See also sections below relating to "normal maintenance and repair" and "replacement."

**TABLE 6–2: Common Types of New Construction**

Improvements	<ul style="list-style-type: none"> <li>• New residential, commercial or industrial buildings and related structures</li> <li>• Square footage added to existing structures, whether vertical or horizontal</li> <li>• Finishing previously unfinished improvement areas such as basements, attics, and garages</li> <li>• Swimming pools and in-ground spas</li> <li>• Porches and patios</li> <li>• Off-site and on-site improvements including curbs, gutters, utilities, and sewers</li> <li>• Conversion of a warehouse into a restaurant or office space</li> <li>• Incorporation of additional fixtures including new interior partitions, walls, ceilings, lighting, restrooms, doors, floor coverings, window and wall coverings as additions to existing improvements</li> </ul>
Land	<ul style="list-style-type: none"> <li>• Retaining walls</li> <li>• Land grading</li> <li>• Land fill</li> <li>• Altering vacant land for the purpose of establishing a residential, commercial, or industrial development</li> <li>• Development of range, grazing, or rolling land to irrigated row crops, trees, or vines</li> <li>• Development of vacant land for use as a parking facility</li> <li>• Ripping, tilling, leaching or the addition of soil amendments to improve the productive capability of agricultural land</li> </ul>

### **Exclusions from the Definition of Newly Constructed or New Construction**

Under the property tax statutes and rules, certain types of construction activity are excluded from the definitions of newly constructed and new construction. In most cases, these exclusions permanently preclude the assessment of such new construction until there is a change in ownership.

#### **Normal Maintenance and Repair**

As provided in Rule 463(b)(4), normal maintenance and repair are excluded from the definition of newly constructed, as follows:

Excluded from alterations that qualify as "newly constructed" is construction or reconstruction performed for the purpose of normal maintenance and repair, e.g., routine annual preparation of agricultural land, interior or exterior painting, replacement of roof coverings, replacement of heating or cooling equipment, the addition of aluminum siding to improvements or the replacement of worn machine parts.

"Maintenance" is the action of continuing, carrying on, preserving, or retaining something; it is the work of keeping something in proper condition. When performed on real property, maintenance is normal when it is regular, standard, and typical. Normal maintenance will keep a property in condition to perform efficiently the service for which it is used.

In contrast to an addition, which constitutes an entirely new portion of real property, normal maintenance is the upkeep of existing real property. Normal maintenance will ensure that a property will experience a typical economic life.

### Replacement

"Replacement" is the substitution of an item that is fundamentally of the same type or utility for an item that is exhausted, worn out, or inadequate. Replacements made as part of normal maintenance are excluded from the meaning of new construction.

The following table shows items of replacement that are normally excluded from the meaning of new construction.

<b>TABLE 6-3: Normal Items of Repair and Replacement</b>	
<ul style="list-style-type: none"> <li>• Re-plumbing corroded galvanized steel pipe with copper pipe</li> <li>• Replacing an old forced air heating unit</li> <li>• Re-painting worn areas</li> <li>• Replacement of old bathroom fixtures with modern fixtures</li> </ul>	<ul style="list-style-type: none"> <li>• Replacing a shake shingle roof with fire-resistant concrete tiles</li> <li>• Replacing kitchen appliances</li> <li>• Replacing wood frame windows</li> <li>• Replacement of wall or floor coverings</li> </ul>

While most replacements are considered "normal maintenance and repair," replacements can be so extensive as to make a building or fixture substantially equivalent to new. For example, as discussed earlier, when a very old house is stripped to its studs and rebuilt from the foundation up, such work is considered new construction. In such situations, the degree of replacement determines whether the construction activity meets the definition of normal repair and maintenance or if it qualifies as new construction.

### Reconstruction after a Misfortune or Calamity

Section 70 provides for the exclusion of reconstruction after a misfortune or calamity, providing that the reconstruction is timely and substantially equivalent to the damaged or destroyed property:

(c) Notwithstanding the provisions of subdivisions (a) and (b), where real property has been damaged or destroyed by misfortune or calamity, "newly constructed" and "new construction" does not mean any timely reconstruction of the real property, or portion thereof, where the property after reconstruction is substantially equivalent to the property prior to damage or destruction. Any reconstruction of real property, or portion thereof, which is not substantially equivalent to the damaged or destroyed property, shall be deemed to be new

construction and only that portion which exceeds substantially equivalent reconstruction shall have a new base year value determined pursuant to Section 110.1.

As an example, consider a 950 sq. ft. D4.5A single-family home built in 1955. During a fire, this home suffers extensive damage, requiring its demolition. The provisions of section 70 may apply to exclude from the meaning of new construction a replacement home that is (1) constructed timely following the fire; and (2) comparable to the damaged or destroyed property, in terms of square footage and construction quality. However, to the extent that the replacement home was either (1) not constructed timely following the fire, or (2) exceeds the size or construction quality of the destroyed home, new construction has occurred.

### **Seismic Reinforcement**

When local ordinances require the reinforcement of improvements built with unreinforced masonry wall construction, subdivision (d) of section 70 provides for a fifteen (15) year exclusion of the construction activity necessary to comply with the local regulations:

(1) Notwithstanding the provisions of subdivisions (a) and (b), where a structure must be improved to comply with local ordinances on seismic safety, "newly constructed" and "new construction" does not mean the portion of reconstruction or improvement to a structure, constructed of unreinforced masonry bearing wall construction, necessary to comply with the local ordinance. This exclusion shall remain in effect during the first 15 years following that reconstruction or improvement (unless the property is purchased or changes ownership during that period, in which case the provisions of Chapter 2 (commencing with Section 60) of this division shall apply).

(2) In the sixteenth year following the reconstruction or improvement referred to in paragraph (1), the assessor shall place on the roll the current full cash value of the portion of reconstruction or improvement to the structure which was excluded pursuant to this subdivision.

(3) The governing body which enacted the local ordinance shall issue a certificate of compliance upon the request of the owner who, pursuant to a notice or permit issued by the governing body which specified that the reconstruction or improvement is necessary to comply with a seismic safety ordinance, so reconstructs or improves his or her structure in accordance with the ordinance. The certificate of compliance shall be filed by the property owner with the county assessor on or before the following April 15. The provisions of this subdivision shall not apply to any structure for which a certificate is not filed.

## Fire Sprinklers

Section 74 provides for the exclusion of fire sprinkler systems from the definition of newly constructed:

(a) For purposes of subdivision (a) of Section 2 of Article XIII A of the Constitution, "newly constructed" does not include the construction or installation of any fire sprinkler system, other fire extinguishing system, fire detection system, or fire-related egress improvement which is constructed or installed on or after November 7, 1984.

(b) Notwithstanding any other provision of this chapter or Chapter 3.5 (commencing with Section 75), neither "newly constructed" nor "new construction" includes the construction or installation of any fire sprinkler system, other fire extinguishing system, fire detection system, or fire-related egress improvement which is constructed or installed on or after November 7, 1984...

(e) This section shall apply only to fire sprinkler systems, other fire extinguishing systems, fire detection systems, and fire-related egress improvements, as defined in this section, which are constructed or installed in an existing building.

As defined above, section 74 excludes fire sprinklers when they are added to an existing building. Section 74 does not, however, exclude any fire safety equipment that is installed during a building's original construction.

## Disabled Access

Two different code sections provide for the exclusion of construction activity designed to make a property more accessible to, or more usable by, a disabled person. First, section 74.3 excludes most construction that is for the purpose of making a dwelling more accessible to disabled resident. Section 74.3 states in part:

(a) For purposes of subdivision (a) of Section 2 of Article XIII A of the California Constitution, "newly constructed" does not include the construction, installation, or modification of any portion or structural component of an existing single- or multiple-family dwelling that is eligible for the homeowner's exemption as described in Section 218, if the construction, installation, or modification is for the purpose of making the dwelling more accessible to a severely and permanently disabled person who is a permanent resident of the dwelling.

(c) For purposes of this section, "accessible" means that combination of elements with regard to any dwelling that provides for access to, circulation throughout, and the full use of, the dwelling and any fixture, facility, or item

therein. The construction of an entirely new addition, such as a bedroom or bath, that duplicates existing facilities in the dwelling that are not otherwise available to the disabled resident solely because of his or her disability, shall be deemed to make the dwelling more accessible within the meaning and for the purposes of this section.

(d) The exclusion provided by this section shall apply only to those improvements or features that specially adapt a dwelling accessibility by a severely and permanently disabled person. The value of any improvement, addition, or modification excluded pursuant to this section shall not include any other functional improvement, addition, or modification to the property unless it is merely incidental to the qualified improvements or features.

(e) The exclusion provided by this section shall not apply to the construction of an entirely new dwelling.

As an example of the application of this section, the owner of a single-family home eligible for a homeowner's exemption constructs a new accessible bedroom and bathroom for a disabled resident. Prior to the new construction, the home had no accessible bedrooms or bathrooms. Provided that the construction meets the requirements set forth in section 74.3, it should be excluded from reassessment. If, however, the home previously had an accessible bedroom and bathroom, the construction would not be eligible for this exclusion.

Second, construction that improves accessibility for a disabled person to buildings or structures that do not qualify under the provisions of section 74.3 may still qualify under section 74.6, which states in part:

(a) For purposes of paragraph (5) of subdivision (c) of Section 2 of Article XIII A of the California Constitution, "newly constructed" and "new construction" does not include the construction, installation, removal, or modification of any portion or structural component of an existing building or structure to the extent that it is done for the purpose of making the building or structure more accessible to, or more usable by, a disabled person....

(d) The exclusion provided for in this section does not apply to the construction of an entirely new building or structure, or to the construction of an entirely new addition to an existing building or structure....

(f) For the purposes of the exclusion provided for in subdivision (a), the construction, improvement, modification, or alteration of an existing building or structure may include, but is not limited to, access ramps, widening of doorways and hallways, barrier removal, access modifications to restroom facilities, elevators, and any other accessibility modification of a building or structure that would cause it to meet or exceed the accessibility standards of the 1990 Americans with Disabilities Act (Public Law 101-336) and the most recent

edition to the California Building Standards Code that is in effect on the date of the application for a building permit.

As an example of the application of this section, a department store that widens doorways, constructs access ramps, and modifies restrooms to improve accessibility (all within an existing structure) may be eligible to have those modifications excluded from the meaning of new construction. However, should that department store add entirely new accessible restrooms, that portion of the construction would not be eligible for this exclusion.

### **Commencement of New Construction**

Subdivision (c) of Rule 463.500 defines "commencement of construction" as follows:

(3) "Commencement of construction" means the performance of physical activities on the property which results in changes which are visible to any person inspecting the site and are recognizable as the initial steps for the preparation of land or the installation of improvements or fixtures. Such activities include clearing and grading land, layout of foundations, excavation of foundation footing, fencing the site, or installation of temporary structures. Such activities also include the severance of existing improvements or fixtures.

"Commencement of construction" does not include activities preparatory to actual construction such as obtaining architect services, preparing plans and specifications, obtaining building permits or zoning variances or filing subdivision maps or environmental impact reports.

Commencement of construction shall be determined solely on the basis of activities which occur and are apparent on the property undergoing new construction. Where several parcels are adjacent and will be used as a single unit by the builder for the construction project, the commencement of construction shall be determined on the basis of the activities which occur on any part of the separate parcels comprising the unit. Where a property has been subdivided into separate lots, the commencement of construction shall be determined on the basis of the activities occurring on each separate lot. Where the property has been subdivided into separate lots and several or all of those lots will be used as a single unit by the builder for the construction project, the commencement of construction shall be determined on the basis of the activities which occur on any part of the several parcels comprising the unit.

### **Construction-in-Progress**

As provided in section 71 and restated in Rule 463(d), new construction in progress is assessable on each lien date:

New construction in progress on the lien date shall be appraised at its full value on such date and each lien date thereafter until the date of completion, at which

time the entire portion of property which is newly constructed shall be reappraised at its full value.

"Construction in progress" (CIP) is property under construction on the lien date and may be an entire property, such as an entirely new single family residence, or may be only a portion of an improvement, such as a room addition. On each lien date, construction in progress is assessed at its full cash value, until the construction is complete and the property is available for use. At the time of completion, the completed construction is reappraised and a new base year value is established for the improvement, fixture, or portion thereof that is newly constructed.

For example, assume that a contractor breaks ground for a new home during the month of November. On the January 1 lien date, the foundations, frame, and roof of that home have been completed. As of January 1, the assessor would estimate and enroll a value for the partially completed new construction. In contrast, assume that a developer obtains the necessary building permits to construct a new regional mall on December 15, but does not commence construction until January 14. Although the developer has made significant investment (in plans, permits, and fees) prior to the lien date, construction does not begin until after the lien date. In that case, there is no assessable construction in progress.

### **Date of Completion of New Construction**

The concept of the "date of completion of new construction" is explained in subdivision (b) of Rule 463.500 as follows:

The date of completion of new construction resulting from actual new construction on the site shall be the earliest of either the date upon which the construction is available for use by the owner or, if all of the conditions of paragraph (b) (1) are satisfied, the date the property is occupied or used by the owner, or with the owner's consent, after the owner has provided a notice in accordance with paragraph (b) (1).

(1) The date of completion of new construction resulting from actual physical new construction shall not be the date upon which it is available for use if the owner does not intend to occupy or use the property and the owner notifies the assessor in writing prior to, or within 30 days after, the date of commencement of construction that he/she/it does not intend to occupy or use the identified property or a specified portion thereof.

(2) The date of new construction resulting from actual physical new construction shall be conclusively presumed to be the date upon which the new construction is available for use by the owner if the assessor fails to receive notice as provided in paragraph (b)(1).

"Available for use" is defined as follows in subdivision (c)(4) of Rule 463.500:



"Available for use" means that the property, or a portion thereof, has been inspected and approved for occupancy by the appropriate governmental official or, in the absence of such inspection and approval procedures, when the prime contractor has fulfilled all of the contractual obligations. When inspection and approval procedures are non-existent or exist but are not utilized and a prime contractor is not involved, the newly constructed property is available for use when outward appearances clearly indicate it is immediately available for the purpose intended. Fixtures are available for use when all testing necessary for proper operation or safety is completed.

New construction is not available for use if, on the date it is otherwise available for use, it cannot be functionally used or occupied. In that case, the property is not available for use until the date that any legal or physical impediment to functional use or occupancy is removed.

## **DISCOVERY OF NEW CONSTRUCTION**

Generally, assessors discover new construction activity through a combination of sources, such as building permits provided by the appropriate county or city agencies; information furnished by the taxpayer on business property statements (Form 571); or, for certain types of businesses, documents evidencing required government inspections or approvals. Additional methods of discovery include examination of aerial photographs, field inspections, and news media reports.

### **Building Permits**

Section 72 requires that county and city building departments furnish the assessor with copies of building permits and certificates of occupancy. This procedure is perhaps the assessor's most effective method of discovering new construction. Subdivisions (a) and (b) of section 72 state:

(a) A copy of any building permit issued by any city, county, or city and county shall be transmitted by each such entity to the county assessor as soon as possible after the date of issuance.

(b) A copy of any certificate of occupancy or other document showing date of completion of new construction issued or finalized by any city, county, or city and county, shall be transmitted by each entity to the county assessor within 30 days after the date of issuance or finalization.

Subdivision (c) of section 72 also provides for the transmittal of specific data to the assessor, including floor plans and exterior dimensions:

At the time an assessee files, or causes to be filed, an approved set of building plans with the city, county, or city and county, a scale copy of the floor plans and exterior dimensions of the building designated for the county assessor shall be filed by the assessee or his or her designee. The scale copy shall be in sufficient detail to allow the assessor to determine the square footage of the building and, in the case of a residential building, the intended use of each room. An assessee, or

his or her designee, where multiple units are to be constructed from the same set of building plans, may file only one scale copy of floor plans and exterior dimensions, so long as each application for a building permit with respect to those building plans specifically identifies the scale copy filed pursuant to this section. However, where the square footage of any one of the multiple units is altered, an assessee, or his or her designee, shall file a scale copy of the floor plan and exterior dimensions that specifically identifies the alteration from the previously filed scale copy. The receiving authority shall transmit that copy to the county assessor as soon as possible after the final plans are approved.

These provisions create a valuable source of information that allows for the timely discovery and assessment of most new construction activity.

### **Business Personal Property Statements**

An assessor's business property division will often provide information about recent changes to land or improvements. From that information, which may come from business property statements, audit reports, or other sources, an appraiser will investigate the reported changes to determine their classification and assessability. In most situations, the real property division will make the final determination on these issues.

As discussed later in this chapter, coordination between the real property appraisers and the business property auditor appraisers serves as an important adjunct to the discovery process. Besides providing a check of construction completed without a building permit, coordination between the two divisions can provide information relevant to the historic costs incurred by the assessee for that new construction.

### **Health Department**

County health departments are required to inspect real property when that property is put to certain uses, such as restaurants, medical offices, etc. By obtaining copies of use permits from the county health department, an assessor's office may discover new construction resulting from a change of use.

### **Aerial Photographs and Satellite Imagery**

A series of aerial photographs, reviewed over time, can provide an important resource for the discovery and location of new construction. By comparing older photographs to newer photographs, appraisers can determine the areas where new construction has taken place. By comparing that information with appraisal records, it is possible to detect new construction that has otherwise escaped discovery.

### **Field Inspection**

In the field, both the real property appraisers and business property auditor-appraisers should be alert for new construction that has escaped assessment. Few can dispute the accuracy of an actual field inspection of real property. For some uses, such as property being claimed as exempt under the welfare exemption provisions, field inspections are mandatory.

## News Media Reports

Trade journal, newspaper, radio, and television reports can provide valuable sources of information to aid in the discovery of new construction activity. News media reports may alert assessors to construction projects such as new industrial facilities, new shopping malls, changes in use, and demolition of existing improvements. Examples of new construction discovery through the media include advertisements for new amusement park rides, grand opening announcements of new port facilities, reports of building demolition, and ground breaking ceremonies.

## APPRAISING NEW CONSTRUCTION

Proper valuation of new construction means estimating the full value of the qualifying new construction as of the date of completion or, if the construction is in progress, as of the lien date. Assuming adequate data and proper application of each approach to value, no single approach to value should be precluded from consideration during the appraisal of new construction.<sup>77</sup>

New construction may be any of the following: (1) entirely new structures; (2) square footage added to existing structures; (3) removal of improvements; or (4) physical alterations resulting in a change in use. These activities must be evaluated under the statutes and rules discussed above and—if determined to meet the definition of new construction—properly reflected on the assessment roll. Initial base year values may reflect numerous types of newly constructed property, ranging from a shell structure to fully completed luxury offices ready for immediate occupancy.

## Comparative Sales Approach

Under Rule 4, the comparative sales approach to value is preferred when adequate market data are available:

When reliable market data are available with respect to a given real property, the preferred method of valuation is by reference to sales prices.

To value newly constructed property by this method, the property is appraised with and without the new construction as of the date of completion, using the selling prices of comparable properties. The difference between the appraised values is an indicator of the value of the new construction.

Alternatively, appraisers may employ a variation of this method when the new construction consists of an addition to an existing structure. The value of an addition may sometimes be derived from sales of similar properties without the need to produce two different appraisals. By subtracting the land value from the selling prices of comparable properties, an appraiser can estimate the value attributable to each square foot of improvement area.

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<sup>77</sup> This discussion is intended to highlight special valuation issues that arise in the course of appraising new construction. More general information about the application of the various approaches to value to the appraisal of new construction is contained in the chapters that discuss those approaches.

**EXAMPLE 6-1: Addition to a Single Family Home**

A 200 sq. ft. addition is added to a 2,000 sq. ft. D7.5 home. Sales of similar homes in the area (D7.5—2,200 sq. ft.) indicate a market value of \$95 per sq. ft. for improvements after deduction of the land value.

Results of this method indicate a value of \$19,000 for the addition. ( $\$95 \times 200 = \$19,000$ )

Appraisers should use this method with caution, since it relies heavily on an accurate estimate of land value. Using an incorrect estimate of land value will either over- or undervalue the addition.

### **Potential Weaknesses of the Comparable Sales Approach**

Two elements of the comparable sales approach may affect its validity when appraising new construction:

1. This method requires highly comparable market data; and,
2. An estimate of value derived from the comparable sales approach captures all aspects of a change in value, some of which may be attributable to non-assessable construction.. For example, the construction activity may incorporate elements of normal maintenance, or, in the case of an addition, may reduce the functional obsolescence of the property as a whole. These are increments of value that should not be included in the assessment of new construction.

### **Cost Approach**

The cost approach is the most commonly applied approach in the appraisal of new construction. Since all properties incur costs during their construction, it is the one approach that can be applied to all properties. Although Rule 4 establishes a preference for the comparative sales approach when adequate market data are available, the nature of new construction may limit the availability of relevant market data. In such cases, the cost approach may be preferred. As stated in Rule 6(a):

The reproduction or replacement cost approach to value is used in conjunction with other value approaches and is preferred when neither reliable sales data (including sales of fractional interests) nor reliable income data are available and when the income from the property is not so regulated as to make such cost irrelevant. It is particularly appropriate for construction work in progress and for other property that has experienced relatively little physical deterioration, is not misplaced, is neither over nor underimproved, and is not affected by other forms of depreciation or obsolescence.

### **Replacement Cost and Reproduction Cost**

Estimates of both replacement cost and reproduction cost are used in the valuation of new construction. The replacement cost approach estimates the cost to construct improvements of equivalent utility to the subject property, as of a specified date of valuation. Typically, the

replacement cost of a newly constructed improvement is easier to estimate and more relevant to the basic principle of substitution, because it relies on the cost of comparable improvements rather than the historical costs of the property being appraised. Common sources of replacement cost data include *Marshall Valuation Service*, published by Marshall and Swift; AH 531, *Residential Building Costs*, and AH 534, *Rural Building Costs*, published by the California State Board of Equalization.

One means of estimating reproduction cost uses the historical, or original, costs incurred by the property owner during the construction of a structure or fixture. When using reproduction cost to appraise new construction, appraisers should distinguish between "uniquely useful" properties and "special-purpose" designs for which there might be a market. Historical, or original, costs for owner-occupied properties may reflect specialized designs, building materials, expedited construction schedules, or other items that would not be currently recognized by the market for such properties. Under certain conditions, these abnormal costs may reflect value in use, rather than value in exchange.

### **Costs of Construction May or May Not Equal Value**

Appraisers should use caution when applying the cost approach, since construction costs may be highly divergent between different projects. Especially in the cases of over- or under-improvements, the actual market value of new construction may vary widely from the cost to construct those improvements. To compensate for these potential differences, the values derived with the cost approach should be checked against values derived from the other approaches to value whenever possible.

#### **EXAMPLE 6–2: Cost May Not Equal Value**

Owners of a single family residence construct a new, average quality, in-ground swimming pool on their property. The owners reported actual costs of construction at \$35,000. An analysis of relevant market data, however, shows that adding a swimming pool increases that property's value by only \$20,000. In this case, the addition of the swimming pool should be assessed at its market value of \$20,000, rather than the actual cost of \$35,000.

### **Income Approach**

When new construction involves income-producing properties, the appraiser may estimate the value of new construction using the income approach. Using current market-derived rates, the appraiser may capitalize the difference in the subject property's economic rent with and without the new construction to yield an estimate of value for the new construction. As with the comparative sales approach, application of the income approach requires income data and capitalization rates from highly comparable properties. In certain circumstances, the income approach may capture value attributable to more than just the qualifying new construction.

## NEW CONSTRUCTION ASSESSMENT AND BASE YEAR VALUES

Under article XIII A of the California Constitution, most locally assessed real property is valued based on its market value at the date of acquisition. Thus, under article XIII A, a property's market value on the date of a change in ownership or the completion of new construction becomes its "base year value." In the case of new construction, only the portion of the property that is newly constructed receives a new base year value. Construction in progress is assessed yearly at its market value on the January 1 lien date. As stated in section 71:

The assessor shall determine the new base year value for the portion of any taxable real property which has been newly constructed. The base year value of the remainder of the property assessed, which did not undergo new construction, shall not be changed. New construction in progress on the lien date shall be appraised at its full value on such date and each lien date thereafter until the date of completion, at which time the entire portion of property which is newly constructed shall be reappraised at its full value.

Under this section, if new construction occurs on only a portion of a property (e.g., the addition of a bedroom), the newly constructed portion is given a new base year value, based upon its current market value as of the date of completion; the pre-existing portion retains its existing adjusted base year value. Thus, the assessment of a single property can contain multiple base year values, based upon partial new construction or prior fractional ownership changes, until such time as the entire property changes ownership. The following example illustrates the calculation of the total assessed value of a property with multiple base year values.

### EXAMPLE 6-3: Multiple Base Year Values

A property owner purchased a two-bedroom, single-family-residence on July 5, 1994 for \$115,000. After evaluating the data, the assessor enrolled the purchase price, allocating \$20,000 to the land and \$95,000 to the improvements. During February 1997, the owner began construction of a third bedroom, completing the project on August 1, 1997. Upon review of relevant market data, the assessor established that the additional bedroom had a market value of \$9,000. Only the addition acquired a new base year value. Assuming no overall decline in value, the assessed value for the total property for the 1998-1999 roll is:

	<b>Base Value</b>	<b>x</b>	<b>Inflation Factor</b>	<b>=</b>	<b>Adjusted Base Year Value</b>
1. 1995 Land Value	\$ 20,000	x	1.05195	=	\$ 21,039
2. 1995 Improvement Value	95,000	x	1.05195	=	99,935
3. 1998 Addition Value	9,000	x	1.00000	=	9,000
	<b>Total 1998-99 Roll Value</b>				<b><u>\$ 129,974</u></b>

Partially completed new construction does not acquire a base year value. Instead, new construction in progress on any lien date is assessed, in effect, as a separate appraisal unit at its market value on that date, and on each successive lien date until it is completed. Upon completion, the entire portion of the property which is newly constructed is reappraised at its market value, and acquires its own base year value. *See Ellis v. County of Calaveras (2016) 245 Cal. App. 4th 64 and Letter to Assessors 2016/042*

## **PROBLEMS IN THE ASSESSMENT OF NEW CONSTRUCTION**

### **Impact Fees, Development Fees, and Off-Site Improvements**

Impact fees, certain development fees, and off-site improvements may reflect non-assessable enhancements of land value, rather than assessable new construction. When using actual costs to value new construction, appraisers should distinguish between costs attributable to new construction and those costs that may enhance the value of the land but are not costs related to additions or alterations of real property.

Consider this example. A large-scale industrial complex is built adjacent to a major freeway. As part of the development, the builder agrees to (1) construct new freeway off-ramps leading to the complex; (2) widen the major streets adjoining the development, and (3) purchase and dedicate a separate parcel of land for wildlife preservation. Although each of these activities may enhance the value of the complex, it is possible that the costs associated with these activities enhance the land value, and should not be included in the new construction valuation of the improvements.

### **Interpretation of Statutory Terms**

The statutory definition of the terms "newly constructed" and "new construction" makes use of other terms that are themselves subject to differing interpretations. Specifically, the terms "rehabilitation," "renovation," "modernization," and "substantially equivalent to new," as used in section 70, have not eased the assessor's task of determining whether a particular project constitutes assessable new construction.

Each of these terms was discussed earlier in this section. Determining whether a particular improvement has been converted to a state that is "substantially equivalent to new" is an especially subjective matter, however, and so the definition suggested earlier bears repeating. Specifically, in the interests of promoting uniformity, assessors should apply the following definition for this term: "Substantially equivalent to new" means that the new construction activity under review has transformed an improvement, fixture, or a portion thereof into a state where its utility is comparable to new.

### **Assessment of Construction in Progress**

Although new construction is not assessable as construction in progress until the commencement of actual, physical construction, no guidelines regulate the assessment of soft costs during the construction period. Soft costs are those expenditures necessary for, but indirectly related to, the

construction of improvements; often, soft costs are not part of the construction contract.<sup>78</sup> When using the cost approach to value, it is possible to enroll all preliminary soft costs—soft costs incurred before the commencement of new construction—on the first lien date immediately following the commencement of the new construction to which the soft costs relate. In contrast, it is also possible to "meter in" preliminary soft costs over the entire construction period. Under this procedure, only a percentage of the soft costs are applied: the percentage of soft costs equal to an estimate of the improvement's percentage completed on the lien date.

### Multiple-Stage New Construction

Multiple-stage new construction occurs when a total property is constructed in stages. As certain portions of the total development are completed and available for occupancy, the remainder of the property is still under construction. An example is a new shopping center where some shops and one anchor store are complete and available for occupancy, while the remaining stores are under construction or awaiting construction. Under Rule 463.500, the date of completion of new construction is the date that the newly constructed property becomes available for use. The following example illustrates how this concept may be applied in the assessment of a project involving multiple-stage new construction:

#### EXAMPLE 6-4: Multiple Stage New Construction Scenarios

**Scenario 1:** Assume that a shopping center is being built in stages. One large anchor store and one wing of adjacent stores are complete and occupied. Plans call for the construction of another anchor store and another wing of stores in the next year. The completed improvements should be viewed as an independent phase. The completed store buildings should be assessed as new construction on their date of completion and assigned a base year value. If the initial phase was only partially complete on the lien date, it should be assessed as construction in progress.

**Scenario 2:** Assume that a high-rise structure has the first floor complete and occupied, while the upper floors are completed, except for interior finishing, on the lien date. Plans call for the completion of the upper floors as they are leased. In this case, the entire structure, as it exists, should be assessed as of the date of completion for its current state and assigned a base year value. Any additional interior finish work should be appraised as new construction on the date or dates of completion.

**Scenario 3:** Assume that a six-store retail building has one store complete and occupied, while the remaining structure is still under construction. Indications are that the work will continue until the stores are completed. In this situation, the entire project should be assessed as construction in progress on the lien date until the basic structure is complete.

<sup>78</sup> A detailed description of soft costs can be found in Chapter 2.



## Entrepreneurial Profit

Section 401.6 limits the application of an entrepreneurial profit component for the valuation of special use properties and applies similarly to new construction of special use properties. Section 401.6 states:

(a) In any case in which the cost approach method is used to value special use property for purposes of taxation, the assessor shall not add a component for entrepreneurial profit unless he or she has market-derived evidence that entrepreneurial profit exists and has not been fully offset by physical deterioration or economic obsolescence.

(b) For purposes of this section:

(1) "Entrepreneurial profit" means either of the following:

(A) The amount of a developer would expect to recover with respect to a property in excess of the amount of the developer's costs incurred with respect to that property.

(B) The difference between the fair market value of a property and the total costs incurred with respect to that property.

(2) "Total costs" means both direct costs of construction, including, but not limited to, the costs of land, building materials, and labor, and indirect costs of construction, including, but not limited to, the costs of construction capital and permit fees.

(3) "Special use property" means a limited market property with a unique physical design, special construction materials, or a layout that restricts its utility to the use for which it was built.

When appraising owner-built improvements, which may constitute a special use property, an entrepreneurial profit component may be inappropriate when (1) no one else has the ability to construct those improvements, (2) there is no additional market for the property, or (3) the property is an over-improvement. However, nothing in the language of section 401.6 precludes the application of a market-derived entrepreneurial profit component in the valuation of non-special use properties.

## ASSESSMENT OF IMPROVEMENTS RELATED TO BUSINESS PROPERTY<sup>79</sup>

Improvements related to business property include improvements reported on Schedule B of the Business Property Statement and other improvements owned by or made for a business. Many variables exist regarding the valuation of these improvements.<sup>80</sup> Factors required to make a valid assessment—especially property classification, identification of assessee, and valuation—may be difficult to determine. Depending on the data source, the assessment can be processed by either the real property appraiser, the auditor-appraiser or both, on either the secured or unsecured roll, creating a situation that may result in duplicate or *escape assessments*. Assessment of improvements related to business property is, therefore, an important topic for discussion within this section of the Assessors' Handbook. The discussion is divided into five main sections: definitions of relevant terms, classification, appraisal, determination of assessee, and suggested procedures. It is directed to both real property appraisers and auditor-appraisers.

### DEFINITIONS OF RELEVANT TERMS

The purpose of this section is to define and describe the following relevant terms: improvements, building improvements, landlord improvements, leasehold (or tenant) improvements, structure items, and fixtures as used in the context of this section.

#### Improvements

As defined in section 105, improvements include:

- (a) All buildings, structures, fixtures, and fences erected on or affixed to the land.
- (b) All fruit, nut bearing, or ornamental trees and vines, not of natural growth, and not exempt from taxation, except date palms under eight years of age.

Improvements within this statutory definition are reported, classified and subclassified on the Business Property Statement, Schedule B.<sup>81</sup> Examples of such improvements are provided in Rule 124(b).

#### Building Improvements

As used on the property statement, *building improvements* are all improvements to a structure. They may include improvements made by the landlord and improvements made by or for the tenant. They can be sub-classified as structure items and fixtures.

#### Landlord Improvements

For purposes of this discussion, building improvements made by the real property owner are referred to as *landlord improvements*. This term includes improvements paid for by the landlord whether they benefit the landlord or the tenant. Landlord improvements are either structure items and fixtures, as discussed below.

<sup>79</sup> Refer to AH 504 for discussions of related business personal property topics.

<sup>80</sup> Refer to AH 504, chapters 4 and 5.

<sup>81</sup> No classification between structure and fixture is required for State assessed leasehold improvements.

## Leasehold (or Tenant) Improvements

For purposes of this discussion, the term *leasehold improvement* and *tenant improvement* are used synonymously to mean all "improvements or additions to leased property that have been made by the lessee."<sup>82</sup> Leasehold improvements include structure items as well as fixtures paid for by the lessee.

For example, two tenants move into separate units.

- Tenant A moves into a shell and makes basic improvements (e.g., a drop ceiling, floor finish, floor to ceiling partitions for an office) to finish the interior of the structure.
- Tenant B moves into a space ready for occupancy and only makes improvements designed for a specific trade business, or profession (e.g., shelving attached to a wall or dressing rooms in the case of retail apparel sales).

As the definitions below will indicate, Tenant A has made improvements classified as structure items. Tenant B has made improvements classified as fixtures. However, in both cases, the improvements made by the tenants are leasehold (or tenant) improvements.

### Structure Items

A *structure* may be defined as "an edifice or building; an improvement."<sup>83</sup> Structure items are integral parts of the structure by nature. The Business Property Statement further describes structure items:

An improvement will be classified as a structure when its primary use or purpose is for housing or accommodation of personnel, personalty, or fixtures and has no direct application to the process or function of the industry, trade, or profession.

Structure items are reported on the property statement on Schedule B, column 1, *Structure Items*. A listing of items commonly reported and classified as structure items can be found in Appendix B and also in Chapter 6 of AH 581, *Equipment Index and Percent Good Factors*.

### Fixtures

Paragraph 1, of Rule 122.5(a) defines *fixtures*:

A fixture is an item of tangible property, the nature of which was originally personalty, but which is classified as realty for property tax purposes because it is physically or constructively annexed to realty with the intent that it remain annexed indefinitely.

Paragraph 2, of Rule 122.5(a) sets forth three tests to determine what constitutes a fixture for property tax purposes:

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<sup>82</sup> Appraisal Institute, *The Dictionary of Real Estate Appraisal*, s.v. "leasehold improvement."

<sup>83</sup> Appraisal Institute, *The Dictionary of Real Estate Appraisal*, s.v. "structure."

The manner of annexation, the adaptability of the item to the purpose for which the realty is used, and the intent with which the annexation is made are important elements in deciding whether an item has become a fixture or remains personal property. Proper classification, as a fixture or as personal property, results from a determination made by applying the criteria of this rule to the facts in each case.<sup>84</sup>

Fixtures are reported on the Business Property Statement, Schedule B, column 2, *Fixtures Only*. A listing of items commonly reported and classified as fixtures can be found in Appendix B and also in Chapter 6 of AH 581, *Equipment Index and Percent Good Factors*.<sup>85</sup> It is important to note, however, that these items are fixtures only when they are *not* an integral part of the building, but their "use or purpose directly applies to or augments the process or function of a trade, industry, or profession."<sup>86</sup>

## Types of Fixtures

### *Trade Fixtures*

In the context of the property tax, a *trade fixture* is merely a type of fixture which is "trade-related." All fixtures, including trade fixtures, have received the same treatment by the courts. In the interest of uniformity, neither the statutes nor the courts base the classification of fixtures on whether they are trade-related. As expressed by the court in *Trabue Pittman Corp. v. County of Los Angeles* (1946) 29 Cal.2d 385,

To classify trade fixtures as real property is not to obliterate the distinction between fixtures and trade fixtures for all purposes, nor to introduce an innovation into the law of trade fixtures. It is well settled that for purposes of taxation the definitions of real property in the revenue and taxation laws of the state control whether they conform to definitions used for other purposes or not. ...Section 104 of the Revenue and Taxation Code declares that real estate shall include "improvements," and section 105 defines improvements as "fixtures." No exception is made in the case of trade fixtures. According to Burby, a trade fixture is merely a particular type of fixture, one for which the law makes a special provision permitting its removal under certain circumstances by a lessee from the lessor's real property to which it has been annexed. (See Burby Hornbook of the Law of Real Property (1943) p.28).

In a subsequent case deciding similar issues, the court held:

It follows [from *Trabue Pittman* above] that the applicable statutes do not permit the division of trade fixtures into classes or distinctions contended for by defendants, and on the contrary require all fixtures or trade fixtures to be taxed as improvements.<sup>87</sup>

<sup>84</sup> Intent is the primary test of classification. Rule 122.5(d).

<sup>85</sup> Valuation of fixtures is discussed thoroughly in chapters 4 and 5 of AH 504.

<sup>86</sup> Rule 463(c).

<sup>87</sup> *Simms v. County of Los Angeles* (1950) 35 Cal.2d 303.

Additionally, "trade fixture," in section 469 and "fixture" in Rule 192(a) are used synonymously in the determination of a mandatory audit. Thus, trade fixtures are merely a particular type of fixture and must be evaluated under the three-part test in Rule 122.5.

### ***Fixed Machinery and Equipment***

*Fixed machinery and equipment* (FME) is another type of fixture. FME is equipment which is physically or constructively annexed and intended to remain indefinitely with the realty. Rule 122.5(c) sets forth the standard for constructive annexation and some examples are provided in subdivision (e). The concept of constructive annexation of equipment has long been recognized by the courts.

In addressing the question of annexation, we initially observe that the common law test of technical affixation of the article to the realty is no longer an absolute prerequisite to "fixture status." On the contrary, the modern trend of case law underlines that fixtures include articles such as heavy machinery whose permanent annexation is not manifested by the use of bolts, screws, and the like, but which are of such weight that the mere retention in place of gravity is sufficient to give them the character of permanency and therefore affixation to the realty.<sup>88</sup>

An assessee may erroneously report FME as personal property (i.e., machinery and equipment) on Schedule A of the Business Property Statement. The assessee may report such property as machinery and equipment because of its use/function as machinery or equipment. However, if the property's weight or method of attachment and the intent as reasonably manifested by outward appearance is that the property remain annexed indefinitely, then based on Rule 122.5, such equipment is actually FME, that is, a fixture. Often, the incorrect classification is discovered by physical inspection.

## **CLASSIFICATION**

### **Classification on the Property Statement**

Schedule B (including the supplemental schedule) of the Business Property Statement requests information regarding building improvements (landlord and leasehold improvements) in relation to a specific property or business. This schedule provides valuable information and may be used by both auditor-appraisers and real property appraisers. Items reported in Column 1 and Column 2 are structure items and fixtures, respectively, as defined earlier. Items reported in Column 3, *Land Improvements*, include such things as blacktop, curbs, and fences; and items reported in Column 4, *Land and Land Development*, include such things as fill and grading.

### **Why Classification Is Important**

Property tax law requires that improvement value be shown separately from land value and personal property value on the assessment roll. However, there is no requirement that fixtures be

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<sup>88</sup> *M.P. Moller, Inc. v. Wilson* (1936) 8 Cal.2d 31.

shown as a separate category of improvements.<sup>89</sup> Nonetheless, it is necessary for the appraiser to make the distinction between fixtures and other improvements prior to enrollment, because classification may affect the audit procedures and valuation of property.

It is important to properly classify fixtures separate from other improvement items for several reasons:

1. Fixtures are a separate appraisal unit when measuring declines in value(Rule 461(e)).<sup>90</sup>
2. Fixtures are treated differently than other real property (i.e., structure items) for supplemental roll purposes.
3. Fixtures and personal property values are components in the value criterion for determination of a mandatory audit.

### **Fixtures are a Separate Appraisal Unit When Measuring Declines in Value**

Proposition 8, amended Article XIII A of the State Constitution to require the assessor to recognize declines in value (of real property) if market value on the lien date falls below the property's factored base year value. Section 51 requires that the assessor annually enroll the lower of either (1) a property's base year value factored for inflation; or (2) its full, or market, value as of the lien date. Thus, declines in value under Proposition 8 are determined by comparing the current full value (i.e., current market value) of an appraisal unit to the factored base year value of the unit on the lien date.<sup>91</sup>

Appraisal unit is defined in section 51(d) as the unit that (1) persons in the marketplace commonly buy and sell as a unit or (2) that is normally valued separately. Land and improvements, for example, are an appraisal unit because improvements are typically bought and sold with land. Fixtures not typically bought and sold separately in the market are also considered a separate appraisal unit under this section, because they are normally valued separately . Rule 461(e) provides that fixtures, and other machinery and equipment classified as improvements, are a separate appraisal unit when measuring a decline in value.<sup>92</sup>

### **Fixtures may be a Separate Appraisal Unit for Supplemental Roll Purposes**

Generally, all property that changes ownership or is newly constructed after the lien date is assessed as of the date of change in ownership or date of completion of new construction and is subject to supplemental assessment. An exception to this requirement applies to certain fixtures. Section 75.5 removes from the definition of "property" subject to supplemental assessment

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<sup>89</sup> Section 602.

<sup>90</sup> However, as exceptions to the general rule that fixtures are a separate appraisal unit for declines in value, Rules 469(e)(1)(c) and 473(e)(4)(c)—in the context of mineral and geothermal properties, respectively—provide that for the purpose of declines in value, certain fixtures may be valued in an appraisal unit comprising land, improvements (other than fixtures), and reserves, rather than valued as a separate appraisal unit.

<sup>91</sup> Rule 461.

<sup>92</sup> See *County of Orange v. Orange County Assessment Appeals Bd.* (1993) 13 Cal.App.4th 524, which held that under Rule 461(e), "the components of taxable property may be separated for valuation purposes," and that section 51, subdivision (e) [currently (d)] "states, albeit ungrammatically, that an appraisal unit can be that which are [sic] normally valued separately. Taken as a whole, neither section 51 in general, nor subdivision (e) in particular, mandates appraisal of the property as a single unit."

"fixtures which are normally valued as a separate appraisal unit from a structure." Section 75.5 states:

"Property" means and includes real property, other than fixtures which are normally valued as a separate appraisal unit from a structure, and manufactured homes subject to taxation under Part 13 (commencing with section 5800).

This exclusion from supplemental assessment applies only to fixtures that are normally valued as a separate appraisal unit from the land and other improvements on which they are located. It does not apply to fixtures that are included with other property as part of a single appraisal unit that changes ownership or is newly constructed. If an entire property containing land, structures, and fixtures is valued as a single appraisal unit upon a change in ownership or new construction, the fixtures included in the unit are subject to supplemental assessment.<sup>93</sup>

### **Fixture Value Included in Value Criterion for Mandatory Audit**

The combined total value of personal property and fixtures determines whether an audit is mandatory; the value of structure items is not included in this determination. Section 469 states:

In any case in which locally assessable trade fixtures<sup>94</sup> and business *tangible personal property* owned, claimed, possessed, or controlled by a taxpayer engaged in a profession, trade, or business has a full value of three hundred thousand dollars (\$300,000) or more, the assessor shall audit the books and records of that profession, trade, or business at least once every four years.  
[Emphasis added]

Caution should be exercised to avoid misclassification. If fixtures are misclassified—notably, if fixtures are classified as structures or visa versa—the value criterion for mandatory audits cannot be applied properly.

## **APPRAISAL OF IMPROVEMENTS RELATED TO BUSINESS PROPERTY**

### **General**

In general, improvements related to business property (i.e., landlord improvements, leasehold/tenant improvements, structure items, and fixtures) are valued, as is other real property, in accordance with section 51. As previously discussed, section 51 requires county assessors to value taxable real property at the lesser of its factored base year or its full cash value as defined in section 110.<sup>95</sup>

In accordance with section 110.1, a property's base year value is its fair market value as of either the 1975 lien date or the date the property was newly constructed, or underwent a change in ownership after the 1975 lien date. Base year value is generally estimated using one or more of the generally accepted and authorized approaches to value discussed in Rule 3 (i.e., the

<sup>93</sup> See Letter To Assessor 91/59; section 75.15 also addresses the supplemental assessment of fixtures.

<sup>94</sup> Fixtures and trade fixtures are synonymous terms in this context, as discussed earlier.

<sup>95</sup> Fixtures, although real property, are often valued in a manner similar to personal property. See AH 504 for a complete discussion of personal property and fixtures.

comparative sales approach, the cost approach, or the income approach). The base year value can be adjusted for the effects of inflation up to a maximum of 2 percent per year based on the California Consumer Price Index. For example, an improvement with a 1997-1998 base year value of \$100,000 (and a 1998 inflation factor of 2 percent) has an adjusted base year value of \$102,000 in year 1998-1999.

$$\begin{aligned} \text{Base Year Value} \times \text{Inflation Factor} &= \text{Indexed Base Year Value} \\ \$100,000 \times 1.02 &= \$102,000 \end{aligned}$$

The full cash value on the lien date is the property's current market value. This value is also estimated by one or more approaches to value allowed by Rule 3. If the current market value of a property is below its factored base year value, the property is temporarily reassessed to reflect the lower value, that is, the property's current market value or its full cash value on the lien date (section 51(a)). Properties valued under Proposition 8 (Rule 461(e)) guidelines are reviewed annually. In some future year, if and when the property's market value exceeds its factored base year value, the factored base year value is restored to the assessment roll. Assume that the improvement mentioned above, with a factored base year value of \$102,000, has a current market value of \$95,000. Since the market value (\$95,000) on the 1998-1999 lien date is less than the indexed base year value (\$102,000), the market value is enrolled until such time that the market value exceeds the factored base year value.

The valuation of structure items is normally conducted by the real property appraiser since he or she has the market data, cost manuals, and requisite experience to properly value all real property. In certain circumstances, however, the auditor-appraiser may be required to value this property. In other circumstances, the real property appraiser may be required to value fixtures when they are commonly bought and sold in the marketplace with the land and improvements and are so integrated with the realty such that the highest and best use of the property depends on the valuation of the appraisal unit as a whole.

Fixtures are normally valued and assessed by the auditor-appraiser. Since fixtures are property that directly apply to or augment the process or function of a trade, industry, or profession, it follows that fixtures should be valued by the same appraiser (i.e., the auditor-appraiser) valuing other business property.<sup>96</sup>

In most cases concerning fixtures, the lower value is the full cash value on the lien date. This is the current market value of the property estimated by the auditor-appraiser using an appropriate approach to value (the cost approach, the comparative sales approach, or the income approach).<sup>97</sup>

When determining the taxable value of new building improvements (i.e., landlord or tenant improvements), the appraiser should ensure that the value of these improvements is not already included in the existing assessment. For example, if an office building changes ownership and is valued using the comparative sales and/or income approach, the value indicator and resulting

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<sup>96</sup> Valuation of fixtures is thoroughly discussed in Chapters 4 and 5 of AH 504.

<sup>97</sup> See AH 504 for a discussion of the approaches to value.



assessment on the secured roll *may* include some or all of the value of the building improvements. Such improvements should not then be doubly assessed on the unsecured roll.

### **Some Valuation Issues**

In valuing improvements related to business property (i.e., landlord and leasehold (tenant) improvements, both structure items and fixtures), careful consideration should be given to new construction, leasehold improvements abandoned on the lien date, and fixtures which have declined in value. Several issues and questions arise and should be addressed regarding these types of improvements. The following discussion addresses these issues.

#### **New Construction**

Property tax law governing the valuation of new construction is primarily contained in sections 70 through 74.6 and Rules 463 and 463.5. An earlier section of this chapter discusses the subject of new construction; and that discussion is generally applicable to new construction involving improvements related to business property.

Rule 463(b) defines new construction to include (1) "any substantial addition to land or improvements, including fixtures"; (2) "any substantial physical alteration of land which constitutes a major rehabilitation of the land or results in a change in the way the property is used;" (3) "any physical alteration of any improvement which converts the improvement or any portion thereof to the substantial equivalent of a new structure or portion thereof or changes the way in which portion of the structure that had been altered is used"; or (4) "any substantial physical rehabilitation, renovation or modernization of any fixture which converts it to the substantial equivalent of a new fixture."

Rule 463(b)(4) excludes construction or reconstruction performed for "the purpose of normal maintenance and repair" from the definitions above.

In the context of fixtures, rehabilitation, renovation, or modernization of a fixture that converts the fixture to the substantial equivalent of new is new construction. Rule 463(b), relating to fixtures, provides that "substantial equivalency shall be ascertained by comparing the productive capacity, normally expressed in units per hour, of the rehabilitated fixture to its original capacity." Repair to a fixture does not qualify as the substantial equivalent of new. Normal or routine maintenance in order to continue the use of function of the unit (i.e., a new roller to replace the old one in a printing press) is also not considered new construction.

Landlord and leasehold (tenant) improvements, both structure items and fixtures, are frequently renovated, rehabilitated, or modernized. This is often done in order to provide an interior or exterior "facelift" for the space. Existing improvements may be removed and new improvements added, even before the useful life of the existing improvements is over. If such construction activity converts the existing improvements to substantially equivalent to new or is the installation of a new fixture such activity is new construction.

When new construction of landlord and/or leasehold improvements occurs, relevant information may be received by the assessor from different sources. Information may originate from (1) the Business Property Statement (Schedule B) as reported by the assessee; (2) building permits; or,

(3) county health permits required for some types of construction. The Business Property Statement is received by the business property division, and building permits are received by the real property division. An assessee may report information on the property statement that has also been provided to the real property appraiser in the form of a permit (and perhaps a follow-up construction activity questionnaire submitted by the assessee). Since information is received by both divisions, the landlord and/or leasehold improvements may be assessed by both divisions (or may escape assessment) if a system of effective coordination is not in place. Methods for ensuring such coordination are discussed later in this chapter and in Appendix C.

After the information regarding construction activity is received, improvements should be classified as a structure item or fixture.<sup>98</sup> The descriptions of additions and deletions should be reviewed by both an auditor-appraiser and real property appraiser and valued appropriately. The appraiser should examine the data received to determine whether any demolition costs have been excluded, whether some elements of reported cost reflect normal maintenance and hence not new construction, and whether, and to what extent, the new construction adds value.

The following example illustrates a fixture qualifying as new construction because it is an addition since the last lien date.

<b>EXAMPLE 6-5: Valuation of New Construction (Fixtures)</b>						
On February 1, 1997, an assessee purchased and installed a new walk-in refrigerator (not an integral part of the building). The total installed cost of the refrigerator was \$10,000. At acquisition, it had an estimated <i>average service life</i> of 12 years. The inflation factor for the current year is 2%.						
<b>What is the assessed value on the 1998 lien date, January 1, 1998?</b>						
	<u>Cost</u>	<u>Index Factor</u>	<u>Percent Good Factor</u> <sup>99</sup>	<u>Fair Market Value</u>	<u>Inflation Factor</u>	<u>Indexed Value</u>
Total 1997 Cost	\$ 10,000	100	.94	\$ 9,400		
Total 1997 Cost	\$ 10,000				1.02	\$ 10,200
<b>Enrolled Value</b>				<b><u>\$ 9,400</u></b>		
<b>What is the supplemental assessment value?</b>						
No supplemental assessment applies to this fixture. The fixture is a separate appraisal unit, and is not part of a larger appraisal unit; therefore, the property is not subject to supplemental assessment.						

### Valuation of Abandoned Leasehold Improvements

Improvements installed by a tenant, but left at a vacant rental space are called abandoned leasehold improvements. The real property appraiser and/or auditor-appraiser may encounter difficulties when assessing this property. For example, to whom are the structure items and fixtures assessed, and what is their value? No two cases will be the same. Facts related to each scenario will differ and appraisal must be based on those facts.

Following is an example of one possible scenario involving abandoned leasehold improvements.

<sup>98</sup> See "Why Classification is Important" which is discussed earlier in this section.

<sup>99</sup> Percent good factor from "Table 4: Machinery and Equipment Percent Good Factors," 12 year life, AH 581, January 1998.

### EXAMPLE 6-6: Abandoned Leasehold Improvements

- A retail business moves into a new indoor mall in 1996. The mall space is leased to the tenant as a shell. It is the tenant's responsibility, and expense, to finish the space to their specifications. The retail business spends \$20,000 to install leasehold improvements. The leasehold improvements, improvements paid for by the lessee, include structure items (dropped ceiling, finished walls, lighting fixtures, and carpet) and fixtures (burglar alarm system, and permanent partitions-less than floor to ceiling).
- After two years at this location, the retail business moves out of the space to another mall. The leasehold improvements installed two years earlier are abandoned and the space is left vacant on the lien date, January 1, 1998.

Because the tenant has abandoned the improvements and the leased space in the scenario above, any improvements left behind revert to the owner of the mall; therefore, the mall owner is the assessee. The structure items and fixtures are assessable to the mall owner on the lien date.

The improvements may continue to have value because, in theory, another tenant using the same space and improvements may not be required to spend the same amount of time and money in order to utilize the space for their needs. The value, on the other hand, may be less than indicated by the cost approach, since a future tenant may have different needs than the original tenant. Professional judgment is needed to determine whether the abandoned improvements have the same value, lower value, or no value.

### Valuation of Fixtures Under Decline in Value

Measuring declines in value can be simple when only one appraisal unit is involved. Fixtures, for example, as a separate appraisal unit are valued at current market value on the lien date and at the indexed base year value, and the lower value is enrolled. However, measuring declines in value may become more difficult in a total property appraisal because more than one appraisal unit is involved. When a decline in value of such property occurs, the first part of Rule 461(e) is extremely important and must be applied.

Declines in value will be determined by comparing the current lien date full value of the *appraisal unit* to the indexed base year full value of the same unit for the current lien date. [Emphasis added]

In other words, each appraisal unit must be considered separately. The following example illustrates how declines in value and appraisal units should be treated under Rule 461(e).

**EXAMPLE 6-7: Total Property Appraisal Under Decline in Value**

	<b>Market Value on the Lien Date (Prop 8 Value)</b>	<b>Factored Base Year Value (Prop 13 Value)</b>	<b>Total Property Value (Assessed Value)</b>
<b>Appraisal Unit 1</b>			
Land	\$515,000	\$100,000	
Building	<u>60,000</u>	<u>85,000</u>	
Unit 1 Value	<u>\$575,000</u>	<u>\$185,000</u>	\$ 185,000
<b>Appraisal Unit 2</b>			
Fixtures	<u>40,000</u>	<u>52,000</u>	
Unit 2 Value	<u>\$ 40,000</u>	<u>\$ 52,000</u>	\$ 40,000
<b>Total Property Value (Unit 1 + Unit 2)</b>			<b><u>\$225,000</u></b>

As indicated in the above example, the proper unit values are "Appraisal Unit 1" (land and building) value of \$185,000 and the "Appraisal Unit 2" (fixtures) value of \$40,000. The correct total value of this property is \$225,000. The appraisal units must be defined properly when applying Rule 461(e) and recognizing declines in value. If the appraisal units are not defined properly, the assessed value of the property would be erroneous and not in compliance with property tax law.

**DETERMINATION OF ASSESSEE**

When the owner of a business is also the owner of the land and building, there is no question as to the proper assessee of the improvements related to business property (i.e., the landlord or tenant improvements). In this case, taxable property is assessed to one account on the secured roll. In the case where the owner of the real property (other than fixtures) does not own the business, however, other possibilities arise. Improvements related to business property may be constructed and paid for by either the landlord (landlord improvements) or the tenant (leasehold improvements) and in either case are assessable to either party.

When new construction of landlord or tenant improvements occurs, the added value of the new construction is typically assessed to the party who paid for the improvements. A tenant in a shopping center, for example, is typically assessed on the unsecured roll for leasehold improvements—structure items and fixtures—since they are constructed at the tenant's expense. Such construction is generally reported on the Business Property Statement. On the other hand, the landlord is typically assessed on the secured roll for landlord improvements since they are constructed at the building owner's expense. (Such new construction is usually discovered by a building permit.)

However, the above procedure is not a legal requirement. Section 405 allows the assessor to assess property to "the persons owning, claiming, possessing, or controlling it on the lien date." In the case of landlord improvements and leasehold improvements, the courts have interpreted this to mean either the lessor or lessee may be the proper assessee, even if the improvements have been paid for by the opposite party.<sup>100</sup>

<sup>100</sup> *Valley Fair Fashions, Inc. v. Valley Fair* (1966) 245 Cal.App.2d 614, *Tele-Vue Systems, Inc. v. Contra Costa County* (1972) 25 Cal.App.3d 340, and *Ventura County v. Channel Islands State Bank* (1967) 251 Cal.App.2d 240.

## **COORDINATION IN THE ASSESSMENT OF LANDLORD IMPROVEMENTS AND LEASEHOLD IMPROVEMENTS**

Close cooperation between auditor-appraisers and real property appraisers is essential when valuing and assessing landlord and leasehold improvements, because special difficulties arise concerning the uniform assessment and proper enrollment of this type of property. Record management for accurate tracking of base year values and ownership of this type of property may be complex and tedious but is extremely important in order to ensure correct valuation and assessment. As discussed earlier, information regarding this type of property is received from various sources and may be submitted to either auditor-appraisers and/or real property appraisers. The value may be enrolled on either the secured roll or the unsecured roll, and the assessee may be either the landlord or the tenant.

Internal procedures in assessors' offices should be designed to ensure that all landlord improvements and leasehold improvements are (1) valued on and at the appropriate date and amount, (2) not assessed on multiple accounts, (3) assessed on the proper roll (i.e., secured or unsecured), and (4) assessed to the proper assessee. The means by which this coordination is accomplished may differ from county to county, but general guidelines for coordination should be maintained in all assessment programs.

### **Establish a Comprehensive Set of Written Procedures Regarding the Assessment of Landlord and Leasehold Improvements**

A comprehensive set of written procedures that describes how to systematically identify and assess landlord and leasehold improvements can help promote uniform assessment. As noted above, the assessment of landlord and leasehold improvements requires record management for proper tracking of base year values and ownership. Written procedures clarify each staff member's responsibilities in the valuation process for this type of property, making appraisal and record management easier to maintain.

### **Clearly Identify Landlord and Leasehold Improvements on Appraisal Records**

Proper notes on appraisal records concerning the establishment of value is an important step in the appraisal process. Appraisal notes should include information regarding the existence of landlord and leasehold improvements, a description of the improvements, and the basis for valuation. If the improvements involve more than one account, the appraisal records should indicate in what manner the improvements are assessed (i.e., to whom, secured or unsecured roll, and assessor's parcel number or business property account number). This information will not only assist appraisers and auditor-appraisers who may work on the subject parcel or related business account(s) in the future, but will also help to avoid duplicate or escape assessments.

### **Coordination of Landlord and Leasehold Improvement Appraisal**

Appendix C describes and suggests one method of coordinating the appraisal of landlord and leasehold improvements that is used in some assessors' offices. It is not the only proper method. An example is included as illustration. The example starts with the source documents and goes through several steps including classification, determination of assessee, valuation, and enrollment of value.

## HISTORICAL COST APPROACH

### APPLICABILITY TO RATE BASE REGULATED UTILITIES

A generally accepted method for valuing property interests of rate base regulated utilities, whether centrally or locally assessed, is by use of the historical cost approach. Certain industries have been and continue to be subject to rate base regulation, as a result of which authorized earnings, or rates of return, are set by regulators and measured by rate base. Under Rule 3(d), the assessing agency shall consider as relevant to value the amount actually invested in the property or the amount invested less depreciation, if the income from the property is regulated by law and the regulatory agency uses historical cost, historical cost less depreciation (HCLD), or trended original cost as a rate base. Thus, the historical cost approach is considered relevant for estimating the market value of public utility properties depending upon regulatory influences.

Regulatory agencies typically define the services a utility is to provide, establish the rates the utility may charge for its services, and prescribe the accounting system and methods used by the utility.<sup>101</sup> In the case of rate base regulated utilities, the regulatory agency periodically establishes an allowed rate base and authorizes a rate of return. Utilities are permitted to have the opportunity to earn the authorized rate of return on rate base. In addition, these utilities are allowed to recover their cost of service. The sum of the cost of service plus the earnings (the allowed rate of return on the rate base) determines the total revenue requirements for the utility. The revenue requirement level is used to set utility rates charged to the utility's customers. The practice of most regulatory agencies, including the California Public Utilities Commission (CPUC), is to use historical or original cost less depreciation of the utility plant in the development of the rate base.

If regulation effectively limits earnings to the rate base selected, at a rate of return acceptable to investors, then the rate base or historical cost less depreciation tends to be a good indicator of market value. Even where Rule 3(d) provides that the appraiser shall consider HCLD as an appropriate indicator of value for rate base regulated companies, the appraiser should also consider other indicators. For instance, a Capitalized Earning Ability (CEA) indicator which is much lower than HCLD may indicate that obsolescence exists in the property, to such an extent that the owner may not earn the rate of return allowed by the regulatory agency. If the CEA value indicator is higher than HCLD, it may indicate that regulation is lax and potential purchasers may be willing to pay more than HCLD.

Although historical cost less depreciation (HCLD) is often referred to as rate base, for property tax appraisal purposes it is the historical cost of the utility's taxable assets less the accumulated book depreciation applicable to those assets. The depreciation is calculated according the method used by the regulatory agency. The HCLD for property tax appraisal purposes therefore, differs from the rate base as established by the regulatory agency. Some items included in rate base are

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<sup>101</sup> Regulatory agencies often prescribe the accounting methods used by public utilities and railroads. Alternatively, in the absence of regulatory reporting requirements, generally accepted accounting principles (GAAP) prescribe accounting methods (particularly pertaining to historical cost and depreciation) that may be used.

not included in the HCLD, and some items not included in the rate base are included in the HCLD. For example, HCLD does not include items in the rate base that are exempt from property tax, such as working cash, licensed motor vehicles, property located in federal enclaves, and inventory. Property not in rate base but normally included in HCLD is construction-work-in-progress (CWIP), including allowance for funds during construction (AFUDC). Even though CWIP is excluded from the rate base, investors expect that CWIP will generate future benefits in the form of earnings when the construction project is completed and transferred to plant in service.

Issues pertinent to the valuation of rate base regulated utilities under the historical cost approach are: deferred income taxes, contributions in aid of construction, advances for construction, the accounting basis to be used in developing the HCLD indicator, and historical cost versus original or acquisition cost.

### **DEFERRED INCOME TAXES**

Deferred income taxes, also referred to as "deferred tax reserve" or "deferred federal income taxes" (DFIT), is the amount reserved or liability recorded on an assessee's books for the payment of deferred income taxes created by the difference between accelerated tax depreciation for income tax purposes and straight-line depreciation for book purposes. Deferred tax reserve is an accounting entry that reflects a timing difference for reporting income and expenses. It is classified as a liability on a company's balance sheet. It represents the accumulated difference between federal income taxes that would have been paid using straight-line depreciation and the taxes actually paid using accelerated depreciation.

Because utilities are required to deduct DFIT from HCLD to compute rate base, utility customers do not pay a return on the investment represented by DFIT. Thus a prospective purchaser of the utility property would only expect to recover the investment in property purchased with cash generated by the DFIT, but would earn no return on investment until the deferred taxes were paid. Therefore, the assessor should adjust the HCLD to reflect the earnings limitation of the DFIT adjustment for ratemaking purposes. That adjustment should reflect the time value of money. For the same reason, deferred (unamortized) investment tax credits, which likewise reduce the rate base, should be recognized as an adjustment to HCLD.

### **CONTRIBUTIONS IN AID OF CONSTRUCTION**

Contributions in aid of construction (CIAC) represents property which was donated or given to a utility. Customers, usually developers, may contribute property to utilities in order to induce them to connect to or provide service to their projects. The cost incurred by the developers for CIAC property is most likely reflected in the sale price of the property charged by the developers. Property contributed to a regulated utility is not included in rate base in determining the rates the utility can charge its customers, because regulators do not allow the utility to recover the cost (return of) or earn a profit (return on) on property for which the utility did not pay. Therefore, CIAC should not be included in HCLD, because a prospective purchaser would not pay for property on which he or she is unable to earn a return on or recovery of the investment.

## **ADVANCES FOR CONSTRUCTION**

"Advances for construction" represents money expended by a customer or customers in order to receive service. For example, developers may give advances to utilities in order for the utility to connect to or provide service to their projects. Advances for construction are similar to CIAC, except that the utility will eventually pay for the advances, and costs are fully recoverable over the life of the property. The utility refunds the advances to the developers customer over a stipulated period of time. Advances are added to the rate base as the advances are paid by the utility. An investor's expectation is that this property has the benefits of bringing earnings to the utility, because the investor will be able to earn a "return on" and "return of" investment. The property acquired with advances exists, is held and used by the utility, and contributes to earnings, and therefore, should be included in HCLD at net book value. In calculating the HCLD, the historical cost of the advances should be deducted, and the present worth of the repaid advances should be added.

As an example, a building developer may pay a water company for the installation of water lines to the builder's subdivision. The water utility would then slowly refund the amount advanced by the developer. The California Public Utilities Commission rules establish schedules for water utilities, which provide that the amount advanced shall be refunded by the utility, in cash, without interest for a period not to exceed 40 years after the date of the contract. The rules further provide that the utility shall annually refund an amount equal to 2.5 percent of the advances until the principal amounts of the contracts have been fully repaid.

## **ACCOUNTING BASIS**

In calculating HCLD for rate base regulated utilities, the assessing agencies should use the accounting basis prescribed by the regulatory agencies for ratemaking purposes, since this basis is consistent with Rule 3(d).

## **HISTORICAL COST VS. ORIGINAL OR ACQUISITION COST**

Historical and original costs are frequently synonymous; however, it is important to know technical differences when sales of utility properties are involved. Historical cost reflects the level of cost at the time of a property's original construction or acquisition (sometimes referred to as "first cost"). The historical cost or first cost should include all costs that were necessary to place the property in service, including material, labor, interest on funds during construction, taxes and other overhead during construction. The "original cost" is the acquisition cost of the property to the present owner. The original recorded cost should include all expenditures required to place the property in service, including the purchase price, installation, freight-in (if the property was moved) renovation, etc. Original cost is similar to historical cost to the extent it is the full, undepreciated cost that should be recorded in the owner's accounting records.

When a rate base regulated utility property transfers from one owner to another, the purchase price does not alter the rate base. Regulatory agencies, including the CPUC, use costs to the original owner for ratemaking purposes. When a utility is purchased for more than its rate base,



regulatory agencies, generally require the acquiring entity to capitalize the amount in excess of rate base in an "Acquisition Cost Adjustment" or "Plant Acquisition Adjustment" account.

If the regulatory agency disallows the differential cost adjustment in the rate base, the amortization for acquisition cost adjustment is not deducted as an operating expense but charged against below the line income. Rate base regulated utilities are not allowed to amortize the excess cost, nor permitted to earn a return on their full capital investment.

When appraising rate base regulated utilities, the HCLD value indicator should be calculated using accounting information or costs used by the regulatory agency for ratemaking purposes, since this basis is consistent with Rule 3(d).

## TREATMENT OF INTANGIBLE ASSETS AND RIGHTS

To properly value a business entity's taxable property, an appraiser has to ensure that the final value indicator does not include any non-taxable value. A business entity's non-taxable value may consist of tangible items (e.g., licensed vehicles), intangible assets and rights (e.g., commercial franchises), and value attributable to enterprise activity. This section discusses the treatment of intangible assets and rights.

In California, the property tax treatment of intangible assets and rights is governed by two fundamental principles. The first of these is that intangible assets and rights are not subject to taxation. That is, while the state Constitution authorizes taxation of most real and personal property, there is no such authority with respect to intangible assets and rights.

Even though intangible assets and rights are not subject to taxation, the second fundamental principle states that tangible property should nonetheless be assessed and valued by assuming the presence of those intangible assets and rights that are necessary to put the tangible property to beneficial or productive use. Under this principle, an appraiser valuing tangible property must assume the presence of any intangible assets or rights necessary to the beneficial or productive use of the property being valued. The "beneficial or productive use" is equivalent to the highest and best use of the property.<sup>102</sup>

These two principles, expressly stated in the Revenue and Taxation Code, have been established over several decades of California case law. Applying the principles has, however, proved more difficult than enacting them. Thus, the purpose of this section is to aid assessors in the uniform application of these established principles by providing (1) a legal and theoretical framework within which to treat intangible assets and rights in the course of appraising tangible property; (2) a discussion of relevant terms and concepts; and (3) examples that illustrate the application of that treatment.

### LEGAL FRAMEWORK

#### Revenue and Taxation Code Sections 110 and 212

Under article XIII, section 2 of the California Constitution, only the specific items of intangible personal property listed in that section may be subject to property tax. The Legislature may provide for the property taxation of these items of intangible personal property, which include notes, debentures, shares of capital stock, bonds, solvent credits, deeds of trust, mortgages, and any legal or equitable interest therein. The Legislature may not provide for the property taxation of any other type of intangible personal property. Under section 212 of the Revenue and Taxation Code, the Legislature has determined not to tax the intangible personal property listed in article XIII, section 2 of the California Constitution. Thus, all intangible assets and rights,

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<sup>102</sup> For a detailed discussion of the concept of highest and best use, see AH 501, Chapter 4. A list of some of the intangible assets and rights identified in California statutes and cases can be found in Table 6-4.

including intangible personal property, which are *not* specifically listed in article XIII, section 2 are not subject to property taxation.<sup>103</sup>

Section 107.7(d) also provides a list of certain nontaxable intangible assets and rights. In addition, the California Courts of Appeal have identified intangible assets and rights in certain property tax cases.<sup>104</sup> Finally, certain tangible personal property is specifically limited in the property rights to be appraised.<sup>105</sup>

Section 212 states the general rule that intangible assets and rights are exempt from property taxation and that the value of intangible assets and rights shall not enhance or be reflected in the value of taxable property. However, this general rule is subject to the last sentence of section 212(c), which states that "taxable property may be assessed and valued by assuming the presence of intangible assets or rights necessary to put the taxable property to beneficial or productive use."

Subdivisions (d), (e) and (f) of section 110 also provide guidance regarding the property tax treatment of intangible assets and rights. Subdivision (d) provides that: (1) the value of intangible assets and rights relating to the going concern value of a business using taxable property shall not enhance or be reflected in the value of the taxable property, (2) if the principle of unit valuation is used to value properties that are operated as a unit and the unit includes intangible assets and rights, then the fair market value of the taxable property contained within the unit shall be determined by removing from the value of the unit the fair market value of the intangible assets and rights contained within the unit, and (3) the exclusive nature of a concession, franchise or similar agreement, whether *de jure* or *de facto*, is an intangible asset that shall not enhance the value of taxable property, including real property. These three provisions contained within section 110(d) are subject to section 110(e), which states that "taxable property may be assessed and valued by assuming the presence of intangible assets or rights necessary to put the property to beneficial or productive use". Finally, section 110(f) provides that for purposes of determining the "full cash value" or "fair market value" of real property, intangible attributes of real property shall be reflected in the value of the real property. These intangible attributes include zoning, location, and other such attributes that relate directly to the real property involved.

To interpret sections 110(e) and 212(c) it is necessary to determine the meaning of the statement repeated in both of those sections—"taxable property may be assessed and valued by assuming the presence of intangible assets or rights necessary to put the taxable property to beneficial or productive use." This language originates from cases where taxpayers attempted to obtain a scrap valuation for tangible assets by assuming those assets would not be used in a productive business

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<sup>103</sup> Section 107.7. A list of some of the intangible assets and rights identified in California statutes and cases can be found in Table 6-4.

<sup>104</sup> See, *Roehm v. County of Orange* (1948) 32 Cal.2d 280; *County of Orange v. Orange County Assessment Appeals Board* (1993) 13 Cal.App.4th 524; *Shubat v. Sutter County Assessment Appeals Board* (1993) 13 Cal.App.4th 794; *GTE Sprint Communications Corp. v. County of Alameda* (1994) 26 Cal.App.4th 992; *De Luz Homes, Inc. v. County of San Diego* (1955) 45 Cal.2d 546; *County of Los Angeles v. County of Los Angeles Assessment Appeals Board* (1993) 13 Cal.App.4th 102; *Service America Corp. v. County of San Diego* (1993) 15 Cal.App.4th 1232.

<sup>105</sup> Some examples are storage media for computer programs (section 995); business records (section 997); motion pictures (section 988); certain works of art (section 986); and timeshare estate amenities (section 998).

in association with related intangible assets and rights. The courts concluded in those cases that a scrap valuation was not appropriate.<sup>106</sup>

Sections 110(e) and 212(c) may be illustrated by the following example. A "McDonald's" sign typically is valued for property tax purposes based on the cost approach. Assuming the sign is used in an operating McDonald's business, a taxpayer may not obtain a scrap value for the sign on the grounds that, absent a McDonald's franchise, the sign would have only a scrap value. On the other hand, assuming the sign (and the franchise it represents) helps attract business, it would not be appropriate to equate the value of the sign with the difference between the value of the business enterprise and the value of the other tangible assets—that approach attributes the entire intangible business enterprise value to the sign.

Sections 110(e) and 212(c) do not authorize adding an increment to the value of taxable property to reflect the value of intangible assets and rights necessary to put the taxable property to beneficial or productive use. Instead, these sections indicate that, in valuing taxable property, it is appropriate to assume the presence of the intangible assets and rights which are necessary to put taxable property to beneficial or productive use.<sup>107</sup> For example, a business which owns taxable property may need working capital and other intangible assets in order to productively use its tangible property. Although the presence of the intangible assets are assumed in the valuation of the tangible property, this does not mean that their values are included in that valuation.

Section 110(d)(1) states that the value of intangible assets and rights relating to the going concern value of a business using taxable property shall not enhance or be reflected in the value of the taxable property. This language is derived from a court decision where the court rejected a valuation approach which equated business enterprise value with taxable asset value.<sup>108</sup> That case indicates that it would be illegal to simply add the value of intangible assets and rights to the value of taxable property or to assume that the value of intangible assets and rights is somehow subsumed within the value of the taxable assets of a business enterprise.

Section 110(d)(2) indicates that if the principle of unit valuation is used to value taxable property, then the fair market value of any intangible assets or rights contained within the unit must be removed. This rule recognizes that a business enterprise value typically will contain many intangible assets and rights. This rule also raises significant issues relating to the availability and reliability of data concerning the value of intangible rights and assets. If an appraiser does not have access to appropriate data concerning the identification and/or value of

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<sup>106</sup> AH 501, 14. For example, in *Michael Todd v. County of Los Angeles* (1962) 57 Cal.2d 684, the taxpayer argued that a movie negative should be valued at scrap value because a negative would have a scrap value without the nontaxable intangible copyright. In *Michael Todd* the court concluded that the value of the movie negative, when put to beneficial and productive use, could be determined by using a cost valuation approach. The court in *Michael Todd* also acknowledged that the copyrighted movie negative had a potential earning power of many millions of dollars (57 Cal.2d at 696), but it is apparent that valuing the potential earning power of the copyrighted movie would have resulted in the improper taxation of the copyright.

<sup>107</sup> See American Society of Appraisers, *Appraising Machinery and Equipment*, ed. John Alico (New York: McGraw Hill Book Company, 1989), 80-81.

<sup>108</sup> See *Shubat v. Sutter County Assessment Appeals Board* (1993) 13 Cal.App.4th 794.

intangible assets and rights, then it will not be possible to remove the value of those intangible assets and rights as required by this rule, and a different valuation approach should be considered. Issues concerning the availability and reliability of data should be addressed in connection with the identification of the appropriate value approach for an appraisal assignment.

In summary, sections 110 and 212 confirm the basic principle, contained in the California Constitution, that intangible assets and rights are not subject to property tax. These sections also reflect the holdings of several Court of Appeal decisions, briefly summarized as follows:

1. When valuing taxable property, it is appropriate to assume the presence of intangible assets or rights that are necessary to put the taxable property to the beneficial or productive use. It would be inappropriate to use a scrap valuation based on the removal of the associated intangible assets or rights required for the highest and best use of the tangible property.
2. A business enterprise (or unit) value can include many significant intangible assets or rights.

## **DISCUSSION OF RELEVANT TERMS**

### **Intangible Assets and Rights**

When appraising commercial and industrial property, the appraiser must identify the intangible assets and rights that may be present in order to safeguard their exclusion from property tax. While only real property or tangible personal property can be assessed, the term to be applied to all of the other items of value has been an evolving one. The source of this other value (that is, value not attributable to real property or tangible personal property) has been described by various terms, such as intangible value, franchise value, going concern value, enterprise value, and goodwill. More recently, these broad categories of non-assessable items have been broken down into sub-categories of intangible assets and rights, and have been identified separately within the business enterprise. Many intangible assets and rights, though they may exist, will not be shown on a company's books. Examples include such items as vendor relationships, brand recognition, customer loyalty, and the cumulative effect of prior year's advertising and marketing. Moreover, even if intangible assets and rights are shown on a company's books, the company's balance sheet may not reflect the fair market value of those intangible assets and rights. Goodwill, patents, copyrights, and certain licenses or franchises are examples of such intangible assets and rights.

Other intangible assets and rights may be identifiable but not necessarily capable of segregation from the value of the business enterprise. As an example, the company which manufactures Thomas' English Muffins can obtain a higher price for its product over generic English muffins. However, the trademark could normally not be sold separate from the business because the buyer would also have to purchase the muffin formula, the manufacturing know-how, and the packaging design if the buyer were to command the higher price. The fact that the trademark cannot be separated from the business does not prevent the recognition of the value of the trademark.<sup>109</sup>

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<sup>109</sup> Gordon V. Smith, "Tangible Ways to Value Intangible Assets," *Journal of Property Tax Management*, (Winter 1991): 35.

Some intangible rights are perhaps better described as intangible assets, because they belong to the holder of the right and may be valuable to him. For example, in the case of a retail clothing business, the company's policies and procedures with respect to customer service and the integration of those policies and procedures into the training of the sales force are essential to the business's survival, and thus are a valuable intangible asset. Also, section 110(d)(3) specifically identifies the exclusive nature of a concession, franchise, or similar agreement, whether *de jure* or *de facto*, as an intangible asset.

Similarly, a company's relationship with its work force is a valuable business asset, as any company suffering the effects of a strike can attest. Yet a work force itself is not the property of the company to be freely bought, sold, or traded as the business managers see fit. For example, when a production or refinery business is purchased as a going operation, there is a separate value that can be placed on the company's relationship with its work force. That value is an intangible asset associated with the business operations and is not part of the real property value. At the same time, having a work force does impact the value of the real property. Without a work force in place (and a business to employ it), the plant or refinery real property would be worth only what it could be sold for to an entrepreneur in a start-up mode, or in liquidation as scrap.

**TABLE 6-4: Examples of Intangible Assets and Rights**

• Causes of action	• Memberships in social, professional and fraternal clubs
• Copyrights	• Nonreal property lease agreements
• Covenants not to compete	• Patents
• Customer lists	• Press association memberships
• Enterprise value	• Right to do business
• Favorable franchise rights	• Stock exchange seats
• Going concern value	• Subscriber contracts
• Goodwill	• Validation permits
• Judgments	• Work force in-place

### **Government Permits**

Other intangible rights, such as government permits to use property for particular purposes, usually represent potential economic benefits that could accrue to property owners. The holder of a special use permit, for example, has obtained the right to make a substantial income from the operation authorized on the property. While the operator has generally made a substantial expenditure to obtain this special use permit which allows use of his or her property for a purpose which, absent such right, would be illegal on every other property in the county, the permit itself represents an intangible right that cannot be assessed for property tax purposes. However, in the case of an intangible asset such as a special use permit which is necessary to put

the property to beneficial or productive use, the taxable property may be assessed and valued by assuming the presence of the special use permit.<sup>110</sup>

### **Private Contract Rights**

An intangible right may also be created by private contract. An example of such an intangible right is the contractual right to operate a particular chain restaurant pursuant to the terms of a commercial franchise. This type of intangible right represents an economic contribution by the owner, who generally has paid a substantial sum as consideration for the franchise contract. Whereas the special use permit described above relates directly to the use of taxable property, however, the right to operate a valuable commercial franchise relates primarily to the business entity's enterprise-related activities. Thus, a franchisee's rights under a valuable commercial franchise are examples of intangible rights whose primary purpose is not to authorize a more productive use of taxable property, but rather to authorize the use of a trade name or other legally protected intellectual property, or the right to conduct a specified business operation, in the conduct of a business entity's enterprise-related activities.

### **Intangible Attributes of Real Property**

Real property, defined in section 104, consists of the physical property and intangible attributes of the physical property. Inherent in the ownership of real property are the rights of possession and rights to use the property. Intangible attributes of real property include zoning, location, and other such attributes that relate directly to the real property involved.<sup>111</sup> Section 110(f) of the Revenue and Taxation Code states that intangible attributes of real property are to be reflected in the value of the real property.

Real property value is largely driven by its location. Indeed, many intangible attributes of real property can be subsumed in the single concept of "location." Location is a broad concept encompassing both physical attributes—an appraiser can go to the corner of 10<sup>th</sup> and Main Streets and see the size, shape, and topography of the property situated there—and intangible attributes. Zoning is generally determined by a property's location within a community and in relation to neighboring properties.

Thus, the zoning of real property for commercial use is an intangible attribute of that real property which must be reflected in the appraisal whether the property is used to house a grocery store, a dress shop, a bar or a liquor store. As additional examples, the presence of an ocean view, the proximity to a sewage treatment plant, or the convenient access to public infrastructure (e.g., freeways) or services (e.g., garbage collection) may all be considered intangible attributes of the real property. These items also will be inherent in the physical location of the property.

One intangible attribute of real property that may be unrelated to location but that still may be inherent in the physical attributes of the real property is architecture. Thus, the fact that a

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<sup>110</sup> See *American Sheds, Inc. v. County of Los Angeles* (1998) 66 Cal.App.4th 384; *Roehm v. County of Orange* (1948) 32 Cal.2d 280.

<sup>111</sup> Intangible attributes of real property do not include licenses, franchises, and other rights to do business that are exercised in connection with the use of the real property.

building was designed by Frank Lloyd Wright may make the real property more valuable than if the designing architect was merely a follower of Mr. Wright's style.

It is important to distinguish between enforceable land use restrictions, such as public access requirements for ocean front property or government imposed rent or price restrictions that are an integral part of the real property being appraised, and intangible assets and rights that relate to the business use of the property and must not be assessed.<sup>112</sup> Section 110(a) and Rule 2(a) require that an assessor consider the adverse effects of government-imposed restrictions on rights of possession or use. Some examples of such enforceable land use restrictions are set forth in section 402.1.

In contrast to intangible attributes of real property, intangible assets and rights of the business operation utilizing the real property cannot enhance or be reflected in the value of the real property. A liquor license associated with the current use of the real property as a bar or liquor store is not an intangible attribute of the real property, but is a non-taxable intangible asset or right of the business operation. Franchises, permits and licenses to operate a cable television system likewise are non-assessable intangible rights and assets, and not assessable attributes of the physical property used to conduct the cable television business.<sup>113</sup>

### **Related Business and Appraisal Terms**

There are several terms related to intangible assets and rights with which the appraiser should be familiar.

#### **Business Enterprise Value and Enterprise Value**

"Business enterprise value" refers to the value of the entire business enterprise and includes all tangible assets and all intangible assets and rights.<sup>114</sup> In the property tax context, the separate term "enterprise value" is a broad concept that often encompasses all elements that give value to a business operation over and above the value of the tangible assets of a business organization.<sup>115</sup> Trade names, logos, systems of operations, advertising, customer and distribution relationships, and work force are all components of enterprise value that create value separate and apart from any value inherent in the tangible assets.

Thus, while it may appear as though a semiconductor plant owned by Company X is more valuable than a similar plant owned by Company Y based solely on capacity used, the appraiser should exercise care. If Company X has favorable "take or pay" contracts with customers locked in place and is making products at a price which the marketplace would not otherwise absorb, the

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<sup>112</sup> AH 501, 65-66.

<sup>113</sup> Section 107.7

<sup>114</sup> A "business enterprise" is defined as a "commercial, industrial or service organization pursuing an economic activity." Appraisal Standards Board, *Uniform Standards of Professional Appraisal Practice*, (Washington D.C.: The Appraisal Foundation, 1998), 9.

<sup>115</sup> See Joseph Rabianski, "Going-Concern Value, Market Value, and Intangible Value," *The Appraisal Journal* (April 1996): 184; Shannon P. Pratt, Robert F. Reilly, and Robert P. Schweihs, *Valuing a Business: The Analysis and Appraisal of Closely Held Companies*, 3rd ed. (New York: Irwin Professional, 1995), 19; and *California Portland Cement v. State Board of Equalization* (1967) 67 Cal.2d 578.



appraiser should not attribute the value of such contracts to the real property. Similar semiconductor plants should have similar economic returns, and thus similar fair market values.

### **Going Concern Value**

"Going concern value" is a term that has been used in a variety of contexts, and more than one definition of the term can be found in the appraisal literature. Also, there are different meanings for California property tax purposes and more than one meaning even within California property tax law.

The description of "going concern value" set out in Assessors' Handbook Section 501, *Basic Appraisal*, is a description of what constitutes the value of an entire business enterprise, i.e. the total value of a going business or concern, including both taxable and non-taxable elements.<sup>116</sup> In another context, "going concern value" is itself an intangible asset or right and is not assessable. In that context, "going concern value" is an increment of value in excess of the value of the identifiable tangible property and intangible assets and rights used in that business operation. It is a value distinct from the value of the assessable property. Thus, section 107.7(d) lists "going concern value" as a separately identified intangible asset or right that cannot be assessed. While section 107.7(d) is written in terms of cable television systems, its non-exclusive list of intangible assets and rights is not peculiar to cable television.

Outside the property tax arena, going concern appraisals are commonly conducted for hotels and motels, restaurants, bowling alleys, industrial enterprises, shopping centers, retail stores, and similar business operations using real property. Generally, the real property is considered an integral part of the business operation. Without an allocation among the various elements contributing value to the business operation, however, such an appraisal is not appropriate for California property tax purposes. Instead, the value of the taxable, tangible property, assuming the presence of any intangible assets or rights needed to put that property to beneficial or productive use, must be segregated from the total value of the business.

Where the unit principle of valuation is used, it has been said that the assessable property is valued as a going concern. This means only that the taxable property of the business should be valued as if put to beneficial or productive use. It does not mean that the entire value of the business can be assessed or that the going concern value is assessable.<sup>117</sup>

### **Goodwill Value**

Goodwill is a term used to encompass value in excess of the value of identifiable tangible property and intangible assets and rights used in the business operation. As additional increments of value, enterprise value, goodwill and going concern value can co-exist and may not capture the same value or basket of assets and rights. Goodwill is a recognized business asset based on reputation.<sup>118</sup> Thus, a hotel chain's reputation for quality and luxury that will bring customers to a new hotel stems from the mix of amenities in the package of services provided in its other hotel

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<sup>116</sup> AH 501, 7.

<sup>117</sup> Section 110(d).

<sup>118</sup> Goodwill is a separate property interest under California law. Civil Code section 655.

operations. However, the value generated for the hotel business from its system of operations—its "recipe for success"—does not inhere in the buildings and furnishings. Rather it accrues to the hotel chain's trade name, reputation and goodwill.

### **Principle of Unit Valuation**

The AH 501 provides an introductory discussion of the principle of unit valuation. It is noted there that the principle of unit valuation is based on the concept that the appraisal unit should be the unit most likely to be bought and sold in the market. This concept recognizes that market participants value certain properties according to the benefits that will be generated by the entire operating unit rather than the sum of the estimated values of the individual parts that compose the operating unit. AH 501 notes further that while the principle of unit valuation is usually associated with appraisals of large industrial operations or state-assessed utilities and railroads, the concept of the appraisal unit is more often referred to in the context of appraising locally assessed properties that comprise several parcels.<sup>119</sup>

If a unit value is determined for a group of properties or a business enterprise, then the value of nontaxable property (including intangible assets and rights) within the unit must be removed to determine the value of the taxable property within the unit. The presence of intangible assets and rights may be assumed, however, to the extent that they are necessary to put the taxable property to beneficial or productive use.<sup>120</sup>

### **Components of a Going Concern**

#### ***Monetary Assets***

Monetary assets are generally liquid assets directly or indirectly involved in the operation of a going concern. As an example, a business entity needs "working cash" in order to cover expenses that are typically paid prior to the time that receivables have been collected.

#### ***Real Property***

Real property is defined in section 104 as "the possession of, claim to, ownership of, or right to the possession of land." As discussed in detail above, intangible attributes of real property shall be reflected in such property's value. By comparison, the value of intangible assets and rights of the business operation utilizing the real property shall not enhance or be reflected in the value of such property. The presence of such intangible assets and rights may be assumed, however, to the extent that they are necessary to put the taxable property to beneficial or productive use.

#### ***Tangible Personal Property***

While all tangible property, both real and personal, is generally subject to ad valorem taxation, some types of tangible personal property are exempt. Accordingly, adjustments must be made by the appraiser when such exempt personal property is established as a component of the appraisal unit. Examples include motor vehicles, certain vessels, and assets located in federal enclaves.

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<sup>119</sup> AH 501, 11.

<sup>120</sup> Section 110, subdivisions (d) and (e).

### ***Intangible Assets and Rights***

As discussed in detail above, intangible assets and rights include such items as going concern value, goodwill, business enterprise value, private contract rights, and government permits.

## **VALUATION ISSUES**

### **All Taxable Property is to be Valued at its Highest and Best Use**

In valuing taxable property, an appraiser must value the property at its highest and best use.<sup>121</sup> This does not mean that taxable property has an assessed value over and above its market derived value due to the presence of the intangibles necessary to productively use the taxable property. In almost every situation one can imagine, taxable property must have associated intangible assets and rights in order to be used in an ongoing business enterprise. An owner of a restaurant business likely needs a business license to operate the restaurant. An owner of a motion picture negative needs the copyright, or at least partial rights to it (i.e., a license) in order to exploit the film negative.<sup>122</sup> The value of such intangible assets and rights does not enhance and is not to be reflected in the value of taxable property.<sup>123</sup>

### **Selecting the Appropriate Appraisal Unit**

#### **If Possible, Limit the Appraisal Unit to Taxable Property Only**

In the vast majority of instances, the threshold issue of selecting the proper appraisal unit merits only a small amount of the appraiser's time because the most logical appraisal unit consists only of the taxable property.<sup>124</sup> It is axiomatic that all other things being equal (including reliability of data), it is better to select the valuation method which requires the fewest adjustments.<sup>125</sup> If the appraisal unit consists only of taxable property, the appraiser does not have to remove nontaxable assets and rights, including intangible assets and rights.<sup>126</sup> For example, if an appraiser is assigned the task of assessing the taxable property of a local photocopy business, he or she may choose to rely upon audited business property statement costs, properly trended and depreciated, as the basis for the assessment. The appraiser is less likely to require information on the income of the photocopy business or the market prices for photocopy businesses because development of those income and market value indicators for the business requires the further step of removing the value of nontaxable assets and rights, and introduces an unnecessary level of uncertainty. Although this is an extreme example—few appraisers would conclude that the earnings of a photocopy business have relevance to the value of its tangible property—it serves

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<sup>121</sup> "[T]his premise implies that the assets are installed, operating, and an integral part of the entity in which they are employed." American Society of Appraisers, *Appraising Machinery and Equipment*, 80.

<sup>122</sup> *Michael Todd Co. v. County of Los Angeles* (1962) 57 Cal.2d 684.

<sup>123</sup> Section 110(d)(1).

<sup>124</sup> American Society of Appraisers, *Appraising Machinery and Equipment*, 7. Appraisers should be mindful of the requirement in Rule 461(d) to separate appraisal units in certain circumstances. For real property, section 51(d) states that the appraisal unit is one that is commonly bought and sold as a unit in the marketplace, or that is normally valued separately.

<sup>125</sup> See, for example, Appraisal Institute, *The Appraisal of Real Estate*, 604-605.

<sup>126</sup> The cost approach does not typically capture the value of intangible assets and rights because the appraisal unit only includes the subject property. Rabianski, "Going-Concern Value, Market Value and Intangible Value," 185.

to illustrate the difficulty inherent in removing the values of nontaxable intangible assets and rights from the value of a business enterprise.

### **Use of Value Approaches that Avoid Appraisal of Business Enterprise Activity**

In those few instances where the taxable property cannot readily be valued by itself, the appraiser should ascertain the nature of the business of the assessee to determine if that business generates revenues principally from enterprise activity.

Enterprise activity occurs when a business engages in the sale of goods or services.<sup>127</sup> Income attributable to enterprise activity may not be ascribed to taxable property. For example, a retail store operated by the property owner involves at least two activities. One is the ownership of the tangible property, and the other is the business (i.e., enterprise activity) of selling merchandise at the property.<sup>128</sup> Although value attributable to the retail store's enterprise activity may not be assessed, the presence of that enterprise activity may be assumed so that a typical business owner would be able to pay the economic rent for the tangible real property.

If the appraiser determines that the assessee is engaged in a business whose revenues are generated principally from enterprise activity, the appraiser should value the taxable property directly, and should avoid the use of appraisal methods which require appraisal of the entire business.<sup>129</sup> Thus, where the earnings of the business are generated principally from enterprise activity, an appraisal of the entire business will produce an unreliable result either because there is insufficient income or market data, or because the process of adjusting the value of the business down to the value of the taxable property requires subjective judgments which render the result meaningless.<sup>130</sup>

### **Use of Value Approaches Involving Appraisal of Business Enterprise Activity**

In those rare instances where (1) the appraiser is unable to value the taxable property directly, and (2) the assessee is not engaged in a business whose revenues are generated principally from enterprise activity, the appraiser may choose to use the assessee's business as the appraisal unit and to remove the value of the nontaxable assets and rights from the appraisal unit.<sup>131</sup>

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<sup>127</sup> See note 114 above.

<sup>128</sup> AH 501, 97.

<sup>129</sup> Rule 6(a) calls for use of the cost approach when there is no reliable income or market data available for the taxable property. The most universally applied approach for property tax purposes is the cost approach. (AH 501, 73.) See also Michael J. Kelly and Kevin A. Byrnes, "The Valuation of Landfills for Ad Valorem Assessment," *Journal of Property Tax Management* (Summer 1995): 6-7.

<sup>130</sup> For example, assume that the assessee is a medical practice which lacks reliable accounting records to allow the appraiser to perform a historical cost approach. The appraiser should ascertain the replacement costs of the taxable property (e.g. office furniture and medical instruments), and then apply appropriate depreciation factors, rather than attempt to value the entire medical practice using an income or market approach, and then removing the value attributable to the patient (customer) relationships, work force in place, and goodwill.

<sup>131</sup> Section 110(d)(2); AH 501, 12. Also, under the Uniform Standards of Professional Appraisal Practice, Standards Rule 1-2(e), an appraiser must "identify and consider the effect on value of any personal property, trade fixtures or intangible items that are not real property but are included in the appraisal...Separate valuation of such items is required when they are significant to overall value." Appraisal Standards Board, *Uniform Standards of Professional Appraisal Practice*, 12.

### Appraising the Assessee's Business

If the appraiser finds it necessary to appraise the assessee's business, and then remove the value of the intangible assets and rights, he or she should consider collecting and analyzing the following data:

- the nature and history of the business;
- financial and economic conditions affecting the business, its industry, and the general economy;
- past results, current operations, and future prospects of the business;
- past sales of ownership interests in the business being appraised;
- sales of similar businesses; and
- prices, terms, and conditions affecting past sales of comparable business assets.<sup>132</sup>

Most of this information may be publicly available through documents filed with the Securities and Exchange Commission and business and trade periodicals.

### Removing Intangible Assets and Rights from the Appraisal Unit

Intangible assets and rights can be valued using a variety of valuation methods, all of which are derived from the three generally accepted approaches—cost, market, and income.<sup>133</sup>

Methodologies under the cost approach include depreciated replacement cost, depreciated reproduction cost, creation cost, re-creation cost, and a one-time cost savings or avoidance.<sup>134</sup> These methods attempt to quantify the current cost of generating a perfect substitute for the subject intangible assets and rights in terms of functionality, utility, usefulness, and remaining life.<sup>135</sup> A work force in place is an intangible asset which can be valued using a cost approach where the cost to re-create the asset is used. An appraiser can determine the cost of locating, interviewing and training employees, as well as the cost of the probable advertising and placement fees.<sup>136</sup>

In many instances, an intangible asset may produce an identifiable income stream, such as a stream of royalties for the use of intellectual property, the income stream from a customer relationship, or a greater-than-market price for goods or services.<sup>137</sup> The income stream can be estimated and discounted to present value to arrive at a value indicator.<sup>138</sup> An appraiser may also

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<sup>132</sup> AH 501, 60-61; Appraisal Standards Board, *Uniform Standards of Professional Appraisal Practice*, Standards Rule 9-4, 56-57.

<sup>133</sup> Pratt, Reilly, and Schweih, *Valuing a Business*, 56. Also, a demonstration appraisal can be found in Robert F. Reilly, "Allocating Value in Location-Dependent Businesses," *Journal of Property Tax Management* (Spring 1993): 1-17.

<sup>134</sup> James G. Rabe and Robert F. Reilly, "Valuation of Intangible Assets," *National Public Accountant* (Spring 1992): 45.

<sup>135</sup> John R. Cesta and Joseph M. Davis, "Extracting the Value of Intangible Assets from the Unit Assessment Method," *Assessment Journal* (Sept./Oct. 1996): 56.

<sup>136</sup> Gordon V. Smith and Russell L. Parr, *Valuation of Intellectual Property and Intangible Assets*, 2nd ed. (New York: John Wiley & Sons, Inc., 1994), 302-303.

<sup>137</sup> Smith, "Tangible Ways to Value Intangible Assets," 38; Kevin J. Koch, "Defending a Customer List Amortization Deduction," *Journal of Property Tax Management* (Spring 1991): 24.

<sup>138</sup> Smith and Parr, *Valuation of Intellectual Property and Intangible Assets*, 300-301.

quantify a stream of cost savings as a result of ownership of the intangible asset or right.<sup>139</sup> The duration of the income stream or cost savings must also be determined. The appraiser should consider limiting factors on the life of an intangible asset or right, such as the length of the contract which may create the asset or right, legal restrictions on the asset or right (e.g., a patent), and actuarial mortality (e.g., a customer relationship).<sup>140</sup>

Some intangible assets and rights, such as a liquor license, may be bought and sold by themselves on the open market. These open market sales may provide the basis for a reliable comparative sales approach. Since it is usually the case that reliable market data are unavailable, however, the comparative sales approach will rarely be used.<sup>141</sup>

Goodwill, going concern value, and similar intangible assets typically are valued using a residual technique. For an ongoing business enterprise, the appraiser will value all of the tangible assets and as many intangible assets and rights as possible using direct valuation methods. The difference between the sum of the values of the tangible and intangible assets and rights and the value of the entire business enterprise can be ascribed to goodwill, going concern, or similarly termed intangible assets.

The value of intangible assets and rights cannot be removed by merely deducting the related expenses from the income stream to be capitalized.<sup>142</sup> Allowing a deduction for the associated expense does not allow for a return on the capital expenditure.<sup>143</sup> For example, allowing the deduction of wages paid to a skilled work force does not remove the value of the work force in place from the income indicator, because the amount of the wages paid does not necessarily represent a return of and on the work force in place, and further bears no relationship to the costs associated with locating, interviewing, training and otherwise acquiring the work force. Similarly, the deduction of a management fee from the income stream of a hotel does not recognize or remove the value attributable to the business enterprise that operates the hotel.<sup>144</sup>

### **Adjustment of Value Indicators**

Only the taxable property in place on the lien date is assessable. Thus, if the value of the business is included in a particular indicator, the appraiser must also remove any value that may be associated with property that may be acquired in the future in order to maintain the predicted income stream or support the market value of the business.<sup>145</sup> Set forth below is a discussion of

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<sup>139</sup> Pratt, Reilly and Schweihs, *Valuing a Business*, 552.

<sup>140</sup> Rabe and Reilly, "Valuation of Intangible Assets," 45.

<sup>141</sup> Smith, "Tangible Ways to Value Intangible Assets," 37.

<sup>142</sup> From Rule 8(e): "When income from operating a property is used, sufficient income shall be excluded to provide a return on working capital and other nontaxable operating assets and to compensate unpaid or underpaid management." See also AH 501, 95, for a discussion of Rule 8(e).

<sup>143</sup> Investors demand both a return of their investment (a recapture of the investment) and return on their investment (a yield on the investment). See AH 501, 98, 101-102. The yield on the investment must compensate the business for the risk above a safe rate of return. See Smith and Parr, *Valuation of Intellectual Property and Intangible Assets*, 244.

<sup>144</sup> Bernice T. Dowell, "Hotel Investment Analysis: In Search of Business Value," *Journal of Property Tax Management* (Fall 1997): 11.

<sup>145</sup> *Union Pacific R.R. Co. v. State Board of Equalization* (1989) 49 Cal.3d 138, 150.

the three valuation methods, and observations regarding the removal of the value of intangible assets and rights from those indicators.

### **Comparative Sales Approach**

When using the comparative sales approach, the comparable properties are often sold in a transaction which includes intangible assets and rights. The value of those intangible assets and rights, as well as the value of assets other than the comparable property, must be removed from the sale price before the sale is compared to the subject property.<sup>146</sup> The appraiser is free to use any of the three traditional approaches—cost, income, and market—to value those nontaxable intangible assets and rights. If the subject property was part of the sale of a business enterprise, the appraiser may wish to examine transaction documents which may contain an allocation of the purchase price to the various component assets. The appraiser should be aware that this allocation may or may not be made based upon the fair market value of the various component assets.

### **Income Approach**

If the income stream used by the appraiser is in part generated by intangible assets and rights, the appraiser must either (1) attribute sufficient income to provide a return of and on the intangible assets and rights,<sup>147</sup> or (2) remove the value of the intangible assets and rights from the income indicator (using any acceptable valuation method) after the income stream has been capitalized or discounted to present value. A business may have valuable intangible assets and rights (e.g., customized computer software, patents, copyrights) even though the business may not generate sufficient income to produce an adequate rate of return of and on the subject property.

### **Cost Approach**

Since the appraisal unit for the cost approach typically includes only the taxable property, the appraiser generally is not faced with the exclusion of the value of intangible assets and rights when using the cost approach. However, this does not mean that value as estimated using the cost approach sets a ceiling on values estimated using the income approach or comparative sales approach, or that there is a restriction on the assessor's use of the most appropriate method of arriving at fair market value.

### **Reconciliation**

The final step in the appraisal process is to reconcile the value indicators. In theory, each approach to value should yield the same indication of value.<sup>148</sup> In practice, it is rare for any two value indicators to be identical. Variations occur because of (1) the lack of adequate, reliable data to perform each approach to value; (2) the subjectivity of the adjustments to be made in the appraisal process; and (3) the inclusion, in a value indicator, of the value of nonassessable tangible property and intangible assets and rights within the appraisal unit. Additionally, it is essential that all of the value indicators relate to the taxable property. Thus, if a value indicator derived from an income approach is substantially higher than an indicator based on a cost

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<sup>146</sup> AH 501, 91.

<sup>147</sup> Rule 8(e); AH 501, 95.

<sup>148</sup> AH 501, 61.

approach, the indicator derived from the income approach may include a non-realty or business enterprise value component.<sup>149</sup>

The appraiser should bear the following guidelines in mind when giving weight to the valuation approaches:

- If reliable market data for sales prices of property comparable to the subject property are available, the comparative sales approach is generally preferred. If reliable data is available as to sales prices of business enterprises, and those business enterprises include properties comparable to the subject property, then the comparative sales approach may be utilized provided that the value of the assets other than the comparable property, including intangible assets and rights present in the business, are removed from the sales prices. Under these circumstances, the greater the proportion of assets other than the comparable property, including intangible assets and rights contained within the business enterprise, the less reliable the data becomes.
- If reliable market data are not available, the income approach is preferred if the appraiser can identify a discrete income stream attributed to the taxable property only. If the appraiser can identify a discrete income stream attributed to the business enterprise which includes the taxable property, then the income approach may be utilized if the value of the intangible assets and rights present in the business enterprise is removed. Under these circumstances, the greater the proportion of intangible assets and rights contained within the business enterprise, the less reliable the data becomes.
- If reliable market and income data are not available, and the property has experienced relatively little depreciation or obsolescence, the cost approach is preferred because it typically values only the taxable property. There may be circumstances when the cost approach may be unreliable and inappropriate: (1) cost data not available; (2) taxpayer's refusal to provide information; and (3) extensive depreciation, including physical depreciation, functional obsolescence, and economic obsolescence.
- Valuation approaches with the most reliable data are favored over approaches with less reliable data.
- Valuation approaches requiring the fewest adjustments are generally favored.
- Valuation approaches which value only the taxable property are generally favored over approaches which value the business enterprise that contains the taxable property.

An example illustrating these principles is set forth in Example 6–8.

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<sup>149</sup> Appraisal Institute, *The Appraisal of Real Estate*, 602.



**EXAMPLE 6-8: Intangible Assets and Rights**

XCORP is engaged in the widget business. XCORP owns all of its tangible plant and equipment and has invested \$40,000,000 in that tangible plant and equipment. XCORP currently has a customer base of 100,000 customers, and purchased or acquired those customers over time. The XCORP business currently is operating at capacity and generating a profit.

Information concerning the original cost, replacement cost and depreciation of XCORP's tangible assets is considered reasonably accurate. The replacement cost new less depreciation value for XCORP's taxable tangible property calculated in accordance with Rule 6 is \$30,000,000. An income approach value of \$54,000,000 was calculated and was based on the income anticipated for the existing XCORP business consisting of plant, equipment, customer base and other associated assets in perpetuity. The income capitalized was the gross income less expenses and capital expenditures required to develop and maintain the estimated income (other than amortization, depreciation, debt retirement, interest, property taxes, corporation net income taxes, and corporate franchise taxes measured by net income). XCORP's expenses and capital expenditures required to develop and maintain the estimated income include expenses relating to the maintenance of XCORP's customer base. In determining the business enterprise value of \$54,000,000 under the income approach, XCORP's gross income was not reduced by a return on the value of the customer base asset or any other nontaxable asset.

XCORP's customer base of 100,000 customers is a valuable intangible asset that is not subject to property tax. Market data relating to sales of customers by or to companies in the widget business and XCORP's internal data concerning the costs to acquire customers shows that XCORP's customer base is worth approximately \$15,000,000.

Section 110(d) requires that the value of intangible assets and rights be removed from a unit value indicator, such as an income approach. In addition, Rule 8(e) requires that "when income from operating a property is used, sufficient income shall be excluded [from the amount to be capitalized] to provide a return on "nontaxable operating assets." Since Rule 8(e) contemplates adjusting the cash flow for such a return before capitalizing the income stream, if such an adjustment is not made, then the appraiser must remove the value of the nontaxable operating assets from the value of the unit (pursuant to section 110(d)(2)). In this case, the income approach value of \$54,000,000 is reduced by \$15,000,000 to yield a value of \$39,000,000 in order to remove the value of the customer base.

XCORP has other nontaxable assets, such as working capital, goodwill, assembled work force, and other intangible assets. The value of these other nontaxable assets also must be removed from the income approach value either (1) by adjusting the income to capitalize or (2) by removing the value of the asset from the capitalized income value. The appraiser is able to quantify working capital and the value of the assembled work force, however, reliable data is not available to quantify the value of XCORP's other intangible assets and rights as they relate to the income being capitalized.

Based on market transactions involving the purchase and sale of businesses similar to XCORP, it appears that the value of the XCORP business enterprise may approximate \$60,000,000. However, that value includes the value of XCORP's nontaxable assets and rights as well as expectations about future growth and expansion which would require significant additional investment in plant and equipment. Given the lack of available data concerning all of the components of the XCORP business value of approximately \$60,000,000, it is not feasible to determine the value of the taxable property by identifying and valuing every intangible asset and right and then reducing the value of the business enterprise by the value of all of the intangible assets and rights.

Under these circumstances, where there is not reliable income or market data concerning the tangible property itself, the replacement cost new less depreciation value approach is the most reliable value approach and should be used in place of the income or market approach. Based on the foregoing, the value of XCORP's taxable tangible assets is approximately \$30,000,000.

## **APPENDIX A: DERIVING DISCOUNT RATES USING DATA FROM THE CAPITAL MARKET**

### **INTRODUCTION**

This appendix describes a variation of the WACC technique called the "pure play," or comparable company, method. The method uses data from the capital market relating to publicly traded companies engaged in a line of business similar to the property being appraised in order to estimate a discount rate for valuing the cash flows of an entity (e.g., a specific project or property) that is not publicly traded. A variation of this method is also used by the Property Taxes Department's Valuation Division in its annual capitalization rate study to develop discount rates used in the valuation of state-assessed properties.

### **ESTIMATING THE WEIGHTED AVERAGE COST OF CAPITAL USING THE PURE PLAY OR COMPARABLE COMPANY METHOD**

Applying the comparable company method involves the following steps:

1. Identify publicly traded companies that compete in an industry or line of business as closely related as possible to the asset or property being valued.
2. Estimate the typical capital structure (proportions of debt and equity) for companies in this industry or line of business.
3. Estimate the current cost of debt (and possibly preferred stock) applicable to the property being appraised based on the comparable company data.
4. Estimate the cost of equity (i.e., the investor's required rate of return on equity) for the property being valued.
5. Calculate the WACC, or overall discount rate, for the property being valued using the above inputs.

### **Finding Comparable Companies**

The best candidates for comparable companies are nonintegrated, single-product companies in a line of business closely related to the asset or property being appraised. The companies must be publicly traded since rate of return data must be available. The assumption is that the risk and, hence, the investor's required return on assets for a particular line of business is similar for all companies that compete in that line of business. For example, if the property being valued is an oil and gas property, the appraiser might search for publicly held companies in oil and gas exploration and drilling, then gather financial data pertaining to these companies. General and industry-specific publications can be used to identify comparable companies.<sup>150</sup>

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<sup>150</sup> For example, *Value Line Investment Survey* or *Standard & Poor's Stock Reports*. In some cases, risk may not be similar to companies engaged in the same line of business. In such cases, an appraiser may rely on other financial and operating characteristics to determine comparability.

## Estimating Capital Structure Weights

Capital structure refers to the relative proportions of a firm's permanent financing components. The cost of capital is a weighted average based on the relative market values of the financing components, not book values. Only permanent financing components should be included in the calculation of the cost of capital; these are typically limited to long-term debt (including conditional sales contracts or long term leases), preferred stock, and common stock. To simplify the analysis, the percentage of preferred stock is often combined with the percentage of long-term debt.

The assumption is that the property being valued should have a similar debt capacity and capital structure as that of the comparable companies. Therefore, capital structure weights for the subject property can be estimated by analyzing the capital structures of the comparable companies.

Example: A review was made of published data, and four comparable companies were found. The comparable company data are presented in the following table.<sup>151</sup>

TABLE A-1: Estimating Capital Structure Weights								
Comparable Company	Number of Shares	Stock Price (\$)	Equity Value		Debt Value		Invested Capital Value	
			(\$)	(%)	(\$)	(%)	(\$)	(%)
Able Company, Inc.	10,000	34.5	345,000	58	250,000	42	595,000	100
DSI, Ltd.	15,385	26.0	400,010	53	350,000	47	750,010	100
Sunday Companies	12,195	28.7	349,997	50	350,000	50	699,997	100
Trakmax, Inc.	19,608	25.5	500,004	71	200,000	29	700,004	100
<b>Mean Indicator</b>				<b>58</b>		<b>42</b>		<b>100</b>
<b>Median Indicator</b>				<b>56</b>		<b>45</b>		
<b>Conclusion</b>				<b>60</b>		<b>40</b>		<b>100</b>

Number of shares	=	Shares of stock outstanding as of the appraisal date
Stock price	=	Price of the common stock on the appraisal date
Equity value	=	Number of shares of common stock times the stock price (i.e., common shareholders' equity).
Equity value percent	=	Ratio of equity value to total invested capital value
Debt value	=	Market value of long-term debt outstanding
Debt value percent	=	Ratio of debt value to total invested capital value
Invested capital value	=	Sum of equity value plus debt value, or the value of the total invested capital in the business
Invested capital value percent	=	Sum of equity value percent and debt value percent; this summation is always 100%

<sup>151</sup> All data are hypothetical. An analysis would typically include a larger sample of comparable companies.

Mean and median percentages of the capital structure weights of the comparable companies can be calculated and analyzed. If the size of the comparable companies is significantly different, a value-weighted mean can also be calculated. However, the appraiser should estimate the capital structure based on a comparability analysis, not simply an averaging process. In the above analysis, the concluded capital structure is 60 percent equity and 40 percent debt.

### **Estimating the Cost of Debt**

The relevant cost of debt is the current cost of debt (i.e., the cost of debt as of the valuation date) not the historical or "embedded" cost of debt. A generally accepted method for estimating the cost of debt is to use the current yield to maturity on debt for each comparable company. A variation on this method is to use the current yield to maturity on other corporate bonds of similar rating. This method may be necessary because a significant portion of corporate debt is not publicly traded and data regarding the debt issues of the comparable companies may be difficult to obtain. Information regarding bond yields is available from several financial publications.<sup>152</sup>

The relevant cost of debt is its after-tax cost (i.e., after corporate income taxes). Since interest payments are deductible to a corporation, this is the financing cost that is actually paid. The after-tax cost of debt equals the before-tax rate multiplied by one minus the marginal corporate income tax (i.e., the tax rate paid on each incremental dollar of income.)<sup>153</sup>

### **Estimating the Cost of Preferred Stock**

The cost of preferred stock may be estimated if it is a portion of the permanent financing mix. Most preferred stock is of infinite maturity. The cost of infinite-maturity preferred stock is its current annual yield. The cost of finite-maturity preferred stock is its yield to maturity. To simplify the analysis, preferred stock is frequently treated as a form of long-term debt—that is, it is included in the portion of long-term debt.

### **Estimating the Cost of Equity**

The cost of equity can be estimated using the following methods:<sup>154</sup>

1. Capital Asset Pricing Model
2. Dividend Growth Model
3. Bond Yield Plus Risk Premium

Each of these methods requires financial market data concerning returns on the equity and/or debt securities of the comparable companies.

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<sup>152</sup> For example, *Value Line Investment Survey*, *Moody's Bond Guide*, *Standard and Poor's Bond Guide*, and others. The Internet is also a source for this type of data.

<sup>153</sup> However, for property tax purposes, the after-tax weighted average cost of capital must be converted to a before-tax basis in order to match it with proper income stream. This adjustment is discussed in a later section.

<sup>154</sup> The cost of equity is also referred to as the equity yield rate or the required return on equity.

## Capital Asset Pricing Model

### Overview

Investors are risk averse. To hold risky assets, such as stocks, such assets must offer greater returns than that offered by a risk-free asset. The riskier the asset, the greater the expected return, or risk premium, that is required to attract investment in that asset. The history of capital market returns indicates that risk has been rewarded. Assets of greater risk have produced higher average returns. For example, over the period 1926 to 1996, the average annual total return on U.S. common stocks was 12.7 percent with a standard deviation of returns of 20.3 percent; for long-term U. S. government bonds, the average annual return was 5.4 percent with a standard deviation of returns of 9.2 percent. Stocks, on average, were riskier, but also produced higher total returns.<sup>155</sup>

The Capital Asset Pricing Model (CAPM) is a financial/economic model that postulates an explicit relationship between expected risk and return. Although the model was developed in the context of financial assets, it is also applicable to real assets (e.g., investments in plant and equipment and real estate). To estimate the cost of equity using the CAPM, the appraiser first estimates the risk of the asset or property being valued using the risk measure "beta," then converts this risk measure into an estimate of the cost of equity using the model. The CAPM estimates an after-tax cost of equity (i.e., after corporate income taxes).

Portfolio theory is an important part of modern financial theory in general and of the CAPM in particular. Portfolio theory defines risk in terms of the variability of returns as measured by standard statistical measures of variability such as the variance or standard deviation. The primary insight of the theory is that risk can be reduced by combining individual risky assets (real or financial) into portfolios as opposed to holding them individually (i.e., the same level of expected return can be obtained at lower risk by diversifying). The theory distinguishes between stand-alone risk, the variability of an asset held in isolation, and portfolio risk, the risk of an asset when held in a portfolio including other assets. If returns on the individual assets making up a portfolio are not perfectly positively correlated (i.e., they do not move together in lockstep fashion), the same level of expected return can be obtained at lower risk through diversification because some risks of the portfolio's constituent assets cancel each other out. In order to obtain the highest expected return for a given level of risk, rational investors should hold portfolios of assets and not individual assets in isolation. Thus, portfolio theory provides mathematical justification for the familiar adage, "Do not put all your eggs in one basket."<sup>156</sup>

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<sup>155</sup> *Stocks, Bonds, Bills and Inflation 1997 Yearbook*, Ibbotson Associates, 1997, 118. The data reflects annual total returns, that is, dividend or interest income and capital appreciation.

<sup>156</sup> As described in a finance text: "Consider a sunglasses corporation and an umbrella corporation. Each investment by itself would be risky, since the sunglasses firm's success depends upon sunny days and the umbrella firm's success depends on rainy days. However, an investor holding both stocks would find little risk since, whether it rains or shines, one of the assets in the portfolio will perform well and will cancel out the bad performance of the other asset. Thus, a portfolio of the two assets would have much less risk than either asset held alone." (Donald R. Chambers and Nelson J. Lacey, *Modern Corporate Finance: Theory and Practice* (HarperCollins College Publishers, New York, 1994), 222)

The CAPM separates the total risk of an individual asset into two components: systematic risk and unsystematic risk.<sup>157</sup> Systematic risk is the tendency for returns on all assets to move up or down with shifts in the general market. It is the risk that stems from general macroeconomic forces that affect all investments. Returns on almost all assets tend to move up or down with movements in the general market or economy, although the degree of correlation differs. Unsystematic risk, by contrast, is the risk that affects a single asset or a small number of assets. A costly labor dispute is an example of unsystematic risk. It affects one company, or perhaps an industry group, but certainly not all investments.

Building on portfolio theory, the CAPM postulates that, in a diversified portfolio, unsystematic risk is eliminated or minimized; the effects of unique events affecting individual stocks tend to cancel each other when stocks are held in a portfolio. Systematic risk, however, cannot be eliminated by diversification. Therefore, according to CAPM theory, the only relevant risk in a portfolio context is systematic risk; and expected returns should reflect only systematic risk. Since rational investors will hold portfolios of assets and not individual assets, the relevant risk of an individual asset is the risk it contributes to a diversified portfolio, not its total, or stand-alone, risk. According to the model, capital markets should provide a return payoff for assuming systematic risk, but not for unsystematic risk, which can be avoided by diversifying.

Beta is the measure of systematic risk. It measures the sensitivity (or variability) of a security's returns relative to general market movements. A beta of 1.0 measures the risk level of the market as a whole; an investment with a beta of 1.0 has the same risk as the market as a whole and is expected to provide returns to investors equal to those of the market as a whole. A beta of 2.0 indicates a security with a risk level twice that of the market as a whole; a security with a beta of 2.0, on average, should rise twice as much as the general market during periods of rising stock prices, and it should fall, on average, twice as much as the market in periods of declining stock prices. A beta of 0.5 a risk level one-half that of the market as a whole; a stock with a beta of 0.5 should rise one-half as much as the general market<sup>158</sup> during rising prices and fall one-half as much during declining prices.<sup>159</sup>

What is the meaning of the "market as a whole" or the "general market" in the CAPM? The CAPM conceptualizes the market as a whole as the "market portfolio." The market portfolio is a theoretical portfolio composed of all possible investments, including securities, real estate, plant and equipment, and even investments in intangible human capital. In theory, systematic risk should be measured against a market portfolio containing all possible investments, but such a portfolio does not exist. For the purpose of measurement, the market portfolio is typically

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<sup>157</sup> Systematic risk is sometimes called market risk; unsystematic risk is sometimes called unique risk.

<sup>158</sup> Beta is measured using the statistical technique of linear regression analysis. Typically, to measure its beta, historical returns on a given security are regressed against historical returns on the market as a whole (using a proxy, such as a diversified stock index, for the market as a whole). Beta is the slope of the regression line.

<sup>159</sup> Although, as mentioned earlier, the CAPM was developed and has been tested in the context of stocks, in theory the concept is applicable to all classes of assets. Thus, a beta can be estimated for real assets as well as financial assets.

proxied by a large, diversified stock index such as the Standard and Poor's 500 Index or the New York Stock Exchange Composite Index.<sup>160</sup>

According to the CAPM, the expected risk premium on any asset is equal to its beta multiplied by the expected risk premium on the market portfolio (also referred to as the expected market risk premium). The expected risk premium on the market portfolio is the amount the return on the market portfolio is expected to exceed the risk-free rate of return. The risk premium on the market portfolio is typically estimated using historical returns on a diversified stock index (proxying returns on the market portfolio) compared to historical returns on U.S. Treasury securities (the risk-free asset). The expected return on equity, or cost of equity of a security, is the sum of the risk-free rate of return and the product of beta and the expected risk premium on the market portfolio. Thus:

$$E(r_i) = r_f + \beta_i[E(r_M) - r_f]$$

where

- $r_i$  = Investor's required after-tax return on security i;
- $r_f$  = Risk-free rate of return;
- $\beta_i$  = Expected beta; and
- $E(r_M) - r_f$  = Expected market risk premium (i.e., the expected return on the market portfolio above the risk-free rate).

The above can be simplified to

$$r_E = r_f + \beta \times \text{MRP}$$

where

- $r_E$  = cost of equity;
- $r_f$  = risk-free rate of return;
- $\beta$  = expected beta; and
- MRP = expected market risk premium.

### ***Estimating Cost of Equity Using the Capital Asset Pricing Model***

To develop the cost of equity using the Capital Asset Pricing Model (CAPM), estimates must be made of the following parameters:

1. Risk-free rate
2. Expected beta, or market volatility measure
3. Expected market risk premium

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<sup>160</sup> A fundamental criticism, in fact, of the CAPM is that it cannot be tested because no good proxy for the market portfolio exists.

## Estimating the Risk-Free Rate

The CAPM begins with the risk-free interest rate and then adds a risk premium in order to estimate the equity rate of return. To estimate the risk-free rate, returns on U.S. Treasury securities, which have no default risk, are used. Choices include the return on short-term Treasury bills or the return on intermediate-to-long-term Treasury bonds. A common approach is to match the maturity of the risk-free security with the investment horizon of the cash flows being valued. In practice, this means that the return (as of the valuation date) on either a 10 or 20 year Treasury bond is often selected. The maturity of the risk-free asset must be the same as the maturity of the risk-free asset from which the market risk premium (discussed below) is estimated.<sup>161</sup>

## Estimating Beta

Historical betas—that is, betas measured using past data—are used to estimate future expected betas. Several published sources of beta data are available; the easiest way to find betas for the comparable firms identified is to look them up in one of these sources. The appraiser should consider more than one source for beta information. Different sources may report different estimates for a given firm's beta due to variations in measurement techniques.<sup>162</sup>

An analysis should be made of the data before a beta is selected for the property being valued. If the sample betas (i.e., from the comparable companies)<sup>163</sup> are close to each other, a simple average might be taken to arrive at the beta for the property to be appraised. If the sample contains "outliers" (i.e., some betas in the sample are significantly different from others), the appraiser might consider eliminating the outliers from the sample and recomputing the average. The appraiser should also weight the sample betas based on comparability to the subject property.<sup>164</sup>

## Estimating the Market Premium

The final input needed for the CAPM is the expected market equity risk premium, which is the amount the return on the market portfolio is expected to exceed the risk-free rate over the investment horizon. An historical (ex post) or projected (ex ante) approach to estimate the

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<sup>161</sup> For additional discussion on selecting the risk-free rate and related issues, see Ehrhardt, *The Search for Value*, 60, and Chapter 5, "Long-Term Projects."

<sup>162</sup> Published sources of beta data include *Value Line Investment Survey*, Ibbotson Associates *Beta Book*, and *Standard and Poor's Stock Guide*.

<sup>163</sup> Ibbotson Associates' *Cost of Capital Quarterly* publication contains industry average betas organized by Standard Industrial Classification (SIC) Code. Individual betas are estimated for each company in the industry. The individual betas are then weighted according to their market capitalization to arrive at the industry average beta.

<sup>164</sup> The full information (or multiple regression) approach is an alternative method for estimating a pure play beta. This approach assumes that the overall beta of a multi-divisional company is a weighted average of its divisional, or business line, betas. SIC codes are used to define lines of business. Given weights for the business lines of each company in the sample (e.g., by using the percentage of total sales by division), and an estimate of the overall beta of each company, it is possible to extract business line betas through statistical analysis (i.e., cross-sectional multiple regression). This method partially overcomes a limitation of the sample approach—namely, a lack of closely comparable companies. It may produce a more reliable estimate of a pure play beta. See Ehrhardt, *The Search for Value*, 107.



market risk premium may be used. Using a historical average approach, the market premium is estimated by subtracting an arithmetic average of annual total returns on a general market index (again, a proxy for the market portfolio) from an arithmetic average of income returns on long-term government bonds (a proxy for the risk-free rate). Using annual total return on common stocks and annual total return on the government bonds, this premium has averaged 7.5 percent (12.7 percent large company total stock return less 5.2 percent long-term government bond income return) over the period 1926-1996.<sup>165</sup>

Example: The property to be appraised is an oil and gas property. Four companies engaged in oil and gas exploration and drilling have been identified; the average of their published betas is 1.25. The current yield-to-maturity on intermediate-term Treasury bonds is 7.50 percent. The estimate of the market risk premium based on historical data is 7.50 percent. The after-tax cost of equity, or required rate of return on equity, is estimated as follows:

$$\begin{aligned} r_E &= r_f + \beta \times \text{MRP} \\ &= 7.50\% + 1.25 \times 7.50\% \\ &= 16.875, \text{ say } 16.87\% \end{aligned}$$

### Levered and Unlevered Betas

The returns used to estimate equity betas are returns to the equity holder and reflect the financial leverage employed by the comparable companies. The comparable company approach assumes that the capital structure of the property being valued is similar to that of the comparable companies and that no adjustment for financial structure is needed.<sup>166</sup>

If the financial structure of the property being appraised is substantially different from that of the comparable companies, additional steps are required to estimate the beta for the subject property. The cost of equity used in the WACC should reflect the most likely financial structure for the subject property. If that financial structure is different from that derived from the comparable companies, two additional steps are required to estimate beta for the property being appraised:

1. The equity, or levered, beta estimated from the sample of comparable companies should be unlevered to remove the effects of financial leverage.
2. This beta should be relevered to reflect the specific financial structure of the property being valued.

The equations for these conversions are:<sup>167</sup>

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<sup>165</sup> *Stocks, Bonds, Bills and Inflation 1997 Yearbook*, Ibbotson Associates, 118. Returns on large company stocks are based returns to the Standard and Poor's 500 Composite Index; returns on long-term government bonds are based on to a one bond portfolio of 20-year maturity. The averages are arithmetic, not geometric. The reasons for using an arithmetic average and bond income returns rather than total returns are discussed in Ibbotson, 151.

<sup>166</sup> Most published beta data are for equity, or levered, betas. Unlevered betas are also referred to as asset betas.

<sup>167</sup> See Brigham and Gapenski, *Intermediate Financial Management*, 324.

$$\beta_U = \beta_L / [1 + (1 - T_C) (D / S)]$$

or

$$\beta_L = \beta_U [1 + (1 - T_C) (D / S)]$$

where

$\beta_U$  = unlevered or beta;

$\beta_L$  = levered or equity beta;

$T_C$  = combined state and federal income tax rate;

$D$  = proportion of debt in capital structure for comparable companies; and

$S$  = proportion of equity in capital structure for comparable companies.

Example: An equity, or levered, beta of 2.0 has been estimated from comparable company data. The capital structure derived from comparable company data is 20 percent debt and 80 percent equity, and the composite federal and state tax rate is 41 percent. The property appraised will be financed with 50 percent debt and 50 percent equity and also will be taxed at a combined income tax rate of 41 percent. To convert the levered beta of 2.0 to an unlevered beta:

$$\beta_U = \beta_L / [1 + (1 - T_C) (D / S)]$$

$$\beta_U = 2.0 / [1 + (1 - 0.41) (0.20 / 0.80)]$$

$$\beta_U = 2.0 / [1 + (0.59) (0.25)]$$

$$\beta_U = 1.74$$

To convert this unlevered beta to a levered beta that reflects the specific capital structure of the prospective purchaser of the subject property:

$$\beta_L = \beta_U [1 + (1 - T_C) (D / S)]$$

$$\beta_L = 1.74 [1 + (1 - 0.41) (0.50 / 0.50)]$$

$$\beta_L = 1.74 (1.59)$$

$$\beta_L = 2.76$$

The above is the appropriate beta to use in the CAPM to estimate the cost of equity for the subject property when the capital structure for the subject property is significantly different from that derived from comparable companies.

### Dividend Growth Model

Unlike the CAPM, the dividend growth model (sometimes referred as the discounted cash flow model) is not a general model relating risk and return. Rather, the dividend growth model is based on the idea that the value of a share of common stock is the present value of all future

dividends attributable to it. The model can be used to estimate the cost of equity for firms in stable growth.

Most investors expect two types of cash flows from a stock investment: expected dividends during the time they hold the stock and the expected value or price when they sell.<sup>168</sup> However, the expected sale price of the stock is itself determined by expected dividends from the sale date forward. Therefore, the value of a share of stock can be thought of as the present value of its dividends in perpetuity, and thus the basic equation for the dividend growth model is

$$P_0 = \sum_{t=1}^{\infty} \frac{D_t}{(1+r_E)^t}$$

where

- $P_0$  = price of the stock at time 0,
- $D_t$  = dividend at time  $t$ ,
- $r_E$  = after-tax required return or cost of equity.

If dividends grow at a constant rate forever, the infinite series reflecting constant growth converges to a finite value.<sup>169</sup> Thus,

$$P_0 = \sum_{t=1}^{\infty} D_0 \left[ \frac{1+g}{1+r_E} \right]^t = D_0 \frac{(1+g)}{(r_E - g)} = \frac{D_1}{r_E - g}$$

or

$$r_E = D_1/P_0 + g$$

where

- $r_E$  = required return on equity, or cost of equity,
- $D_1$  = next year's expected dividend,
- $P_0$  = current price of the company's stock, and
- $g$  = estimated constant growth rate in dividends.

In other words, the after-corporate income tax cost of equity is equal to the expected dividend yield (i.e., next year's expected dividend divided by the current stock price) plus the expected long-term constant growth rate in dividends. Under certain circumstances, growth in projected earnings can be used as a surrogate for projected growth in dividends.

The expected dividend is not difficult to estimate. Dividend forecasts are reported in several financial publications, and the current price of a publicly traded stock is readily available. It is

<sup>168</sup> Note that this is simply a particular application of the general discounted cash flow model.

<sup>169</sup> The constant growth rate,  $g$ , must be less than the cost of equity,  $r_E$ , or the stock would have an infinite value.

more difficult to estimate the long-term growth rate in dividends, and unfortunately, in the model the estimated cost of equity is very sensitive to this variable. This is why the dividend growth model is only applicable in circumstances of stable earnings growth. The cost of equity should be derived from comparable companies having with expected stable growth and applied to a subject property with a similar prospect.<sup>170</sup>

The dividend growth rate can be estimated using (1) analysts' forecasts, (2) historical growth rates, or (3) the sustainable growth method. Several sources of financial information provide forecasts of future growth rates in dividends and earnings for a wide range of publicly traded stocks. If analysts' forecasts are not available, historical growth rate data can be used to estimate the future growth rate. Finally, the sustainable growth method estimates a growth rate using the plowback ratio (i.e., the portion of earnings retained in the business and not paid out as dividends) and the return on equity. Multiplying the plowback ratio by the return on equity produces an estimate of the growth rate. Thus:

$$g = (\text{plowback ratio}) (\text{return on equity})$$

The appraiser first estimates average values for the plowback ratio and the return on equity for each comparable company using historical data, then uses these in the estimate of the growth rate.

Example: A group of companies were investigated for comparability to the subject property. Four companies were found to be in similar lines of businesses as the subject and to have stable to moderate growth prospects, as does the subject property. The current price of the stock ( $P_0$ ), the expected annual dividend for upcoming period ( $D_1$ ), and the projected dividend growth rate ( $g$ ) were all obtained from published data.

<b>TABLE A-2: Estimating Cost of Equity</b>				
<b>Comparable Company</b>	<b><math>P_0</math> (\$/Share)</b>	<b><math>D_1</math> (\$)</b>	<b><math>g</math> (%)</b>	<b><math>r_E</math> (%)</b>
Able Company, Inc.	34.50	2.25	5.50	12.02
DSI, Ltd.	26.00	2.00	6.00	13.69
Sunday Companies	28.70	1.95	6.00	12.79
Trakmax, Inc.	25.50	1.80	5.50	12.56

<sup>170</sup> What is stable growth? A stable, long-term growth rate for a firm cannot be higher than the long-term growth rate of the economy; otherwise, the firm, over time, would become the economy. The nominal (i.e., in current dollars) long-term growth rate is determined by the expected inflation rate and the real growth rate. For the U.S. economy, a reasonable expectation for long-term nominal growth, based on historical data, is about 6 percent a year (say 3 to 4 percent inflation and 2 to 3 percent real growth). If the expected growth rate of a firm is much above this, it is not in stable growth. However, an elaboration of the dividend growth model allows for the assumption of multi-stage growth; that is, a short-term high growth phase followed by a long-term stable growth phase. See Ehrhardt, *The Search for Value*, 35-51, or an introductory/intermediate finance text.

For example, the cost of equity,  $r_E$ , is calculated for Able Company, Inc., as follows:<sup>171</sup>

$$\begin{aligned} r_E &= (D_1 / P_0) + g \\ &= (2.25 / 34.50) + 0.055 \\ &= 0.1202, \text{ or } 12.02\%. \end{aligned}$$

The data indicate a very tight range for the cost of equity. Concluding a cost of equity of 13 percent would be supportable.<sup>172</sup> As with the other methods discussed, the cost of equity estimated using the dividend growth model is after corporate income taxes.

### **Bond Yield Plus Risk Premium Method**

The bond yield plus risk premium method estimates the cost of equity (or required return to the equity investor) by first estimating a long-term debt cost for the subject property and then adding an estimated equity-over-debt risk premium. This can be stated as

$$r_E = r_d + RP$$

where

- $r_E$  = cost of equity;
- $r_d$  = estimated bond yield for the subject property; and
- RP = estimated equity-over-debt risk premium.

The calculation of the cost equity using this method requires:

1. Estimating a long-term debt rate ( $r_d$ ) based on either the yield to maturity for debt of the comparable companies or the yield to maturity on corporate debt of comparable risk and rating.
2. Estimating an equity-over-debt risk premium (RP) based on the return the equity investor requires in excess of the corporate bond rate. One technique for estimating this premium is to subtract the long-term average return on corporate bonds from the long-term average return on equities; however, this assumes that every company's equity return exceeds its own cost of debt by the approximately the same risk premium and that this risk premium is stable over time.

### **Estimating the Cost of Long-Term Debt**

Several financial publications provide information concerning the cost of debt. The appraiser can use the yield to maturity on long-term debt of the comparable companies themselves to estimate

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<sup>171</sup> The data are hypothetical.

<sup>172</sup> Even if the annual growth in dividends is constant, most firms change dividends only once a year, paying constant quarterly dividends. Thus, dividends actually growth in stepwise fashion, rather than the constant growth assumed by the basic dividend growth model. The basic model can be adjusted to account for constant quarterly dividends. This is a refinement that results in a small change in the estimated cost of equity. See Ehrhardt, *The Search for Value*, 47-51.

a cost of debt for the subject property; alternatively, if this information is not available, the appraiser make an estimate using the yield on debt of comparable risk and rating.

### Estimating the Risk Premium

The equity-over-debt premium can be estimated using historical average returns for equity and debt over a long time series.<sup>173</sup> Using data from 1926 to 1996, an estimate of this premium is 6.5 percent.

Example: The estimated long-term bond yield for the subject property is 9.0 percent as of the valuation date; the estimated equity-over-debt risk premium is 6.5 percent. Estimate the cost of equity for the subject property.

$$\begin{aligned} r_E &= r_d + RP \\ &= 9.0\% + 6.5\% \\ &= 15.5\% \end{aligned}$$

### Reconciling Cost of Equity Indicators

Three methods for estimating the cost of equity—CAPM, dividend growth model, and bond yield plus risk premium—have been discussed. Typically, each method will produce a separate indicator for the cost of equity. Hopefully, the indicators will fall within a relatively narrow range. If not, the appraiser must reconcile the indicators and choose the one that is most supportable.

### CALCULATING THE WACC

The calculation of the WACC is relatively straightforward. Given estimated values for the cost of debt, the cost of equity, and capital structure proportions, the WACC is a simple weighted average using the capital structure proportions as weights.<sup>174</sup>

The WACC is estimated on an after-tax (i.e., after corporate income taxes) basis. This requires an adjustment in the cost of debt. Because interest expense is tax deductible, and therefore reduces corporate income tax liability, the cost of debt must be adjusted to reflect tax savings. The true cost of debt is its after-tax cost; this is the financing cost that is actually paid. The after-tax cost of debt equals the before-tax interest rate multiplied by the combined federal and state marginal corporate income tax rate (i.e., the tax rate paid on each incremental dollar of income). Including this adjustment, the WACC is calculated as follows:

<sup>173</sup> Ibbotson Associates *Stocks, Bonds, Bill, and Inflation 1996 Yearbook* (large company equity average returns of 12.5 percent minus long-term corporate bond average returns of 6.0 percent).

<sup>174</sup> An advanced issue not discussed in the text is flotation costs. When a company issues debt or equity securities, the company's net proceeds from the issue are less than the gross payments from investors. This difference is due to flotation costs, which include legal fees, underwriting fees and/or commissions, and other related costs. Flotation costs serve to increase both the cost of debt and equity. It may be necessary to adjust both the cost of debt and equity, and hence the WACC, to reflect flotation costs. See Ehrhardt, *The Search for Value*, 131-139; or Brigham and Gapenski, *Intermediate Financial Management*, Chapter 6.

$$r_C = (w_E) (r_E) + (w_D) (r_D) (1 - T_C)$$

where

- $r_C$  = after-tax weighted average cost of capital;
- $w_E$  = proportion of equity in the capital structure;
- $w_D$  = proportion of debt in the capital structure;
- $r_E$  = after tax cost of equity;
- $r_D$  = before-tax cost of debt; and
- $T_C$  = combined state and federal corporate income tax rate.

## COMBINED STATE AND FEDERAL INCOME TAX RATE

$$T_C = 1 - (1 - T_F) (1 - T_S)$$

where

- $T_C$  = effective combined Federal and state corporate income tax rate;
- $T_F$  = federal corporate income tax rate; and
- $T_S$  = state corporate income tax rate.

For example, using a federal corporate tax rate of 35 percent and a state corporate tax rate of 8.84 percent, the combined rate is calculated as follows:<sup>175</sup>

$$\begin{aligned} T_C &= 1 - (1 - T_F) (1 - T_S) \\ &= 1 - (1 - 0.35) (1 - 0.088) \\ &= 0.4072, \text{ or } 41\% \end{aligned}$$

Example: The estimated cost of debt is 9.0 percent. The cost of equity is estimated at 18.0 percent. The financing mix for the property being valued, based on the capital structure data from the comparable companies, is 40 percent debt and 60 percent equity. The combined corporate income tax rate is 41 percent. Using this data, the after-tax WACC,  $R_C$ , is calculated as follows:

$$\begin{aligned} R_C &= (w_E) (r_E) + (w_D) (r_D) (1 - T_C) \\ &= (0.60) (0.18) + (0.40) (0.09) (1 - 0.41) \\ &= 0.129, \text{ or } 12.9\% \end{aligned}$$

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<sup>175</sup> For 1997, the top statutory marginal federal corporate income tax rate above \$18,333,334 was 35 percent; the California state rate was a flat 8.84 percent. Using the top statutory combined federal and state marginal income tax rate may incorrectly estimate the expected marginal combined rate, which is the relevant rate for the analysis. Because of various tax factors, the expected combined marginal rate may differ from the top statutory combined marginal rate.

## CONVERTING A DISCOUNT RATE FROM AFTER- TO BEFORE-TAX

According to Rule 8, the income stream to be capitalized must be before deductions for accounting depreciation, interest, income taxes (both corporate and personal income taxes), and property taxes. The WACC as calculated above is after corporate income taxes.<sup>176</sup> Therefore, the after-corporate income tax WACC must be adjusted to a before-corporate income tax basis in order to apply it to the before-tax income stream required by Rule 8. This is done by dividing the after-tax WACC by 1 minus the combined state and federal corporate income tax rate calculated as described above.<sup>177</sup>

In addition, since the income stream to be capitalized is also before a deduction for property taxes, the effective ad valorem property tax rate must also be added to the before-tax weighted average cost of capital. Thus, to convert an after-tax cost WACC to a before-tax WACC and to add a component for ad valorem property taxes:

$$R_C (\text{Adjusted}) = [R_C / (1 - T_C)] + \text{ETR}$$

where

$$\begin{aligned} R_C (\text{Adjusted}) &= \text{adjusted weighted average cost of capital (adjusted for corporate} \\ &\quad \text{income taxes and property taxes);} \\ R_C &= \text{weighted average cost of capital;} \\ T_C &= \text{combined state and federal corporate income tax rate; and} \\ \text{ETR} &= \text{effective ad valorem property tax rate.} \end{aligned}$$

Example: Using the previously derived WACC of 12.9 percent, the combined state and federal corporate income tax rate of 41 percent, and an ad valorem property tax rate of 1 percent, the adjusted WACC is calculated as follows:

$$\begin{aligned} R_C (\text{Adjusted}) &= [R_C / (1 - T_C)] + \text{ETR} \\ &= [0.129 / (1 - 0.41)] + 0.01 \\ &= 0.229, \text{ or } 22.9\% \end{aligned}$$

### Applicability and Limitations to Property Tax Valuation

This section provides a limited discussion of the application of the CAPM/WACC to the valuation of individual real estate assets. This is not a discussion of the strengths and weaknesses of the CAPM per se; such a discussion is beyond the scope of this manual. Suffice it to say,

<sup>176</sup> Equity return data taken from the capital market are after corporate income taxes. Estimates of the cost of equity derived from these measures are therefore also after-corporate-income estimates.

<sup>177</sup> This method for making the after-to-before-tax adjustment may be limited to properties that have no tax-sheltered cash flows. As noted in an earlier footnote, the expected combined federal and state marginal income tax rate may differ from the top statutory combined federal and state marginal rate, given certain tax factors.

In addition, an alternative method of adjustment to that shown in the text is to not adjust for the tax effects related to the cost of debt in the WACC as described in the previous section. That is, the pre-tax cost of debt is simply multiplied by the proportion of debt in the capital structure. The tax benefit associated with debt and other tax factors (properly adjusted for timing) is instead reflected in an income tax component that is added to this WACC in the same manner as the component for ad valorem property taxes.



although the CAPM has been subject to some criticism, it is still the most widely used risk and return model.

Real estate and financial assets share two important characteristics: both are valued based on the cash flows they are expected to generate and the risk of those cash flows. In theory, with important caveats, a discount rate could be derived by the CAPM/WACC method and then used to value an individual real estate asset. In order for this method to be valid, the earnings of the business entity (and hence the rate of return on the entity's publicly traded financial assets) should be derived in large part from the use of the taxable property being appraised. However, a discount rate derived from the capital market is one step removed from the real estate market. Capitalization and yield rates derived from transactions in the real estate market involving the subject and comparable properties are generally preferred.

The application of the CAPM/WACC method to individual real estate investments involves two general types of problems: (1) measurement and comparability problems associated with estimating a beta for an individual real estate asset, and (2) the possibility that not all risk associated with individual real estate investments is captured in the estimated beta. These problems may cause an overestimation, an underestimation, or both, of the equity rate of return.

### ***Beta Measurement for Real Estate***

The betas of common stocks can be measured because rate of return data for common stocks is readily available. Unfortunately, this is not the case for individual real estate investments. Real estate betas are typically estimated using various indices of real estate performance. Such indices are commonly based on appraised values, property sales, or the returns of publicly traded real estate investment trusts (REITs). There are several problems associated with the index approach for estimating a real estate beta.

First, performance data for common stocks (and financial assets in general) is available over extremely short time periods (a day, a week, a month), which lends itself to the application of statistical techniques. However, most indices of real estate investment performance are updated only quarterly or annually. This creates problems regarding the statistical validity of the estimated betas. Indices of performance based on REIT returns are probably superior in this regard.

Comparability is a general issue in most valuation methods, and it is a significant issue when estimating a real estate beta. Any real estate beta based on an index of real estate returns represents the average risk of the real estate assets included in the index. For example, if a beta were estimated using data from REITs specializing in office buildings, this beta would only measure the average risk of all the office buildings in those REITs. But how comparable is the individual property being appraised to this "average building"? Is it similar in location, quality, age, etc.? Because of the non-homogeneity of real estate, the estimated beta may not be closely applicable to the particular property being appraised. The best approach to the comparability problem is to use an index of returns—if one can be found—that relates only to the type of property being appraised. For example, some REITs specialize in classes of property. At best, though, this is only a partial solution.

Third, the returns on securitized real estate (i.e., real estate owned indirectly by investors through financial intermediaries such as REITs) may be different from the returns to real estate that is directly held. REIT returns may be lower than returns on direct real estate investment because of the greater liquidity of REIT shares compared to direct real estate investment, and perhaps for other factors. This means that a beta estimated from REIT returns may underestimate the cost of equity for an individual, or stand-alone, real estate asset. As discussed below, a separate adjustment for liquidity can be made.

Finally, the market portfolio contains not only common stock, but all assets available for investment. In theory, real estate is an important component of the market portfolio because it represents a significant proportion of investable assets. In practice, for the purpose of measurement, the market portfolio is usually proxied by broad stock market indices (e.g., the Standard and Poor's 500); and such indices do not include real estate.<sup>178</sup> The failure to include real estate in a proxied market portfolio is statistically significant when one is attempting to measure a real estate beta.

### ***Additional Risk Factors for Real Estate Investment***

Some argue that real estate investment may entail additional types of risks when compared to investment in financial assets and that these additional risks are not reflected in betas estimated for real estate. Lack of diversification, lack of liquidity, and higher information costs are often asserted as additional real estate risk factors.

As explained earlier, the CAPM assumes that investors are well-diversified and that, therefore, the cost of equity reflects only non-diversifiable risk. If real estate investors are in fact not diversified, they are concerned with the total, or stand-alone, risk of a real estate investment, not just the portion of total risk that is non-diversifiable (i.e., systematic risk). If this is true, some sort of additional risk premium for non-diversification should be added to a real estate cost of equity estimated using the CAPM.

However, many real estate investors are diversified, especially those investing in "investment grade" properties such as large office buildings, regional shopping centers, etc. Such properties are typically owned by REITs, pension funds, insurance companies, and other fiduciaries—all diversified investors. To the extent that investors in a given real estate market are diversified, no adjustment for lack of diversification should be required. Put differently, if a market is constituted by diversified investors, the rates of return found in that market—and the rates used to value properties—would and should reflect the benefits of diversification.

The argument based on lack of liquidity is a much stronger one. There is no question that financial assets are significantly more liquid than real estate assets. Rate of return estimates using the CAPM reflect returns on financial assets; thus, in practice at least, the CAPM assumes that all assets are liquid. An adjustment for lack of liquidity can be made in two ways: (1) consider lack of liquidity as an added risk factor and add a premium for it to the cost of equity estimated

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<sup>178</sup> One criticism of the CAPM is that its validity cannot be tested because no good proxy for a true market portfolio exists.

by the CAPM; or (2) value the real estate asset using the CAPM/WACC without any liquidity adjustment, and then apply a liquidity discount to the estimated value.<sup>179</sup> In both cases, it is difficult to arrive at a supportable estimate of the adjustment.

Finally, real estate is a non-homogeneous asset; every parcel is different. Real estate is also immobile; as a result, a real estate investment is highly influenced by community- and neighborhood-specific factors. Some argue that this results in higher research and information costs for real estate investments—in comparison to most financial assets—and that this cost is not built into a CAPM-estimated cost of equity for real estate. This argument is analogous to that proffered for an additional return premium—beyond that measured by the CAPM—that has been observed and measured on small stocks.<sup>180</sup>

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<sup>179</sup> The second way reflects the manner in which liquidity discounts are applied in the valuation of closely held, illiquid businesses.

<sup>180</sup> For an example of the use of the WACC/CAPM in the valuation of an oil and gas property under appeal, see *Texaco Producing, Inc. v. County of Kern* (1998) 66 Cal.App.4th 1029.

## **APPENDIX B: IMPROVEMENTS AS STRUCTURE ITEMS V. FIXTURES**

The following list includes a variety of improvements and their typical classifications as structure items or fixtures. As discussed in this text, an improvement will be classified as a structure item when its primary use or purpose is for housing or accommodation of personnel, personalty, or fixtures; or when the improvement has no direct application to the process or function of the trade, industry, or profession. An improvement will be classified as a fixture, if its use or purpose directly applies to or augments the process or function of a trade, industry, or profession. Items which have a dual purpose will be classified according to their primary purpose.

It must be emphasized that the listing is illustrative as a guide only. Proper classification as structure item or fixture is determined according to the actual use or purpose of the property and intent as "reasonably manifested by outward appearances." Appraisal responsibility is determined by an assessor's internal procedures.

STRUCTURE ITEMS	FIXTURE ITEMS
Air conditioning—office and building cooling	Air conditioning—process cooling  Air lines
Auxiliary power generation equipment—for building purposes	Auxiliary power generation equipment—for trade or production purposes
Awnings	Back bars
Batch plants—buildings, fences, paving, yard lights, and spur tracks	Batch plant—scales, silos, hoppers, bins, machinery
Boilers—office and building heating	Boilers—for manufacturing process
Building renovations	Bowling lanes
Butane and propane installations—used for heating buildings	Burglar alarm systems
Car washes—all buildings, canopies, interior and exterior walls, fences, paving, and normal plumbing	Butane and propane installations—used for trade or production purposes
Carpets and floor coverings affixed to floor—wall-to-wall carpeting and specially installed strip or area carpeting, tile, terrazzo coverings	Car washes—special plumbing, wiring, and car washing equipment
Central heating and cooling plants	Compressors—air
Chutes—built-in	Conveyors—for moving materials and products
Coin-operated laundries—restroom, sanitary plumbing fixtures	Cooling towers—used in a trade or production process
Conveyors—for moving people	Counters
Cooling towers—other than used in a trade or production process	
Crane ways	Cranes—traveling
	Environmental control devices—used in the production process
Dock elevators	Fans and ducts—used for processing
	Fences and railings—inside of buildings

STRUCTURE ITEMS	FIXTURE ITEMS
Elevators—including machinery and power wiring	Furnaces—process
Environmental control devices—if an integral part of the structure	Furnishings—built-in, i.e., wall-hung desks
Escalators	Heating—boilers—for the manufacturing process
External window coverings	Hoists
Fans and ducts—which are part of an air circulation or exhaust system for the building	Incinerators—commercial and industrial
Fences—outside of building	Ice dispensers—coin operated
Flagpoles	Kilns—beehive, tunnel, or cylinder type, and equipment
Heating—boilers—used in office or building heating	Kilns—lumber
Kiosk—permanently attached	Laundromat—plumbing, wiring, and concrete work for equipment
Movie sets—which are a complete building	Lighting fixtures—lighting associated with a commercial or industrial process
Paint spray rooms—if an integral part of the building	Machinery foundations and pits—not part of normal flooring or foundation
Parking lot gates	Miniature golf courses
Partitions—floor to ceiling	Movie sets—which are not a complete building
Pipelines and pipe supports—used to convey air, water, steam, oil, or gas to operate the facilities in a building	Ovens
	Paint spray booths
	Partitions—annexed—less than floor to ceiling
	Pipelines and pipe supports—used to convey air, water, steam, oil, or gas to equipment used in the production process

STRUCTURE ITEMS	FIXTURE ITEMS
Pits—not used in the trade or process	Pits—used as wine and sugar clarifiers, skimming pits, grease pits, sump pits, and pits used to house machinery in the manufacturing
Pneumatic tube systems	Plumbing—special purpose
Radiators—steam	
Railroad spurs	Power wiring, switch gear, and power panels—for manufacturing process
Refrigeration systems—that are an integral part of the building	Refrigeration systems—that are not an integral part of the building
Refrigerators—walk in—which are an integral part of the building—excluding operating equipment	Refrigerators—walk in—unitized—including operating equipment
Restaurants—rough plumbing to fixtures	Restaurant equipment—plumbing fixtures, stainless steel or galvanized sinks in kitchens, bars, soda fountains, garbage disposals, dishwashers, hoods, etc.
Renovations to building structures	Roller skating surface  Scales—including platform and pit
Security—Banks and Financial Fire alarm systems Safes-embedded Night depository– if integral part of building Teller cages Vault alarm system Vaults	Security—Banks and Financial Cameras (surveillance) Attached to walls or columns Drive-up and walk-up windows Unitized security type Man traps Night depository– if not integral part of building Vault doors
Service stations—canopies, paving, sign, pylons	Service Stations—gasoline storage tanks, pumps, sign, air and water wells
Shelving—originally designed as integral part of the building	Shelving—other than that which is an integral part of the building
Shielded or clean rooms—if an integral part of the building	Shielded or clean rooms—if not an integral part of the building

STRUCTURE ITEMS	FIXTURE ITEMS
Signs—include supporting structure which forms an integral part of the building, including sign blades, pylons, or marquee structures serving as canopies. Exclude sign cabinet (face) and lettering	Signs—sign cabinets and free standing signs, including supports
Silos or tanks—whose primary function or intent is to store property for a time period, such as storage tank farms and grain and liquid petroleum storage facilities	Silos or tanks—whose primary function is as part of a process, including temporary process holding such as breweries or refineries
Smog control devices—when attached to incinerator or building heating plant	Ski lifts, tows, trams
Sprinkler systems—where primary function is the protection of a building or structure	Sky slides
Store fronts	Smog control devices—attached to process device
Television and radio antenna towers	
Trout ponds—concrete	Theaters—auditorium equipment—seating, screens, stage equipment, sound, lighting, and projection
Theaters—drive-in—buildings, screen and structures, fencing, paving, lighting	Theaters—drive in—heater and speaker uprights, wiring and units, projection equipment, signs
	Trash compactors and paper shredders
Water systems at golf courses	Wash basins—special purpose water softeners for commercial or industrial purposes



## **APPENDIX C: COORDINATION OF LANDLORD AND LEASEHOLD IMPROVEMENT APPRAISALS**

### ***Develop an Inter-Departmental Memorandum for Coordination***

Transferring information between the real property and business property divisions within an assessor's office can help to avoid duplicate assessment of landlord and leasehold improvements—both of which may include structure items and fixtures. One method used to track and monitor the transfer of information in some assessor's offices is an inter-departmental memorandum. This memorandum is sent between departments (i.e., between the real property division and business division) with a copy of the improvement source document (e.g., building permit, change in ownership statement, etc.). As shown in the table below, the memorandum includes three copies: one copy retained by the originator to verify completion of the assessment, one copy for the real property file, and one copy for the business property file.

The intent of the memorandum is to provide a complete record of the appraisal, including classification, valuation, and assessee. It summarizes all appraisal information for the business file and real property record. The following table illustrates how an inter-departmental memorandum may be used in practice.

<b>TABLE C-1: Inter-Departmental Memorandum</b>
<ul style="list-style-type: none"> <li>• The business property division receives a property statement reporting additions on Schedule B. After reviewing the property statement, the auditor-appraiser initiates a memorandum to the real property division addressing these additions.</li> <li>• The originator (auditor-appraiser) keeps the original memorandum (copy #1). Next, the auditor-appraiser attaches copies #2 and #3 to a copy of Schedule B and forwards that information to the real property division. The auditor-appraiser retains the original (copy #1) to track the appraisal of the improvements.</li> <li>• Using the memorandum and its attachments, the real property appraiser determines any applicable value changes. After valuing the property, the real property appraiser places copy #2 in the real property file.</li> <li>• Using the final copy (#3), the real property appraiser notifies the business property division of the appraisal, along with any recommendations for the auditor-appraiser.</li> </ul>

### ***Description of Method***

The following steps describe one method of coordinating the appraisal of landlord and leasehold improvements as it is used by some assessors' offices. Under this method, information regarding landlord or leasehold improvements is referred to and from the real property and personal property divisions for evaluation and appropriate action.

After proper classification, the real property appraiser values the property reported in Columns 1, 3, and 4 (i.e., Structure Items Only, Land Improvements, Land, and Land Development), while

the auditor-appraiser values the property reported in Column 2 (i.e., Fixtures Only).<sup>181</sup> This method requires that the business division provide a copy of Schedule B (and the Supplemental Schedule) from the Business Property Statement to the real property appraiser each year, or whenever a change is reported from the prior year's schedule.

As discussed above, a memorandum should be attached to this documentation. After a review of the statement and/or inspection of the property, the real property appraiser notifies the auditor-appraiser of the action taken (on copy #3 of the memorandum). In the event that the assessee does not correctly classify the improvements, the real property appraiser's review should include consideration of both non-fixture real property items (Columns 1, 3, and 4) and fixtures (Column 2). Based on a building permit received earlier in the year, for instance, the real property appraiser may add value to real property, believing those improvements to be structure items. However, the assessee may report those same improvements on the property statement as fixtures. If the real property appraiser does not receive a copy of Schedule B of this statement, and review the costs as they were reported, a duplicate assessment may occur.

This communication process works in both directions. Although the memorandum could originate from either division; it more often originates from the business division.

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<sup>181</sup> On Schedule B of the Business Property Statement.

### Example

Following is an example of an assessment of leasehold improvements using the suggested procedures outlined above. This example demonstrates only one method to coordinate the assessment of leasehold improvements; it is not the only proper method.

- In August 1997, a tenant obtained a building permit valued at \$60,000 to install restaurant improvements in a new strip mall. During September 1997, the real property division received a copy of this building permit. The real property appraiser copied the permit and forwarded it to the business division with an attached memorandum. Since this was done in a timely manner, a copy of the permit was in the business file prior to receipt of the Business Property Statement.
- In April 1998, the business division received a property statement from the assessee (the tenant) reporting the actual cost of the improvements as \$48,000. The assessee classified and reported all leasehold improvements as fixtures on Schedule B, Column 2. No items were reported in Columns 1, 3, and 4.
- The property statement included a supplemental schedule that broke down the total cost additions on Schedule B. The list of additions and their costs are shown below:

<b>TABLE C-2: Supplemental Schedule (Schedule B)</b>	
<u>Description</u>	<u>Cost</u>
Electrical wiring to restaurant equipment	\$ 2,500
Flooring	5,000
Rough plumbing to restaurant equipment	5,000
Walk-in refrigerator	10,000
Store front	2,500
Sign in front of restaurant	500
Interior wall paint	1,000
Light fixtures & ceiling fans	3,500
Stainless steel sink in kitchen	1,000
Booths	10,000
Counters	3,000
Dishwasher	2,500
Hood	<u>1,500</u>
<b>Total</b>	<b><u>\$ 48,000</u></b>

### Step 1: Verification of Costs

Since the amount on the building permit did not match the actual costs reported by the business owner, it was appropriate to verify actual costs. It is important to note when the value indicated on a building permit varies from the total costs reported on a property statement. In general, this variance may occur due to several reasons: (1) the tenant may have overestimated the cost of improvements; (2) the landlord and tenant may have split the cost of the improvements; or (3) the business owner may have underreported the cost of the leasehold improvements.

In this case, the auditor-appraiser contacted the business owner prior to sending a copy of the property statement to the real property appraiser. The auditor-appraiser found that the business owner overestimated the cost of improvements when applying for the permit. Thus, the property statement represented actual cost.

### **Step 2: Transfer of information**

The business property division forwarded a memorandum to the real property division with copies of Schedule B and the supplemental schedule. On the memorandum, the auditor-appraiser referenced (1) the September 1997 memorandum received from the real property division and (2) the information received from the assessee in step 1. Utilizing all information available aids in the proper classification of improvements.

### **Step 3: Classification**

Depending upon the established policy of the assessor's office, either the auditor-appraiser or real property appraiser may classify the property. For this example, the real property appraiser classified the leasehold improvements. The real property appraiser classified the property as follows:

<b>TABLE C-3: Classification by Real Property Appraiser</b>			
	<u>Cost</u>	<u>Structure</u>	<u>Fixture</u>
Electrical wiring to restaurant equipment	\$ 2,500		\$ 2,500
Flooring	5,000	\$ 5,000	
Rough plumbing to restaurant equipment	5,000		5,000
Walk-in refrigerator - not integral part of building	10,000		\$10,000
Store front	2,500	2,500	
Sign in front of restaurant	500		500
Interior wall paint	1,000	1,000	
Light fixtures and ceiling fans	3,500	3,500	
Stainless steel sink in kitchen	1,000		1,000
Booths	10,000		10,000
Counters	3,000		3,000
Dishwasher	2,500		2,500
Hood	1,500		1,500
<b>Total</b>	<b><u>\$ 48,000</u></b>	<b><u>\$12,000</u></b>	<b><u>\$ 36,000</u></b>

### **Step 4: Determination of Assessee**

In this example, the assessee was determined to be the tenant. As discussed earlier, improvements can be assessed to either the landlord or the tenant, on either the secured or unsecured roll. Commonly, as in this example, they are assessed to the party that paid for the improvements.

## **Step 5: Valuation**

### **A. Valuation of Structure Items**

After classification, the real property appraiser determined the value of the structure items listed above. If land improvements, land, and land development were reported (Columns 3 and 4 of Schedule B), the real property appraiser would have also valued those improvements as well.

### **B. Valuation of Fixtures**

After valuing the structure items, the real property appraiser forwarded a copy of Schedule B along with copy #3 of the memorandum—detailing the action taken—to the auditor-appraiser. Using that information, the auditor-appraiser must then value the fixtures. As discussed earlier, fixtures are real property; they must be valued, at the lesser of (1) their full cash value or fair market value or (2) their factored base year value. The auditor-appraiser valued and enrolled the fixtures as shown below:

<b>TABLE C-4: Valuation of Fixtures</b>					
	<u>Cost</u>	<u>Index Factor</u>	<u>Percent Good Factor</u> <sup>182</sup>	<u>Fair Market Value</u>	<u>Indexed Value (2% Inflation Factor)</u>
Total 1997 Cost of Fixtures	\$ 36,000	100	.94	\$ 33,840	\$ 36,720
<b>Enrolled Value</b>				<b><u>\$ 33,840</u></b>	

### **Step 6: Enrollment of Value**

In general, the assessed value can be enrolled to either the secured or unsecured roll account depending on how the assessor's office enrolls leasehold improvements (i.e., on the secured roll to the land and building owner; or on the unsecured roll to the tenant who paid for improvements). As discussed in step 4, the tenant was determined to be the assessee, both values (structure value and fixture value) were enrolled on an unsecured account with the business personal property. Since the value of fixtures is used in the determination of a mandatory audit, separation of the structure and fixture values on the unsecured account is necessary.

### **Step 7: Clearly Identify the Leasehold Improvements on the Appraisal Records**

The final step documents the assessment on the appraisal records. Notes regarding the leasehold improvements in both the real property records and the business property files will assist in verification of the assessment(s) and can help to avoid duplicate efforts in future assessment years. These notes summarize the information relied upon during the appraisal and identify the actions taken. The memo(s) and attached copies of source documents are kept in the appraisal records as support.

<sup>182</sup> The appraiser in this example has determined an average 12-year service life for these types of fixtures.

## GLOSSARY OF TERMS

<b>Accounting</b>	The practice of systematically recording, presenting, and interpreting the financial transactions relating to a specific person, property, or business.
<b>Actual Age</b>	The actual number of years since an improvement was constructed.
<b>Ad Valorem</b>	Latin phrase meaning "in proportion to the value." In California, the property tax is considered to be an ad valorem tax.
<b>Amortization</b>	The process of retiring a debt or recovering a capital investment through scheduled, systematic repayment of principal; a program of periodic contributions to a sinking fund or debt retirement fund.
<b>Annuity</b>	A periodic series of obligatory payments; an annuity can be level, increasing, decreasing, or a combination thereof.
<b>Annuity Factor</b>	In yield capitalization, the number, usually obtained from financial tables, that is multiplied by an income amount to produce an estimate of present value.
<b>Anticipated Income</b>	Income payments expected or hoped for by an investor.
<b>Anticipation, Principle of</b>	The principle that value is created by the expectation of benefits to be derived in the future.
<b>Appraisal Unit</b>	The unit that people in the market typically buy and sell.
<b>Appreciation</b>	The increase in property value resulting from an excess of demand for a property relative to its supply.
<b>Assemblage</b>	The combining of two or more parcels, usually but not necessarily contiguous, into one ownership or use.
<b>Assessed Value</b>	The taxable value of a property against which the tax rate is applied.
<b>Assessee</b>	Person who owns, claims, possesses, or controls a property on the lien date.
<b>Assessment Roll</b>	A listing of all taxable property within a county. It identifies, at a minimum: (1) the property (usually by assessor's parcel number); (2) the tax-rate area where the property is located; (3) the name (if known) and mailing address of the assessee; (4) the assessed value of the property, including separate assessed values for land, improvements, and personal property; (5) penalties (if any); and (6) the amount (if any) of specified exemptions (e.g., Homeowners', Church, Welfare, etc.). Distinct assessment rolls include the locally-assessed secured and unsecured regular assessment rolls, the locally-assessed supplemental assessment roll, and the state-assessed roll (which is added to the locally-assessed secured roll).

<b>Atypical Depreciation</b>	Unexpected depreciation.
<b>Average Service Life</b>	The average life term of a group of items.
<b>Band of Investment</b>	A technique in which the capitalization rates attributable to the components of a capital investment are weighted and combined to derive a weighted-average rate attributable to the total investment.
<b>Base Year Value</b>	In accordance with section 110.1, a property's base year value is its fair market value as of either the 1975 lien date or the date the property was last purchased, newly constructed, or underwent a change in ownership after the 1975 lien date.
<b>Beta Coefficient</b>	Measure of a stock's relative volatility. The beta is the covariance of a stock in relation to the rest of the stock market. The Standard and Poor's 500 Stock Index has a beta coefficient of 1. Any stock with a higher beta is more volatile than the market, and any with a lower beta can be expected to rise and fall more slowly than the market.
<b>Board Roll</b>	Part of the secured roll, containing State assessed property.
<b>Book Value</b>	Capitalized cost less depreciation as estimated by the accountant.
<b>Buffer Zone Land</b>	A zone of land surrounding all or part of a property to protect both it and surrounding landowners from disturbances.
<b>Building Improvements</b>	Improvements to a structure.
<b>Capital Asset Pricing Model (CAPM)</b>	A model of the relationship between expected risk and expected return. The model is grounded in the theory that investors demand higher returns for higher risks. It says that the return on an asset or a security is equal to the risk free return—such as the return on a short term treasury security—plus a risk premium.
<b>Capitalization</b>	Any method of converting expected future benefits into an indicator of present value; the discounting of projected income to a present value.
<b>Capitalization Rate</b>	Any rate used to convert income into an indicator of value; a ratio that expresses a relationship between income and value.
<b>Capitalized Cost</b>	Recorded cost of asset in assessee's books and records.
<b>Capitalized Interest</b>	Cost associated with use of money during construction of an asset whether the source of funds is debt or equity and whether or not the interest is actually incurred.
<b>Cash Flow</b>	Periodic income attributable to the interests in real property.

<b>Cash Flow Rate</b>	The ratio of annual cash flow to the investment.
<b>Change in Ownership</b>	A transfer of a present interest in real property, including the beneficial use thereof, the value of which is substantially equal to the value of the fee interest.
<b>Comparative Sales Approach</b>	An approach to value by reference to sale prices of the subject property or comparable properties; under Rule 4, the preferred approach when reliable market data are available.
<b>Compound Interest</b>	Interest on the sum of principal and the accrued interest, combined at regular intervals; interest on interest.
<b>Conditional Sale Contract</b>	Form of sales contract in which seller reserves title until buyer pays for goods or land, at which time, the condition having been fulfilled, title passes to buyer. Such contract under Uniform Commercial Code is a purchase money security agreement. UCC Section 9-105(h). (See also financing lease.)
<b>Contract Rent</b>	The actual amount of rent a property is earning as specified in a lease; the existing rent on property as distinguished from rent that could be expected if the property were available for rent on the open market.
<b>Cost</b>	The expenditure required to develop and construct an improvement or acquire personal property.
<b>Cost Approach</b>	A value approach using the following procedures to derive a value indicator: (1) estimate the current cost to reproduce or replace an existing structure without untimely delays; (2) deduct for all accrued depreciation; and (3) add the estimated land value and an amount to compensate for entrepreneurial profit (if present).
<b>Cost-Estimating Methods</b>	<p>The estimation of replacement or reproduction cost. Four methods are described below:</p> <p>(1) Quantity Survey Method. Under this method, all costs of each piece of material and all labor are estimated and summed; this method accounts for the quantity and quality of all the agents of production necessary to develop and construct an improvement.</p> <p>(2) Square Foot Method. This method uses the known costs of similar buildings, adjusted for physical differences and market conditions. The costs are estimated in terms of dollars per unit, such as \$100 per square foot; costs per unit for properties of equal utility are often obtained from data compiled and published by cost-estimating firms. Also known as the Comparative Unit method. The Assessors' Standard Classification System is used in conjunction with square foot cost tables to produce a cost estimate using the square foot method.</p> <p>(3) Unit-In-Place Method. This method adds together the unit cost of each</p>



component of an improvement, such as the cost of a foundation, a wall, or a roof; costs for walls and foundations are usually estimated per linear foot and are often obtained from data compiled and published by cost-estimating firms.

(4) Trended Historical Cost. Under this method, an improvement's historical cost is adjusted (factored forward) to the current price level using trending tables.

<b>Debt Cost of Capital</b>	It is the expected return on debt. It is best approximated by the yield-to-maturity on the applicable debt, since that yield is a market observable measure of the cost of debt capital.
<b>Debt Service (<math>I_m</math>)</b>	The periodic payment that covers the interest on, and retirement of, the outstanding principal of the mortgage loan.
<b>Debt/Equity Ratio</b>	The ratio between an enterprise's loan capital and its equity capital, i.e., the ratio between the amount owed to lenders and the capital account of shareholders or partners.
<b>Debt Coverage Ratio</b>	The ratio of net operating income to annual debt service, or the amount that provides for the return on (interest) and return of (principal) on a mortgage loan.
<b>Depreciation</b>	<p>A decrease in utility resulting in a loss in property value; the difference between estimated replacement or reproduction cost new as of a given date and market value as of the same date. There are three principal categories of depreciation, described below:</p> <p>(1) Physical Deterioration. The loss in utility and value due to some physical deterioration in the property; considered curable if the cost to cure it is equal to or less than the value added by curing it.</p> <p>(2) Functional Obsolescence. The loss in utility and value due to changes in the desirability of the property; attributable to changes in tastes and style or the result of a poor original design. Functional obsolescence is curable if the cost to cure it is equal to or less than the value added by curing it.</p> <p>(3) External (or Economic) Obsolescence. The loss in utility and value due to an incurable defect caused by external negative influences outside the property itself; results from the immobility of real property.</p>
<b>Direct Capitalization</b>	A capitalization method used to convert a single year's income expectancy into an indicator of value, either by dividing the income estimate by an appropriate rate or by multiplying the income estimate by an appropriate factor.
<b>Direct Costs</b>	Expenditures required for the labor and materials necessary to develop and construct an improvement; sometimes referred to as "hard costs."

<b>Discount</b>	Conversion of future payments to present value.
<b>Discount Rate</b>	A selected yield rate used to convert expected future payments into an estimate of present value.
<b>Discounted Cash Flow (DCF) Method</b>	A capitalization method in which a discount rate is applied to a series of projected income payments, including the reversion, in order to arrive at an estimate of present value (i.e., current market value). The DCF method can be applied with any yield capitalization technique.
<b>Economic Cost</b>	Cost for appraisal purposes. Includes all market costs (direct and indirect) necessary to purchase or construct equipment and make it ready for its intended use.
<b>Economic Life</b>	The period of time over which improvements to real property contribute to property value.
<b>Economic Limit</b>	A point in time when the property is no longer profitable to the operator.
<b>Economic Obsolescence</b>	An element of accrued depreciation; a defect, usually incurable, caused by influences outside the site—sometimes called external obsolescence.
<b>Economic Rent</b>	The amount of rental income that could be expected from a property if available for rent on the open market, as indicated by the prevailing rental rates for comparable properties under similar terms and conditions; economic rent is distinguished from contract rent, which is the actual rental income for the subject property as specified in a lease; economic rent is also referred to as market rent.
<b>Effective Age</b>	The age indicated by the condition and utility of the property.
<b>Effective Gross Income</b>	The estimated potential gross income less allowances for vacancy and collection losses.
<b>Effective Interest Rate (i)</b>	Interest per dollar per period; the nominal annual interest rate divided by the number of conversion periods per year.
<b>Effective Tax Rate</b>	The effective tax rate relates tax expense to before-tax income. A reduction in the effective tax rate from a one-time source (such as an investment tax credit from a major plant expansion) causes overstated earnings from the point of view of the investment analyst.
<b>Entrepreneurial profit</b>	A market-derived estimate of what an entrepreneur expects to receive for his or her contribution. An estimate of the cost to the entrepreneur of foregoing the opportunity to profit from providing his or her services to some other development project. Entrepreneurial profit reflects the reward that a developer receives for his or her expertise and risk-taking (i.e., his or her entrepreneurial services).

<b>Equipment Index Factor</b>	Multiplier used to "trend" the historical cost of property to an estimated replacement cost new.
<b>Equity Capitalization Rate (<math>R_E</math>)</b>	A rate that reflects the relationship between the equity dividend and the equity investment (i.e., a single year's net income before recapture less debt service divided by the equity investment); a rate used to convert the equity dividend into an indicator of equity value; also known as the equity dividend rate, the cash on cash rate or the cash flow rate.
<b>Equity Cost of Capital</b>	The equity cost of capital is equal to the expected rate of return, or forecast mean return, for the firm's equity.
<b>Equity Dividend</b>	A single year's cash flow after debt service but before income taxes (i.e., a single year's net income before recapture (NIBR) less debt service).
<b>Equity Yield Rate (<math>Y_e</math>)</b>	An annualized rate of return on equity capital, as distinguished from the rate of return on debt capital or interest; the equity investor's internal rate of return.
<b>Escape Assessment</b>	Assessment made after the completion of the regular assessment roll.
<b>Expense Ratio</b>	The ratio of total expenses, excluding debt service, to either potential or effective gross income.
<b>Extended Term Lease</b>	Lease with duration of six months or more. (Commonly referred to as long-term lease.)
<b>External Obsolescence</b>	Form of depreciation. Also referred to as Economic Obsolescence. The loss in utility and value due to an incurable defect caused by external negative influences outside the property itself.
<b>Factor</b>	One of two or more numbers that when multiplied together produce a third number; a multiplier. A capitalization factor is the reciprocal of a capitalization rate.
<b>Fair Market Value</b>	An amount of cash the property would bring if exposed for sale in the open market under conditions in which neither the buyer nor the seller could take advantage of the exigencies of the other.
<b>Fee Simple Estate</b>	Absolute ownership unencumbered by any other interest or estate, subject only to the limitations of eminent domain, escheat, police power, and taxation.
<b>Financial Corporation</b>	Banks and financial institutions exempt from property taxation by the California Constitution, Article XIII, section 28 and section 23182.
<b>Financing Lease</b>	See Conditional Sale Contract.

<b>Fixed Machinery and Equipment</b>	A type of fixture. Equipment which is physically or constructively annexed and intended to remain indefinitely with the realty.
<b>Fixture</b>	An item of tangible property, the nature of which was originally personal property, but which is classified as real property for property tax purposes because it is physically or constructively annexed to real property with the intent that it remain annexed indefinitely.
<b>Full Cash Value</b>	See market value.
<b>Functional Obsolescence</b>	Form of depreciation. The loss in utility and value due to changes in the desirability of the property; attributable to changes in tastes and style or the result of a poor original design. Functional obsolescence is curable if the cost to cure it is equal to or less than the value added by curing it.
<b>Future Worth of \$1 (<math>S^n</math>)</b>	The compound interest factor that indicates the amount to which \$1 will grow with compound interest at a specified rate for a specified number of periods.
<b>Future Worth of \$1 Per Period (<math>S_n</math>)</b>	The compound interest factor that indicates the amount to which \$1 per period will grow with compound interest at a specified rate for a specified number of periods.
<b>Going Concern Value</b>	Generally, the total value of an operating business enterprise. It includes the value of the real property, tangible personal property (e.g., machinery and equipment), labor, the marketing operation, and intangible assets and rights. It includes the incremental value of the business concern, which is distinct from the value of the real property
<b>Gross Income</b>	Income from the operation of a business or the management of property, customarily stated on an annual basis. Gross income is income to the property from all sources. In an apartment property, for example, the gross income could be the sum of living unit rent, parking space rent, vending machine, and laundry facility income.
<b>Gross Income Multiplier</b>	The relationship between sale price (or value) and gross income, expressed as a factor; used to estimate value as a multiple of income. Gross income is usually (though not always) expressed in annual terms, and includes income to the property from all sources; in an apartment property, for example, the gross income could be the sum of living unit rent, parking space rent, vending machine income, and laundry facility income.
<b>Gross Outgo</b>	Any outlay of money or money's worth, including current expenses and capital expenditures required to develop and maintain an estimated income stream.

<b>Gross Rent</b>	Income to the property only from rental of the principal improvements. In an apartment property, for example, the gross rent would be from living units only and would exclude income from parking space rent, vending machine, and laundry facility income.
<b>Gross Rent Multiplier</b>	The relationship between sale price (or value) and gross rent, expressed as a factor; used to estimate value as a multiple of income. Gross rent is usually (though not always) expressed in annual terms, and includes the income to the property derived from the principal improvements only. The gross rent for an apartment property, for example, is from living units only and excludes income from parking space rent, vending machine income, and laundry facility income.
<b>Gross Return</b>	Any money or money's worth which the property will yield over and above vacancy and collection losses, including ordinary income, return of capital, and the total proceeds from sales of all or part of the property.
<b>Highest and Best Use</b>	The most profitable use of a property at the time of the appraisal; that available use and program of future utilization that produces the highest present land value; must be legal, physically possible, financially feasible, and maximally profitable; see text for the distinction between highest and best use as though vacant and highest and best use as improved.
<b>Historical Cost</b>	The total cost of a property when it was originally constructed.
<b>Holding Period</b>	The term of ownership of an investment.
<b>Improvements</b>	All buildings, structures, fixtures, and fences erected on or affixed to the land; all fruit, nut bearing, ornamental trees and vines, not of natural growth, and not exempt from taxation, except date palms under eight years of age; see text for statutory definition.
<b>Income Approach</b>	Any method of converting an income stream or a series of future income payments into an indicator of present value.
<b>Income Rate (<math>R_O</math>, or <math>R_E</math>)</b>	A rate that expresses the relationship between one year's income and the corresponding total value of a property; or, in the case of $R_E$ , with the value of only the equity interest.
<b>Income Stream</b>	A steady flow of payments or benefits from an investment or property.
<b>Indirect Costs</b>	The outlay for items, other than labor and materials, required to develop and construct an improvement; includes such costs as legal fees, property taxes, construction financing, administrative expenses, appraisal fees, and lease-up expenses; sometimes referred to as soft costs.
<b>Interest Only Mortgage</b>	A nonamortizing loan in which the lender receives interest only during the term of the loan and recovers the principal in a lump sum at the time of maturity.

<b>Interest Rate</b>	The rate of return on debt capital; the price paid for borrowing money.
<b>Internal Rate of Return (IRR)</b>	The annualized rate of return on invested capital which is generated or is capable of being generated within an investment over a period of ownership.
<b>Investment Value</b>	The specific value of property to a particular investor, based upon individual investment requirements, as distinguished from the concept of market value.
<b>Land</b>	Real estate, or real property, except improvements. It includes: the possession of, claim to, ownership of, or right to possession of land; and all mines, minerals, and quarries in the land, all standing timber whether or not belonging to the owner of the land, and all rights and privileges appertaining thereto.
<b>Landlord Improvements</b>	Improvements made by the real property owner.
<b>Lease</b>	A written document in which the rights to use and occupy land or structures are transferred by the owner to another for a specified period of time in return for a specified rent.
<b>Leaseback</b>	A transaction in which an investor purchases property and leases it back to the seller, generally under lease terms and conditions that were negotiated at the time of the sale.
<b>Leased Fee Interest or Estate</b>	The lessor's interest in property; an ownership interest held by a landlord with the right of use and occupancy conveyed by lease to others; the right to receive rent stipulated in the lease and to receive the property (the reversionary right) at the end of the lease term.
<b>Leasehold</b>	The lessee's interest in property; the right to use and occupy real property during the term of a lease, subject to any contractual restrictions.
<b>Leasehold/Tenant Improvements</b>	Improvements made by the lessee/tenant.
<b>Lessee</b>	One who has the right to use or occupy property under a lease agreement; a tenant.
<b>Lessor</b>	One who conveys the right to use and occupy property under a lease agreement; a landlord.
<b>Level Annuity</b>	An income stream in which the amount of each payment is the same; a level, unchanging flow of income over time.
<b>Leverage</b>	The effect of borrowed funds, which may increase or decrease the return that would be realized on equity free and clear.

<b>Lien date</b>	All taxable property (both state and locally assessed) is assessed annually for property tax purposes as of 12:01 a.m. on January 1, which is called the lien date. It is referred to as the lien date because on this date the taxes become a lien against all real property assessed on the secured roll.
<b>Loan-to-Value Ratio</b>	The ratio between the mortgage amount and the value of the property pledged as security for the debt; usually expressed as a percentage.
<b>Long-term lease</b>	See Extended-term lease.
<b>Market Rent</b>	The amount of rental income that could be expected from a property if available for rent on the open market, indicated by the prevailing rental rates for comparable properties under similar terms and conditions; distinguished from contract rent, which is the actual rental for the subject property as specified in a lease; also referred to as economic rent.
<b>Mid-year Factoring</b>	A method of discounting cash flows that assumes the payment is made in the middle of the discounting period.
<b>Modern Portfolio Theory</b>	A financial theory that risk is reduced with proper diversification of assets.
<b>Mortgage Constant</b>	The capitalization rate for debt; the ratio of the annual debt service to the principal amount of the mortgage loan; the total annual amount required to pay off an amortizing loan with level monthly payments, expressed as a percentage of the original loan amount.
<b>Movable Property</b>	All property which is intended to be, and is, moved from time to time from one location to another.
<b>Multiplier</b>	A figure that is multiplied by income to produce an estimate of value.
<b>Net Income Before Recapture (NIBR)</b>	Annual net income remaining after deducting all operating expenses including property taxes but before deducting financial charges such as recapture and debt service; also known as net operating income (NOI).
<b>Net Income Before Recapture and Taxes (NIBR&amp;T)</b>	The annual net income remaining after deducting all operating expenses but before deducting other charges such as recapture, debt service, and property taxes. For property tax appraisal purposes, NIBR&T is capitalized into an indicator of value using various income capitalization techniques.
<b>Net Lease</b>	A lease where the lessee pays not only for the use of the property, but also for stipulated additional charges such as property taxes, insurance, and maintenance.
<b>Net Operating Income</b>	The actual or anticipated net income that remains after all operating expenses are deducted from effective gross income, but before mortgage debt service and book depreciation are deducted.

<b>Net Return</b>	The difference between gross return and gross outgo.
<b>New Construction</b>	Any addition to real property, whether land or improvements (including fixtures) since the last lien date; any alteration of land or improvements (including fixtures) since the last lien date that constitutes a major rehabilitation thereof or which converts the property to a different use.
<b>Nonmandatory Audit</b>	Audits not required by law, but authorized by section 470 and Rule 192 (e).
<b>Operating Expense Ratio (OER)</b>	The ratio of total operating expenses to the effective gross income.
<b>Operating Expenses</b>	The periodic expenditures necessary to maintain the real property and continue production of the effective gross income, assuming prudent and competent management; sometimes referred to as "allowable expenses."
<b>Ordinary Annuity</b>	A type of level annuity in which income payments are received at the end of each period.
<b>Overage Rent</b>	The percentage rent paid over and above the guaranteed minimum rent or base rent.
<b>Overall Capitalization Rate (R<sub>o</sub>)</b>	The relationship between the anticipated net income before deducting for recapture (NIBR) and the sale price; the rate implies the investor's perception of both return on and recapture of the investment.
<b>Percent Good</b>	The complement of depreciation; if a property is 20 percent depreciated, its percent good is 80 percent; percent good refers to the portion of benefits remaining in an asset compared to the total benefits when new.
<b>Periodic Repayment</b>	The direct reduction loan factor for a loan, given the interest rate and amortization term.
<b>Personal Property</b>	Personal property includes all property except real property.
<b>Physical Deterioration</b>	Form of depreciation. The loss in utility and value due to some physical deterioration in the property; considered curable if the cost to cure it is equal to, or less than, the value added by curing it.
<b>Plottage</b>	An increment of value that results when two or more sites are assembled under single ownership, producing greater utility.
<b>Possessory Interests</b>	(a) Possession of, claim to, or right to possession of land or improvements, that is independent, durable, and exclusive of rights held by others in the property except when coupled with the ownership of the land or improvements in the same person. (b) Taxable improvements on tax-exempt land.



<b>Potential Gross Income</b>	The total income of a property before deducting vacancy and collection losses or operating expenses.
<b>Present Value (PV)</b>	The value of a future payment or series of future payments discounted to the current date or to time period zero.
<b>Present Worth of \$1 (<math>1/S^n</math>)</b>	A compound interest factor that indicates how much \$1 due in the future is worth today.
<b>Present Worth of \$1 Per Period (<math>a_n</math>)</b>	A compound interest factor that indicates how much \$1 paid periodically is worth today.
<b>Principal</b>	A capital sum; a payment for reduction of the capital borrowed as distinguished from the payment of interest.
<b>Principle of Anticipation</b>	The principle that value is created by the expectation of benefits to be derived in the future.
<b>Principle of Substitution</b>	When several similar or commensurate commodities, goods, or services are available, the one with the lowest price attracts the greatest demand and widest distribution. This principle assumes rational, prudent market behavior with no undue cost due to delay. A buyer will not pay more for one property than for another that is equally desirable.
<b>Producer Price Index</b>	Measure of change in wholesale prices (formerly called the wholesale price index), as released monthly by the U.S. Bureau of Labor Statistics. The index is broken down into components by commodity, industry sector, and stage of processing. The consumer equivalent of this index is the Consumer Price Index.
<b>Projection Period</b>	The holding period; a period of time over which net income is projected for valuation purposes; a presumed period of investment in property.
<b>Property</b>	Property includes all matters and things—real, personal, and mixed—that are capable of private ownership.
<b>Prudent Management</b>	Practically wise, judicious, careful, discreet, circumspect, and sensible in the act of managing, by direction or administration, an enterprise.
<b>Rate</b>	The ratio of one quantity to another.
<b>Real Property</b>	The possession of, claim to, ownership of, or right to the possession of land; all mines, minerals, and quarries in the land; all standing timber whether or not belonging to the owner of the land, and all rights and privileges appertaining thereto; and improvements; in California property tax law, the term is synonymous with "real estate."

<b>Recapture</b>	The return of invested capital; in real estate investments, capital may be returned gradually as part of the annual income; it may be recaptured all or in part through resale of the property, or through a combinations of both. The variety of the methods of recapture require the various capitalization techniques.
<b>Reciprocal</b>	The quantity resulting from the division of 1 by a given number.
<b>Regular Assessment Roll</b>	Roll covering period starting July 1 of the current calendar year to June 30 of the next year. Assessment period for the regular roll must be completed on or before July 1.
<b>Remaining Economic Life</b>	The estimated period during which the improvements will continue to contribute to a property's value.
<b>Replacement Cost</b>	The cost required to replace an existing property with a property that has equivalent utility.
<b>Reproduction Cost</b>	The cost required to reproduce an exact replica of an existing property.
<b>Residual Techniques</b>	Capitalization techniques (within the income approach) in which an income amount is allocated to a property component of unknown value after subtracting the income return required by the property component of known value. This income amount is then capitalized into an estimate of value of the unknown component.
<b>Return of Capital</b>	The recovery of invested capital, usually through income and/or reversion.
<b>Return on Capital</b>	The additional amount received as compensation (profit or reward) for use of an investor's capital until it is recaptured.
<b>Reversion</b>	A lump-sum benefit in property that an investor receives or expects to receive at the termination of an investment.
<b>Reversionary Rights</b>	The rights of the lessor at the expiration of a lease; the estate returned or due to be returned.
<b>Risk</b>	Uncertainty about the outcome of future events; uncertainty about the future profitability of investments or projects; the possibility of not receiving the projected income.
<b>Risk Component</b>	A component added to the capitalization rate pursuant to Revenue and Taxation Code section 423(b) which shall be a percentage determined on the basis of the location and characteristics of the land, the crops to be grown thereon, and the provisions of any lease or rental agreement to which the land is subject.

<b>Risk Rate</b>	The annual rate of return on capital that is commensurate with the risk or uncertainty assumed by the investor; the rate of return or yield required to attract capital to the level of risk or uncertainty of that investment.
<b>Safe Rate</b>	The minimum rate of return on invested capital. Theoretically, the difference between the total rate of return and the safe rate is considered a premium to compensate the investor for risk, the burden of management, and the illiquidity of the capital invested; also known as the risk-free rate.
<b>Sale Price</b>	The amount of money a buyer agrees to pay and a seller agrees to accept in an exchange of property rights; sale price is based on a particular transaction, not necessarily on what the typical buyer would pay or the typical seller would accept.
<b>Sale Price Adjustments</b>	<p>A procedure for deriving a value indicator by comparing the property being appraised to similar properties recently sold, by adjusting the sale price of each comparable using elements of comparison. The following adjustments are made, in the order presented:</p> <p>(1) Rights Conveyed. If rights other than the unrestricted fee simple rights in a property sell, the value of the rights must be adjusted to the value of the unrestricted fee simple rights in order to use the sale as an indicator of value for property tax purposes.</p> <p>(2) Cash Equivalence. Fair market value means the price in cash or its equivalent; therefore, if a sale price has been affected by non-cash items received by the seller, the price must be adjusted, e.g., if a seller gives favorable financing to a buyer and then increases the price because of the financing.</p> <p>(3) Market Conditions (Time). The value of property changes with market conditions; if market conditions have changed since a sale occurred, the sale price should be adjusted prior to using it as an indicator of value.</p> <p>(4) Location and Physical and Economic Characteristics. The degree of comparability between a sold property and the subject property determines the adjustments necessary; adjustments typically relate to location, size, quality, age and condition of improvements, and zoning.</p> <p>(5) Non-Real Property Components of the Sale. Non-real property components of value include stocks, bonds, tangible personal property, copyrights, patents, trade names, etc. With the exception of tangible personal property, the other items listed are intangible personal property. The sales prices of the subject property and comparable properties must be adjusted to exclude the value of these items.</p>
<b>Salvage Value</b>	The value of property at the end of its economic life in its present use; the estimated market value for an entire property (e.g., a house) or for a part (or parts) of a property (e.g., the plumbing fixtures or doors of a house) that is removed from the premises for use elsewhere.

<b>Scarcity</b>	The present or anticipated under-supply of an item relative to the demand for it.
<b>Secured Property</b>	Property on the secured roll.
<b>Secured Roll</b>	That part of the assessment roll containing state assessed property and property the taxes on which are a lien on real property sufficient, in the opinion of the assessor, to secure payment of taxes.
<b>Short-term lease</b>	Lease of property on a daily, weekly, or other short-term basis (defined as a period of less than 6 months).
<b>Sinking Fund Factor (<math>1/S_n</math>)</b>	The Compound interest factor that indicates the amount per period that will grow, with compound interest, to \$1.
<b>Situs</b>	The place where property is legally situated, the more or less permanent location of the property.
<b>Six Functions of \$1</b>	The six related compound interest functions used in the mathematics of finance and shown in standard compound interest tables.
<b>Stabilized Occupancy</b>	A level of occupancy that is expected to continue over the economic life of a property.
<b>Statute of Limitations</b>	Time period during which an assessment can be made. See section 532.
<b>Straight-line Recapture</b>	The recovery of capital in equal, periodic increments over the remaining economic life of an asset.
<b>Structure</b>	An edifice or building; an improvement whose primary use or purpose is for housing or accommodation of personnel, personalty, or fixtures and has no direct application to the process or function of the industry, trade, or profession.
<b>Structure Items</b>	Integral parts of the structure. Improvement that has a primary use or purpose for housing or accommodation of personnel, personalty, or fixtures and has no direct application to the process or function of the industry, trade, or profession.
<b>Sublease</b>	An agreement in which the lessee in a prior lease conveys the right of use and occupancy of a property to another.
<b>Substitution, Principle of</b>	When several similar or commensurate commodities, goods, or services are available, the one with the lowest price attracts the greatest demand and widest distribution. This principle assumes rational, prudent market behavior with no undue cost due to delay. A buyer will not pay more for one property than for another that is equally desirable.

<b>Supplemental Assessment</b>	An assessment of the full cash value of property as of the date a change in ownership occurs or new construction is completed which establishes a new base year value for the property or for the new construction.
<b>Supplies</b>	Property used up in the normal operation of a business, but which are not intended for sale of lease.
<b>Tax Shelter</b>	Investment features that provide relief from income taxes or allow the investor to claim deductions from taxable income.
<b>Taxable Value</b>	For real property subject to article XIII A of the California Constitution, the base year full value adjusted for any given lien date as required by law or the full cash value for the same date, whichever is less, as set forth in section 51(a).
<b>Tenant Improvements</b>	See Leasehold Improvements
<b>Trade Fixture</b>	A type of fixture which is "trade-related."
<b>Trade Level</b>	Property normally increase in value as it progresses through production and distribution channels.
<b>Trade-in Allowance</b>	Property used for payment in whole or in part for acquisition of other property (usually older property used as partial payment for new property).
<b>True Lease</b>	Agreement under which an owner gives up possession and use of his property for valuable consideration and for a definite term and at the end of the term, the owner has the absolute right to retake, control, or convey the property.
<b>Typical Depreciation</b>	Expected depreciation for a type of property.
<b>Unit of Comparison</b>	The components into which a property may be divided in order to make comparisons, e.g., an apartment might be compared by price per apartment unit, price per room, price per gross square footage, or price per leasable square footage.
<b>Unsecured Property</b>	Property on the unsecured roll.
<b>Unsecured Roll</b>	See definition of secured roll. Remainder of the roll is the unsecured roll. The taxes are a personal liability of the owner.
<b>Utility</b>	The capacity of goods to evoke a desire for possession; wantedness; want-satisfying power.
<b>Vacancy and Collection Loss</b>	An allowance for reductions in potential income attributable to vacancies, tenant turnover, and nonpayment of rent.

<b>Value</b>	The power of one commodity to command other commodities in exchange; a ratio of exchange; present worth of future net benefits.
<b>Weighted Average</b>	An average that is calculated by weighting each component by a factor that represents its relative importance to the whole, multiplying each component by its assigned weight, and adding the products; used in the band of investment method.
<b>Working Capital</b>	The readily converted capital that a business uses to conduct operations free from financial embarrassment; in accounting, current assets minus current liabilities as of a certain date.
<b>Yield</b>	The return on investment.
<b>Yield Capitalization</b>	A capitalization method used to convert future benefits to present value by discounting each future benefit at an appropriate yield rate or by developing an overall rate that reflects the investment's income pattern, value change, and yield rate.
<b>Yield Rate</b>	A measure of investment return (usually annualized) that is applied to a series of incomes to obtain the present value of each; examples are the interest rate, the discount rate, the internal rate of return, and the equity yield rate.

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