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Business Valuation, Forensic Analysis, and Financial Opinion Insights

Thought Leadership in Property Tax Planning, Compliance, and Appeals

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Thought Leadership

Insights

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We welcome reader comments, suggestions, and questions. We welcome reader recommendations with regard to thought leadership topics for future *Insights* issues. In particular, we welcome unsolicited manuscripts from legal counsel, accountants, bankers, and other thought leaders involved in the valuation and forensic services community. Please address your comments or suggestions to the editor.

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Thought Leadership in Property Tax Planning, Compliance, and Appeals
Editor for This Issue: John C. Ramirez

Property Tax Planning Thought Leadership

Property Tax Compliance Thought Leadership

Property Tax Appeals Thought Leadership

Income Tax Thought Leadership

Willamette Management Associates Insights

Forethoughts

This *Insights* issue focuses on the thought leadership related to the ad valorem state and local taxation ("SALT") of industrial and commercial property. This *Insights* issue considers property valuation topics that may become the genesis of conflicts between SALT assessment authorities and taxpayer property owners.

First, this *Insights* issue presents a thought leadership discussion of the standard of value differences between fair value and fair market value—and why such differences may make financial accounting fair value measurements inapplicable for property tax valuation purposes. This issue also presents discussions related to the application of the capital asset pricing model and the inclusion of a property-specific risk premium to estimate discount rates and direct capitalization rates.

Second, this *Insights* issue presents several discussions related to (1) the generally accepted intangible property valuation approaches and methods and (2) the identification and extraction of intangible property value from unit principle valuations. These discussions are applicable to taxing jurisdictions that do not tax intangible property.

Third, this *Insights* issue presents best practices related to the identification and measurement of functional and economic obsolescence—which may become a source of controversy in the cost approach valuation of industrial or commercial taxpayer property.

Willamette Management Associates analysts routinely perform the following types of property tax valuation services: (1) appraisals of industrial or commercial property, (2) unit principle valuations of utility-type taxpayer property, (3) capitalization rate studies, (4) functional obsolescence and economic obsolescence measurement analyses, (5) cost of capital flotation cost studies, and (6) valuations of various types of intangible personal property.

About the Editor

John C. Ramirez

John C. Ramirez is a managing director of our firm and the director of our Portland, Oregon, office. John also leads our property tax valuation services practice.

John has nearly 15 years of experience in providing valuation consulting, economic analysis, and transaction advisory services. These services include performing valuations and economic analyses for purposes of forensic analysis and dispute resolution, income tax and property tax compliance, estate and gift tax planning, bankruptcy and reorganizations, shareholder oppression and dissenting shareholder appraisal rights claims, transfer pricing, transaction opinions, commercial damages measurement, reasonableness of executive compensation analysis, and appraisal review.

John's practice is focused on assisting taxpayer property owners, taxing authorities, and their professional advisers on issues related to unit principle property valuation, the identification and valuation of intangible property, capitalization rate studies, and obsolescence studies.

Recently, John completed the following types of analyses: (1) intangible personal property valuations for two of the largest U.S. railroad companies and for a multinational ride-hailing company, (2) unit principle valuations for property tax dispute purposes involving two natural gas distribution properties in Missouri and several electric generation facilities in New Mexico and Texas, and (3) a commercial damages measurement involving the U.S. Department of the Treasury's denial of cash grants related to the construction of a billion dollar solar photovoltaic electric generation facility in Nevada.

John has authored numerous articles in professional journals on topics related to property tax valuation, intangible asset valuation, and business valuation. He has published in such professional journals as the *Journal of Property Tax Assessment & Administration*, *Journal of Multistate Taxation*, *World Trademark Review*, *Valuation Strategies*, and *Insights*.

John earned a bachelor of science degree in business administration, with a concentration in finance, from Portland State University School of Business Administration magna cum laude (with honors).

John is an accredited senior appraiser (ASA) of the American Society of Appraisers, accredited in business valuation, and he is a member of the Portland chapter of the American Society of Appraisers.

The Identification and Extraction of Intangible Property from Unit Principle Valuations

Tia Hutton and John C. Ramirez

Many taxing jurisdictions do not tax intangible property for property tax purposes. However, many taxing jurisdictions assess certain industrial or commercial property based on the unit principle of property valuation. The application of the unit valuation principle typically includes the value of all of a taxpayer's operating property, including intangible property. The inclusion of intangible property in such a tax assessment can, in some cases, substantially affect the amount of the assessment. For this reason, property owners may retain a valuation analyst to value and subtract any intangible property from the unit principle valuation. First, this discussion summarizes the unit principle valuation of industrial and commercial property. Second, this discussion describes the identification of intangible property and the generally accepted intangible property valuation approaches and methods applicable for property tax purposes. Finally, this discussion presents two methods that are frequently applied to remove the value of intangible property from a unit principle valuation prepared for property tax purposes.

Introduction

The word "assets" is an accounting term and the word "property" is a legal term. These two terms do not necessarily mean the same thing (i.e., all assets are not necessarily property and vice versa). However, for simplicity, these terms are used interchangeably in this discussion.

Intangible property can be very valuable. Valuation analysts ("analysts") are often retained to estimate the value of intangible property for a variety of reasons. Such reasons may include transaction pricing and structuring, financial accounting and reporting, taxation planning and compliance, bankruptcy and reorganization, intercompany use and ownership transfer, and so on. The focus of this discussion is the identification and extraction of intangible property value from unit principle valuations prepared for property tax compliance, appeal, or litigation purposes.

First, this discussion summarizes the unit principle valuation of industrial and commercial property. Second, this discussion describes the process that analysts follow in the identification of intangible property and in the application of generally accepted intangible property valuation approaches and methods. Finally, this discussion presents the methods that analysts may apply to subtract the value of intangible assets from the total unit value in taxing jurisdictions that do not tax intangible property.

The Unit Valuation Principle

For property tax purposes, many taxing jurisdictions assess certain types of industrial or commercial property based on the unit valuation principle—and not on the summation valuation principle.

In a summation principle valuation, a separate appraisal is performed for each asset category (or component) of the taxpayer property. The total value of the taxpayer property is the sum of the individual asset category values.

To perform a summation principle valuation, each category of taxpayer property is subject to separate identification and individual valuation. It can be difficult to separate each asset category for certain types of industrial and commercial properties. For this reason, the summation valuation principle is typically applied to value relatively simple properties, such as high-rise apartment buildings or high-rise office buildings.

The unit valuation principle is typically applied to value more complex properties. In a unit principle valuation, all of the taxpayer's operating assets are valued collectively, in the aggregate, as a single unit of property. The total unit value equals the value of all of the taxpayer operating assets (both tangible assets and intangible assets) functioning collectively on a going-concern, or value in continued use, basis.

The unit valuation principle is often applied when the taxpayer's real estate and tangible personal property is physically, functionally, and economically integrated. For example, the unit valuation principle is often applicable when an industrial or commercial property operates as a continuous operating process. Examples include oil and gas refineries, chemical and other processing plants, mining and mineral extraction facilities, cable television properties, electric generation plants, hospitals and nursing homes, and others.

Additionally, the unit valuation principle is often applied when the taxpayer property is a utility-type property that crosses over several counties, states, or other taxing jurisdictions. Examples of such properties include railroads, airlines, interstate and intrastate pipelines, water distribution systems, wastewater distribution systems, gas distribution systems, electric distribution systems, and telecommunications systems.

The value conclusion of the unit principle valuation includes all of the categories of taxpayer property, including working capital accounts, real estate, tangible personal property, and intangible personal property. Importantly, not all of these property categories may be subject to property taxation in the relevant taxing jurisdiction.

In taxing jurisdictions that do not tax intangible property, both the taxpayer and the assessment authority should ensure that any intangible property value is excluded from the assessment based on the unit valuation principle.

If the assessment includes intangible property that is not subject to taxation, the value of that intangible property should be removed from the assessment (which may be the total unit value).

Identification of Intangible Property

The initial step in performing an intangible asset valuation is to identify the subject intangible asset.

There are numerous legal, accounting, and taxation definitions for the term "intangible asset." Most of those definitions typically relate to the specific purpose and are extracted from a particular statutory authority, administrative ruling, or judicial precedent. This discussion focuses on the general economic attributes that help analysts determine the existence of an intangible asset. It is important for the taxpayer and analyst to research whether a purpose-specific definition of intangible asset exists.

According to the textbook *Valuing Intangible Assets*,[1] the characteristics or economic attributes necessary for identification as an intangible asset include the following:

1. It is subject to a specific identification and a recognizable description.
2. It is subject to legal existence and legal protection.
3. It is subject to the rights of private ownership, and that private ownership should be legally transferrable.
4. It is documented by some tangible evidence or manifestation of its existence (e.g., a contract, a license, a set of financial statements).
5. It is created or comes into existence at an identifiable time or as the result of identifiable event.
6. It is subject to being destroyed or to a termination of existence at an identifiable time or as the result of an identifiable event.

In other words, there should be a specific bundle of rights associated with the existence of any identifiable intangible asset. These identifiable intangible assets should be transferable.

However, this statement does not imply that the intangible asset has to be readily marketable or that the taxpayer owner would ever plan to transfer the intangible asset.

And, this statement does not imply that the intangible asset has to be sold separately from all other assets. In fact, just the opposite is true. Intangible assets are often sold with tangible assets and/or with other intangible assets.

The above-listed items describes the economic attributes of an intangible asset. Analyst consider these economic attributes in order to determine the existence of an intangible asset.

There is a distinction (sometimes substantial) between the existence of an intangible asset and the value of the intangible asset. It is possible for an intangible asset to have economic existence while having little or no quantifiable value.

For an intangible asset to have a quantifiable value from a valuation perspective, it should possess certain economic attributes. According to the textbook *Best Practices: Thought Leadership in Valuation, Damages, and Transfer Price Analysis*,[2] these attributes may include the following:

1. The intangible asset should generate some measurable amount of economic benefit to its owner. This economic benefit could be in the form of an income increment, a cost decrement, and/or an investment decrement. This economic benefit may be measured in any one of the several ways, including net income, net operating income, net cash flow, and so on.
2. The intangible asset should be able to enhance the value of the other assets (tangible or intangible) with which it is associated. These other assets may encompass all other assets of the operating business enterprise of an owner/operator, including tangible personal property, real estate, or other intangible assets.

Some inexperienced analysts may confuse the term intangible asset with intangible factors, elements, influences, or attributes. Some economic phenomena attributes may contribute to the existence of—and value of—identifiable intangible assets. However, such economic phenomena may not possess the requisite characteristics to distinguish them as identifiable intangible assets.

Some economic phenomena that do not qualify as an intangible asset—but may be considered intangible factors or influences—include the following:

- High market share
- Lack of regulation
- Monopoly position (or barriers to entry)
- Market potential
- Competitive advantage (i.e., technological superiority, uniqueness, economies of scale, synergies, efficiencies)
- General positive reputation

Types of Intangible Property

For a variety of accounting, legal, taxation, and other reasons, industrial or commercial property are often distinguished between tangible assets and intangible assets. Industrial or commercial intangible assets can further be grouped into two categories:

1. Intangible real property
2. Intangible personal property

Intangible Real Property

Intangible real property is a familiar category for many taxpayers. This is because it is not uncommon for legal interests in real estate to be subdivided and transferred. Intangible real property is the transferable legal interest in real estate.

The value of intangible real property is not derived from the ownership of the real estate itself. The real estate ownership is vested in a separate party (e.g., landlord, the lessor, or the licensor). The value of intangible real property is derived from the legal rights it grants to real estate.

Examples of intangible real property include leases, occupancy permits, building permits, surface rights, air rights, mining rights, water extraction rights, drilling rights, and so forth. In contrast, examples of tangible real property include land improvements, buildings, and so on.

Intangible real property is often documented in a license, lease, easement, or other contract. This written document provides evidence of the existence of the intangible real property. This written document has a tangible element (i.e., the paper it is written on).

All intangible assets should have some form of physical evidence of their existence. However, the value of the intangible real property does not depend on the tangible evidence (e.g., the actual physical paper). Rather, the value of intangible real property depends on the legal rights (and economic expectations) associated with the written document.

Intangible Personal Property

The value of intangible personal property is derived from the legal rights, the intellectual property content, and/or the expected economic benefits that are associated with this category of intangible assets.

Analysts often group intangible personal property into four categories. The categorization process may be relevant from a property tax valuation perspective. This is because the four different categories of intangible personal property (although fundamentally similar) have slightly different economic attributes.

Sometimes this intangible personal property categorization process may have accounting, taxation, regulatory, or legal significance. Often, this categorization process makes sense because the four different categories of intangible personal property (although fundamentally similar) have slightly different economic attributes.

These four categories of intangible personal property are as follows:

1. Financial (working capital) assets
2. General intangible assets
3. Intellectual property
4. Intangible value in the nature of goodwill

Financial Assets

Most analysts are familiar with financial assets. For a business, financial assets are recorded as "current assets" for financial accounting purposes. Common examples of financial assets include cash, accounts receivable, notes receivable, stocks and bonds, and other negotiable investment securities. However, inexperienced analysts may not automatically think of financial assets as intangible assets.

As an example, let's consider cash—in the form of a $100 bill. The $100 bill clearly qualifies as an asset. It is unlikely for anyone to question that the $100 bill (1) is subject to ownership and (2) has value.

What may not be immediately clear is the $100 bill's classification as an intangible asset. The value of the $100 bill does not result from the physical paper note (i.e., the physical attributes). Rather, the value of the $100 bill results from the fact that the intangible asset owner has the legal right to exchange the paper instrument for goods and services. The value of this $100 bill comes from the expected economic benefits it can provide to the owner.

General Intangible Assets

The second category of intangible assets includes most other intangible assets that are not elsewhere categorized.

One categorization of general intangible assets follows:

- Technology-related (e.g., proprietary technology)
- Customer-related (e.g., customer lists, customer engineering drawings and technical documentation relationships, customer contracts)
- Contract-related (e.g., favorable supplier contracts, technology sharing agreements, franchise agreements)
- Data-processing-related (e.g., computer software, automated data bases)
- Human-capital-related (e.g., a trained and assembled workforce, noncompete covenants, employment agreements)
- Marketing-related (e.g., advertising materials, marketing brochures and materials)
- Location-related (e.g., leasehold interests, mineral or mining exploration rights)
- License-related (e.g., operational or environmental licenses or permits, pollution control permits)

It is important to note that the above-listed general intangible asset categories are for discussion purposes only. They do not represent any particular categorization for financial accounting, taxation, regulatory, legal, or other authority.

Intellectual Property

Intellectual property is created by human intellectual and/or inspirational activity. Such activity is typically specific, conscious, and can be attributed to the activity of specific individuals. In contrast, other intangible assets are created in the normal course of business operations.

In the United States, intellectual property is typically registered under—and is protected by—specific federal and state statutes. These statutes give the intellectual property owner specific legal rights with regard to commercial development and economic exploitation of the intellectual property. These statutes also give the intellectual property owner the right to prevent other parties from commercializing the intellectual property.

There are four types of intellectual property:

1. Trademarks and trade names (e.g., service marks, service names, and trade dress)
2. Patents (e.g., utility, design, and plant patents and the associated patent application)
3. Copyrights (e.g., musical and literary compositions, other works of art, and copyrights in computer software and engineering drawings)
4. Trade secrets (e.g., processes, designs, diagrams, drawings, schematics, memoranda, etc.)

Intangible Value in the Nature of Goodwill

There are different definitions (or types) of goodwill for transaction, taxation, financial accounting, litigation, and other purposes. For property tax purposes, the relevant type of goodwill is often business or institutional goodwill.

Analysts often refer to business or institutional goodwill as intangible value in the nature of goodwill. This is because the value of business or institutional goodwill is related to several components.

The components of business or institutional goodwill include the following:

- Going-concern value—This goodwill component is related to the fact that all of the elements of a taxpayer's total unit are physically and functionally assembled in place and ready to use.
- Excess income—This goodwill component is related to income generated by a taxpayer's total unit that is greater than amount needed to provide a fair rate of return on all of the tangible assets and identifiable intangible assets of the total unit.
- Present value of future growth opportunities—This goodwill component is related to the expectation of growth in future income associated with future assets (both tangible and intangible) that do not yet exist on the assessment date.

Generally Accepted Intangible Property Valuation Approaches and Methods

There are three generally accepted intangible property valuation approaches. These valuation approaches encompass a broad spectrum of applied microeconomics principles and investment concepts. Within each valuation approach, there are several valuation methods.

The three generally accepted intangible property valuation approaches are as follows:

1. The cost approach
2. The market approach (sometimes referred to as the sales comparison approach)
3. The income approach

The following discussion summarizes the generally accepted intangible property valuation approaches and methods. The discussion is presented in the context of applying the unit valuation principle to value industrial or commercial property. An in-depth explanation of each valuation approach and method is beyond the scope of this discussion.

Cost Approach

The cost approach indicates the value of an intangible asset as the cost (in terms of current dollar expenditures) required to create a hypothetical substitute intangible asset with equivalent utility and functionality as the actual intangible asset. The cost components in a cost approach analysis typically include direct costs, indirect costs, developer's profit, and entrepreneurial incentive.

If the substitute intangible asset is superior to the actual intangible asset, then allowances should be made for all forms of depreciation (including physical depreciation, functional obsolescence, and economic obsolescence) in order to estimate the value of the actual intangible asset.

The intangible asset cost approach valuation methods include the following:

- Reproduction cost new less depreciation method—The total cost, at current prices, to construct an exact duplicate or replica of the subject intangible asset, adjusted for depreciation
- Replacement cost new less depreciation method—The total cost to create, at current prices, an asset having equal functionality or utility of the intangible subject asset, adjusted for depreciation
- Historical cost less depreciation method (or an alternative method referred to as the trended historical cost less depreciation method)—Actual historical asset development costs may be identified and quantified and sometimes "trended" to the valuation date by an appropriate inflation-based index factor, adjusted for depreciation

The cost approach may have certain application limitations for intangible assets with unique qualities. Unlike some fungible assets, certain intangible assets are not fungible.

Market Approach

The market approach indicates the value of an intangible asset based on valuation pricing multiples derived from arm's-length sale or license transactions regarding either comparable or guideline intangible assets. Typically, individual intangible assets are not bought and sold in fee simple interest.

Accordingly, individual intangible asset sale transactional data are not often readily available. However, many intangible assets (such as trademarks, copyrights, and patents) are licensed in arm's-length transactions. When available, these transactional data may be used to prepare a market approach analysis.

The generally accepted intangible asset market approach valuation methods include the following:

- The sales comparison method
- The relief from royalty method
- The comparable profit margin method

Market approach methods are particularly applicable when there is sufficient quantity of comparable (almost identical) or guideline (similar from a risk and expected return perspective) intangible asset transaction data.

Income Approach

The income approach recognizes the prospective revenue, expenses, profitability, and investments associated with the ownership of an intangible asset. This approach indicates intangible asset value as the present value of future income.

That metric income may be measured as operating income, net income, net cash flow, operating cash flow, or some other measure of income, and it should be estimated over the asset's expected useful economic life ("UEL"). This expected income stream is brought to a present value by the use of an appropriate market-derived, risk-adjusted rate of return (or capitalization rate).

The generally accepted intangible asset income approach valuation methods include the following:

- Differential income (with/without) method
- Incremental income method
- Profit split method (or residual profit split method)
- Residual (excess) income method
- Capitalized excess earning method
- Multiperiod excess earnings method

Intangible asset income approach valuation methods are particularly applicable in situations where the intangible asset is used to generate a measurable (and separately identifiable) amount of income.

Intangible Property Value Extraction Methods

Many taxing jurisdictions do not tax intangible property from property taxation. However, property tax assessments are sometimes based on the unit valuation principle, which typically concludes a value for all of the taxpayer's operating property (both tangible and intangible). For this reason, the value of intangible property may need to be subtracted from the total unit value.

There are several methods that may be applied to subtract intangible asset value from the unit principle valuation conclusion. These value subtraction methods include the following:

1. Direct subtraction method
2. Transfer price (income allocation) method

When selecting an intangible asset value subtraction method, the analyst should refer to any legal precedents or statutes in the subject taxing

jurisdiction. In the event the taxing jurisdiction does not have a subtraction standard or precedent, the analyst should select the subtraction method that makes the most sense for the analysis.

For example, the intangible asset may have no separately identifiable income stream. In such a case, it would be difficult to deduct a specific amount of income from the total unit operating income in the income approach, as would be the case with the transfer price (income allocation) method.

Not having an identifiable income stream does not necessary imply that the asset is not an exempt intangible asset. The question of whether an intangible asset is taxable or not depends on the particular taxing jurisdiction.

Direct Subtraction Method

The direct subtraction method is the simplest to understand. There are two factors of the direct subtraction method:

1. the synthesized value of the total unit (based on any/all unit principle valuation approaches), and
2. the synthesized value of all exempt intangible assets (based on any/all intangible asset valuation approaches)

The concluded value of the intangible assets is subtracted from the total unit value to conclude the residual value of the taxable property.

Direct Subtraction Extraction Method Illustrative Example

Let's assume that the taxpayer refinery (the "Refinery") is assessed in its taxing jurisdiction based on the unit valuation principle. Let's assume that the local assessment authority values the Refinery total unit of operating property at $1 billion as of the valuation date.

Let's also assume that intangible personal property is not subject to property taxation in the Refinery's taxing jurisdiction. The Refinery owns internally developed software that is used in its operations. For simplicity, let's assume the Refinery does not have any other intangible property.

The Refinery retained an analyst to estimate the value of the internally developed software as of the valuation date. Based on this valuation analysis, the Refinery will exclude the value of the intangible personal property (i.e., the internally developed software) from the total unit value.

To value the Refinery's software, the analyst applied the cost approach, replacement cost new less deprecation method. The analyst concludes the value of the Refinery software, as of the valuation date, is $160 million.

As presented in Exhibit 1, the valuation synthesis indicates a value conclusion of the Refinery total unit of $1 billion. Subtracting the value of the software intangible personal property of $160 million, yields a residual value of $840 million for the Refinery taxable property (i.e., real estate and tangible personal property).

In this example, the software valuation analysis resulted in reducing the Refinery property tax assessment by 16 percent.

Exhibit 1
Assessment Authority's Valuation of Taxpayer Refinery Total Unit

Unit Principle Valuation Approach and Method	Value Indication
Income Approach:	
Yield Capitalization Method [a]	$1,100,000,000
Direct Capitalization Method [b]	$900,000,000
Sales Comparison Approach:	
Comparable Sales Method [c]	$960,000,000
Valuation Synthesis and Concluded Value of Refinery Total Unit	$1,000,000,000
Concluded Value of Refinery Total Unit	$1,000,000,000
Minus: Concluded Value of Refinery Computer Software [d]	$160,000,000
Equal: Residual Value of Refinery Taxable Property	$840,000,000

[a] Based on present value of Refinery total net cash flow.
[b] Based on direct capitalization of Refinery total net operating income.
[c] Based on comparable sales of operating refineries and market-derived pricing multiples.
[d] Based on replacement cost new less depreciation method.

Transfer Price (Income Allocation) Method

The transfer price (income allocation) method (hereinafter called the "transfer price method") assumes that an economic rent is charged to the taxpayer for the use of the intangible assets.

That rent (or "capital charge") is subtracted from the total unit operating income. In other words, the transfer price method makes the assumption that if the taxpayer did not in fact own the intangible assets, it would have to rent those intangible assets from the marketplace at an arm's-length price.

The total unit operating income is reduced by this intangible asset rent. The reduced total unit operating income is included in any income approach analysis or any sales comparison approach analysis applied to estimate the taxable property value. Since the intangible-asset-related income is excluded from the total unit operating income, no additional adjustment is necessary to subtract the value of the intangible assets from the total unit value.

Transfer Price (Income Allocation) Extraction Method Example

In this example, let's continue using the Refinery as the illustrative taxpayer. Let's also use the same assumptions that were applied in the direct subtraction extraction method example.

In the transfer price method, the analyst will estimate a fair rate of return on the value of the Refinery's computer software. The fair rate of return can be the taxpayer's weighted average cost of capital ("WACC") or some other industry/taxpayer return on investment measure. Let's assume that the Refinery WACC is 12.5 percent.

If the concluded cost approach value of the Refinery computer software is $160 million and the fair rate of return on investment on the Refinery's computer software is 12.5 percent, then the annual transfer price (or economic rent) for the use of the software is $20 million ($160 million multiplied by 12.5 percent).

The Refinery's operating income is reduced by this "rent" associated with the use of the computer software. The taxpayer may apply the same Refinery unit principle valuation income approach methods that the assessment authority applied to conclude the Refinery unit value. Of course, the operating income included in this income approach analysis is reduced by the rent (or arm's-length transfer price) on the software intangible asset. The result of this adjusted application of the income approach is a Refinery unit value conclusion that has been implicitly reduced by the value of the software intangible property.

Summary and Conclusion

Property owners and assessment authorities often have to consider the value of intangible property. Some taxing jurisdictions exempt intangible property from property taxation. And, some taxing jurisdictions tax intangible property for tax purposes.

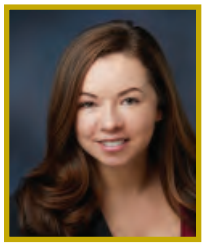
For property tax purposes, the industrial and commercial property of utilities, transportation, communication, and other similar utility-type properties are often assessed by applying the unit valuation principle. The unit valuation principle involves the collective valuation of all of a taxpayer's operating property as a single "unit." For this reason, property tax assessments that are derived using the unit valuation principle implicitly include the value of the taxpayer's intangible property.

In jurisdictions that do not tax intangible property, property owners and assessment authorities should ensure that the value of any exempt intangible property is excluded from the unit valuation principle assessment. If the assessment includes exempt intangible property, the taxpayer should identify the intangible assets, value the intangible assets, and subtract the value of those intangible assets from the total unit value.

This discussion focused on the economic attributes that are necessary for the identification of intangible property. Additionally, this discussion summarized the generally accepted intangible property valuation approaches and methods. Finally, this discussion illustrated two methods for subtracting the value of the intangible property from the taxpayer's total unit value.

Notes:

1. Robert F. Reilly and Robert P. Schweihs, *Guide to Intangible Asset Valuation* (New York: American Institute of Certified Public Accountants, 2014), 2–3.
2. Robert F. Reilly and Robert P. Schweihs, *Best Practices: Thought Leadership in Valuation, Damages, and Transfer Price Analysis* (Ventnor, NJ: Valuation Products and Services, 2019), 288.



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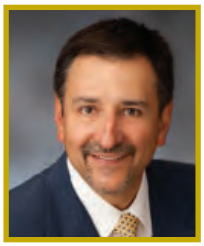

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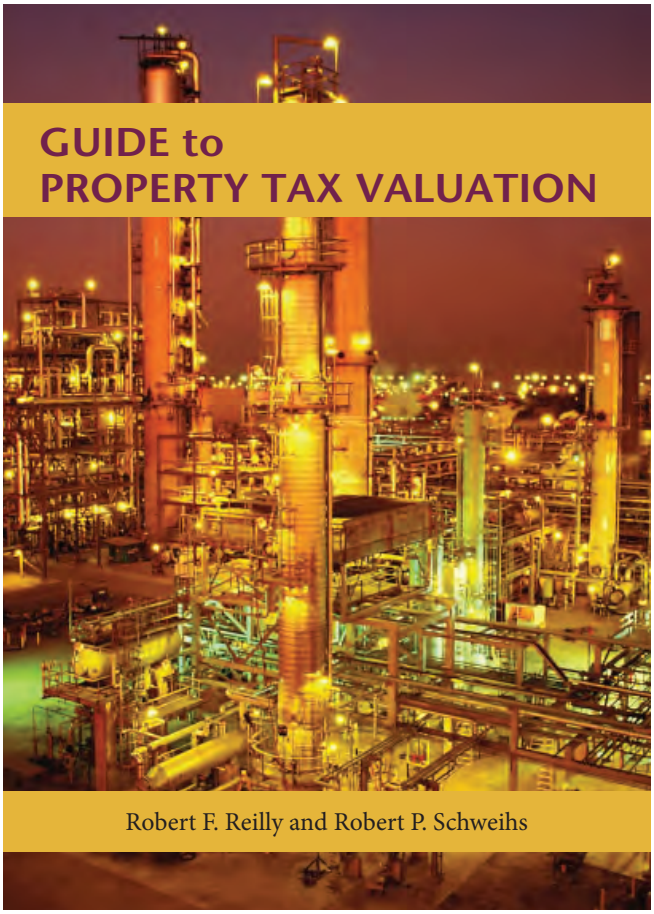

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GUIDE TO PROPERTY TAX VALUATION

Robert F. Reilly and Robert P. Schweihs

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Generally Accepted Intangible Property Valuation Approaches, Methods, and Procedures

Travis C. Royce and John C. Ramirez

Valuation analysts ("analysts") are often called on to value an industrial or commercial taxpayer's intangible property for property tax purposes. The first procedure in any intangible property valuation is the selection of the appropriate valuation approach (or approaches) to apply to the intangible property. The generally accepted intangible property valuation approaches are the cost approach, the market approach, and the income approach. The analyst then selects one or more of the generally accepted valuation methods within each selected approach. The selection of valuation approaches and methods is based on various criteria, such as the quality and quantity of available data and the analyst's professional judgment. This discussion describes the generally accepted intangible property valuation approaches, methods, and procedures that may be applicable for property tax compliance, appeal, or litigation purposes.

Introduction

The valuation of intangible property for property tax purposes is relevant both (1) in jurisdictions where intangible property is subject to property taxation and (2) in jurisdictions where intangible property is not subject to property taxation.

The valuation of intangible property may be applicable to utility, transportation, communication, and other similar utility-type taxpayers. That is because such taxpayers are typically assessed based on the unit valuation principle. In jurisdictions that do not tax intangible property, the value of exempt intangible property may be subtracted from the taxpayer's total unit value in order to conclude the value of the taxable tangible property.

Some jurisdictions tax intangible personal property. In such jurisdictions, taxpayers need to know the value of their taxable intangible property.

This discussion summarizes the generally accepted valuation approaches and methods that may be applied to value intangible property for property tax purposes.

Generally Accepted Intangible Asset Valuation Approaches

There are three generally accepted intangible property valuation approaches:

1. The cost approach
2. The market (or sales comparison) approach
3. The income approach

The cost approach is based on the economic principle of substitution. This economic principle concludes that an investor will pay no more for an

investment than the cost to obtain (i.e., either to purchase or to construct) an investment of equal utility. For purposes of this economic principle, utility can be measured in many ways, including functionality, desirability, and so on.

The market (or sales comparison) approach is based on the related economic principles of competition and equilibrium. These economic principles conclude that, in a free and unrestricted market, supply and demand factors will drive the price of an investment to a point of equilibrium.

The principle of substitution also influences the market approach. This is because the identification and analysis of equilibrium prices for substitute investments will provide important evidence with regard to the value of the intangible asset.

The income approach is based on the economic principle of anticipation (sometimes also called the principle of expectation). In this valuation approach, the value of the intangible asset is the present value of the expected income to be earned from the ownership or operation of the asset. As the name of the economic principle implies, the investor "anticipates" the "expected" income to be earned from the ownership or operation of the intangible asset. This expectation of prospective income is then converted to a present worth.

There are numerous alternative definitions of income that may be considered in an income approach valuation. If properly analyzed, many different definitions of income can be analyzed to provide a reasonable indication of value.

This valuation approach requires the analyst to estimate the investor's required rate of return on the investment generating the prospective income. This required rate of return will be a function of many economic variables, including the risk—or the uncertainty—of the expected future income.

Analysts often attempt to apply all three valuation approaches in order to obtain a multidimensional perspective on the intangible asset.

For each intangible asset valuation, the analyst typically selects the valuation approach (or approaches, if applicable):

1. for which there are the greatest quantity and quality of available data,
2. that best reflects the actual transactional negotiations of market participants in the owner/operator industry,
3. that best fits the characteristics (e.g. use, age, etc.) of the intangible asset, and
4. that is most consistent with the practical experience and the professional judgment of the analyst.

Due to data limitations, many intangible asset valuations are based primarily on only one valuation approach.

Market Approach Valuation Methods

The application of the market approach generally involves five procedures:

1. Research the appropriate exchange market to obtain information on sale/license transactions, listing, and offers to buy or sell/license intangible assets that are similar to the intangible assets in terms of characteristics such as intangible asset type, intangible asset use, industry in which the intangible asset functions, date of sale, and so on.
2. Verify the information by confirming that the data obtained are factually accurate and that the sale or license exchange transactions reflect arm's-length market considerations. This verification procedure may also elicit additional information about the current market conditions for the sale or license of the intangible asset.
3. Select relevant units of comparison (e.g., income multiples or dollars per unit—units such as "per patent," "per mask work," or for computer software "per line of code") and develop a comparative analysis for each unit of comparison.
4. Compare the "guideline" intangible asset sale/license transactions with the subject intangible asset using the relevant units of comparison and then adjust the sale/license price of each guideline transaction appropriately to the intangible asset. If the guideline intangible asset cannot be sufficiently adjusted to the subject intangible asset, the guideline sale/license transaction should be eliminated from future consideration.
5. Reconcile the various value indications produced from the analysis of the guideline sale/license transactions into a value indication or range of value indications. In an imprecise market—subject to varying economics—a range of values may sometimes be a better conclusion than a single value estimate.

The generally accepted market approach valuation methods include the following:

1. The sales comparison method
2. The relief from royalty ("RFR") method
3. The comparable profit margin method

All market approach valuation methods are also based on a measure of comparability. The sales comparison method is based on comparable (or guideline) sales data. The RFR method is based on comparable (or guideline) licenses data. And, the comparable profit margin method is based on comparable (or guideline) company data. The first two methods rely on transactional data. The comparable profit margin method, on the other hand, is based on financial performance data.

There are 10 basic elements of comparison that analysts typically consider when selecting, analyzing, and adjusting guideline intangible asset sales/ license transactional data:

1. The legal rights of intangible asset ownership that were conveyed in the guideline transaction.
2. The existence of any special financing terms or arrangements (e.g., between the buyer/licensee and the seller/licensor).
3. The existence, or absence, of arm's-length sale or license conditions.
4. The economic conditions that existed at the time of the intangible asset sale/ license transaction.
5. The industry in which the guideline intangible asset was or will be used.
6. The physical characteristics of the guideline sale/license assets compared to the subject intangible asset.
7. The functional characteristics of the guideline sale/license assets compared to the subject intangible asset.
8. The technological characteristics of the guideline sale/license assets compared to the subject intangible asset.
9. The economics of the guideline sale/license assets compared to the subject intangible asset.
10. The inclusion of other (not intangible) assets in the guideline sale/license transactions. This may include the sale/license of a bundle or portfolio of assets, which could include tangible personal property and/or real estate, as well as intangible assets.

One element that often directly affects the selection and adjustment of guideline sale/license transactions is expected useful economic life ("UEL"). The estimation of UEL (often called a "lifing analysis") is considered in each valuation approach as follows:[1]

1. In the income approach, a lifing analysis may be performed to estimate the projection period for the intangible asset income subject to either yield capitalization or direct capitalization.
2. In the cost approach, a lifing analysis may be performed to estimate the total amount of obsolescence, if any, from the estimated measure of "cost"—that is, the reproduction cost new or the replacement cost new or the historical cost.
3. In the market approach, a lifing analysis may be performed to select, reject, and/or adjust comparable or guideline intangible asset sale or license transactional data.

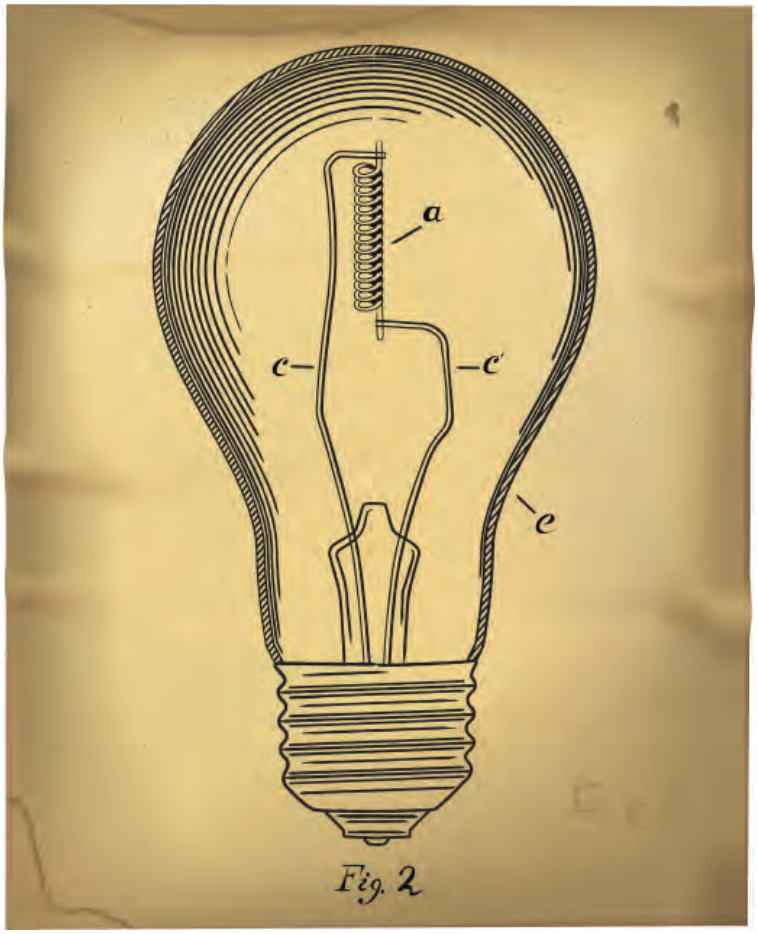
In the reconciliation procedure, the analyst reviews the data and analyses that resulted in each of the value indications. The analyst considers the strengths and weaknesses of each value indication based on (1) the reliability of the market data compiled and (2) the appropriateness of the analytical procedures applied. The analyst then takes these various indications and reconciles them into either a range of values or a single value indication.

Cost Approach Valuation Methods

Within the cost approach, there are several valuation methods. Each of these valuation methods uses a different definition of cost. Some of the definitions of—or types of—cost measurement include the following:

- Reproduction cost new
- Replacement cost new
- Historical cost

Replacement cost is the total cost to create, at current prices, an intangible asset having equal functionality or utility as the intangible asset. However, the replacement intangible asset would be created with contemporary scientific research, design, and development methods. Accordingly, the replacement intangible asset may have greater utility (in terms of commercial potential, technological capability, etc.) than the intangible asset.



Functionality is an engineering concept that means the ability of the intangible asset to perform the task for which it was designed. Utility is an economics concept that means the ability of the intangible asset to provide an equivalent amount of satisfaction to the owner/operator.

Reproduction cost is the total cost, at current prices, to create an exact duplicate intangible asset. This duplicate intangible would be created using the same scientific research, design, and development methods used to create the original intangible asset.

"Replacement cost new" typically establishes the maximum amount that a prudent investor would pay for a fungible intangible asset. However, some types of intangible assets are not fungible. To the extent that an intangible asset is less than an ideal replacement for itself, the value of the intangible asset should be adjusted accordingly.

The textbook *Valuing Machinery and Equipment* explains the difference between "replacement cost new" and "reproduction cost new":[2]

> Replacement cost is the current cost of a similar new property having the nearest equivalent utility as the property being appraised, whereas reproduction cost is the current cost of reproducing a new replica of the property being appraised using the same, or closely similar, materials.
>
> In using the cost approach, the appraiser is comparing to the subject property the property that could actually replace it. The replacement property would be the most economical new property that could replace the service provided by the subject.

There are several other cost measures that are sometimes considered in an intangible asset cost approach analysis. Some analysts consider a measure of cost avoidance or opportunity cost as a cost approach measure. This measure quantifies either historical or prospective costs that are avoided (i.e., not incurred) by the intangible owner due to the ownership of the intangible asset.

Some analysts consider trended historical costs as a current cost measure. In this measure, historical intangible asset development costs are identified and trended to the valuation date by an inflation-based index factor. This trended historical cost method is particularly applicable when:

1. the intangible asset is relatively new or
2. the owner/operator has fairly complete records related to the historical development costs and efforts.

All cost approach valuation methods typically include a comprehensive measurement of cost. These cost measurements (reproduction, replacement, historical, etc.) typically include the cost of all materials, labor, overhead, developer's profit, and entrepreneurial profit (e.g., return on capital during the intangible property development period).

The cost approach valuation methods include the following:

- Reproduction cost new less depreciation method
- Replacement cost new less depreciation method
- Trended historical cost less depreciation method
- Historical cost less depreciation method

Cost alone (regardless of the type or measurement of the cost) typically does not provide a reasonable indication of value. Various forms of obsolescence have to be identified, quantified, and subtracted in order to estimate value.

The intangible asset's cost metric is typically adjusted for loss in value due to:

- physical deterioration
- functional obsolescence, and
- economic obsolescence.

Physical deterioration is the reduction in asset value due to physical wear and tear. It is unlikely that an intangible asset will experience physical deterioration. Nonetheless, the analyst should always consider the existence of any physical deterioration in a cost approach analysis.

Functional obsolescence is the reduction in intangible asset value due to its inability to perform the function (or yield the periodic utility) for which it was originally designed. Technological obsolescence is a decrease in intangible asset value due to improvements in technology that make the intangible asset less than an ideal replacement for itself.

Economic obsolescence (a component of external obsolescence) is a reduction in value due to events that are external to—and not controlled by—the current use or condition of the intangible asset. The impact of economic obsolescence is typically beyond the control of the intangible asset owner and, therefore, is considered incurable.

Not every intangible asset suffers from each form of obsolescence. However, the consideration, identification, and quantification of the various forms of obsolescence (to the extent that they exist) is an important procedure in the cost approach. The measure or metric of cost (as defined by the individual method) less the measure of obsolescence provides an intangible asset value indication.

Income Approach Valuation Methods

There are numerous measures of income that may be applied in the income approach. These income measures include the following:

1. Earnings before interest, taxes, depreciation, and amortization ("EBITDA")
2. Earnings before interest and taxes ("EBIT")
3. Net operating income
4. Net income (before tax or after tax)
5. Net cash flow
6. Other measures (such as incremental income)

Given the different income measures that may be applied in the income approach, one important procedure in this approach is to ensure that the discount rate or capitalization rate used in the analysis is derived on a basis consistent with the income measure.

There are at least as many income approach valuation methods as there are measures of income. These methods may be grouped into categories based on methods with similar conceptual underpinnings and similar practical applications.

Several categories of income approach valuation methods are listed below:

1. Methods that quantify incremental levels of income (i.e., the owner/operator will enjoy a greater level of income by owning the intangible asset as compared to not owning the intangible asset)
2. Methods that quantify decremental levels of costs—either expenses or investments (i.e., the owner/operator will suffer a lower level of costs—such as otherwise required investments or operating expenses—by owning the intangible asset as compared to not owning the intangible asset)
3. Methods that estimate the relief from a hypothetical royalty or rental payment (i.e., the amount of a royalty or rental payment that the owner/operator would be willing to pay to a third party in order to obtain the use of and the rights to the intangible asset)
4. Methods that quantify the difference in the value of overall business enterprise or similar business unit as the result of owning/operating the intangible asset (and using it in the business enterprise), as compared to not owning/operating the intangible asset (and not using it in the business enterprise)
5. Methods that estimate the value of the intangible asset as a residual from the value of an overall business enterprise (or a similar business unit) or as a residual from the value of an overall estimation of the total intangible asset value of a business enterprise (or similar business unit)

The generally accepted income approach valuation methods include the following:

- Differential income (with/without) method
- Incremental income method
- Greenfield method
- Profit split method (or residual profit split method)
- Disaggregated method

"In jurisdictions that do not assess intangible property, the value of exempt intangible assets should be subtracted from the total unit value in order to conclude the value of the taxable tangible property."

- Distributor method
- Residual (excess) income method
- Capitalized excess earning method
- Multiperiod excess earnings method

All of the income approach methods may be categorized as either (1) methods that rely on direct capitalization or (2) methods that rely on yield capitalization.

In a direct capitalization analysis, the analyst estimates the appropriate measure of income for one "normalized" prospective period and divides that income measure by an appropriate rate of return. The appropriate rate of return is called the direct capitalization rate. Depending on the expected duration of the intangible asset income measure, the direct capitalization rate may be appropriate for a specified finite period of time or for perpetuity.

In a yield capitalization analysis, the analyst estimates the appropriate measure of income for several discrete future time periods. This income measure projection is converted into a present value by the use of a present value discount rate.

The present value discount rate is the investor's required rate of return—or yield capitalization rate—over the expected term of the intangible asset income projection. The term of the income projection period—and whether or not a residual or terminal value should be considered at the conclusion of the specific projection period—depends on the expected duration of the intangible asset income measure.

Summary and Conclusion

The valuation of intangible property for property tax purposes is relevant both (1) in jurisdictions where intangible property is subject to property taxation and (2) in jurisdictions where intangible property is not subject to property taxation.

The valuation of intangible property may be applicable to utility, transportation, communication, and other similar utility-type taxpayers. These taxpayers are sometimes assessed based on the unit valuation principle. In jurisdictions that do not assess intangible property, the value of exempt intangible assets should be subtracted from the total unit value in order to conclude the value of the taxable tangible property.

This discussion summarized the general process that analysts go through in the valuation of intangible property for property tax purposes.

This discussion summarized the three generally accepted intangible property valuation approaches. Within each of the three valuation approaches, this discussion summarized the generally accepted intangible property valuation methods. Within each valuation method, this discussion summarized specific valuation procedures.

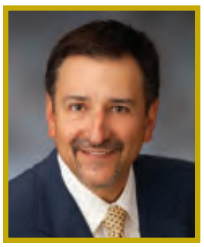
First, the analyst considers all intangible property valuation approaches and selects the most appropriate approach(es) given the quantity and quality of the available data. Second, the analyst selects the valuation method(s) within the selected approaches. Third, the analyst applies specific valuation procedures—both quantitative and qualitative—to the available data.

The application of these valuation approaches, methods, and procedures should result in a supportable intangible property value conclusion.

This article was adapted from "Generally Accepted Intangible Asset Valuation Approaches and Methods" (*Insights*, 2008).

Notes:

1. Robert F. Reilly and Robert P. Schweihs, *Best Practices: Thought Leadership in Valuation, Damages, and Transfer Price Analysis* (Ventnor City, NJ: Valuation Products and Services, 2019), 313.
2. *Valuing Machinery and Equipment: The Fundamental of Appraising Machinery and Technical Assets*, 3rd ed. (Washington, D.C.: American Society of Appraisers, 2011), 80.



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Best Practices Discussion

Best Practices for the Measurement of Functional and Economic Obsolescence in the Cost Approach Valuation of Industrial and Commercial Property

Connor J. Thurman and Robert F. Reilly, CPA

The consideration of both functional and external obsolescence is an important procedure in the application of the cost approach to value industrial or commercial property. Technological changes may cause industrial or commercial property in many industries to experience functional obsolescence. Changes in the subject industry economics may cause industrial or commercial property in many industries to experience the economic obsolescence component of external obsolescence. Taxpayer property owners should recognize the effect that such obsolescence may have on the value of their industrial or commercial property for property taxation purposes. This discussion summarizes best practices considerations for both the identification and the measurement of obsolescence in the cost approach valuation of industrial or commercial property.

Introduction

The identification and measurement of obsolescence is an important procedure in the application of the cost approach to value industrial and commercial property. This procedure is particularly important with regard to state and local taxation ("SALT") purposes. If the industrial or commercial property appraisal does not consider the impact of functional or external obsolescence, the taxpayer property owner may pay more than its fair amount of ad valorem property tax.

The existence of the various forms of obsolescence (including functional obsolescence and external obsolescence) may cause a decrease in the market value of many types of industrial and commercial property. SALT assessment authorities should consider these forms of obsolescence in the taxpayer's property assessment.

Taxpayer property owners should also consider these forms of obsolescence in their property tax filing and/or assessment negotiations.

In addition, independent valuation analysts ("analysts") should consider these forms of obsolescence in property appraisals performed for SALT planning, compliance, appeal, and litigation purposes. In fact, all property appraisers should consider the impact of current market conditions (and, thus, the effects of any economic obsolescence) in the application of the cost approach for the valuation of industrial or commercial property.

First, this discussion summarizes the various forms of obsolescence that should be considered in the application of the cost approach to value industrial or commercial property for SALT purposes. This discussion focuses on special purpose property. However, the valuation principles described

are generally applicable to any type of industrial or commercial property.

Second, this discussion summarizes the practical procedures that the property owner, the analyst, or the taxing authority can apply to (1) recognize the existence of any property obsolescence and (2) measure the amount of any property obsolescence.

Third, this discussion considers various analyst caveats related to (1) documenting the existence of any property obsolescence and (2) reporting the measurement of any property obsolescence.

And, fourth, this discussion suggests potential analyst responses to assessment authority objections regarding the recognition of obsolescence in the application of the cost approach in the industrial or commercial property valuation.

Forms of Property Depreciation

The forms of depreciation that should be recognized in the cost approach valuation of industrial and commercial property include the following:

- Physical deterioration
- Functional obsolescence (including the technological obsolescence component of functional obsolescence)
- External obsolescence (including the economic obsolescence component of external obsolescence)

Physical deterioration is a reduction in the value of the industrial or commercial property due to physical wear and tear, the impact of continued use, and the elements of nature. Typically, the value of the taxpayer's property is affected by physical deterioration in two ways:

1. The property's appearance deteriorates, and, thus, the depreciation decreases the property's value in its secondary market
2. The continued use or the effect of natural elements reduces the property's useful economic life ("UEL") and its anticipated remaining utility

Physical deterioration can be either curable or incurable.

Functional obsolescence is an impairment of the functional utility of the industrial and commercial property in comparison to current (i.e., as of the valuation date) design, construction materials, or operational standards. Functional obsolescence can be either curable or incurable.

The definition of curable depreciation means that it would cost the taxpayer less to cure the property (e.g., to modernize the real estate or tangible personal property) than the amount of the economic penalty associated with the deterioration or obsolescence. The definition of incurable depreciation means that it would cost the taxpayer more to cure the property than the economic penalty associated with the deterioration or obsolescence.

In many cases of incurable functional obsolescence, it may be physically impossible for the taxpayer to cure the causes of the obsolescence. Functional obsolescence represents more than the physical utility of the taxpayer's industrial or commercial property. Functional obsolescence may represent an inadequacy or a superadequacy in the design of the taxpayer's property.

In many cases, the property owner may experience the functional obsolescence related to either:

1. excess operating costs (as a result of the property inadequacy) or
2. excess capital costs (as a result of the property superadequacy).

Technological obsolescence is one component—or one category—of functional obsolescence. Technological obsolescence represents a decrease in the property's value due to improvements in technology that make the subject property less than an ideal replacement for itself. This form of obsolescence may occur, for example, when due to improvements in design or engineering technology, a new replacement property will produce a greater measure of utility or functionality.

There are two types—or categories—of external obsolescence:

1. Locational obsolescence
2. Economic obsolescence

Locational obsolescence involves a deterioration or other change in the neighborhood in which the taxpayer's property is located. One example of locational obsolescence would be the closing of the access to an interstate highway for an industrial facility that depends on such inbound or outbound transportation access.

Economic obsolescence is a reduction in the value of the property due to the effects, events, or conditions that are external to—and not controlled by—the current operation or condition of the taxpayer property. The effect of economic obsolescence is typically beyond the control of the taxpayer property owner. For that reason, economic obsolescence is typically considered to be incurable.

External obsolescence may be illustrated by a situation where the taxpayer's industrial or commercial property is not physically deteriorated, where it is performing exactly to its design specifications, and where its design specifications are still considered to be state of the art.

Even in this situation, the value of the property may be affected by the following external (i.e., external to the physical property) conditions:

- The use of the taxpayer property is affected by a legislative enactment, administrative ruling, or judicial precedent.
- An environmental agency or regulatory authority restricts the operation of the taxpayer property—or greatly restricts its use or productive output.
- An import duty, excise, value added, or other type of tax is imposed on the operation of—or the production output of—the industrial or commercial property.
- Changes in its surroundings make the taxpayer property physically inaccessible; or, alternatively, changes in local, regional, or industrial economic conditions make the operations of the taxpayer property less commercially attractive (i.e., generate a lower rate of return investment).

The above examples are more representative of the impact of economic changes on a special purpose property. However, many types of economic obsolescence will affect just about any type of industrial or commercial property.

External obsolescence is considered curable if it is financially feasible for the property owner to cure the events or conditions that cause the property obsolescence. The cure is financially feasible if it costs less for the property owner to cure the obsolescence than the economic penalty (i.e., the decrease in property value) associated with maintaining the obsolescence.

External obsolescence is considered incurable if it is not financially feasible for the property owner to cure the events or conditions that caused the obsolescence. The cure is not financially feasible if it costs more for the property owner to cure the obsolescence than the economic penalty associated with the obsolescence.

By definition, the causes of external (and economic) obsolescence are external to—meaning outside of—the taxpayer's property. Therefore, it is often physically impossible for the property owner to cure the external obsolescence.

Since external obsolescence is external to the property, external obsolescence is often incurable no matter how much money the taxpayer is willing to invest in the property. Because external obsolescence is caused by factors external to the subject property, most external obsolescence is considered to be incurable. That is, the property owner cannot change the events or conditions that caused the property value to decrease.

Examples of the Indicia of External Obsolescence

The following discussion presents illustrative examples of the conditions that may indicate the existence of external obsolescence.

The first portion of the discussion provides illustrative examples of the conditions that may cause external obsolescence with regard to industrial or commercial real estate. The second portion of the discussion provides illustrative examples of the conditions that may cause external obsolescence with regard to industrial or commercial tangible personal property.

Real Estate

The following conditions may indicate the existence of external obsolescence related to industrial or commercial real estate:

- Changes in the property zoning or an increase in zoning requirements
- A significant increase in the number of comparable properties available for sale on the market
- Changes in pedestrian, vehicular, or other traffic flow patterns around the subject industrial or commercial property
- Increases in local or regional unemployment rates
- Increases in local or regional gas, electric, water, wastewater, or other utility rates
- Changes in the local or regional government policies regarding economic development

Tangible Personal Property

The following conditions may indicate the existence of external obsolescence related to industrial or commercial tangible personal property (and particularly with regard to special use tangible personal property):

- Decreased demand for the product output of the industrial or commercial personal property

- Increased production costs related to the product output of the industrial or commercial personal property
- Increased competition within the taxpayer's industry
- Decreased rates of investor returns associated with the operation of the industrial or commercial personal property

While not comprehensive, these lists present illustrative events or conditions that may indicate the existence of external obsolescence related to either real estate or tangible personal property.

Components of External Obsolescence

As mentioned above, external obsolescence relates to a decrease in the value of industrial and commercial property due to influences that are external to the property. There are two principal components (or categories) of external obsolescence:

1. Locational obsolescence
2. Economic obsolescence

Locational obsolescence occurs when the locational or neighborhood characteristics of the industrial or commercial property have changed, resulting in a decrease in the value of the property. An example of locational obsolescence would be a high-rise office building that originally has an unobstructed view of the city's lakefront.

Let's assume that another high-rise office building is constructed in the vacant lot between the subject property and the lakefront. Without the lakefront views, the rental rates in the subject property decrease significantly. That subject property has experienced locational obsolescence.

Economic obsolescence occurs when the taxpayer property owner is no longer able to earn a fair rate of return on an investment in the industrial or commercial property.

An example of economic obsolescence would be a special purpose manufacturing plant that receives all of its inbound freight and ships all of its outbound freight on a short-line railroad. When the short-line railroad discontinues operations, the plant's cost of goods sold and product freight expense increase materially. That special purpose manufacturing facility may have experienced economic obsolescence.

The following discussion summaries the identification and the measurement of obsolescence in the industrial or commercial property.

Identification and Measurement of Obsolescence

Industrial and commercial property may be valued by applying the three generally accepted property valuation approaches: the income approach, the cost approach, and the sales comparison approach. The measurement of all forms of obsolescence is considered explicitly in the application of the cost approach to property valuation. The measurement of all forms of obsolescence is considered implicitly in the application of the income approach and the sales comparison approach to property valuation.

Therefore, the identification and the measurement of the different forms of property obsolescence vary depending on the property valuation approach applied to value the taxpayer's property.

The following discussion summarizes (1) the implicit measurement of obsolescence in the application of the income approach and the sales comparison approach and (2) the best practices related to the explicit measurement of obsolescence in the application of the cost approach.

Implicit Obsolescence Measurement in Income Approach and Sales Comparison Approach

Income Approach

The income approach value indication for the taxpayer property may be estimated by applying a direct capitalization rate to a stabilized or normalized income measure related to the property. The consideration of functional obsolescence may be implied in either or both:

1. the estimation of a normalized income metric for the property and
2. the selection of the appropriate direct capitalization rate.

For example, the taxpayer property's normalized income measure may consider all of the excess operating costs associated with the design deficiencies of the subject property (e.g., the excess heating and air conditioning expense related to the excess amount of office space in a warehouse or manufacturing facility).

Certain components of the direct capitalization rate are sometimes derived from publicly traded company data. The selected publicly traded companies considered in the capitalization rate analysis

may not suffer the same level of functional or economic obsolescence as the taxpayer's property.

If the selected publicly traded companies do not experience the same level of functional or economic obsolescence as the taxpayer's property, then the market-derived capitalization rate may need to be adjusted. This capitalization rate adjustment for functional or economic obsolescence may be reflected when the analyst selects the property-specific risk factor in the cost of equity capital.

Sales Comparison Approach

A sales comparison approach valuation analysis depends on the level of comparability of the selected comparable properties relative to the taxpayer's property. This statement is true both for sales comparison approach property valuation analyses performed as part of a summation principle valuation or as part of a unit principle valuation.

If the selected comparable properties are not sufficiently comparable to the taxpayer's property with respect to functional or economic obsolescence, then the selected comparable property pricing multiples may need to be adjusted.

In all cases, the comparable property pricing metrics should be adjusted to make the selected comparable properties more comparative to the taxpayer's property. In other words, the taxpayer's property should not be adjusted to make it more comparable to the comparable properties.

Instead, the comparable properties should be adjusted to make them more comparable to the taxpayer's property. Such an adjustment should attempt to make the comparable property pricing metrics reflect the effect of the taxpayer property's level of functional and economic obsolescence.

Best Practices for the Obsolescence Measurement in the Cost Approach

Functional Obsolescence

For all industrial or commercial property, both real estate and tangible personal property, functional obsolescence is usually related to inefficiencies associated with the design, construction, or operations of the taxpayer's property. These inefficiencies often relate to either inadequacies or superadequacies.

An inadequacy occurs when there is not enough of the taxpayer property (e.g., the physical property is too small) for it to operate efficiently. A superadequacy occurs when there is too much of the taxpayer property (e.g., the physical property is too large) for it to operate efficiently.

The following metrics are typically considered in the measurement of functional obsolescence in an industrial or commercial property:

1. Excess capital costs
2. Excess operating costs

The amount of excess operating costs is often considered in the analysis of a property's inadequacy or superadequacy. The amount of excess capital costs is often considered in the analysis of a property's superadequacy.

The analyst considers both excess capital costs and excess operating costs in the measurement of functional obsolescence related to the industrial and commercial property.

This consideration of functional obsolescence is not only a factor in the cost approach valuation of real estate and tangible personal property. It is also a factor in the cost approach valuation of intangible personal property.

This consideration of excess capital costs and excess operating costs can also be used to measure any functional obsolescence related to the superadequacy in intangible personal property. Examples of such intangible personal property include computer software, engineering drawings and product designs, a trained and assembled workforce, laboratory notebooks, training manuals, technical documentation, and many other "backroom" or "contributory asset" types of intangible personal property.

The consideration of excess capital costs and excess operating costs can also be used to measure functional obsolescence related to any intangible personal property inadequacy. In such situations, the functional obsolescence analysis would consider the capital costs or operating costs that would be required to cure the intangible property's inadequacy.

The costs to cure intangible property inadequacy may be considered by the analyst in the measurement of functional obsolescence. This is because a hypothetical willing buyer would reduce the price paid to a hypothetical willing seller for, let's say, software if the buyer will immediately have to incur capital (or operating) costs to cure the inadequacies in the software.

Another procedure to quantify functional obsolescence involves the classification and measurement of excess operating costs. In this measurement procedure, the analyst estimates the amount of the annual expense associated with operating with the deficient (inadequate or superadequate) property—as compared to the

amount of annual expense associated with operating the ideal replacement property.

With regard to the obsolescence measurement based on excess operating costs, the analyst typically estimates the time period over which that excess operating cost is expected to last. Typically, that time period is measured by the UEL of the property.

Often, the analyst calculates the present value of the excess operating cost over the property's expected UEL. This present value of the expected future excess operating costs measures the amount of functional obsolescence associated with the industrial or commercial property.

External Obsolescence

This discussion focuses on the economic obsolescence component of external obsolescence. That focus is appropriate because economic obsolescence more generally affects special purpose industrial and commercial property.

The economic obsolescence analysis is typically the last procedure in the application of any cost approach analysis. This statement is true for a real estate or tangible personal property valuation. And, this statement is also true for an intangible personal property valuation.

A principal objective of the economic obsolescence analysis is to determine if the taxpayer (i.e., the property owner/operator) can generate a fair rate of return on the investment in the industrial or commercial property.

If the taxpayer can earn a fair rate of return on the investment in the property, then the unadjusted cost approach estimate (before an economic obsolescence allowance) provides a value indication for that property. However, if the taxpayer cannot earn a fair rate of return, then the cost approach estimate has to be adjusted—by the amount of the economic obsolescence allowance—in order to provide the property value indication.

In other words, the cost approach estimate should be adjusted to the level at which the taxpayer can earn a fair rate of return on the ownership or operation of the industrial or commercial property. That cost approach estimate adjusted for economic obsolescence provides the property value indication.

Often, it is relatively easy for the analyst to identify either physical deterioration or functional obsolescence (if any) in the industrial or commercial property. This is because these forms of depreciation are inherent in the property.

In contrast, economic obsolescence is often more difficult to identify than either physical deterioration or functional obsolescence. This is because the causes of economic obsolescence are external to the industrial or commercial property.

The economic obsolescence analysis typically involves a two-step process:

1. Identify the existence of economic obsolescence
2. Quantify the amount of economic obsolescence

Procedures to Identify the Existence of Economic Obsolescence

It is appropriate for the analyst to consider the existence of economic obsolescence in every cost approach property valuation. There are several conditions affecting the industrial or commercial property that may indicate the existence of economic obsolescence. The analyst should particularly consider (i.e., look for) the existence of economic obsolescence if any of these conditions are affecting the property.

With regard to industrial or commercial property, these conditions may include the following:

1. The revenue generated by the property operations is decreasing in recent years
2. The profitability generated by the property operations is decreasing in recent years
3. Industry returns on investment are decreasing in recent years
4. Industry competition is increasing in recent years

These conditions are particularly relevant with regard to special purpose industrial or commercial property. In addition, these conditions are particularly relevant with regard to property that is valued by the application of the unit principle of property valuation. Nonetheless, the analyst should consider these conditions with regard to the cost approach valuation of all industrial or commercial property.

None of these conditions specifically measures the amount of economic obsolescence. Further, the above list of conditions is not exhaustive. However, the existence of one or more of these conditions may indicate the existence of economic obsolescence related to the industrial or commercial property.

In order to actually measure (i.e., quantify) any economic obsolescence related to the property, the analyst should consider both of the following factors:

1. Taxpayer-specific factors
2. Property-specific factors

Procedures to Measure Economic Obsolescence

Most of the analyses to quantify economic obsolescence are performed on a comparative basis. One comparative basis to measure economic obsolescence may be:

1. the property's actual operating results "with" the effects of economic obsolescence in place compared to
2. the property's operating results "without" the effects of economic obsolescence in place.

The "without" operating results often relate to a historical period before the current economic obsolescence conditions developed.

The comparative basis to measure economic obsolescence may also be:

1. the property's actual operating results "with" the effects of the economic obsolescence compared to
2. one or more sets of benchmark operating results "without" the effects of the economic obsolescence.

The analyst may review the property-related financial documents or operational reports in order to quantify different measurements of economic obsolescence. These types of property-related documents may include the following:

- Financial statements or financial results of operations
- Financial budgets, plans, projections, or forecasts
- Production statements, production cost analyses, or operating cost variance analyses
- Material, labor, and overhead cost of goods sold (or services delivered) analyses
- Fixed cost versus variable cost operating statements
- Raw material or other component costing analyses
- Cost/volume/profit analyses
- Unit/dollar sales or volume analyses or product price analyses

The analyst may analyze the property-related data and documents on several comparative bases, including the following:

- Actual results versus historical results
- Actual results versus prospective results
- Actual results versus specific comparative benchmark results
- Actual results versus specific competitor (or competitors) results
- Actual results versus industry average or benchmark average results
- Actual results versus the property's practical or normal production capacity

The analyst may analyze the property-related financial data in order to identify the causes of the economic obsolescence. The analyst may analyze property-level or unit-level profit margins, property-level or unit-level returns on investment, industrial/commercial production unit average selling price, industrial/commercial production unit cost of goods sold, or industrial/commercial production unit sales volume.

The analyst attempts to identify the external factors that cause the taxpayer to earn less than a fair rate of return on an investment in the industrial or commercial property.

The Industrial or Commercial Property Cost Approach Value Indication

By this point in the cost approach valuation analysis, the analyst has performed each of the following procedures:

1. Concluded that the application of the cost approach is appropriate for the industrial or commercial property
2. Confirmed that adequate current cost information is available to perform a cost measurement (e.g., replacement cost new or reproduction cost new) analysis
3. Selected the appropriate current cost measure for the industrial or commercial property
4. Included all appropriate cost components in the current cost measurement
5. Identified and quantified any necessary allowance for physical deterioration
6. Identified and quantified any necessary allowance for functional obsolescence
7. Identified and quantified any necessary allowance for economic obsolescence

The only remaining procedure is to subtract all of the depreciation and obsolescence from the cost metric in order to indicate the industrial or commercial property value based on the cost approach.

Ideally, the analyst will also have developed income approach and sales comparison approach value indications. In that case, the final value conclusion for the industrial or commercial property can be based on a synthesis and reconciliation of all of the property valuation approaches.

Illustrative Example of an Intangible Personal Property Cost Approach Valuation

As an example, let's consider the application of the cost approach to value the intangible personal property of an industrial taxpayer. The industrial taxpayer is the Omega Railway Company ("Omega"), a class I railroad.

Let's assume that the taxpayer's property is assessed based on the unit valuation principle in this particular taxing jurisdiction. Further, let's assume that intangible personal property is exempt from property taxation in that taxing jurisdiction. Let's assume that the statutory definition of value for SALT purposes in this taxing jurisdiction is fair market value.

Let's assume that the analyst is asked to value certain intangible personal property. That intangible property is exempt from property taxation. The valuation date is January 1, 2020. Omega management requires the valuation of its internally developed software in order to extract that intangible personal property value from its total unit value for SALT purposes.

Let's assume that Omega owns and operates 10,000 software applications. These applications control all of the operations of the railroad. The analyst is retained to estimate the fair market value of the Omega internally developed software. The analyst decides to apply the cost approach and the replacement cost new less depreciation ("RCNLD") method to estimate the fair market value of this intangible personal property.

The analyst begins the RCNLD analysis by estimating the replacement cost new ("RCN") for the Omega internally developed software. The total RCN measurement will indicate the cost for the taxpayer company to replace all of its software applications with new applications of comparable functionality and utility.

The cost metric (however measured) will typically include four cost components:

1. Direct costs
2. Indirect costs
3. Developer's profit

4. Entrepreneurial incentive

The direct cost component of the RCN may be estimated based on the total amount of compensation paid to taxpayer's software engineers who would replace the subject software.

The RCN would consider all of the other expenses that the taxpayer company would incur related to these software engineers. Those costs are typically considered to be indirect costs. Those indirect costs may include the following employer-paid expenses:

1. Payroll taxes
2. Employee benefits
3. Continuing professional education
4. Other company-related perquisites

The total of the direct and indirect costs that the taxpayer company pays for an employee is often referred to as the full absorption cost. This full absorption cost typically includes the following:

1. The compensation paid by the employer to the employee
2. The expenses paid by the employer to others so that the employee can perform his or her job

The direct costs and indirect costs that the employer would incur to replace the existing software with new software may include the following:

- Expenses related to the use of any third-party contractors that would be used to replace the software
- Training, supplies, and travel expenses of internal software engineers

- Facilities and other overhead expenses related to the development of the replacement software

In addition to the direct cost and indirect cost components related to replacing the internally developed software, there are two other cost components to be considered in the RCN analysis:

1. Developer's profit
2. Entrepreneurial incentive

The analyst should consider developer's profit in the RCN analysis. In this example, the developer's profit may be measured as the profit margin that an independent software development company would earn if the railroad retained such a company to replace the taxpayer's software.

Such an independent software development company would incur $1 billion in out-of-pocket (i.e., direct and indirect) costs. Of course, that development company would expect the willing buyer of the software to reimburse it for such out-of-pocket costs.

In addition, the software development company would also expect to earn a profit margin on top of its direct and indirect cost investment. Otherwise, the software company would never accept the assignment to replace the taxpayer's software.

The analyst should also consider entrepreneurial incentive in the RCN analysis. This cost component would be required to motivate the taxpayer company to develop the intangible property—instead of pursuing some other investment opportunity.

There are alternative analyst procedures for measuring entrepreneurial incentive. One procedure is for the analyst to estimate the opportunity cost that the taxpayer would experience during the intangible property replacement period.

This opportunity cost relates to the profits that would be lost by the taxpayer because it would not operate the to-be-developed software. When applying this procedure, the analyst should be careful to appropriately allocate the lost profits opportunity cost to all of the taxpayer's intangible property.

Another entrepreneurial profit measurement procedure is to calculate a fair rate of return on the subtotal of the intangible property cost components (i.e., direct costs, indirect costs, and developer's profit). The principle of this entrepreneurial profit measurement procedure is that the taxpayer would not develop the replacement intangible property if it did not expect to earn a fair rate of return on its development investment—during the development period.

After summing the direct costs, indirect costs, developer's profit, and entrepreneurial incentive cost components, the analyst next estimates the amount of depreciation (including obsolescence) related to the software. In other words, as in any cost approach analysis, the analyst has to consider if there is any deterioration or obsolescence related to this intangible property.

In this illustrative example, intangible personal property is not subject to property taxation in the taxing jurisdiction. And, Omega is subject to the unit principle of property valuation in this taxing jurisdiction. Therefore, Omega management has to identify and value any intangible personal property included in the taxpayer's total unit value.

Related to the application of the cost approach and the RCNLD method, the analyst may request taxpayer-specific data related to the software. These data may include the following:

1. The estimated period of time until the actual software will be retired (i.e., replaced)
2. Any indications of the software's inability to perform the functions for which it was designed

These two RCN adjustments relate to (1) the software's age (and its expected retirement date) and (2) the software's inability to perform the function for which it was intended (i.e., the software's inutility). These two RCN adjustments are considered in the analyst's measurement of depreciation and obsolescence.

These depreciation and obsolescence adjustments are appropriate because a willing buyer would not pay the willing seller (i.e., the taxpayer) for the RCN of (1) software that is nearing the end of its UEL and is expected to be replaced soon or (2) software that is unable to perform the function for which it was developed.

In this illustrative example, the RCNLD indicates the price that a hypothetical willing buyer would pay to a hypothetical willing seller for the taxpayer's software. That price estimate is based on the current cost to replace the functional utility of the taxpayer's software.

That current cost is adjusted for physical deterioration (if any) and for functional obsolescence. In addition, the analyst still has to consider economic obsolescence (before reaching a final value estimate).

To illustrate the functional obsolescence measurement, let's assume that Omega operates a particular software application that was written in COBOL (a third-generation programming language).

All of its other customer records software and administrative systems software are written in JAVA or C++ (or other fourth- and fifth-generation programming languages).

Omega management plans to replace the software application (let's say it's the billing and receivables application) with a new customized software application. However, the Omega information technology department does not have the resources to complete that new software development project for the next five years.

In the meantime, Omega has to employ a COBOL programmer solely to maintain the billing and receivables application that is written in an obsolete programming language. When a new billing and receivables application is installed, this COBOL programmer position will be eliminated. The full absorption cost of the COBOL programmer is $100,000 per year.

Let's assume that the analyst estimated the RCN for the billing and receivables application to be $1.2 million. Let's assume that the analyst has concluded that there is no physical deterioration associated with the billing and receivables software. And, let's assume that there is no other functional obsolescence related to the current billing and receivables software.

By capitalizing the excess operating costs associated with the identified functional obsolescence, the analyst estimated the RCNLD of the actual (COBOL language) billing and receivables application as summarized in Exhibit 1.

The 2.99 times present value of an annuity factor in the example is based on (1) a five-year estimated UEL for the billing and receivables software and (2) an assumed 20 percent (pretax) present value discount rate.

In theory, if consistent valuation variables are used, the analyst should reach the same value conclusion for the software regardless of which functional obsolescence measurement method is used. That is, the software RCNLD should be approximately the same whether the analyst considers excess capital costs to measure functional obsolescence or excess operating costs to measure functional obsolescence.

In the above example, the preliminary value conclusion is presented before the analyst's consideration of economic obsolescence. However, the analysis of economic obsolescence is an integral procedure in every cost approach valuation analysis. The application of the cost approach to property valuation is not complete until the analyst considers the existence (if any) of external (typically economic) obsolescence.

Let's continue with the Omega intangible personal property example. Let's assume that the analyst estimated the RCN less physical depreciation and functional obsolescence indication for the billing and receivables software. In order to reach the intangible property final value indication, the analyst has to consider economic obsolescence.

Since Omega is assessed based on the unit valuation principle, the analyst decided to measure economic obsolescence based on financial and operational data for the Omega total unit.

Let's assume that the analyst accumulated comparative financial and operational data regarding the Omega total unit as of December 31, 2019. After considering these comparative data, the analyst decided to apply the capitalization of income loss method ("CILM") to measure any economic obsolescence affecting the Omega intangible personal property value.

Exhibit 2 summarizes the illustrative economic obsolescence measurement based on the CILM comparison of the taxpayer's financial and operational data.

Exhibit 1
Omega Railway Company
Billing and Receivables Software
Cost Approach Valuation
Replacement Cost New less Depreciation Method
Preliminary Analysis
As of January 1, 2020

Cost Approach Component		$
Software Application Replacement Cost New		1,200,000
Less: Functional Obsolescence	$	
Annual Excess Operating Cost	100,000	
× Present Value of Annuity Factor	2.99	
= Capitalized Excess Operating Costs	299,000	299,000
Equals: Preliminary Replacement Cost New less Depreciation		901,000
Preliminary Value of Subject (COBOL) Software Application (rounded) (before analysis of economic obsolescence, if any)		900,000

Exhibit 2
Omega Railway Company
Billing and Receivables Software
Cost Approach Valuation
Economic Obsolescence Analysis
Illustrative capitalization of Income Loss Method Comparison
As of January 1, 2020

Item	Intangible Property Financial or Operational Performance Metric	Actual LTM Ended 12/31/19	Benchmark Measure	Income Loss to Capitalize	Actual LTM Compared to Benchmark Percent Loss	Benchmark Comparison Reference Source
1	Average Salary per Software Development Engineer	$125,000	$100,000	$25,000	25%	2019 Class I Railroad Industry Average
2	Number of Software Applications Managed per Development Engineer	100	125	25	20%	2019 Class I Railroad Industry Average
3	Omega Return on Total Gross Assets—Based on Financial Accounting Data	5.5%	7.0%	1.5%	21%	Omega Actual Average (2014–2019)
4	Omega Return on Tangible Net Assets—Based on Financial Accounting Data	6.0%	7.8%	1.8%	23%	Omega Actual Average (2014–2019)
5	Omega Operating Profit Margin—Based on Financial Accounting Data	10.0%	12.0%	2.0%	17%	Omega Actual Average (2014–2019)
6	Omega Return on Replacement Cost New Investment in Tangible Assets	5.0%	6.0%	1.0%	17%	Omega Annual Property Appraisals (2014–2019)
	Economic Obsolescence Percentage Indication (rounded)				**20%**	

Based on the comparative financial and operational data, the analyst concluded that the Omega total unit is experiencing economic obsolescence of about 20 percent. The analyst's measurement of economic obsolescence for the software as of January 1, 2020, is calculated as (1) the RCNLD indication (before economic obsolescence) for the software multiplied by (2) the 20 percent selected economic obsolescence percentage equals (3) the economic obsolescence allowance indication for the software.

Exhibit 3 summarizes the final cost approach RCNLD analysis related to the illustrative billing and receivables software. Based on this cost approach valuation analysis, the analyst concluded that the fair market value of this Omega software intangible personal property, as of January 1, 2020, is $720,000.

Analyst Caveats for the Identification and Measurement of Obsolescence

Do Not Apply a Residual Method

An inexperienced analyst may believe that it is appropriate to measure economic obsolescence by reference to the property's income approach value indication. In other words, an inexperienced analyst may measure economic obsolescence by applying a residual procedure—that is, by measuring the difference between (1) the income approach value indication and (2) the cost approach value indication.

This residual procedure for economic obsolescence measurement is often referred to as the income shortfall method.

The inexperienced analyst may not understand why this residual calculation—or income shortfall method—is inappropriate and fundamentally flawed.

As an example, let's consider the valuation of a unit of special purpose industrial property. Let's assume the inexperienced analyst applies a cost approach RCNLD method analysis. Then, the inexperienced analyst applies an income approach discounted cash flow ("DCF") method analysis to estimate the total unit value of the special purpose industrial property.

From this income approach unit value conclusion, in order to conclude the value of the industrial property, the inexperienced analyst subtracts the value of (1) working capital and (2) exempt intangible property. If the value of the industrial property concluded by the DCF method is lower than the value of the industrial property concluded by the RCNLD method, the inexperienced analyst concludes that there is economic obsolescence.

The inexperienced analyst concludes that the amount of economic obsolescence is equal to the differences between the industrial property value indications provided by the two property valuation methods (i.e., the DCF method and the RCNLD method).

The explanation that the inexperienced analyst may provide for such an economic obsolescence measurement procedure is that a willing buyer would not buy the industrial property for the value indicated by the RCNLD method unless the property generated sufficient income to provide a fair rate of return on the investment (i.e., RCNLD) in the property.

At the same time, when the value indicated by applying the DCF method is higher than the value indicated by applying the RCNLD method, the inexperienced analyst will accept the RCNLD value indication for the industrial property. In that case, the inexperienced analyst concludes that there is no economic obsolescence.

The following discussion summarizes some of the reasons why it is inappropriate to use an income

Exhibit 3
Omega Railway Company
Billing and Receivables Software
Cost Approach Valuation
Replacement Cost New less Depreciation Method
Fair Market Value
As of January 1, 2020

Cost Approach Component	$	Reference
Replacement Cost New	1,200,000	Exhibit 1
Less: Physical Depreciation	--	Text
Less: Functional Obsolescence	299,000	Exhibit 1
Subtotal	901,000	
Less: Economic Obsolescence at 20%	180,000	Exhibit 2
Equals: Fair Market Value of Billing and Receivables Software	721,000	
Fair Market Value of Billing and Receivables Software (rounded)	720,000	

"[E]ach property valuation approach should be analytically independent of each other approach."

approach value indication as any benchmark by which to measure the economic obsolescence component in a cost approach valuation of industrial or commercial property.

Using this residual procedure or income shortfall method, the cost approach loses its analytical independence from the income approach. In an industrial or commercial property valuation, all generally accepted property valuation approaches may consider the same set of market-derived or property-specific data. However, each property valuation approach should be analytically independent of each other approach.

If the cost approach value indication is "adjusted" to equal the income approach value indication, why should the analyst even apply the time and effort to perform the cost approach analysis? Why doesn't the analyst just consider the income approach value indication twice in the property value reconciliation procedure? When there is any evidence of economic obsolescence related to the industrial property, why bother to apply the cost approach at all?

If the cost approach value indication is "adjusted" to equal the income approach value indication, why not also "adjust" the sales comparison approach value indication to equal the income approach value indication? When the unadjusted sales comparison approach value indication is greater than the income approach value indication, why doesn't the analyst just "adjust" that sales comparison approach value indication to equal the income approach value indication?

In that case, the analyst can simply consider the income approach value indication three times in the property value reconciliation procedure.

If the cost approach value indication is "adjusted" to equal the income approach value indication, then none of the following cost approach components will actually affect the property value: property original cost, property age, property condition, property location, property replacement cost new, property reproduction cost new, property operating efficiency, property maintenance history, property type, property description, or even property existence.

Applying the income shortfall method, an old property may have the same value as a new property. And, that value will be determined by the conclusion of the income approach. Applying the income shortfall method, a well-maintained property may have the same value as a poorly maintained property. Further, that value will be determined by the conclusion of the income approach.

Applying this income shortfall method of economic obsolescence measurement, the property's RCN is irrelevant to the cost approach value indication. This is because the amount of economic obsolescence automatically adjusts the cost approach value indication to equal the income approach value indication.

This income shortfall method is counterintuitive to the fundamental economic principle of the cost approach (e.g., the principle of substitution). That is because, by applying this income shortfall method to measure economic obsolescence, the property's cost metric becomes irrelevant in the cost approach property valuation.

Do Apply the Unit-Level Economic Obsolescence Percentage to the Taxpayer Property

For property tax purposes, some taxpayer industrial or commercial property is valued based on the unit valuation principle rather than based on the summation valuation principle. That is, the industrial or commercial property is valued as a single "total unit" for property tax purposes.

Examples of types of taxpayers that are often assessed based on the unit valuation principle include railroads, airlines, other transportation companies, pipelines, cable television providers, electric generation and distribution companies, and other utility-type companies—such as local gas transmission companies, water companies, and wastewater companies.

In a unit principle valuation, the economic obsolescence measurement is typically performed on a total unit (or aggregate) basis, and not on a summation (or property-by-property) basis. For this reason, when estimating the value of industrial or commercial property in the context of the total unit, the total unit-level economic obsolescence percentage is typically applied to estimate the property value.

For example, in our illustrative example of Omega Railway Company, the economic obsolescence estimate of 20 percent would be applicable to all of the Omega industrial or commercial property—including the taxpayer's software intangible personal property.

Analyst Responses to Taxing Authority Objections regarding Obsolescence Measurements

The CILM Is Not the Income Shortfall Method

One generally accepted method for measuring economic obsolescence is the CILM. Inexperienced analysts sometimes confuse the CILM with the income shortfall method. As discussed previously, the income shortfall method is not a generally accepted method for measuring economic obsolescence.

The CILM "is applied in two steps. First, the market is analyzed to quantify the income loss. Next, the income loss is capitalized to obtain the value loss affecting the property as a whole."[1]

To apply this economic obsolescence measurement method in a unit principle valuation, the analyst may compare the property's profitability from operations during a recent period to a benchmark measure of profitability from operations. That benchmark measure of profitability from operations may be one of the following:

1. The level of profitability/return on investment earned by the property when there was no identified economic obsolescence
2. The level of profitability/return on investment earned by comparable companies or another industry benchmark measure
3. The level of profitability/return on investment based on the taxpayer's financial projections

The analyst may also consider alternate measures of profitability/return on investment.

In a unit principle valuation, an analyst typically measures economic obsolescence for the total unit of taxpayer property. Then, the analyst applies the concluded economic obsolescence (typically on a percentage basis) to all of the taxpayer's property valued by the cost approach.

Measuring economic obsolescence at the total unit level (rather than at the individual property level within the total unit) is a generally accepted unit principle valuation procedure.

According to the textbook *Valuing Machinery and Equipment*, "Because economic obsolescence is usually a function of outside influences that affect an entire business (i.e., all tangible and intangible assets) rather than individual assets or isolated groups of assets, it is sometimes measured using the income approach or by using the income approach to help identify the existence of economic influences on value."[2]

One procedure that analysts often perform in the application of the CILM is to compare the property's actual rate of return measure (e.g., the actual return on investment earned on the property) with a required rate of return measure (e.g., the taxpayer's weighted average cost of capital, or "WACC"). The analyst may calculate the difference between the property's actual rate of return on investment and the property's required rate of return as a measure of the property's income loss. This income loss can then be converted into an economic obsolescence measurement percentage for the industrial or commercial property.

Returning to our Omega Railway Company illustrative example, the analyst could apply this procedure of comparing the actual return on investment to the required return on investment in order to measure the Omega economic obsolescence.

For example, the analyst could compare (1) the Omega actual net operating income ("NOI") return on the Omega total unit to (2) the taxpayer's yield capitalization rate (or WACC). In calculating the actual return on investment, the analyst could rely on the average NOI over a multiyear period or on the latest 12 months NOI. NOI is typically calculated as an after-tax income measure.

Therefore, the taxpayer after-tax NOI return on investment is typically compared to the taxpayer's after-tax WACC (as a measure of the required rate of return on investment).

The analyst may estimate the property's NOI rate of return on investment based on various investment measures. Then, the analyst may apply the same yield capitalization rate—or WACC—as the required rate of return on investment. That yield capitalization represents the required rate of return for all of the property included in the total unit.

If the property's actual return on investment (however measured) indicates a lower rate of return than the taxpayer's yield capitalization rate (or WACC), that comparison would indicate that economic obsolescence exists in the taxpayer's property.

For example, if the Omega actual rate of return on investment is 6 percent and the Omega yield capitalization rate (the required rate of return on investment) is 9 percent, that comparison would indicate economic obsolescence of 33 percent based on this application of the CILM

Obsolescence Measurement Typically Consider Some Type of Taxpayer Income Data

Some inexperienced analysts suggest that many of the generally accepted economic obsolescence measurement methods (such as the CILM) are inappropriate to apply in the cost approach. That is because these measurement methods rely on the taxpayer's income data. And, that same taxpayer income data may also be a component in either (or both) the income approach and/or the sales comparison approach. For example, the CILM may include consideration of the taxpayer's WACC to measure economic obsolescence. However, this inexperienced analyst's concern is misguided.

In the case of valuing industrial or commercial property, an analyst may apply a cost approach valuation method such as the RCNLD method. In the application of the RCNLD method, the analyst may compare (1) the property's actual rate of return on investment to (2) the property's required rate of return on investment (often measured as the taxpayer's WACC). This comparison is often considered in the application of the CILM to measure the property's economic obsolescence (if any).

The taxpayer's WACC is a valuation variable that may be considered in the application of the income approach. Nevertheless, the cost approach RCNLD method value indication is independent of the income approach value indication.

All property valuation approaches (and all property valuation methods) may rely on the same or similar underlying data, such as the property's financial and operational data. The reliance on the same or similar underlying data does not preclude an analyst from applying multiple valuation approaches and multiple valuation methods to value the industrial or commercial property.

However, each property value indication should be derived from a complete and independent valuation analysis of the subject property.

Each value indication should be independent from each other value indication. Each property valuation method—and each property value indication—should be able to stand alone. As a fundamental property appraisal principle, no value indication should depend on another value indication.

Summary and Conclusion

The identification and measurement of obsolescence in the cost approach valuation of industrial or commercial property is a fundamental issue in valuations performed for ad valorem property tax purposes. The various forms of obsolescence (including functional obsolescence and external obsolescence) should be considered in the cost approach valuation of industrial and commercial property.

This consideration is particularly relevant in cost approach valuations of special purpose industrial or commercial property. Further, this consideration of obsolescence in the application of the cost approach is generally relevant to both unit principle valuations and summation principle valuations.

Both taxpayer property owners and valuation analysts should consider the measurement of obsolescence in the cost approach valuation of industrial or commercial property for tax planning, compliance, and appeal purposes.

Tax assessment authorities should consider obsolescence in the assessments of taxpayer industrial and commercial property. In particular, assessment authorities should consider the impact of current market conditions (and, thus, the effect of economic obsolescence) in the application of the cost approach in the valuation of any industrial or commercial property.

First, this discussion summarized the various forms of obsolescence typically considered in the application of the cost approach to value industrial or commercial property for SALT purposes.

Second, this discussion presented the practical procedures that either the property owner or the taxing authority can apply to (1) recognize the existence of property obsolescence and (2) measure the amount of property obsolescence.

Third, this discussion considered various analyst caveats with regard to the measurement of obsolescence in the cost approach valuation of industrial or commercial property.

Finally, this discussion suggested taxpayer or analyst responses to taxing authority objections with regard to the measurement of any obsolescence related to the taxpayer's industrial or commercial property.

Notes:

1. *The Appraisal of Real Estate*, 14th ed. (Chicago: The Appraisal Institute, 2013), 635.
2. *Valuing Machinery and Equipment: The Fundamentals of Appraising Machinery and Technical Assets*, 3rd ed. (Washington, D.C.: American Society of Appraisers, 2011), 76.

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Tangible Personal Property Appraisal Approaches, Methods, and Procedures

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Appraisals of industrial or commercial tangible personal property ("TPP") prepared for property tax purposes are often subject to contrarian review. In order to withstand such a contrarian review, the TPP appraisal should rely on generally accepted property appraisal approaches, methods, and procedures. This discussion summarizes the generally accepted property appraisal approaches, the generally accepted property appraisal methods applied within each approach, and the individual procedures that would be applicable to the appraisal of special purpose industrial or commercial TPP for property tax purposes.

Introduction

There are many reasons why valuation analysts ("analysts") may be asked to value industrial and commercial tangible personal property ("TPP"). These valuation purposes include sale/license transactions, secured financing, taxation, financial accounting, litigation, and bankruptcy.

For whatever purpose the TPP appraisal is prepared (including for property tax compliance, appeal, or litigation purposes), the appraisal may be subject to contrarian scrutiny and review.

In order to withstand contrarian scrutiny, particularly within the property tax appeal or litigation context, the industrial and commercial TPP appraisal should follow generally accepted property appraisal approaches, methods, and procedures.

This discussion introduces issues related to the valuation of industrial or commercial TPP for property tax purposes. Most of these issues relate to the valuation of locally assessed industrial or commercial TPP that is valued based on the summation principle of property appraisal. Some of the issues summarized in this discussion also relate to the valuation of centrally assessed industrial and commercial TPP that is valued based on the unit principle of property appraisal.

This discussion (1) summarizes what TPP is, (2) explains the generally accepted property appraisal approaches, and (3) describes the various appraisal methods and procedures applied to value industrial or commercial TPP for property tax purposes.

Tangible Personal Property

For property tax compliance, appeal, or litigation purposes, it is often necessary to distinguish between tangible property and intangible property, as well as between real estate and personal property. These distinctions are also important for a variety of financial accounting, income taxation, legal/regulatory, and financing purposes that are not related to property taxation.

Taxpayer tangible property can either be real (i.e., the value is derived from land) or personal (i.e., the value is not derived from land) in nature. Likewise, taxpayer intangible property can either be real (i.e., the value is derived from land) or personal (i.e., the value is not derived from land) in nature.

The textbook *Valuing Machinery and Equipment* defines TPP as "[a]n asset that maintains all rights that can be transferred to another party and that can be seen and felt."[1]

More generally, TPP includes movable tangible assets that are not permanently affixed to or part of real estate. TPP is not endowed with the rights of real estate ownership.

It is sometimes difficult to determine whether a particular asset should be considered as TPP or as real estate. For example, a fixture is typically an asset that was once personal property. But, once the fixture is installed or attached to the land or building in a permanent manner, it may be considered as part of the real estate.

To help determine whether a particular asset should be considered as TPP or as real estate, analysts often consider questions regarding the asset's permanency. These questions, sometimes referred to as the "Whiteco Factors," include the following:

1. Can the property be moved and has it been moved?
2. Is the property designed or constructed to remain permanently in place?
3. Are there circumstances that show that the property may or will have to be moved?
4. Is the property readily movable?
5. How much damage will the property sustain when it is removed?
6. How is the property affixed to land?[2]

Examples of TPP include furniture and fixtures, tools and dies, machinery and equipment, office and data processing equipment, trucks and automobiles, and (sometimes) merchandise inventory.

The generally accepted TPP appraisal approaches include the cost approach, the sales comparison approach, and the income approach. Each of these generally accepted property appraisal approaches is summarized below.

Generally Accepted Property Appraisal Approaches

The cost approach considers the concept of property cost as an indicator of value. A prudent investor will typically pay no more for a fungible property than its replacement cost new ("RCN").

One cost approach method is the replacement cost new less depreciation ("RCNLD") method. In this method, first, the RCN of the property is estimated. Second, this RCN estimate is adjusted for all forms of depreciation in order to provide a value indication for the property. The depreciation components typically considered in any cost approach analysis include physical deterioration, functional obsolescence, and external obsolescence.

Physical deterioration is a loss in the value of the property brought about by wear and tear, action of the elements, disintegration, use, and all physical factors that reduce the life and serviceability of the property.

Functional obsolescence is a loss in the value of the property caused by the inability of the property to adequately perform the function for which it was intended. Functional obsolescence is typically internal to the property. Functional obsolescence is typically related to such factors as excess capital costs, excess operating costs, and superadequacies/inadequacies.

External obsolescence is a loss in the value of the property caused by external forces such as changes in the supply/demand relationships, legislation, and industry and local economic conditions that affect the value of the property.

Two components of external obsolescence include (1) locational obsolescence and (2) economic obsolescence. TPP is moveable. Therefore, the economic obsolescence component of external obsolescence is typically more significant than the locational obsolescence component in the cost approach appraisal of TPP.

In the sales comparison approach, recent sales of comparable property are gathered and analyzed by the analyst. Adjustments are then applied to these comparable property sale transaction data to account for differences in the age and condition of the subject property, time of sale, and the physical characteristics between the property and the comparable property.

The adjusted sale transaction pricing data are analyzed in order for the analyst to extract market-derived pricing multiples or other pricing metrics. From this array of market-derived pricing data, the analyst can derive an indication of the property value.

The income approach measures the present worth of the anticipated future income (e.g., net income, net operating income, or net cash flow) associated with the ownership or operation of the property. The income measure is projected over an appropriate time period. The projection period typically relates to the property's expected useful economic life ("UEL") . The income stream is brought to a present value by the use of an appropriate market-derived, risk-adjusted rate of return (in the yield capitalization method).

Alternatively, a single period estimate of normalized income may be capitalized by (i.e., divided by) a direct capitalization rate (in the direct capitalization method). This capitalization rate considers the

time value of money, the effect of expected price inflation, and the risk inherent in the property ownership.

The following discussion summarizes the conceptual foundation related to the three generally accepted property appraisal approaches. Unless otherwise indicated, the following discussion focuses on the application of the summation principle (rather than the unit principle) of property valuation.

The Cost Approach

The cost approach is often applied to value industrial or commercial TPP.

The principle of substitution governs the application of the cost approach. This economic principle indicates that a prudent investor would pay no more for a fungible TPP than the cost of producing a substitute TPP with the same utility as the actual property. This economic principle only applies when a prudent purchaser can either construct or buy a new substitute TPP with equivalent utility to the TPP.

The cost approach measures value by estimating a cost metric related to the utility of the TPP and then applying deductions for all relevant forms of depreciation. For TPP, these forms of depreciation typically include (1) physical deterioration, (2) functional obsolescence, and (3) external obsolescence.

One cost measurement metric is RCN. RCN represents the dollar amount necessary in terms of current labor, materials, and overhead to construct or acquire new TPP of similar utility. Similar utility means similar economic satisfaction—that is, the substitute property is perceived by the owner or operator as being equivalent to the actual property.

RCN is not the same as reproduction cost new ("RPCN"). The textbook *Valuing Machinery and Equipment* explains the terms RCN and RPCN as follows:

> It is essential that the appraiser understand the difference between replacement cost new and reproduction cost new. Replacement cost new is the current cost of a similar new property having the nearest equivalent utility as the property being appraised, whereas RPCN is the current cost of reproducing a new replica of the property being appraised using the same, or closely similar, materials.
>
> In using the cost approach, the appraiser is comparing the subject property to the property that could actually replace it. The replacement property would be the most economical new property that could replace the service provided by the subject.[3]

In its simplest form, the cost approach estimates a cost measurement of the TPP less all forms of depreciation. In the cost approach, the analyst identifies the TPP, develops a current cost new estimate, and subtracts all depreciation that makes the TPP less desirable to own than if it were new.

The TPP appraisal report should identify the cost measure used as the starting point in the cost approach analysis: (1) RCN, (2) RPCN, or (3) some other defined measure of cost.

The Sales Comparison Approach

In the sales comparison approach, the fundamental principle is that a prudent investor can go to the marketplace and purchase property that can be assembled to provide similar output as the property. The sales comparison approach is applied to the appropriate secondary market. By researching secondary market sales transaction data, the analyst estimates value through an analysis of recent sale prices of guideline properties.

A basic procedure in the application of the sales comparison approach is to gather empirical

transaction data, determine the relevant pricing metrics to be compared (between the property and the guideline properties), and apply the market-derived pricing metrics to the TPP.

Generally, in applying the sales comparison approach to value of the TPP "in place," the analyst (1) estimates the price to purchase the property in the appropriate secondary market and (2) adds tax, freight, installation, connection, and testing costs.

This is because the secondary market sale transaction data typically indicate the value "in exchange" for the subject property. The analyst has to add delivery, installation, and other costs in order to convert this "value in exchange" estimate to a "value in use" estimate.

In applying the sales comparison approach, it is sometimes possible to arrive at value indications based on the sales of identical properties that have changed hands in the secondary market. However, while it is possible to identify secondary market prices for TPP based on like manufacturer model numbers, unique configurations of specific TPP often make it difficult to obtain data on multiple sales of comparable (or nearly identical) TPP.

Therefore, in practice, the investigation and analyses of the sales of similar, or guideline, TPP in the secondary marketplace is often the basis of the sales comparison approach value estimate.

In addition to the physical configuration of the comparable/guideline TPP, the following factors may be considered in determining the comparability of the guideline TPP to the subject TPP:

- Age of the unit sold
- Condition of the unit sold
- Upgrades or other changes from the standard model specifications
- Location of the sale transaction
- Current market conditions and/or changes in market conditions
- Motivation for the sale
- Quantity of units sold
- Time of the sale
- Type and terms of the sale
- Price, on a cash equivalency basis

Each of these comparability factors has its own importance. And, the importance of each of these factors depends on the type of guideline TPP sales data available.

In applying the sales comparison approach to value TPP, elements that add value-in-use may be identified and included in the value estimate. For most TPP, these elements may include sales tax, insurance, freight, delivery, installation, connections, test batch loading, debugging, and any other indirect costs required to commission and deliver the TPP to the property owner/operator.

The Income Approach

The income approach provides a systematic framework for estimating the TPP value—particularly of rental property—based on an income capitalization or on the present value of future income. This income is typically derived from the use, forbearance, license, or rental of the TPP.

Applying the income approach, income can be measured as one of the following:

- Gross rental income
- Net rental income
- Gross license income
- Net license income
- Gross operating income
- Net operating income

Quantifying the appropriate capitalization rate or present value discount rate is an important procedure in the income approach. The appropriate capitalization rate or discount rate should reflect a fair return on the investment in the TPP. And, the capitalization rate or discount rate should consider the opportunity cost of capital, the time value of money, and the risk of the investment in the TPP.

In applying the income approach to value TPP, the expected UEL of the TPP is an important consideration. This is because the income projection associated with the TPP will typically not extend beyond the term of the UEL.

Cost Approach Property Appraisal Methods

The various cost approach property appraisal methods relate to the following economic principles:

1. Substitution—concludes that no prudent buyer would pay more for a fungible property than the total cost to "construct" one of equal desirability and utility
2. Supply and demand—shifts in supply and demand cause costs to increase and decrease and cause changes in the need for supply of different types of property

3. Externalities—gains or losses from external factors may accrue to property, and may cause a newly "constructed" property to be worth more or less than its cost

One cost approach method is the RPCNLD method. The fundamental principle behind this method is that a value indication for the TPP is its cost new less an allowance for any physical deterioration as well as for any obsolescence—including functional and external. This principle can be applied either to an individual property or to a unit (or bundle) of TPP.

When estimating RCN, the form or appearance of the replacement TPP may be different from the TPP. However, the replacement TPP will be similar to the actual TPP in such functionality attributes as capacity (volume of production) and throughput (speed and efficiency of production). When estimating reproduction cost new ("RPCN"), the reproduction TPP will be identical to the actual TPP in such physical attributes as manufacturer, model or series, and motor or engine size.

In other words, RCN contemplates the cost to recreate the functionality or utility of the property. RPCN contemplates the construction of an exact replica of the actual property.

The industrial or commercial TPP appraisal report should identify the following:

1. The measure (or type) of cost estimated
2. The method used to estimate cost
3. The data sources used to estimate cost

The textbook *Valuing Machinery and Equipment* describes some of the methods for estimating cost as follows:

> There are several methods of determining the current cost new of a property. The major ones are the detail method, trending, cost to capacity, and other engineering methods.
>
> The detail method, also known as the summation method, requires that a current new cost be assigned to each individual component of an asset or property. The property is itemized or "detailed" so that the sum of the components reflects the cost new of the whole.
>
> All normal or typical direct and indirect costs should be included. Direct costs are those material, labor, and related expenditure normally and directly incurred in the purchase and installation of an asset, or group of assets, into functional use . . .
>
> Indirect costs are those expenditures that are normally required to purchase and install a property but which are not usually included in the vendor invoice.[4]
>
> Trending is a method of estimating a property's RPCN (not RCN) in which an index or trend factor is applied to the property's historical cost to convert the known cost into an indication of current cost. Simply put, trending reflects the movement of price over time.
>
> Historical cost is the cost of a property when it was first placed into service by its first owner. This is to be distinguished from original cost, which is the actual cost of a property when acquired by its present owner, who may not be the first owner and who may have purchased at a price greater or less than the historical cost. Original cost may be the used cost of the property, whereas historical cost can never be a used cost. Obviously historical cost and original cost may be the same.[5]
>
> A third method of estimating cost new is commonly referred to as cost to capacity method. This methodology assumes that not all costs vary with size in a straight line.[6]
>
> Several other engineering methods may be used to estimate the cost of entire facilities or components of facilities; most of these methods are best used in chemical or petrochemical processing industries.[7]

As mentioned above, there are several procedures that may be applied to estimate the cost of TPP. These procedures include the detail, trending, cost to capacity, and other engineering methods. Of these four procedures, the detail method and the trending method are sometimes applied in TPP appraisals performed for property tax purposes.

The detail method allows for a cost to be assigned to each individual component of a property. The TPP is itemized or "detailed" so that the sum of the components reflects the cost of the whole.

The trending method estimates the RPCN of property. In the trending method, an index or trend factor is applied to the TPP historical cost in order to convert (1) the known historical cost into (2) an estimation of the RPCN.

To convert the property costs (replacement, reproduction, historical) into a value indicator, the cost measure is adjusted (typically in decrements) for any physical deterioration, functional obsolescence, or external obsolescence related to the property.

Physical Deterioration

The textbook *Valuing Machinery and Equipment* defines physical deterioration as follows:

> Physical deterioration is a form of depreciation where loss in value or usefulness of a property is due to the using up or expiration of its useful life caused by wear and tear, deterioration, exposure to various elements, physical stresses and similar factors.[8]

The particular method applied to measure physical deterioration should be identified and defined. The specific procedures applied within the identified method should be explained. In addition, any significant data sources should be identified.

The methods for measuring physical deterioration include (1) the physical observation method, (2) the age/life method, and (3) the direct dollar measurement method.

The appraisal report should adequately describe the method that was applied and how it was applied. All valuation terminology should be identified and defined. This recommendation is particularly relevant to the age/life method, which may involve nonintuitive "age" and "life" measures.

The textbook *Valuing Machinery and Equipment* summarizes these three methods of estimating TPP physical deterioration:

> Three methods of measuring physical deterioration that were discussed are observation, formula/ratio and direct dollar measurement.
>
> In the observation method, the appraiser makes a comparison based on the experience gained by looking at similar properties and comparing them to new properties.
>
> In one variation of the formula/ratio method, physical deterioration is estimated based on a property's use. Use is a good indicator of physical deterioration when the requisite production statistics can be obtained.
>
> The age/life variation of the formula/ratio method uses the ratio of a property's "age" to its "life" to measure physical deterioration. Although this is straight-line depreciation, it should not be confused with accounting depreciation because the appraiser uses valuation rather than accounting concepts of age and life.[9]

Functional Obsolescence

The textbook *Valuing Machinery and Equipment* defines functional obsolescence as follows:

> Functional obsolescence is a form of depreciation in which the loss in value or usefulness of a property is caused by inefficiencies or inadequacies of the property itself, when compared to a more efficient or less costly replacement property that new technology has developed. Symptoms suggesting the presence of functional obsolescence are excess operating cost, excess construction (excess capital cost), over capacity, inadequacy, lack of utility, or similar conditions.[10]

The TPP appraisal report will typically:

1. describe the concept of functional obsolescence,
2. explain the method(s) used to identify and quantify functional obsolescence, and
3. describe the data sources considered in the functional obsolescence analysis.

In quantifying functional obsolescence, some obsolescence (e.g., excess capital cost, excess capacity cost) may be eliminated by applying a RCN measure (in contrast to an RPCN measure). Additional adjustments for functional obsolescence may be made by quantifying excess operating expenses and capitalizing these excess expenses over the UEL of the TPP.

The methods that may be applied to quantify functional obsolescence include the following:

1. Analysis of excess capital costs
2. Analysis of excess operating costs

Valuing Machinery and Equipment describes instances of functional obsolescence. If applicable to the TPP, these instances may be noted in the appraisal report:

> Functional obsolescence, particularly operating obsolescence, is typically found in the following situations:
>
> - plants involved in the process industries;
> - plants involved in industries that either use assets or manufacture products with a high degree of technology;
> - older plants that have increased in size over time;

- plants in which there are a number of identical units;
- plants involved in industries that handle large volumes of material; and
- plants with areas of inactive machinery.[11]

Economic Obsolescence

Valuing Machinery and Equipment defines economic obsolescence as follows:

> Economic obsolescence (sometimes called "external obsolescence") is a form of depreciation where the loss in value of a property is caused by factors external to the property. These may include such things as the economics of the industry; availability of financing; loss of material and/or labor sources; passage of new legislation; changes in ordinances; increased cost of raw materials, labor, or utilities (without an offsetting increase in product price); reduced demand for the product; increased competition; inflation or high interest rates; similar factors.[12]

Particularly in a TPP appraisal performed for property tax purposes, the appraisal report may describe the following:

1. The factors considered in identifying external obsolescence
2. The methods applied in quantifying external obsolescence
3. The specific data sources relied on in the external obsolescence analysis

Many analysts distinguish between two forms of external obsolescence: (1) economic obsolescence (when the TPP does not generate adequate income to provide a fair rate of return to the property) and (2) locational obsolescence (when the obsolescence is a result of the location of the TPP).

Locational obsolescence affects real estate more directly than it affects TPP.

The quantification of external obsolescence is often made collectively. For example, if an economic analysis of the property operations indicates that the expected return on investment is less than the owner/operator's cost of capital, then external obsolescence may be present.

Sales Comparison Property Appraisal Methods

The sales comparison approach encompasses fewer methods than the cost approach or the income approach. However, the practical application of the sales comparison approach is as complex and rigorous a process as the application of the cost approach or the income approach. The comparability of the selected TPP sale transactions is an important aspect of the sales comparison approach.

Transactions selected for the sales comparison approach analysis may be adjusted, if necessary, to compensate for the effect of economic forces that influenced the TPP market during the time interval elapsed between the date of the guideline sale and the valuation date. Market prices move upward or downward with changes in supply and demand, variations in business cycles, and changes in the value of money.

Other adjustments to the guideline sales are made to account for differences between the guideline properties and the TPP. Any adjustments related to differences due to variations in age, features, and quality of the guideline TPP versus the TPP may be identified and quantified in the appraisal report.

Market comparisons are based on the overall percentage value adjustment required in order to make each selected TPP sale transaction with the TPP. The overall percentage applied to each property in turn is justified by the analyst's explanation that the TPP is superior, inferior, or the same in relation to its type, features, age, and condition. By adjusting the guideline sale prices upward or downward in accordance with the characteristics of the TPP, a market value estimate is derived.

The sales comparison approach is applicable to situations where there are an adequate number of similar properties that have recently sold. When using these sales data, the analyst should try to verify each sale in order to confirm the relationship of the parties, date of sale, and any financing terms. In analyzing guideline sales, it may be necessary to adjust a price if prices have changed between the time the guideline TPP sold and the subject valuation date. Also, an adjustment is typically required if a guideline property's sale price was influenced by financing terms.

The cash equivalency method is sometimes used to adjust for this price influence. The purpose of this adjustment is to reveal the price that a guideline TPP would have brought without the influence of atypical financing.

Normally, sales comparison approach appraisal methods are only practical when an adequate secondary market exists from which to extract meaningful pricing evidence.

Income Approach Property Appraisal Methods

The income approach is particularly applicable to the appraisal of leased TPP. This is because such TPP generates property-specific rental income. Examples of such property include commercial aircraft, railroad locomotives and rolling stock, over-the-road tractor/trailers, and so forth.

To estimate value by application of the income approach, the expected rental income or cash flow is converted to a present value. The income approach appraisal methods may be categorized as either direct capitalization methods or yield capitalization methods.

Direct capitalization methods sometimes rely on direct capitalization rates typically extracted from guideline sales. Additionally, yield capitalization methods rely on yield capitalization rates that are typically derived as the internal rate of return required by the typical investor.

When either calculating value or extracting multipliers, the analyst should ensure that the income metric (however measured) is calculated on a consistent basis.

Property value may be estimated by dividing the one period net operating income by a capitalization rate. That capitalization rate may be estimated by:

1. extracting overall rates from guideline TPP sales,
2. comparing the guideline TPP attributes (physical, functional, and financial) to the TPP, and
3. selecting an appropriate capitalization rate.

Values are often estimated by projecting cash flow over a typical holding period and discounting the cash flow to a present value using a discount rate. This valuation method is called yield capitalization (or a discounted cash flow analysis).

The discount rate directly addresses the expected profitability of the TPP operations. The cash flow components typically projected in a TPP appraisal are net operating income and the net proceeds from the property resale. The discount rate is also called the yield capitalization rate.

The cost of capital components that are considered in the discount rate and/or the capitalization rate measurement include (1) the prevailing risk-free rate, (2) the amount of risk of the property, and (3) the expected price inflation rate.

Tangible Personal Property Appraisal Procedures

The application of each generally accepted property appraisal approaches and methods typically follows these procedures:

1. Inventory and inspection
2. Data collection and analysis
3. Valuation analysis and conclusion

TPP Inventory and Description Procedures

Some of the typical procedures in the property appraisal include obtaining the property listing, confirming the presence of the property (if possible), and inspecting the condition of the property (if possible).

The analyst may create his or her own listing of the TPP based on inventory and inspection procedures. However, if possible, a detailed property listing should be obtained from the property owner/operator for comparison.

The following tests of inclusion and exclusion may be performed on the property listing:

1. Verify that all TPP included on the owner/operator's listing is available for inspection and inventory.
2. Remove from the owner/operator's listing any TPP items included on the property listing that are not available for inspection (e.g., not physically remaining at the facility).
3. Verify that all property available for inspection (i.e., physically at the facility) is included on the property listing.
4. Add any property items observed during the inventory and inspection that are excluded from the personal property listing.

The result of these TPP listing verification, inclusion/exclusion, and inventory procedures should be an accurate, updated, and verifiable inventory listing.

In a summation principle valuation, the data on the property listing may be verified through inventory procedures, including the following:

1. Property listing number

2. Owner/operator property identification number or bar code
3. Manufacturer and country of origin
4. General category of TPP
5. Type of TPP
6. Model number
7. Serial number
8. Date of manufacture
9. Location, including building address, room number, or other indication of physical location
10. Capacity of the TPP compared to model specifications
11. Internal upgrades or enhancements to the TPP compared to model standards
12. Appurtenances and other external peripherals attached to the TPP, and whether they have been identified and noted separately in the property listing
13. Last physical inventory date
14. Date that the TPP item was put into service

TPP Data Collection and Analysis Procedures

The detailed property listing may contain certain property information such as the original cost of the property, the date the property was placed into service, and the amount of accumulated depreciation related to the property.

Certain data on the property listing may be verified with the property owner's accounting department. This includes the TPP original cost, the actual purchase order, the paid invoice amount, the purchase order date, the invoice date, the date the property was received in the property owner's warehouse, the date the property was actually placed into service, and any sales tax, freight, insurance, or other delivery expenses recorded on the original invoice.

TPP Data Collection Procedures for the Cost Approach Analysis

For each TPP item, the following cost and expenses may be estimated based on either (1) the analyst's personal experience or (2) the analyst's consultation with the owner/operator operations or maintenance departments:

- Installation costs—such as set-up costs based on the normal amount of time required for various activities, including unpacking and checking, and making necessary power and other internal or external connections
- Special requirements—expenditures required specifically for the subject property to work efficiently, such as high-power source and wiring, dust-free air equipment, and installation
- Commissioning expenses—such as start-up expenses based on the normal time required for. example, loading necessary systems and applications software, debugging, and delivery to the TPP operator.

TPP Data Collection Procedures for a Cost Approach Method

For each TPP category on the property listing, the appropriate price, production, and cost indexes may be researched. An index is the mathematical relationship of relative changes in the price or the cost of specific items or groups of items over time.

TPP Data Collection Procedures for a Sales Comparison Method

For an individual TPP item on the detailed property listing, transactional data of the actual sale of guideline TPP may be researched. Guideline TPP generally has the same characteristics as the subject property with regard to the following:

1. Manufacturer and country of origin
2. General category of property
3. Specific type of TPP
4. Model number
5. Date of manufacture (any difference in the year of manufacture may be noted and considered in the final analysis)

If sufficiently comparable sales transactions are not found, then the analyst may search for guideline TPP sales transactions. Guideline TPP performs the same functions as the subject TPP.

One difference between the guideline property and the subject property is often the manufacturer. Guideline properties are often identified using specifications of comparable models produced by different manufacturers.

If possible, the analyst may verify or otherwise confirm the following information with regard to each guideline TPP item sale:

1. Actual market price of the comparable/guideline TPP sale transaction

2. Time (month and year) of the sale transaction
3. Location of the sale transaction
4. Condition of the comparable/guideline TPP
5. Any upgrade or deviation from the property model's standard specification
6. Any appurtenances of the comparable/guideline TPP included/excluded in the sale
7. Any special terms and conditions of the sale

TPP Data Collection Procedures for an Income Approach Method

For each TPP item on the property listing, transactional data with regard to the actual rental of guideline property may be researched.

For each rental transaction of guideline TPP, the terms and conditions of the agreement may be verified, including the term of the agreement, rent payable for each period of the term, inclusion of any penalty clause, the amount of the penalty, the inclusion of any purchase clause, and the contractual purchase price.

For each rental TPP item, the following data may be considered: rental history, maintenance history including expenses, general and administrative expenses, and marketing and advertising expenses. Also, the following components included in the estimation of the appropriate rental income capitalization rate may be considered:

1. The prevailing risk-free rate
2. The amount of risk associated with the subject TPP
3. The expected price inflation rate

TPP Data Analyses Procedures for a Cost Approach Method Only

Using a cost of production index for the property operator's industry, cost "inflation" trending factors may be developed for each vintage TPP group. The cost new of the TPP may be estimated by multiplying the historical cost by the appropriate age-dependent cost trending factors.

The average age of the TPP may be estimated. Based on property-specific statistical studies, or on published information regarding the effective life of TPP in the industry, the property UEL may be estimated.

Using this life estimate as a proxy, the "percent-good" for the subject property may be estimated. The percent-good conclusion equals (1 – physical (i.e., not accounting) depreciation percentage). This percent-good factor considers normal physical depreciation.

From the observations regarding the condition of the TPP, its maintenance schedule, and other factors, the costs that would be required to bring the existing property to state-of-the-art—or the costs required to operate the property at less than state-of-the-art—may be estimated. This is one basis for the identification and estimation of curable functional obsolescence.

To derive an estimate of external obsolescence, the subject industry may be analyzed, including a review of any new government regulations being passed, and the demand of the product and supply of raw material—as well as competitive products. The input from these subject industry sources may lead to the identification and quantification of external obsolescence. Other marketplace influences (not related to the subject industry) may also cause external obsolescence.

TPP Data Analysis Procedures for a Sales Comparison Method

Adjustments to the transactional sale price may be made for any differences between the specifications and information regarding the TPP, including the following:

1. Year of manufacture of the guideline TPP
2. Manufacturer and specifications of the guideline TPP
3. Time between the guideline sale date and the valuation date
4. Location of the guideline sale and the location of the TPP
5. Condition of the guideline TPP relative to the TPP
6. Any additions/deletions to the specifications of the guideline TPP and of the TPP
7. Any special terms and conditions of the guideline sale transaction should be adjusted to reflect the sale of a fee simple interest.

Based on consideration of the above-described adjustments, an adjusted market price for the TPP may be estimated.

TPP Data Analyses Procedures for an Income Approach Method

The market-derived normalized—or stabilized—annual rental income for the TPP may be estimated. Maintenance, marketing, and other administrative expenses may be estimated. The procedure for

"normalizing" rental income should eliminate (1) less than a full year of income in the first year of a lease and (2) "free" months of rental to a lessee in the first year of a lease.

The net operating income associated with the rental of the TPP may be calculated. Next, the expected UEL of the subject TPP may be estimated. Finally, the TPP capitalization rate (or present value discount rate) may be developed, based on the property-specific risk factors.

TPP Valuation Synthesis and Value Conclusion Procedures

For TPP appraisals performed for many purposes, it is reasonable to conclude a range of values as the final value opinion. However, for TPP appraisals performed for property tax purposes, it is more typical for the analyst to conclude a point estimate as the final value opinion.

Sometimes it is not possible or practical to apply more than one appraisal approach when valuing TPP. In such situations, the most appropriate appraisal approach and method is selected based on (1) the constraints of the quality and quantity of data and (2) the existing circumstances. In such an instance, the analyst may rely on this single appraisal approach to conclude the final value estimate.

If more than one TPP appraisal approach is applied, the analyst may assign an appropriate weight to the various value indications in order to calculate a value point estimate. This weight of the various value indications may be based on:

1. the relative dependability and applicability of each approach given (a) the TPP type and (b) the quantity and quality of data analyzed,
2. the confidence of the analyst in the individual valuation variables and projections, and
3. the analyst's personal experience with the subject property and the subject industry.

This value point estimate may be rounded to conclude the TPP value.

Summary and Conclusion

This discussion summarized the three generally accepted TPP appraisal approaches. Within each of the TPP appraisal approaches, there are several generally accepted appraisal methods. And, within each of these appraisal methods, there are individual appraisal procedures.

This is the sequence that the analyst typically follows in order to conduct an appraisal of industrial or commercial TPP. First, general appraisal approaches are considered. Second, individual appraisal methods are selected. Third, specific appraisal procedures—both quantitative and qualitative—are applied to the available data in order to derive value indications. And, fourth, the various value indications are reconciled in order to arrive at a value synthesis and conclusion.

There are many reasons why the analyst may be asked to appraise industrial or commercial TPP, including secured financing, income taxation or property taxation, financial accounting, litigation, and bankruptcy. For whatever purpose the appraisal is prepared, the appraisal may be subject to contrarian review.

To withstand such a contrarian scrutiny, particularly within the property tax appeal or litigation context, the TPP appraisal should follow the generally accepted property appraisal approaches, methods, and procedures summarized in this discussion.

This article was adapted from "Tangible Personal Property Appraisal Issues for Ad Valorem Tax Purposes" (*Insights*, 2008).

Notes:

1. *Valuing Machinery and Equipment*, 3d ed. (Washington, D.C.: American Society of Appraisers, 2011), 562.
2. Ibid., 373.
3. Ibid., 39.
4. Ibid., 43.
5. Ibid., 50.
6. Ibid., 51.
7. Ibid., 55.
8. Ibid., 56.
9. Ibid., 59.
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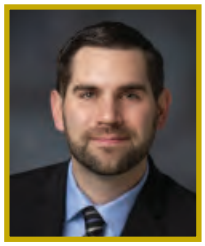

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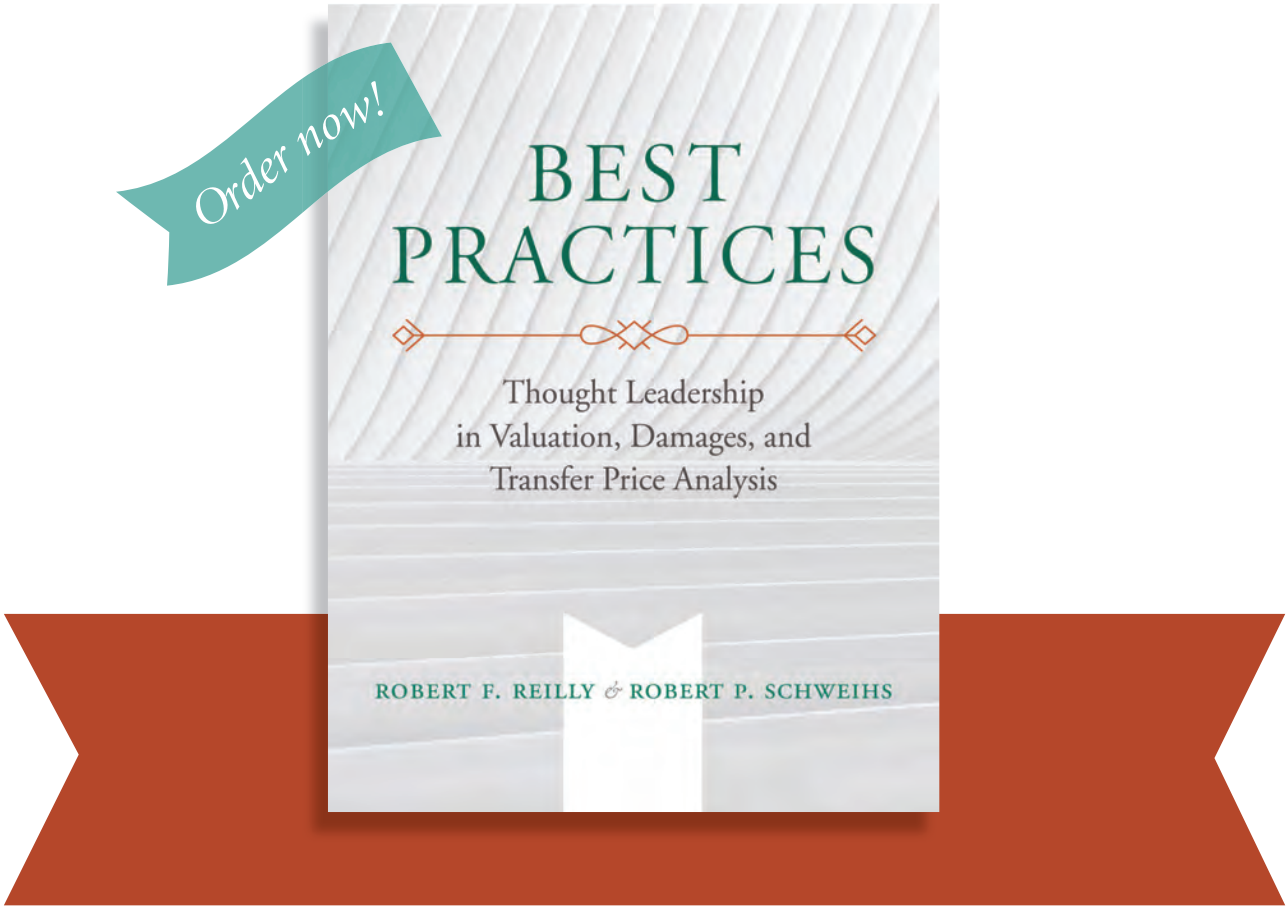

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Best Practices TABLE OF CONTENTS

Thought Leadership Discussion

Standard of Value Differences between Fair Value and Fair Market Value

John C. Ramirez

There are important standard of value differences between the fair value standard and the fair market value standard. These differences may or may not cause the fair value of a property to be different from the fair market value of the same property. Taxpayers, taxing authorities, and valuation analysts should not assume that a property's fair value measured for acquisition accounting purposes is equal to that property's fair market value estimated for property tax purposes. This discussion summarizes the valuation differences between (1) the fair value measurement of industrial and commercial property for acquisition accounting purposes and (2) the fair market value valuation of industrial and commercial property for state and local property tax purposes.

Introduction

Taxing authorities sometimes attempt to rely on fair value measurement financial accounting data in developing the fair market value valuation of industrial and commercial property. Such fair value measurements typically relate to the financial accounting for the following types of transactions:

1. The subject taxpayer is acquired, and the taxpayer's asset accounts are restated to fair value on the acquisition date.
2. The subject taxpayer acquires a target company, and the target company's asset accounts are restated to fair value on the acquisition date.
3. An industry competitor to the subject taxpayer is acquired, and the acquired competitor's asset accounts are restated to fair value on its acquisition date.

Such fair value measurements are performed in order for the acquirer company's financial statements to comply with U.S. generally accepted accounting principles ("GAAP").

Taxing authorities sometimes attempt to apply these fair value measurement financial accounting data as follows:

1. Accept the fair value measurement of the subject taxpayer's assets as an indication of the fair market value valuation of the taxpayer's assets.
2. Calculate a "fair value to accounting book value (of assets)" pricing multiple implied by industry merger and acquisition ("M&A") transactions and apply such an industry-derived "fair value to accounting book value" pricing multiple to value the taxpayer's assets.
3. Calculate a "fair value to accounting book value (of equity)" pricing multiple implied by industry M&A transactions and apply that fair value to accounting book value pricing multiples to value the taxpayer's equity.

4. Apply the "fair value to accounting book value (of equity)" industry-derived M&A transaction pricing multiple to conclude that there is no economic obsolescence applicable to the subject taxpayer's property or to the subject taxpayer's industry.

This discussion summarizes several of the valuation differences between (1) the fair value measurement standard of value as it relates to M&A transaction financial accounting requirements and (2) the fair market value standard of value as it relates to property tax valuations.

This discussion includes a simplified example of an M&A business combination transaction. This illustrative example illustrates some of the differences between fair market value valuation procedures and fair value measurement procedures.

For the reasons discussed herein, it is not appropriate to assume that a fair value measurement conducted for purchase accounting purposes would produce the same result as a fair market value valuation conducted for property tax purposes. In addition, it is not appropriate to assume that an M&A transaction purchase price necessarily represents the fair market value of that taxpayer business.

It is possible that the rules-based fair value of certain taxpayer property may equal the judgment-based fair market value of that taxpayer property. But that conclusion should be based on the analyst's due diligence—and not on an unsupported assumption. Likewise, it is possible that an M&A transaction price may be equal to fair market value. But, that conclusion should be based on the analyst's due diligence—and not on an unsupported assumption.

The word "asset" is an accounting term and the word "property" is a legal term. These two terms do not necessarily mean the same thing (i.e., all assets are not necessarily property and vice versa). However, for simplicity, these terms are used interchangeably in this discussion.

Standard of Value Differences

There are significant differences between (1) the fair value measurement standard of value as it is applied under GAAP acquisition accounting provisions and (2) the fair market value valuation standard of value as it relates to property taxation. Procedural differences in the application of these two standards of value may result in different value conclusions for the same bundle of property.

The standard of value required for GAAP acquisition accounting purposes is fair value, as described in the Financial Accounting Standards Board ("FASB") Accounting Standard Codification ("ASC") Topic 820, *Fair Value Measurement*.[1] According to ASC Topic 820, "fair value" is defined as follows:

> The price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date.
>
> The transaction . . . is a hypothetical transaction at the measurement date, considered from the perspective of a market participant that holds the asset or owes the liability. Therefore, the objective of a fair value measurement is to determine the price that would be received to sell the asset or paid to transfer the liability at the measurement date (an exit price).

Business combinations are accounted for by applying the "acquisition method of accounting," as described in ASC Topic 805, *Business Combinations*.[2] ASC 805 requires that the transaction purchase price be allocated to the target company acquired assets based on the fair value of the acquired assets.

A fair value measurement prepared for GAAP acquisition accounting purposes "measures" the fair value of the target company assets acquired (and the liabilities assumed) as part of a business combination transaction.

For property tax purposes, most states require that taxpayer property to be valued at fair market value or market value (or at some conceptually similar standard of value, such as actual fair cash value).

One typical definition of fair market value is presented as follows:

> The price, expressed in terms of cash equivalents, at which property would change hands between a hypothetical willing and able buyer and a hypothetical willing and able seller, acting at arm's length in an open and unrestricted market, when neither is under compulsion to buy or sell and when both have reasonable knowledge of the relevant facts.[3]

Fair market value valuations are typically judgement-based. The analyst has substantial discretion in the application of the generally accepted property valuation approaches, methods, and procedures. The objective of fair market value valuations is to represent the economics

of a hypothetical property transfer. Fair market value valuations consider certain hypothetical assumptions regarding both a willing buyer and a willing seller in the hypothetical transaction.

In contrast, fair value measurements are rules-based analyses. The analyst is constrained to apply the rules and procedures that are promulgated in GAAP and in the various GAAP implementation guidance.

While fair market value valuations are judgment-based, fair value measurements are rules-based. While fair market value valuations are intended to reflect hypothetical transaction economics, fair value measurements are intended to be transparent, replicable, and auditable.

In particular, fair value measurements are required to comply with specific rules-based guidance promulgated by the FASB, the Appraisal Foundation, and the American Institute of Certified Public Accountants.

The following list indicates some of the differences between (1) a fair value measurement prepared for GAAP compliance purposes and (2) a fair market value valuation prepared for property tax purposes:

1. Differences in the assumed buyer and the assumed seller
2. Differences in the assumed unit of account (i.e., the appraisal subject)
3. Differences in the assumed highest and best use of the unit of account
4. Differences in the valuation approaches and methods relied on
5. Differences in valuation procedures and valuation assumptions

Differences in the Assumed Buyer and the Assumed Seller

The assumed buyer and the assumed seller in a fair value measurement are different than the assumed buyer and the assumed seller in a fair market value valuation. One difference is that the buyer in a fair value measurement may include a strategic buyer. Another difference is that the fair value is intended to represent "an exit price"—that is the price that the current owner could obtain to sell the asset to a market participant buyer.

In a fair value measurement, the assumed buyer and the assumed seller are "market participants." According to ASC 805, market participants are defined as "buyers and sellers in the principal (or most advantageous) market for the [target] asset or liability."

The fair value standard market participants are any of a multitude of actual industry participants, each with potentially different strategic and/or financial motives. That is, the market participants assumed under the fair value standard include both strategic buyers (such as competitors that could benefit from post-merger synergies) and financial buyers (such as private equity or venture capital firms that do not have complementary investments).[4]

In contrast, the fair market value standard is based on a hypothetical transaction between a hypothetical willing seller and a hypothetical willing buyer, neither being under any compulsion to buy or sell and both having reasonable knowledge of the relevant facts. In other words, "Fair market value assumes conditions as they actually exist and a hypothetical buyer and seller, with no special, unique motivations or circumstances."[5]

One difference between the fair market value standard and the fair value standard is that the fair market value buyers/sellers are assumed to be (1) hypothetical persons and (2) financially motivated—and not strategically motivated.

In contrast, the fair value standard assumes a hypothetical transaction between a market participant buyer and a known seller (i.e., the current asset owner seeking "an exit price").

These differences in the assumed buyer and the assumed seller—and in particular the strategic buyers included in the fair value standard—can lead to different value conclusions for the same bundle of assets. The fair value standard is required for GAAP accounting purposes. For property tax valuation purposes, fair value is not the appropriate standard of value.

Differences in the Assumed Unit of Account (i.e., the Appraisal Subject)

The unit of account can be the integrated assemblage of the taxpayer's operating assets (i.e., the total unit of tangible assets and intangible assets). Or, the unit of account can be taxpayer's individual real estate and personal property assets.

The unit of account is the lowest level at which (1) the valuation analysis is performed and (2) the value conclusion is reached.

Under the fair value measurement standard, the "unit of account" is defined as "the level at which an asset or a liability is aggregated or disaggregated . . . for recognition purposes." In other words, the unit of account for fair value measurement purposes

is each individual general ledger account of the acquirer entity.

This fair value concept of the unit of account as a general ledger account is analogous to the summation valuation principle. Under that principle, each individual asset category is valued separately—and then summed to estimate the value of the taxpayer's total property. This summation valuation principle is different from the unit valuation principle.

Under the unit valuation principle, the unit of account is the entire taxpayer business entity, considered on a total unit basis (i.e., as an integrated business enterprise without functional or geographic division of the whole).[6]

This integrated business enterprise/total taxpayer unit collectively includes all of the tangible assets and all of the intangible assets of the overall taxpayer business enterprise.

The conceptual differences in the assumed unit of account—summation (for financial accounting purposes) versus unit (for property tax purposes)—is a primary difference between (1) fair value measurements for GAAP purposes and (2) fair market value valuations for property tax purposes.

Differences in the Assumed Highest and Best use of the Unit of Account

The highest and best use ("HABU") analysis and conclusion in a fair value measurement may be different than the HABU analysis and conclusion in fair market value valuations for property tax purposes.

Under the fair value measurement standard of value, "the highest and best use of a nonfinancial asset might provide maximum value to market participants through its use in combination with other assets as a group (as installed or otherwise configured for use) or in combination with other assets and liabilities (for example, a business)."[7]

For GAAP accounting purposes, the analyst is required to consider the HABU for each individual unit of account—that is, each general ledger asset account. This means that the various asset accounts (including the various property, plant, and equipment accounts) could each have a different HABU.

Under the fair market value standard, the HABU of the total unit is considered at the taxpayer total business entity level—and not at the individual asset category (or general ledger account) level. The HABU of all of the taxpayer assets is typically the current use of the total assets within the taxpayer business entity (e.g., value in use)—and not the HABU of each individual asset general ledger account for possible alternative uses (e.g., value in exchange).

The fair value measurement HABU may be different than the fair market value valuation HABU. This is because the fair value measurement HABU conclusion may be developed at the individual asset category or general ledger account level—and not at the total taxpayer business entity (or unit) level.

These differences in the assumed HABU of the unit of account can lead to different value conclusions for the same taxpayer bundle of assets.

Differences between the Valuation Approaches and Methods Relied On

Applying the fair value measurement standard, the market approach, income approach, and cost approach may be applied to value property, depending on the circumstances of the valuation.[8]

ASC 820, however, prioritizes the valuation approaches and methods that should be relied on to conclude a fair value measurement for ASC 805 acquisition accounting purposes.

As promulgated in ASC 820, "The fair value hierarchy gives the highest priority to quoted prices (unadjusted) in active markets for identical assets or liabilities (Level 1 inputs) and the lowest priority to unobservable inputs (Level 3 inputs)."[9]

Applying this guidance, the analyst is directed to rely principally on the market approach in a fair value measurement performed for acquisition accounting purposes. Where there is no market for the subject property, the analyst may use other methods.

In a fair market value valuation for property tax purposes, the analyst is not bound by the GAAP hierarchy to prioritize one valuation approach over any other valuation approach. Therefore, applying the fair market value standard, the analyst has more judgmental discretion to select any appropriate valuation approach or method.

Of course, the extent to which these differences are significant depends on the methods and procedures applied in the fair value measurement compared to the methods and procedures applied in the fair market value valuation.

Differences in Valuation Procedures and Assumptions

There are numerous differences in the quantitative procedures that an analyst will perform in a fair value measurement compared to a fair market value valuation. There are also numerous differences in the quantitative assumptions that an analyst will make in a fair value measurement compared to a fair value valuation. These differences relate to the fact that fair value measurements are primarily rules-based and fair market value valuations are primarily judgment-based. In a fair value measurement, analysts are required to comply with certain procedures stated in ASC 820, ASC 805, other ASC provisions, and various GAAP implementation guidance.

A detailed discussion of all of these procedure and assumption differences is beyond the scope of this discussion. However, a few examples of such differences include the following:

1. The acquisition price may be different. GAAP provisions require the recognition of the fair value of acquisition-related financing instruments as part of the total transection purchase price. This addition of the fair value of financing vehicles to the transaction purchase price may increase the residual amount assigned to the measurement of goodwill in the fair value measurement.
2. The present value discount rate may be different. A fair market value valuation would apply a market-derived (or industry average) present value discount rate to all income approach property valuations. A fair value measurement would apply the internal rate of return ("IRR") implicit in the transaction price as the discount rate applied to all income approach property valuations.

   For example, let's assume an industry average weighted average cost of capital ("WACC") of 10 percent. Let's assume that the deal IRR was 6 percent. A fair market value valuation would apply 10 percent as the present value discount rate. A fair value measurement would apply 6 percent as the present value discount rate.
3. The economic obsolescence conclusion would be different. Acquired tangible property and intangible property are often valued by applying the cost approach. This statement is true for both fair market value valuations and fair value valuations.

   Let's continue with our assumption of an M&A transaction with a 10 percent WACC and a 6 percent IRR. The fair market value valuation of the acquired property would include a substantial value adjustment for economic obsolescence (i.e., 10 percent WACC compared to 6 percent IRR would imply about 40 percent economic obsolescence). In contrast, the fair value measurement of the same property would likely include no adjustment for economic obsolescence (i.e., the 6 percent IRR compared to the 6 percent IRR implies no economic obsolescence).
4. Certain intangible assets may have a different value. For fair market value valuation purposes, contract intangible assets are often valued as the present value of the income earned by performing the contract. In contrast, fair value measurements only recognize the present value of excess income (above the market level of income) in the contract intangible asset value.

   Let's assume a power purchase agreement ("PPA"), where the power offtaker agrees to buy 100 MW of electricity per year from an electric generation plant at $10 per MW (the expected market price of electricity) for the next 10 years. The full absorption cost (including a fair return on the property owner's investment in the plant) to produce electricity at the plant is $6 per MW. Therefore, the plant will earn $4 per MW times 100 MW or ($40,000,000 per year for the next 10 years. Assuming a 10 percent present value discount rate, the present value of the $40,000,000 of annual contract income (after providing a full return on investment in plant assets) is approximately $246,000,000. That amount would be the fair market value of the contract intangible asset.

   In contrast, the fair value measurement of the same contract intangible asset would be $0. This is because the terms of the contract are considered to be "at market" terms. This fair value measurement would conclude no value for the PPA contract even though the contract results in hundreds of millions of dollars in profit for the plant owner over the next 10 years.

As mentioned above, there are many individual procedures or assumptions that may be different for fair market value valuation purposes than for fair value measurement purposes. This is because the GAAP guidance provides the rules the analyst has to apply or the assumptions the analyst has to make in the performance of the fair value measurement.

This discussion was intended to provide illustrative examples of the impact of a few typical differences between fair market value valuation procedures and fair value measurement procedures.

Illustrative Example—Fair Market Value versus Fair Value Differences

A simplified example within the context of a business combination illustrates the quantifiable impact of some differences between fair market value valuation procedures and fair value measurement procedures. The following example is deliberately simplified for illustrative purposes.

Let's assume the following hypothetical transaction variables:

1. Alpha Company develops a new widget business called the Beta business.
2. The Beta business just built a widget factory for $10,000,000; therefore, the replacement cost new ("RCN") for the Beta special purpose industrial property is $10,000,000.
3. The Beta factory can produce 1,000,000 widgets per year.
4. The cost to manufacture a Beta widget is $4 per widget.
5. The current market selling price for widgets is $6 per widget.
6. The market selling price for widgets is expected to generally decrease during the next few years as follows:

   Year 1 widget unit sale price – $6

   Year 2 widget unit sale price – $6

   Year 3 widget unit sale price – $5

   Year 4 widget unit sale price – $4

   Year 5 widget unit sale price – $4
7. The Beta factory starts producing widgets on the valuation date, January 1, 2019.
8. On January 1, 2019, Alpha Company sells all of the assets of the Beta widget business to Gamma Company for $12,500,000.
9. As part of the transaction, Gamma Company enters into a hedge price agreement ("the contract") with Delta Company, a major consumer of widgets.
10. Under the terms of the contract, Delta Company agrees to pay for all of the Beta business widget production capacity (1,000,000 widgets per year) whether or not Delta Company takes delivery of the widgets. Under the terms of the fixed price contract, Delta Company agrees to pay $5 per widget for the next five years.
11. Under the contract, the Beta factory is assured of selling all of its capacity at a fixed price per unit for the next five years.
12. Under the contract, Delta Company is assured of a source of widget supply at a fixed price per unit for the next five years.
13. Let's assume that the above-described contract terms are standard for the widget industry as of the transaction date. That is, the contract is considered to be an "at-market" contract.
14. The market-derived cost of capital for Gamma Company is 10 percent. That 10 percent is also the industry required return on investment.
15. In year one, Gamma Company will earn $5,000,000 in revenue ($5 unit sales price × 1,000,000 widgets). In year one, Gamma Company will incur $4,000,000 in costs ($4 unit cost × 1,000,000 widgets). Therefore, in year one, Gamma Company will earn $1,000,000 in income.
16. To simplify this example, let's assume all revenue, cost, and income variables are measured on a net cash flow basis. And,

let's assume that all financial variables are recognized once a year—at year-end.

17. The Gamma Company return on the Beta business acquisition in year one will be 8 percent ($1,000,000 income ÷ $12,500,000 purchase price).

Now let's consider the Beta business combination transaction illustrative valuation—based on the fair market value standard of value. In this simplified transaction, only three assets are acquired by Gamma Company: industrial property (the widget factory), the contract, and goodwill. This illustrative fair market value valuation is summarized below:

1. The analyst decides to apply the cost approach and the replacement cost new less depreciation ("RCNLD") method to value the industrial property.
2. The RCN for the industrial property is $10,000,000. Since the factory is new, there is no physical depreciation. Since the factory is performing the function for which it was just designed, there is no functional obsolescence. At this point in the cost approach analysis, the factory RCNLD is $10,000,000. The market demands a 10 percent return on investment ("ROI"). However, the factory operations only produce an 8 percent ROI for the owner/operator. Therefore, there is economic obsolescence related to the acquired industrial property.
3. The analyst decides to apply the capitalization of income loss method ("CILM") to measure the economic obsolescence. The analyst measures the required income ROI as 10 percent—the industry average cost of capital. The analyst measures the actual income ROI as 8 percent—the actual return based on the Beta business purchase price. The income loss is 10 percent required return – 8 percent actual return = 2 percent income loss; 2 percent income loss ÷ 10 percent required return = 20 percent economic obsolescence. Based on the CILM, the economic obsolescence is: $2,000,000 ($10,000,000 RCNLD × 20 percent).
4. Based on the complete application of the cost approach, the fair market value of the acquired industrial property follows:

	Replacement cost new	$10,000,000
–	Physical depreciation	0
–	Functional obsolescence	0
–	Economic obsolescence	2,000,000
=	Fair market value	$8,000,000

5. The analyst decides to use the income approach and the discounted cash flow method ("DCF") to value the contract intangible asset. The contract produces the following annual income: $5,000,000 revenue – $4,000,000 costs = $1,000,000 income (cash flow). The contract runs for five years. The present value of annuity factor for 10 percent for five years is 3.7908. The present value of an annuity of $1,000,000 per year for five years is: $1,000,000 × 3.7908 = $3,800,000 (rounded). Based on the DCF method, the fair market value of the contract intangible asset is $3,800,000.
6. The total purchase price is $12,500,000. Based on the residual method, the residual fair market value for the acquired goodwill follows:

	Purchase price	$12,500,000
–	Tangible industrial property	8,000,0000
–	Contract intangible asset	3,800,0000
=	Goodwill	$700,000

7. The fair-market-value-based allocation of purchase price for the Beta widget business acquisition is summarized in Exhibit 1.

Exhibit 1
Beta Widget Business
Allocation of Transaction Purchase Price
Fair Market Value Valuation Standard of Value
As of January 1, 2019

Total transaction purchase price consideration to allocate:
$12,500,000 cash paid

Tangible Industrial Property	$8,000,000
Contract Intangible Asset	3,800,000
Goodwill	700,000
Total Transaction Purchase Price	$12,500,000

Now let's consider the GAAP acquisition accounting for the Beta business combination. This acquisition accounting will be based on the fair value measurement standard of value. FASB ASC Topic 805, *Business Combinations* (and the associated fair value measurement authoritative literature), provides the rules-based guidance for the fair value measurement of business combinations.

ASC 805 requires the application of the acquisition method of accounting with regard to business combinations.

1. First, the analyst has to calculate the fair value of the total transaction consideration. For GAAP acquisition accounting purposes, the total consideration has two components: (a) the cash paid and (b) the hedge-contract-related liability assumed.

   We recall that the contract allows Gamma Company to receive a $5,000,000 fixed payment each year over the five-year term of the contract. Those fixed payments are based on a hedge contract price that is different from the expected market prices for the widgets.

   The contract payments are lower than the expected market prices in the earlier years and are higher than the expected market prices in the later years. Due to the present value impact of these price differences, the price component of the hedge contract has a negative value—and would be recorded as a liability. The mathematics of option pricing are complicated and are not presented here.

   For purposes of this simplified example, let's assume the fair value of the contract liability is about $500,000 (a reasonable approximation). Therefore, the total transaction consideration is $13,000,000 ($12,500,000 cash paid plus $500,000 liability related to the price hedge portion of the contract).
2. The analyst decides to use the cost approach and the RCNLD method to value the industrial property.
3. The tangible industrial property RCN is $10,000,000. The tangible industrial property (i.e., the special purpose widget factory) is new. Therefore, there is no physical depreciation or functional obsolescence.
4. The analyst assumes that the transaction internal rate of return ("IRR") equals the transaction cost of capital ("WACC")—and also equals the transaction weighted average return on assets ("WARA").

   This valuation assumption (that IRR = WACC = WARA) is based on the following analysis: Gamma Company entered into the transaction knowing it would earn an 8 percent ROI. Gamma Company agreed to the purchase price knowing it would only earn an 8 percent ROI. Therefore, Gamma Company priced this deal based on an assumed 8 percent cost of capital (for this particular transaction). Accordingly, there is no economic obsolescence from the perspective of Gamma Company.

   The willing buyer/willing seller would demand a 10 percent ROI (based on the industry cost of capital), and that willing buyer and willing seller would negotiate a lower deal price (and a lower value for the industrial property).

   However, Gamma Company paid the deal price and Gamma Company accepts the below-market ROI. Therefore, the analyst may conclude that he or she "considered" economic obsolescence (to Gamma Company) in the valuation.

   Based on the consideration of the Gamma Company motivations and actions, there is no economic obsolescence in this transaction. This is a reasonable assumption in a fair-value-based property valuation prepared in accordance with the GAAP acquisition accounting rules.
5. We recall that the contract is considered to be an at-market contract. Under the ASC 805 rules-based guidance, an at-market contract is an intangible asset that has zero fair value. This zero fair value conclusion is consistent with the ASC 805 fair value measurement rules—even though the contract generates $1,000,000 per year in cash flow.
6. The total fair value purchase price is $13,000,000. The residual fair value measurement for the acquired goodwill follows:

Purchase price	$13,000,000
– Tangible industrial property	10,000,000
– Contract intangible asset	0
= Goodwill	$3,000,000

7. The fair value measurement allocation of purchase price for the Beta widget business purchase is summarized in Exhibit 2 on the next page.

Exhibit 2
Beta Widget Business
GAAP Business Combination Purchase Accounting
Fair Value Measurement Standard of Value
As of January 1, 2019

Total purchase price consideration to allocate:
$12,500,000 cash paid plus $500,000 hedge contract liability

Tangible Industrial Property	$10,000,000
Contract Intangible Asset	0
Goodwill	3,000,000
Total Transaction Purchase Price	$13,000,000

A comparison of Exhibit 1 and Exhibit 2 indicates that there may be material differences between fair market value valuations and fair value measurements. Fair market value valuations are judgment-based and are intended to reflect the economics of the subject transaction. Fair value measurements are rules-based and are intended to be transparent, replicable, and auditable.

In many business acquisitions, fair market value analyses and fair value measurements can be the same. However, based on the specifics of the individual transaction, the fair market value analysis and the fair value measurement can also be materially different. Fair value measurements are primarily based on the rules related to the acquisition method of accounting, as described in ASC Topic 805 (and in other GAAP implementation guidance).

Without analyzing the many differences that exist between the ASC Topic 820 fair value standard of value and the fair market value standard of value, it is not appropriate to rely on a fair value measurement for GAAP acquisition accounting purposes to estimate the fair market value of industrial or commercial property for property tax purposes.

Summary and Conclusion

There are significant differences between (1) the fair value measurement standard of value as it relates to GAAP financial accounting and (2) the fair market value valuation standard of value as it relates to property taxation.

Procedural differences in the application of these two standards of value may result in different quantitative value conclusion for the same bundle of taxpayer assets.

Some of these differences related to the following:

1. Differences in the assumed buyer and the assumed seller
2. Differences in the assumed unit of account (i.e., the appraisal subject)
3. Differences in the assumed highest and best use of the unit of account
4. Differences in the valuation approaches and methods relied on
5. Differences in the valuation procedures and valuation assumptions applied

Without due diligence analysis, it is not appropriate to assume that a fair value measurement conducted for GAAP compliance purposes would produce the same results as a fair market value valuation conducted for property tax purposes.

Notes:

1. Accounting Standards Codification Topic 820: *Fair Value Measurement* (Norwalk, CT: Financial Accounting Standards Board).
2. ASC 805-10-05-4.
3. ASA Business Valuation Standards, American Society of Appraisers (2009).
4. ASC 820-10-55-27.
5. Shannon P. Pratt, *The Market Approach to Valuing Businesses*, 2nd ed. (New York: John Wiley & Sons, 2005), 148.
6. *Property Taxation*, 3d ed. (Atlanta: Institute for Professionals in Taxation, 2004), 583.
7. ASC 820-10-35-10.
8. ASC 820-10-35-24.
9. ASC 820-10-35-37.

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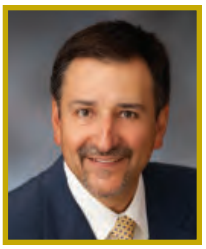

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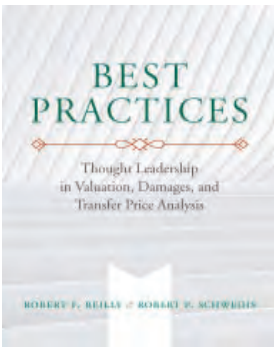

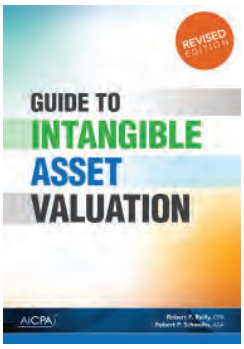

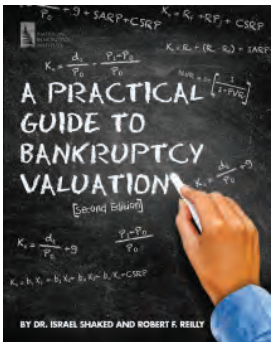

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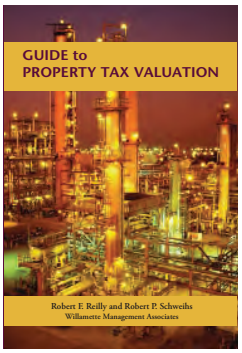

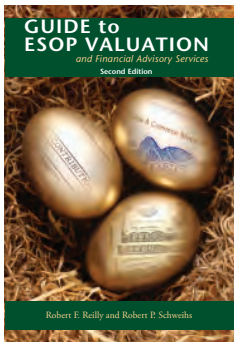

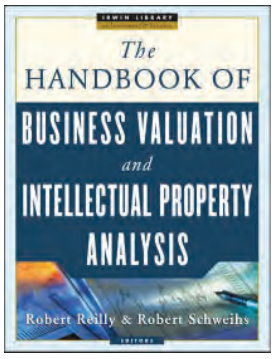

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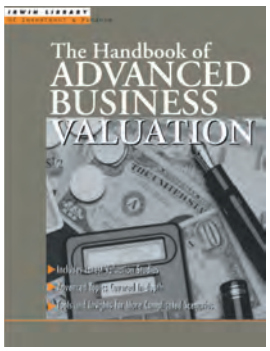

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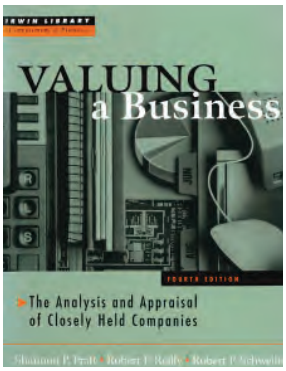

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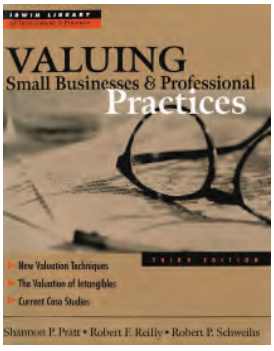

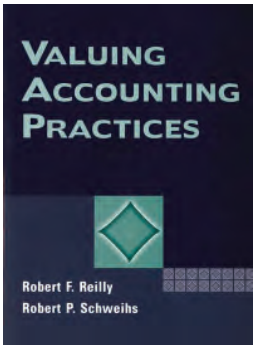

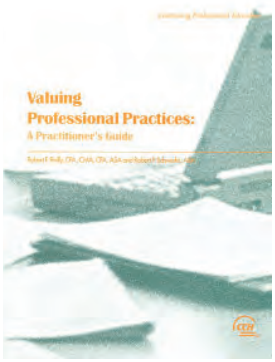

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Applying the CAPM to Derive Property Capitalization Rates

Kevin M. Zanni

The capital asset pricing model ("CAPM") is a generally accepted cost of equity capital measurement model. The CAPM is often applied to estimate the present value discount rate (or yield capitalization rate) in an income approach valuation of industrial or commercial property. The CAPM was developed to estimate the required rate of return on an investment in perfectly liquid equity securities. Therefore, it may not be appropriate to rely on the CAPM, without modification, to estimate the discount rate applicable to the appraisal of industrial or commercial property. This discussion focuses on certain conceptual limitations and application considerations in using the CAPM to value property for property tax purposes. This discussion also presents several alternative cost of equity capital measurement models.

Introduction

For property tax purposes, public utility, transportation, communication, energy, and other similar utility-type properties are sometimes assessed by applying the unit principle of property valuation. In such unit principle valuations, the taxing authority often applies an income approach valuation method—either the direct capitalization method or the yield capitalization method—to collectively value the taxpayer's operating property.

In any unit principle valuation that relies on an income approach valuation method, the estimated cost of equity capital is a significant component of the yield capitalization rate calculation.

The CAPM is a cost of equity model. The CAPM was developed for, and is applied by, money managers, investment managers, and fund managers who invest in publicly traded securities as part of a well-diversified portfolio of publicly traded securities. The CAPM is well suited to estimate the required return on investment for that valuation purpose.

For property tax purposes, however, analysts estimate the cost of equity capital for the valuation of (non-publicly-traded and generally illiquid) industrial or commercial property—and not the valuation of equity securities. Accordingly, the CAPM has to be modified to achieve this fundamentally different valuation purpose.

This discussion focuses on certain conceptual limitations and application considerations related to the use of CAPM in the valuation of industrial or commercial property. This discussion also presents a brief discussion of several alternative cost of equity capital measurement models.

Introduction to the CAPM

The CAPM is a generally accepted model for estimating the cost of equity capital. The simplicity of the model and the relative availability of model inputs make the CAPM an attractive tool for estimating the cost of equity capital. Many corporate finance and

business valuation textbooks extensively discuss aspects of the CAPM.[1]

The focus of this discussion is to understand the fundamental concepts and underlying assumptions of the CAPM and its application in the valuation of industrial or commercial property.

The development of the CAPM was a significant theoretical breakthrough in the 1960s. The CAPM is considered a very important univariate model to estimate the cost of equity capital.

The CAPM was introduced by Jack Treynor, William Sharpe, John Lintner, and Jan Mossin, independently, building on the earlier work of Harry Markowitz related to investment diversification and modern portfolio theory. In 1990, Sharpe, Markowitz, and Merton Miller received the Nobel Memorial Prize in Economics for their contribution to the field of financial economics related to the development of the CAPM.

The CAPM was (and still is) considered an important model to estimate the required rate of return on a short-term investment in perfectly liquid equity securities as part of a diversified portfolio of liquid investment securities. The CAPM is one model (and, certainly, it is a widely accepted model) for quantifying the cost of equity capital component of an income capitalization rate.[2]

The CAPM formula is presented as follows:

$$k_e = R_f + B_j(R_m - R_f)$$

where:

k_e = the cost of equity capital

R_f = the risk-free rate of return

R_m = the long-term equity risk premium (the expected rate of return for a broad-based equity market portfolio)

B_j = the beta coefficient of the subject publicly traded equity security "j"

The CAPM formula can be separated into three main components: (1) the risk-free rate, (2) the long-term equity or "market-derived equity" risk premium, and (3) the selected beta coefficient.

The first CAPM formula component, the risk-free rate, reflects the minimum return that an investor can expect to receive from his or her investment. This rate reflects the time value of money. There is general consensus among analysts as to the appropriate risk-free rate of return to apply in the CAPM. Analysts commonly select the market yield on the 20-year U.S. Treasury bond as the risk-free rate of return component.

The second CAPM component, the market-derived equity risk premium, is the market return that an investor can expect over the risk-free rate by investing in the market portfolio. The selected long-term equity risk premium ("ERP") is not as consistently applied—as compared to the risk-free rate—among analysts.

Certain analysts advocate the use of a more normalized equity risk premium, of say 5 percent. Other analysts elect to use historical ERP estimates, of around 6 percent, as published by Duff & Phelps on its Cost of Capital Navigator database website.[3]

The third CAPM component, the beta coefficient, measures the subject security's sensitivity to changes in the market portfolio. Beta, in general terms, is used to incorporate market risk (general equity risk and industry risk) in an equity cost of capital estimate.

The analyst should keep in mind that the selected beta should fairly represent the systematic risk and stock price variability of the subject company as compared to the broad equity market over a relevant time period. The analyst should keep in mind that the beta estimate is the mean of a statistical distribution that results from a regression analysis.

Fundamental Assumptions of the CAPM

It is often necessary to make foundational assumptions in order for any theoretical model to work. However, it is also important to understand these fundamental premises in order to determine if that model is appropriate for the issue at hand.

Basic CAPM theory indicates that the level of nonsystematic risk of a subject security is not relevant to diversified investors in publicly traded equity securities. That is, because the nonsystematic component of investment risk can be diversified away in a well-managed diversified portfolio of liquid investment securities, investors do not incorporate this risk expectation in their expected rate of return decisions.

In the theoretical state of market equilibrium, a liquid equity security will be expected to provide a rate of return commensurate with its level of systematic risk. This component of total investment risk is the risk that cannot be avoided through efficient portfolio diversification. The greater the level of unavoidable systematic risk of a particular investment security, the greater the rate of return that an investor will expect from that investment security.

"If investment-specific risk cannot be diversified away, then certain conceptual and practical implications of the CAPM do not hold up under analytical scrutiny."

The relationship between the expected rate of return and the level of unavoidable systematic risk is the conceptual foundation of the CAPM. The CAPM assumes that, in a perfect market where there are no restrictions on investments (i.e., no income taxes, no transaction costs, etc.), all investors will have the same information, at the same time, and will invest in a similar manner. However, in the real world, this is far from the truth.

The application of the CAPM implicitly encompasses the acceptance of the following assumptions:

1. Capital markets are highly efficient.
2. Investors operate in a perfect market where information is freely and instantly available to all investors.
3. Investors are well informed and risk averse.
4. Investors evaluate portfolios based on the expected return and standard deviation of the portfolios over a one-period horizon.
5. Transaction costs are zero and there are no income taxes or transfer taxes.
6. There are negligible restrictions on investment.
7. No investor is large enough to affect the market price of the subject stock.

The CAPM is also based on the assumption that investors are in general agreement about the likely performance and level of risk of individual equity securities. In addition, the CAPM is based on the assumption that investors' return expectations are based on the same expected investment holding period of, say, one year.

Under this set of hypothetical conditions, investors perceive the opportunity set of risky equity securities in the same way. And, investors will devise similar (and similarly diversified) investment portfolios.

The more the actual property valuation assignment differs from this set of hypothetical assumptions, the more important are the individual property-specific, or nonsystematic, risks of an investment in the valuation subject.

The analyst should remember that the CAPM assumes that investment-specific risk can be diversified away. If investment-specific risk cannot be diversified away, then certain conceptual and practical implications of the CAPM do not hold up under analytical scrutiny.

Limitations of Applying the CAPM in Property Valuations

CAPM was created to estimate returns for publicly traded securities. However, an investment in publicly traded securities is fundamentally different from an investment in industrial or commercial property.

The CAPM was developed to estimate the fair rate of return on a relatively short-term investment in publicly traded equity securities. The CAPM was not developed to estimate the appropriate capitalization rate on a long-term investment in the illiquid operating property of an individual taxpayer.

These different categories of investment are subject to different degrees of risk. Therefore, these different investment categories have different expected rates of investment return.

For example, cash or cash equivalents—such as marketable securities—change hands regularly in well-established capital markets. The public capital markets are generally recognized as being highly efficient. Thus, this investment category has rates of return that are closely followed by investors.

On the other hand, both tangible property (such as real estate and tangible personal property) and intangible personal property are fundamentally different investment categories than marketable securities.

Exhibit 1 illustrates the fundamental structural differences between:

1. the market for publicly traded securities exchange transactions and
2. the market for industrial or commercial property exchange transactions.

These fundamental structural differences in marketplace mechanics—particularly with regard to marketplace efficiency—explain why the CAPM is appropriate for estimating an investor's required rate of return on investment in publicly traded securities—but less suitable for estimating an investor's required rate of return on investment in industrial or commercial property.

Exhibit 1 provides a few of the reasons why efficient and organized publicly traded securities markets are fundamentally different from inefficient and unorganized industrial or commercial property markets.

Exhibit 1
Structural Differences between Public Securities Markets and Industrial or Commercial Property Markets

	Exchange Market Attributes	Publicly Traded Securities Transaction Market	Industrial or Commercial Operating Property Transaction Market
1.	Property types that are competing for investment funds	Homogeneous	Heterogeneous
2.	Number of buyers and sellers	Many	Few buyers and sellers
3.	Transaction prices	Low	Unpredictable and relatively high
4.	Cost of individual transactions (including brokerage, information, title transfer, and other fees)	Low	High
5.	Government restrictions on secondary market participants	Few	Regulations at all levels
6.	Supply of and demand for the subject properties	Fairly balanced	Volatile demand
7.	Type of buyers and sellers	Genuinely informed	Potentially uninformed, lacking transaction experience
8.	Type of disclosure of financial and operational information	Public	Restricted disclosure (if any) or limited financial or operational information
9.	Type of market mechanism to process the transaction	Relatively seamless	Small, fragmented, overlapping processing
10.	Liquidity of the subject properties	Liquid	Illiquid

Beta Measurement Issues

Another fundamental application consideration related to the use of CAPM for unit valuation purposes is due to the measurement of the beta coefficient component of the CAPM. That is, there is no single recommended method for measuring the beta coefficient component of the CAPM.

There are several platform databases that can be used to estimate the beta coefficients of publicly traded equity securities. For example, the Standard & Poor's Capital IQ database or the Bloomberg database can be used to estimate beta coefficients. However, in order to apply a beta coefficient estimate to calculate the cost of equity capital, an analyst should consider the following issues.

First, the analyst may consider whether to use guideline companies or guideline indices to estimate the beta coefficient. Whether a guideline index or a group of selected guideline companies is relied on to estimate a beta, the analyst should consider the following questions.

- How do the selected guideline companies compare to the subject taxpayer and its assets?
- How frequently do the selected guideline companies trade in equity markets?
- Is a selected guideline company a pure play business, or if it is not a pure play business, is it reasonably similar to the subject taxpayer unit?

Second, an analyst may decide which beta estimate lookback period is appropriate. Is a five-year monthly beta estimate an appropriate lookback period. Perhaps a two-year daily beta estimate is a more appropriate lookback period. What types of trading frequency should be considered—daily, weekly, or monthly trading frequency? To make this determination, the analyst may decide to rely on statistical analysis to aid in decision making. Perhaps the analyst may decide to calculate the beta coefficients and then compare the beta estimates of various groups—that is, groups that are separated by (1) lookback periods and (2) trading frequency.[4]

In this case, the analyst may decide that the selection of the lookback period and the trading frequency is best indicated by the group with the lowest coefficient of variation indication.

Third, an analyst may decide the appropriate equity market index to use in the beta-related regression. For example, some analysts may use the total return Standard & Poor's 500 market index as the benchmark market index to estimate beta.

And, other analysts may decide to use the New York Stock Exchange index as the benchmark index.

Finally, the analyst may consider unlevering and relevering the market-derived guideline publicly traded company beta estimate to correspond with the taxpayer's capital structure. The reason for unlevering and then relevering beta is to extract out security-specific financial leverage risk that is an embedded component of guideline company betas.

The guideline company capital structures may be dissimilar to the subject taxpayer's capital structure. Analysts often use the Hamada formula for unlevering and relevering equity beta estimates. However, there are several other unlevering and relevering formulas analysts may consider such as the Harris-Pringle formula and the Fernandez formula.

Consideration of Property Not Yet in Place as of the Valuation Date

There is another application issue related to using the CAPM to estimate the cost of equity capital for unit principle property valuations. That issue involves the consideration of property not yet in place as of the valuation date.

Since the CAPM implicitly incorporates investor's expectations of security appreciation—that is, investment growth—it imparts a value to the expected return from future investments in both future tangible assets and future intangible assets. These future assets represent property not yet in existence as of the valuation date.

Because the empirical data used in the CAPM is market-derived, it indicates a consensus of investor expectations regarding the prospective performance of either (1) the subject investment or (2) the guideline investments. If the subject taxpayer is successful, then these investor expectations will include the present value of future returns for two types of taxpayer assets that may not be the subject of the unit valuation: (1) intangible value in the nature of goodwill and (2) expected future expansionary capital expenditures.

Goodwill is often considered to be the present value of future income from future tangible assets and intangible assets. Goodwill may represent the present value of future new customers. Future customers are unidentified customers that the taxpayer may serve at some point in the future (as opposed to expected recurring income from identifiable repeat customers).

And, while investor expectations of future income from new customers is an important component of a going-concern business enterprise, the associated goodwill represents the intangible value of future customer relationships that do not yet exist (and are not subject to specific identification) as of the valuation date.

In their public security pricing decisions, investors may also impart a value to the positive net present value of the future capital expenditures of the taxpayer. A positive net present value occurs when the taxpayer expects to earn a rate of return on its investment greater than its cost of capital. The investor expectations of future capital expenditures may, themselves, have two components: (1) future merger and acquisition activity of the taxpayer and (2) future investments in plant, property, and equipment at the taxpayer.

It is reasonable for investors to expect that the competent management of the taxpayer company will continue to make new net investments (i.e., expenditures greater than that required to simply replace worn out assets) in order to expand the taxpayer business—for example, in new locations and with new product lines and services.

Investor expectations regarding future investments in capital expenditures are perfectly reasonable. However, unit principle valuations that incorporate these expectations (through the CAPM or other analytical means) will include the value of taxpayer property that does not yet exist as of the valuation date.

Difficulty in Adjusting the CAPM for Income Measures Other Than Net Cash Flow

The economic benefit (or income) measurement associated with the CAPM is net cash flow available to equity investors (i.e., net cash flow available for distribution to stockholders). It is difficult for the analyst to adjust the CAPM in order to estimate the required rates of return commensurate with measures of income other than net cash flow available to equity investors.

For example, the CAPM cannot be easily adjusted to accommodate pretax net income, net operating income, operating cash flow, or measures of income—other than net cash flow available to equity investors.

The Modified Capital Asset Pricing Model

Because the CAPM was not developed to estimate the capitalization rate on a long-term investment in industrial or commercial property, a useful cost of

equity measurement model is the modified capital asset pricing model ("MCAPM").

The MCAPM is a generally accepted method used in the valuation profession to estimate the cost of equity capital.[5] The MCAPM estimates the cost of equity capital based on risk and expected return metrics that are more applicable to operating property.

The MCAPM formula is presented as follows:[6]

$$E(R_i) = Rf + B \times (RP_m) + RP_s \pm RP_c$$

where:

$E(R_i)$ = Expected rate of return on security i

Rf = Rate of return available on a risk-free security as of the valuation date

B = Beta

RP_m = Market ERP

RP_s = Risk premium for small size

RP_c = Risk premium attributable to other company risk factors

The MCAPM cost of equity may be estimated from the CAPM cost of equity by adding or subtracting increments of risk to reflect the risk of an investment in the taxpayer's operating property.

Other Cost of Equity Capital Models

Several alternatives to the CAPM are available for estimating the cost of equity capital applicable for unit principle valuation purposes. These alternative generally accepted cost of equity capital estimation models include the following:

- The build-up model—the risk-free rate of return + a general equity risk premium + an industry risk premium adjustment + a size risk premium + a property-specific risk premium
- The cost of debt plus equity risk premium model—the cost of debt for the subject taxpayer + a market-derived equity risk premium
- The Duff & Phelps LLC Risk Premium Report Model
- The DCF model—the sum of the dividend yield + the capital gain yield for the selected guideline companies
- The arbitrage pricing theory method
- The Fama-French three factor model

All of these alternative cost of equity capital models, however, also have their own analytical strengths and weaknesses. Furthermore, none of these alternative cost of equity capital estimation models "corrects" all the analytical problems related to the use of the CAPM to value industrial or commercial property.

Valuation Methods That Mitigate the CAPM Analytical Issues

The conceptual and practical issues with the use of the CAPM may be increased when the yield capitalization method is used in the valuation of operating property. The conceptual and practical issues with the use of the CAPM are decreased when the following valuation methods are used in the unit principle valuation of operating property:

1. A cost approach valuation method, including the aggregate valuation of all of the industrial or commercial property.
2. A yield capitalization valuation method that assumes no future growth in the unit income. The implicit assumption in the use of this yield valuation method is either:
   a. capital expenditures equal annual depreciation expense (so that the taxpayer's operating property is maintained and replaced but not increased in the valuation model) or
   b. the expected rate of return on the incremental new capital expenditures equals the taxpayer's weighted average cost of capital (and, therefore, these incremental capital expenditures do not increase the unit value).
3. A direct capitalization method that assumes no future growth in the unit income. The implicit assumption in the use of this direct capitalization method is that the annual depreciation expense exactly equals the prospective capital expenditures. Based on this assumption, the valuation model will have a stable asset base.

   The following factors should be considered in the use of any direct capitalization method:

   a. The naïve use of selected guideline publicly traded company price to earnings ("P/E") pricing multiples is typically inappropriate in the estimation of a direct capitalization rate for unit

principle valuation analyses. This is because guideline company P/E pricing multiples consider both current income yield and the yield from expected capital appreciation.

The naïve use of selected guideline company P/E pricing multiples will typically include the value of operating property not yet in existence as of the valuation date.

b. Public security investors demand a return of and a return on their equity investments. Investors sell their equity investments after a defined investment holding period, and they expect to enjoy appreciation in the value of their equity investments. This appreciation typically does not occur with regard to the value of industrial or commercial property.

c. The expected rates of return on operating property should be adjusted if these rates of return are derived from the expected rates of return on publicly traded equity securities.

Summary and Conclusion

In a valuation analysis that relies on an income approach method, the estimated cost of equity capital is a significant component. This significant component has a direct relationship to the capitalization rate.

The CAPM is a commonly used model for estimating the cost of equity capital. Analysts sometimes apply the CAPM to estimate the capitalization rate (or present value discount rate) to use in an income approach valuation of industrial or commercial property.

The CAPM was developed for, and is used by, money managers, investment managers, and fund managers who invest in publicly traded securities as part of a well-diversified portfolio of publicly traded securities. The CAPM is well-suited to estimate the required return on investment for this valuation purpose.

For property tax purposes, however, analysts need to estimate the cost of equity capital for the purpose of valuing illiquid industrial or commercial property.

Accordingly, the CAPM has to be modified to achieve this fundamentally different valuation purpose. Absent this modification, it may not be appropriate to rely on the CAPM to estimate the capitalization rate applicable to the valuation of industrial or commercial property.

Notes:

1. References to the CAPM can be found in the following financial treatises: Harry Markowitz, "Portfolio Selection," *The Journal of Finance* 7, no. 1 (March 1952): 77–91; William F. Sharpe, "Capital Asset Prices: A Theory of Market Equilibrium under Conditions of Risk," *The Journal of Finance* 19, no. 3 (September 1964): 425–442; Jan Mossin, "Equilibrium in a Capital Asset Market," *Econometrica* 34, no. 4 (October 1966): 768–783; John Lintner, "The Valuation of Risk Assets and the Selection of Risky Investments in Stock Portfolios and Capital Budgets," *The Review of Economics and Statistics* 47, no. 1 (February 1965): 13–37; and numerous other financial and investment textbooks.
2. It is important to note that there are other cost of equity models sometimes used in practice, including (a) the build-up model, (b) Duff & Phelps LLC Risk Premium Report Model, (c) dividend yield plus capital gain yield model, (d) arbitrage pricing theory model, and (e) Fama-French three-factor model.
3. The Cost of Capital Navigator website database has replaced the *Valuation Handbook* that was published by Duff & Phelps LLC.
4. The coefficient of variation is a measure of dispersion or variability of data relative to the mean. Thus, the lower the coefficient of variation, the better (or, the relatively less variable) is the estimate of beta. See, David R. Anderson, Dennis J. Sweeney, and Thomas A. Williams, *The Essentials of Statistics for Business and Economics*, 4th ed. (Mason, OH: South-Western, 2006), 91.
5. Shannon P. Pratt and Roger J. Grabowski, *Cost of Capital: Applications and Examples*, 5th edition, (Hoboken, New Jersey: John Wiley & Sons, 2014), 197.
6. Ibid., 197. For further discussion of the MCAPM, see for example, the following valuation texts: (1) *Valuing Machinery and Equipment: The Fundamentals of Appraising Machinery and Technical Assets*, 3rd edition (Washington, D.C.: American Society of Appraisers, 2011), 131; (2) Gary R. Trugman, *Understanding Business Valuation*, 5th edition (New York: American Institute of Certified Public Accountants, 2017), 551; (3) James R. Hitchner, *Financial Valuation*, 4th edition (Hoboken, New Jersey: John Wiley & Sons, 2017), 194–195; and (4) Robert F. Reilly, "Quantifying Company-Specific Risk Premium in the Cost of Equity Capital for Property Tax Valuations," *Journal of Multistate Taxation and Incentives* (July 2007): 31–34.

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Developing the Cost of Capital for Unit Principle Valuation Purposes

Timothy J. Meinhart

The property-specific risk premium is an important consideration in unit principle valuations of industrial or commercial property performed for property tax purposes. This risk premium is a component in the estimation of the cost of equity capital used to develop the unit principle valuation discount rate or direct capitalization rate. An investment in industrial or commercial property has different risk and return characteristics (and is generally more risky) than an investment in a diversified portfolio of marketable securities—the benchmark that is often used to estimate the taxpayer's cost of equity capital. This discussion presents (1) various factors that may be considered and (2) several procedures that may be applied to estimate the property-specific risk premium in the unit principle valuation.

Introduction

For property tax assessment purposes, many state and local taxing jurisdictions value public utility, transportation, communication, energy, and other similar utility-type properties by applying the unit principle of property valuation.

The unit valuation principle involves the collective valuation of the taxpayer's industrial or commercial property as a single "unit" of operating property. The taxpayer's property is valued in aggregate—as one integrated unit.

In the unit principle valuation, there is a direct relationship between investment risk and expected investment return. The relationship between risk and expected return is an important consideration in the development of the appropriate cost of equity capital.

In contrast, the summation valuation principle involves the separate valuation of each asset category or component of the taxpayer's industrial or commercial property. The total value of the subject property is the additive sum (or the "summation") of each of the individual asset category values.

Valuation analysts ("analysts") apply generally accepted procedures for measuring expected investment rates of return. These procedures include the measurement of net present value, internal rate of return, payback period, profit margin, return on assets, and return on invested capital.

Analysts also apply generally accepted procedures for measuring investment risk. These procedures include the measurement of the general equity risk premium, the industry risk premium, and the size risk premium.

However, analysts often do not have readily available empirical data sources for measuring property-specific risk. This statement is true in spite of the fact that the concept of a property-specific risk adjustment in estimating the cost of capital is generally accepted. Mostly due to these empirical data constraints, the analytical mechanics for quantifying the property-specific risk premium are different than the analytical mechanics used to quantify the other cost of capital components.

Accordingly, the topics addressed in this discussion are twofold: (1) identifying property-specific investment risk factors and (2) estimating

the property-specific risk premium ("PSRP"). This discussion reviews several sets of risk factors that analysts typically consider when analyzing property-specific investment risk.

This discussion also summarizes the procedures that may be used to estimate a particular PSRP measurement based on an analysis of the relevant PSRP factors.

Property-Specific Risk Premium Terminology

In the current academic literature related to investment analysis and portfolio management, "property-specific risk" is interchangeably referred to as "investment-specific risk," "company-specific risk," "nonsystematic risk," "unsystematic risk," "nondiversifiable risk," and "idiosyncratic risk."

For purposes of this discussion, we will use the term property-specific risk. This is because most of the risk factors that are specific to a subject unit of property also affect the property owner/operator.

Regardless of the terminology used to name this type of risk, the PSRP is the component of risk that makes an investment in the subject unit of property unique and different from any benchmark investments that are used to measure capitalization rates, valuation pricing multiples, and other valuation pricing metrics.

In many (but not all) types of property transactions, investors expect to be compensated for the assumption of property-specific risk. In contrast, investors generally do not expect to be compensated for property-specific risk in those types of security sale transactions in which property-specific risk can be diversified away.

This risk diversification process is a conceptual cornerstone of modern corporate finance principles. However, the following discussion explains why this risk diversification process is typically not applicable in the unit principle property valuation.

How to Consider Property-Specific Risk in the Unit Principle Valuation of Taxpayer Property

Property-specific risk may be considered in every valuation where the taxpayer property is:

1. not perfectly liquid,
2. not perfectly diversified, or
3. not subject to limited liability.

For investments that lack the risk mitigation influences of liquidity, diversification, and limited liability, property-specific risk cannot be diversified away. For investments that benefit from these particular risk mitigation influences, property-specific risk can be diversified away (in part or in total).

The PSRP is used directly in the application of the income approach when estimating the cost of equity capital for purposes of developing:

1. an income approach valuation analysis of an equity security,
2. an income approach valuation analysis of invested capital,
3. a yield capitalization method using the discounted cash flow valuation procedure, or
4. a direct capitalization method using the "constant growth model" procedure. (The constant growth model is a direct capitalization procedure that determines the value of property based on an assumption that the income derived from the property grows at a constant rate each year.)

An analysis of the PSRP may be considered indirectly in the application of both the sales comparison approach and the cost approach when:

1. selecting guideline publicly traded companies and guideline unit sale transactions,
2. extracting subject-specific pricing multiples from guideline publicly traded companies/unit sale transactions,
3. quantifying the entrepreneurial incentive cost approach component of a replacement (or reproduction) cost new less depreciation method, and
4. quantifying the economic obsolescence component of the total obsolescence adjustment in any cost approach method.

Significantly, the magnitude of the taxpayer's property-specific risk may vary based on the nature of the property valuation assignment. That is, an individual property-specific risk may vary based on:

1. the unit of industrial or commercial property in the valuation assignment,
2. the statutory or other standard of value selected in the valuation assignment (e.g., fair market value versus fair value versus investment value versus owner value),

3. the statutory or other standard (or definition) of value selected in the valuation assignment, and
4. the statutory or other premise of value appropriate for the valuation assignment.

Cost of Equity Capital Measurement Models

There are several generally accepted cost of equity capital measurement models that may be applied in the valuation of industrial or commercial property. The property valuation and corporate finance literature often employ different names for these four models.

For purposes of this discussion, these four generally accepted cost of equity capital measurement models include the following:

1. The modified capital asset pricing model
2. The build-up model
3. The dividend yield plus capital gains model
4. The Duff & Phelps Risk Premium Report Model

Inexperienced analysts sometimes ask: Why not use the capital asset pricing model ("CAPM") (or any other cost of equity model) as it was originally developed? These inexperienced analysts effectively ask: Why do we need to modify the CAPM (or any other generally accepted cost of equity model) for consideration of property-specific risk?

The answer is that the CAPM (and each other cost of equity measurement model) is perfectly suited for the purpose for which it was developed. The purpose for which the CAPM was developed, however, is not the purpose to which analysts generally apply this cost of equity model in the unit principle valuation of industrial or commercial property.

The CAPM was developed for, and is used by, money managers, investment managers, and fund managers who invest in publicly traded securities as part of a well-diversified portfolio of publicly traded securities. The CAPM (and each other cost of equity model) is well suited to estimate the required return on investment for this valuation purpose.

For property tax purposes, however, analysts need to estimate the cost of equity capital for the purpose of a valuation of industrial or commercial property—and not a valuation of equity securities. Accordingly, the CAPM has to be modified to achieve this valuation purpose.

When modifying the CAPM, the analyst should not include risk considerations in the PSRP that have already been accounted for in other CAPM components. For example, many of the risk factors that are often cited as reasons for the addition of a PSRP are general characteristics of small companies. As a result, adding a PSRP to the small company cost of capital may be double counting risks factors that have already been captured in the CAPM size risk premium component.[1]

How the PSRP Modifies the Cost of Equity Capital Measurement Models

The purpose of the PSRP is to compensate investors for the type of investment risk that cannot be diversified away. In other words, the PSRP adjusts the cost of equity in order to derive a required rate of return commensurate with the total level of investment risk associated with the subject investment.

Because of the nature of the property investment, the property-specific investment risk cannot be eliminated through the process of public company investment portfolio diversification.

The CAPM (and every other cost of equity model) assumes that nonsystematic investment risk (i.e., non-beta risk) can be diversified away. Property owner/operators, however, are subject to the investment risks that are assumed away by the use of the CAPM (and by other cost of equity models). To property owner/operators (unlike diversified investment portfolio managers), these nonsystematic risks cannot be diversified away.

These particular types of investment risk are intrinsic to these types of property investments. Because of the nature of these property investments, such risks cannot be diversified away—and should not be assumed away—by the analyst.

Accordingly, property-specific risk cannot be diversified away for (1) property investments and (2) owner/operator investors. Therefore, such investors require an investment rate of return that is commensurate with such investment risk. The PSRP adjusts the CAPM (and the other cost of equity measurement models) so as to produce such a risk-adjusted required rate of return on investment.

Methods to Quantify the PSRP

For the generally accepted cost of equity models, there are recognized data sources available to measure (1) the risk-free rate of return, (2) the gen-

eral equity risk premium, (3) the industry equity risk premium, and (4) the size equity risk premium.

These generally accepted data sources are applied by the analyst to create a baseline or a benchmark required rate of return that is based on a baseline or benchmark investment.

The analyst may then compare the risk attributes of this benchmark investment to the risk attributes of the subject property investment. Based on this comparison, the analyst may decide how much (if any) additional risk is associated with the property investment compared with the benchmark investment. Based on this comparison, the analyst may decide if a PSRP is appropriate.

The "model" available to measure the PSRP is the analyst's informed professional judgment, based on the analyst's studied consideration of various generally recognized risk factors. Over the years, several analysts have suggested various sets of risk factors that may be considered with regard to the PSRP selection process.

This discussion considers the following recognized PSRP factors that may be considered in the development of the unit principle valuation.

1. The Shannon Pratt factors
2. The Black/Green factors
3. The Warren Miller factors
4. The Gary Trugman factors

The Shannon Pratt Factors

In *Valuing a Business*, Shannon Pratt (retired from Shannon Pratt Valuations, Inc.) presents a discussion of the risk factors that analysts may consider in selecting the direction and magnitude of the PSRP.[2]

According to Pratt, the direction and magnitude of the PSRP may be based on the following risk factors:

1. Leverage (to the extent it is not already considered in cash flow)
2. Size
3. Volatility of earnings or cash flow
4. Industry risk
5. Other property-specific factors

Pratt summarizes 29 other risk factors that fall under the "other property-specific factors" category. This subcategory of risk factors includes the following factors:

1. Management depth
2. Management expertise
3. Access to capital
4. Customer concentration
5. Customer pricing leverage
6. Customer loyalty and stability
7. Level of current competition
8. Potential new competitors
9. Supplier concentration
10. Supplier pricing advantage
11. Product of service diversification
12. Life cycle of current products or services
13. Geographical distribution
14. Demographics
15. Availability of labor
16. Employee stability
17. Internal and external culture
18. Economic factors
19. Industry and government regulations
20. Political factors
21. Fixed assets' age and condition
22. Strength of intangible assets
23. Distributions system
24. IT systems
25. Technology life cycle
26. Location

27. Legal/litigation issues
28. Internal controls
29. Currency risk

Pratt notes that the estimation of the PSRP is often a matter of the analyst's professional judgment. However, the analyst should be careful to distinguish between those factors that influence the magnitude of the financial projections and those factors that affect the degree of uncertainty of achieving the financial projections.

In doing so, analysts should be careful to assure that adjustments to the cost of capital—such as the PSRP—do not duplicate adjustments that were made to cash flow or value in other sections of the valuation analysis.

The Black/Green Factors

Parnell Black and Robert Green (of Black/Green & Company) have developed a set of risk factors for analysts to consider when estimating a PSRP. These PSRP factors are described in various publications and training materials of the National Association of Certified Valuators and Analysts.

The various Black/Green PSRP factors are summarized in the following six categories:

1. Competition
2. Financial strength
3. Management ability and depth
4. Profitability and stability of earnings
5. National economic effects
6. Local economic effects

Black and Green suggest individual quantitative and qualitative assessments within each of the first four categories of PSRP factors. In order to conclude an appropriate PSRP, the analyst assigns a specific point value (ranging from 1 point for low risk to 10 points for high risk) to each individual risk factor. The assigned point value is based on the analyst's analysis and opinion of each particular risk factor.

For each of the last two economic factor categories, the analyst assigns a point value of "minus one" for a strong economy, "plus one" for a weak economy, and "zero" for a neutral economy. Again, the assigned point value is based on the analyst's analysis and opinion of each economic factor.

The sum of the following values provides an indication for the PSRP: (1) all of the point values in the first four risk factor categories (weighted by the number of individual factors in each category) and (2) all of the point values in the last two economic factor categories.

The Warren Miller Factors

Warren Miller (of Beckmill Valuation Analytics) has suggested a competitive advantage/strategic analysis structure for estimating the appropriate PSRP. In a series of articles published in the American Institute of Certified Public Accountant quarterly newsletter, *CPA Expert*, Miller groups into three categories the PSRP factors to be considered in a strengths, weaknesses, opportunities, and threats ("SWOT") analysis.[3]

These three categories of SWOT-related risk factors are based on the groundbreaking strategic planning and analysis work of Michael Porter.

Miller's three categories of individual PSRP factors are as follows:

1. Macroenvironmental
2. Industry
3. Company

Miller suggests a subgroup of factors to consider within each of the three general categories of risk factors. Miller also suggests a rigorous application of the Porter "five forces" competitive analysis as part of the analyst's process of selecting the PSRP.

Miller expands on the topic of unsystematic risk in *Value Maps* and explains how unsystematic risk can be identified in the three-category framework.[4]

Miller explains that the macroenvironmental category of risk factors encompasses the following subcategories:

1. Economy
2. Politics
3. Foreign events
4. Demographics
5. Lifestyles and values
6. Innovation

The industry risk factor category, which Miller also refers to as the competitive domain, includes the following subcategories:

1. Customers
2. Complements
3. Competitors
4. Suppliers
5. Substitutes
6. New entrants

The company risk factor category is designated by the acronym "SPARC," which represents the following subcategories:

1. Strategy
2. People
3. Architecture
4. Routines
5. Culture

Miller's three-category framework is more than just a tool for identifying and estimating unsystematic risk. When applied properly, the framework allows the analyst to explain why the company performs as it does.

The Gary Trugman Factors

In *Understanding Business Valuation*, Gary Trugman (of Trugman Valuation) presents a comprehensive discussion of the risk factors that analysts may consider in selecting the PSRP.[5]

Trugman presents categories of individual PSRP factors. Analysts may consider each of these quantitative and qualitative factors in judgmentally selecting the appropriate PSRP.

One of the Trugman categories of PSRP considerations relates to the following risk factors:

1. Economy risk
2. Business risk
3. Operating risk
4. Financial risk
5. Asset risk
6. Product risk
7. Market risk
8. Technological risk
9. Regulatory risk
10. Legal risk

Trugman presents another category of PSRP considerations that relate to the following nonfinancial risk factors:

1. Economic conditions
2. Industry conditions
3. Location of business
4. Competition
5. Depth of management
6. Quality of management
7. Barriers to entry into market

With each of the above-described PSRP considerations, Trugman cautions that the analyst needs to be careful not to double count any specific risk factor. In other words, in selecting a PSRP, it is important to consider whether a particular risk factor has already been accounted for with the selection of other risk premium data. For example, if a discrete industry risk premium is used in the cost of capital analysis, there typically would be no need to consider industry risk within the PSRP.

A property-specific assessment of all of these risk factors is relevant to the PSRP selection process. Further, as with all of the above-listed PSRP factors, the analyst has to ultimately rely on informed judgment and professional experience to select a specific PSRP measurement.

Procedures for the Analyst to Explain the Selected PSRP

There are at least three procedures for (1) selecting the specific PSRP based on the analysis of the property-specific risk factors and (2) explaining the ultimate selection of the PSRP in the valuation report.

These PSRP selection procedures are sometimes called:

1. the plus/minus procedure,
2. the number procedure, or
3. the listing procedure

All three of these procedures start with a listing of the relevant PSRP factors selected by the analyst.

The Plus/Minus Procedure

In the plus/minus (or +/-) procedure, the analyst indicates either a "+" notation or a "-" notation next to each selected risk factor. The plus notation indicates that the risk factor increases the appropriate PSRP; the minus notation indicates that the risk factor decreases the appropriate PSRP. A blank notation indicates that the risk factor has a neutral impact on the appropriate PSRP. The plus/minus procedure is also referred to by some analysts as the component observation method.[6]

Double or triple notations (e.g., ++ or ---) indicate that the individual risk factor has a particularly positive or a particularly negative impact on the ultimate selection of the PSRP. Each plus/minus notation, however, does not represent one percentage point.

Ultimately, the selection of the PSRP is based on the analyst's professional judgment. The selection of the PSRP is not the mathematical sum of "plus" and "minus" indications.

The Numeric Procedure

Using the numeric procedure, the analyst assigns a specific percentage number to each PSRP factor.

If the analyst assigns "2.0" to a particular risk factor, that indicates that the analyst will add two percentage points to the ultimate selection of the PSRP. If the analyst assigned "(1.0)" to a particular risk factor, that means that the analyst will subtract one percentage point from the ultimate selection of the PSRP. And, if the analyst assigns "0" to a particular risk factor, that factor has no impact on the final PSRP. The numeric procedure is also referred to by some analysts as the component detail method.[7]

In contrast to the previously described "plus/minus" procedure, in the numeric procedure the selected PSRP is the actual numeric summation of all of the individually assigned numeric values for each selected risk factor.

The Listing Procedure

Using the listing procedure, the analyst lists all of the negative and all of the positive risk factors. The analyst does not assign a numeric value to either the negative factors or the positive factors. And, the analyst does not indicate the relative importance of any of the risk factors. The listing procedure is also referred to by some analysts as the component summary method.[8]

A Simplified Illustration

Exhibit 1 presents the three PSRP selection procedures as applied to a hypothetical taxpayer property. In this illustrative example, the analyst identified the strategic, financial, and operational risk factors that most affect the subject property.

Based on a due diligence analysis, the analyst assessed each positive and each negative property-specific risk factor affecting the unit of taxpayer property. The analyst reported three alternative presentations of the same property-specific risk analysis in Exhibit 1.

Exhibit 1 illustrates the three alternative presentation formats or procedures (i.e., plus/minus, numeric, and listing) of the analyst-selected PSRP factors in this hypothetical analysis. Significantly, regardless of the presentation procedure selected, the analyst consistently selected 5 percent as the appropriate PSRP.

Based on this illustrative example, this 5 percent PSRP is the appropriate cost of equity capital adjustment applicable to the property valuation.

Summary and Conclusion

In all property valuation analyses, there is a direct relationship between investment risk and expected investment return. Furthermore, the measurement of expected investment return is involved in virtually every type of valuation assignment that an analyst performs.

There are generally accepted procedures for measuring expected investment return and for measuring most components of investment risk.

In addition, there are generally accepted procedures for adjusting the expected investment return for most components of risk. In many cases, property-specific risk may be a material component of the total investment risk related to the taxpayer's industrial or commercial property.

There are generally accepted cost of equity capital measurement models, and the PSRP is a component of each of these models. There are generally accepted empirical data sources for the quantitative measurement of most cost of equity capital model components.

The PSRP analysis should be considered directly in all income approach property valuation analyses. Also, the PSRP should be considered indirectly in all sales comparison approach and all cost approach property valuation analyses.

Notes:

1. Duff & Phelps, LLC, 2019 *Cost of Capital: Annual U.S. Guidance and Examples*, Chapter 6: Basic Building Blocks of the Cost of Equity Capital – Property-Specific Risk Premia, Cost of Capital Navigator, 2.
2. Shannon P. Pratt, Alina V. Niculita, *Valuing a Business: The Analysis and Appraisal of Closely Held Companies*, 5th ed. (New York: McGraw-Hill, 2008), 202–203, 213–24.
3. Warren D. Miller, "Assessing Unsystematic Risk" (Parts I, II, and III), *CPA Expert* (Summer 1999, Winter 2000, and Summer 2000).
4. Warren D. Miller, *Value Maps: Valuation Tools that Unlock Business Wealth* (New York: John Wiley & Sons, 2010), 12–16.
5. Gary R. Trugman, *Understanding Business Valuation*, 5th ed. (New York: American Institute of Certified Public Accountants, 2017), 534–39.
6. James R. Hitchner, *Financial Valuation: Applications and Models*, 4th ed. (New York: John Wiley & Sons, 2017), 223–25.
7. Ibid.
8. Ibid.

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Exhibit 1
Illustrative Taxpayer Company
Property-Specific Risk Premium Analysis:
Comparison of the Frequently Applied Alternative PSRP Selection Procedures

Property-Specific Risk Factors Identified by the Analyst	Plus/Minus Procedure	Numeric Procedure	Listing Procedure
Subject Taxpayer Property: Illustrative Negative Risk Factors			
1. Operating history, volatility of revenue and earnings	+++	2.5	■
2. Lack of product diversification	++	1.0	■
3. Computer systems obsolescence	+	0.5	■
4. Key technology dependence	++	1.0	■
5. Inability to affect competitive product pricing	+	0.5	■
6. Lack of customer diversification		0	
7. Lack of competitive marketing resources	+	0.5	■
8. Lack of purchasing power and other economies of scale		0	
9. Lack of product development and R&D resources	+	0.5	■
10. Key supplier dependence		0	
11. Distribution system obsolescence		0	
12. Financial reporting and internal control systems obsolescence	+	0.5	■
Subject Taxpayer Property: Illustrative Positive Risk Factors			
1. Long-term product sale contracts with well-established customers		0	
2. Ownership/license of proprietary patents, copyrights, trademarks, and trade secrets	- -	(2.0)	■
Selected PSRP Percent for the Subject Taxpayer Property	5%	5%	5%

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Willamette Management Associates consulting experts and testifying experts have achieved an impressive track record in a wide range of litigation matters. As independent analysts, we work for both plaintiffs and defendants and for both taxpayers and the taxing authorities. Our analysts have provided thought leadership in breach of contract, tort, bankruptcy, taxation, family law, shareholder rights, antitrust, fraud and misrepresentation, and other disputes. Our valuation, damages, and transfer price analysts are recognized for their rigorous expert analyses, comprehensive expert reports, and convincing expert testimony. This brochure provides descriptions of recent judicial decisions in which our analysts provided expert testimony on behalf of the prevailing party.

Dissenting Shareholder Testifying Expert Services

In the matter of the *Wayne L. Ryan Revocable Trust, Steven Ryan and First Nebraska Trust v. Constance "Connie" Ryan and Streck, Inc.* (Case No. CI 14-1684), the District Court of Sarpy County, Nebraska, decided a matter described as one of the largest valuation disputes in Nebraska state court history. After the application of prejudgment interest, the fair value of the plaintiffs' ownership interest was estimated to be between $723 million and $804 million.

Willamette was retained to provide both consulting expert valuation services and testifying expert valuation services to the plaintiffs. Willamette managing director Kevin Zanni provided consulting expert services, and firm managing director Robert Reilly provided testifying expert services regarding the Streck fair value valuation.

In *Ryan*, Willamette and another well-known valuation advisory services firm applied the same valuation methodology, but reached significantly different opinions. In a 74-page published opinion, the court concluded that (1) the Willamette fair value conclusion of the subject equity interest was reasonable, and that value was accepted in full by the court, and (2) the defendants' testifying expert applied valuation variables designed to lower his fair value conclusion, and that value was rejected by the court.

In particular, the *Ryan* decision is representative of the Willamette thought leadership in fair value valuation matters related to statutory shareholder rights, dissenting shareholder appraisal rights, and shareholder oppression claims.

STRECK

Willamette Management Associates
thought leadership
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Property Taxation Testifying Expert Services

In the matter of *Union Electric Company d/b/a Ameren Missouri v. Christopher Estes, Assessor, Cole County, Missouri*, No. 13-52002, 2019 WL 2369464 (Mo.St.Tax.Com. May 28, 2019), upon appeal and remand, the State Tax Commission of Missouri (the "STC"), found in favor of Ameren Missouri, the corporate taxpayer complainant. At issue in the matter was the need for STC to determine the appropriate amount of total depreciation to be applied to the Assessor's cost approach "market value" of the Ameren Missouri real property and tangible personal property.

The STC concluded that the taxpayer presented substantial and persuasive evidence to establish the correct amount of total property depreciation, including the identification and quantification of the taxpayer's economic obsolescence.

John Ramirez, Willamette director of property tax valuation services, provided consulting expert services—which included an economic obsolescence depreciation analysis and economic obsolescence depreciation report—on behalf of taxpayer Ameren Missouri. Robert Reilly, Willamette firm managing director, provided testifying expert services related to this public utility property tax valuation dispute.

The Missouri STC accepted the economic obsolescence analysis and conclusion—and the total depreciation calculation—prepared by Willamette Management Associates.

Ameren MISSOURI

Estate Taxation Testifying Expert Services

In the matter of *Estate of Aaron U. Jones v. Commissioner,* T.C. Memo. 2019-101, the U.S. Tax Court adopted in full the value conclusions put forth by the Estate's valuation expert. In 2009, Aaron Jones gifted ownership interests in two companies: (1) Seneca Jones Timber Company ("SJTC"), a limited partnership that owned and harvested timberland, and (2) Seneca Sawmill Company ("SSC"), an S corporation that operated sawmills. In 2013, the Service issued a notice of deficiency for gift tax of approximately $45 million. The Estate brought this matter to the U.S. Tax Court.

Willamette was engaged by the Estate to provide valuation and testifying expert services. Scott Miller, Willamette vice president, provided valuation consulting services and Robert Reilly, a managing director of our firm, provided testifying expert services. Important issues in the dispute included (1) whether it was appropriate to tax affect the earnings of tax pass-through entities SSC and SJTC and (2) whether the income approach applied by the Estate's valuation expert was more appropriate for valuing the SJTC limited partnership units than the asset-based approach applied by the Service valuation expert.

In this important decision, the Tax Court adopted without adjustment the positions and value conclusions presented in the Willamette Management Associates valuation expert reports.

SENECA JONES TIMBER COMPANY

Willamette Management Associates

Transfer Pricing Testifying Expert Services

In the matter of *Amazon.com, Inc. & Subsidiaries v. Commissioner,* 934 F.3d 976 (9th Cir. 2019), the Ninth Circuit affirmed the U.S. Tax Court 2017 decision in favor of taxpayer Amazon. The Tax Court case involved a 2005 cost sharing arrangement that Amazon entered into with its Luxembourg subsidiary. Amazon granted its subsidiary the right to use certain pre-existing intangible property in Europe, including the intangible property required to operate Amazon's European website business.

The Tax Court concluded that (1) the Service's determination with respect to the buy-in payment was arbitrary, capricious, and unreasonable; (2) Amazon's CUT transfer price method (with some upward adjustments) was the best method to determine the requisite buy-in payment; and (3) the Service abused its discretion in determining that 100% of the technology and content costs constitute intangible development costs. The Tax Court noted the Service's buy-in payment discounted cash flow analysis improperly included all contributions of value, including workforce in place, going-concern value, and goodwill.

On appeal, the Service argued that "residual business assets" (e.g., workforce in place, going-concern value, goodwill, and future growth options) satisfied the then applicable regulation's definition of "intangible." The Ninth Circuit concluded otherwise, accepting taxpayer Amazon's position that the then applicable regulation's definition of "intangible" was understood to exclude goodwill and going-concern value.

Willamette Management Associates managing director Robert Reilly provided expert testimony in the Tax Court on behalf of taxpayer Amazon in this Section 482 intercompany transfer pricing case.

Willamette Management Associates

Shareholder Litigation Consulting Expert Services

In many instances, an attractive settlement is as good, if not better, than a judicial victory. This was true in the matter of *In Re Legacy Reserves LP Preferred Unitholder Litigation*. In this particular matter, the Delaware Chancery Court approved a settlement between Legacy Reserves LP ("Legacy") and its preferred unit holders that resulted in the preferred unit holders realizing a significant increase in the transaction value.

The plaintiff preferred unit holders brought an action against defendant Legacy to remedy the defendant's alleged breach of contract and breach of the duty of good faith and fair dealing in connection with a proposed transaction in which Legacy would be converted from a partnership to a C corporation. The proposed transaction would result in Legacy and its general partner becoming subsidiaries of Legacy Reserves Inc. ("New Legacy") and Legacy's common and preferred unit holders becoming common stockholders of New Legacy. Pursuant to the terms of the proposed transaction, each outstanding Legacy limited partnership unit would be converted into the right to receive 1 share of New Legacy common stock, each outstanding Series A preferred unit would be converted into the right to receive 1.9620 shares of New Legacy common stock, and each outstanding Series B preferred unit would be converted into the right to receive 1.72236 shares of New Legacy common stock. Based on the announced terms, the preferred investors would receive 17.7 percent of the business, while the common holders would receive 82.3 percent of the business.

Lead counsel for plaintiffs in the litigation retained Willamette to assist and advise them regarding the fair value of the Legacy Series A preferred units and Series B preferred units. After extensive analysis and negotiations, Legacy management signed a memorandum of understanding. Legacy admitted to none of the allegations, and the plaintiffs agreed not to further pursue Legacy on any grounds surrounding the C corporation conversion and the preferred unit conversion. In exchange, the Series A preferred unit holders received 2.9203318 shares of common stock for each preferred unit, while the Series B preferred unit holders received 2.90650421 shares of common stock for each preferred unit. This settlement resulted in the preferred investors receiving approximately 26 percent of the restructured entity and the common holders receiving approximately 74 percent of the entity.

Willamette managing director Timothy Meinhart provided valuation consulting expert services to the preferred unit holder plaintiffs in this matter.

LEGACY RESERVES

Willamette Management Associates

Implementing Closely Held Company Buy/Sell Agreements for Operational and Taxation Purposes

Robert F. Reilly, CPA

Valuation analysts ("analysts") often work with legal counsel and tax advisers to design and implement buy/sell agreements for closely held companies. These buy/sell agreements are intended to achieve several operational and taxation objectives—both for the company owners and for the private company itself. This discussion summarizes typical buy/sell agreement structures, ownership transfer funding mechanisms, ownership transferability restrictions, valuation and pricing provisions, and transfer tax planning and compliance considerations.

Introduction

Many closely held companies implement buy/sell agreements with their equity holders. These companies implement buy/sell agreements with the company owners for both operational purposes and taxation purposes.

For purposes of this discussion, the typical operational purposes of a closely held buy/sell agreement are to ensure that:

1. only qualifying parties become—and remain—owners in the closely held company and
2. there are liquidity provisions in place to redeem the ownership interests of those parties who do not qualify as (or who cease to qualify as) company owners.

These operational reasons for implementing the closely held company's buy/sell agreement are sometimes also referred to as administrative reasons or as legal reasons.

For purposes of this discussion, the typical taxation purposes for implementing a buy/sell agreement include the company owner's planning and compliance related to gift tax, estate tax, and generation-skipping transfer ("GST") tax.

This discussion focuses primarily on buy/sell agreements related to closely held tax pass-through entities, including S corporations, partnerships, and limited liability companies ("LLCs"). However, many of the taxation, operational, and valuation issues considered in this discussion also apply to closely held C corporations.

As explained in this discussion, the design and implementation of a closely held company buy/sell agreement involves legal, taxation, and valuation considerations. Therefore, legal counsel, taxation advisers, and valuation specialists often work together in the design and implementation of the buy/sell agreement. These legal, taxation,

and valuation professionals may be retained by the individual company owners and/or by the closely held company itself.

First, this discussion summarizes the two primary types of closely held company buy/sell agreements:

1. Cross-purchase agreements
2. Redemption agreements.

This discussion describes the typical ways in which these two types of buy/sell agreements fund the redemption of the company owner's equity interests.

Second, this discussion explains many of the reasons why a closely held company would implement a buy/sell agreement. In particular, this discussion focuses on the taxation planning, compliance, and controversy considerations with regard to closely held company buy/sell agreements.

Third, this discussion focuses on the business and security valuation provisions of the typical closely held company buy/sell agreement. In particular, this portion of the discussion considers the rules and the limitations related to the company owner's reliance on buy/sell agreement valuation formulas for estate tax planning and compliance purposes.

Finally, this discussion uses the term closely held company instead of private company. This discussion assumes that companies that implement buy/sell agreements will not be publicly traded. That is, these companies will be private companies.

In addition, this discussion assumes that, in addition to being private companies, most companies that implement buy/sell agreements are closely held. That is, they have a limited number of equity holders.

It is possible that a large private company may not be closely held. That is, a large private company may have 100 or more equity holders, and these equity holders may not be employees or otherwise directly associated with the private company. Such a private company may still have a redemption-type buy/sell agreement.

But most companies with cross-purchase type buy/sell agreements have 10 or fewer equity holders; and those equity holders are typically current or former employees. It is this latter category of private companies that is the focus of this discussion.

Types of Buy/Sell Agreements

Closely held company buy/sell agreements are typically structured as either cross-purchase agreements or redemption agreements.

The principal objectives of both types of agreement structures are as follows:

1. To restrict the closely held company ownership to intended parties
2. To provide for the liquidity needed for an intended buyer to purchase the company securities from the intended seller at the time of a specified event that triggers such a sale transaction

Although not considered to be the principal objectives of a buy/sell agreement, the agreement will typically specify the following information:

1. Who can be—and who cannot be—a company owner and what events trigger an optional or a mandatory securities transfer transaction
2. A valuation or other pricing formula (or an appraisal procedure mechanism) to determine the price at which the company ownership transfer will take place

Cross-Purchase Buy/Sell Agreements

A cross-purchase agreement is a buy/sell agreement between the individual owners of the closely held company. In the typical funded cross-purchase agreement, each individual company owner purchases a life insurance policy on the life of each other individual owner.

When one company owner dies, the life insurance proceeds are paid to the owner who purchased the insurance policy. The policy owner then uses the insurance proceeds to buy the closely held securities from the estate of the deceased company owner.

Obviously, the use of cross-purchase agreements becomes cumbersome when there are more than a handful of company owners. In addition, the cost of the cross-purchase agreements is often shared disproportionately among the company owners. This cost disparity occurs when (1) some of the company owners are young and in good health—and the life insurance premiums are very low and (2) some other company owners are old and in poor health—and the life insurance premiums are quite high.

There is at least one taxation advantage of the cross-purchase agreement structure. Typically, the buying company owners increase the basis in the closely held company securities by the amount of the money (i.e., the insurance proceeds) that they paid for the transferred equity interest.

However, there are practical problems with the use of the cross-purchase agreement structure—

particularly if there is a larger number of company owners. This agreement structure only works if each company owner has the personal financial resources to pay the insurance policy premiums (and to maintain any cash value in the policies).

Regarding the policy's cash surrender value, such value becomes part of the company owner's bankruptcy estate in the event the owner files for bankruptcy protection. Such a bankruptcy filing could create a problem when it is time to collect on the life insurance policy.

Redemption Buy/Sell Agreements

A redemption agreement is a buy/sell agreement between the various company owners and the closely held company itself. Redemption agreements typically provide that when the company owner dies, the company will buy (redeem) the securities from the decedent company owner's estate.

A redemption agreement may also be structured so that the company itself redeems the company owner's equity interest when the owner becomes disabled, retires, or otherwise leaves the employment of the company.

Redemption agreements can be funded by life insurance policies on the lives of the company owners. The company owns the policies, and the company pays the premiums on the policies. The company uses the insurance policy proceeds to buy the decedent's securities. Alternatively, the closely held company could pay for the stock redemptions out of the general financial resources of the company.

The redemption agreement structure is obviously more practical to administer when the closely held company has more than a handful of owners.

Funding the Security Purchase Transaction

Particularly with regard to cross-purchase agreements, the life insurance policy proceeds provide the funding to purchase the decedent's ownership interest. The life insurance proceeds provide the cash needed to complete the security purchase transaction.

Practically, such insurance policies are a necessary mechanism to ensure that the remaining company owners have the ready cash available to buy the decedent's interest according to the terms of the buy/sell agreement.

The company and the company owners should periodically review the valuation provisions of the buy/sell agreement. In other words, the current owners should periodically test what the agreement buy/sell price is based on the company's current financial fundamentals. That way, the company owners can assess whether they own a sufficient amount of life insurance on each other in order to fund a securities purchase based on the current buy/sell agreement valuation-based price.

If the company owners do not currently own sufficient life insurance policies to fund a current value-based transaction, they should consider buying additional insurance. If such additional insurance is prohibitively expensive, or if some of the company owners are no longer insurable, the company should consider amending the buy/sell agreement.

For example, the agreement could be amended to allow the remaining owners to buy the decedent's securities both (1) with the life insurance proceeds and (2) with notes payable to the decedent's estate (to make up for any purchase price payment shortfall). Of course, the buy/sell agreement has to include a provision that allows for a securities purchase that is financed over time.

When the life insurance proceeds do not provide sufficient liquidity to fund the buy/sell agreement current valuation, the shortfall can be "paid" by promissory notes payable over an extended period of time. Typically, such promissory notes are personally guaranteed by the remaining owners and are secured by the personal assets of the remaining owners.

Such a buy/sell agreement amendment may eliminate the need for the company owners to purchase additional insurance on the lives of older (or unhealthy) fellow owners. However, this amendment (to allow long-term notes) increases the risk of the buy/sell securities transfer transaction both to the decedent owner's estate and to the remaining company owners.

Reasons Why a Closely Held Company May Implement a Buy/Sell Agreement

Of course, the buy/sell agreement valuation provisions can be applied to value the closely held company securities when the company owner dies, retires, becomes disabled, gets divorced, or otherwise triggers a voluntary or a mandatory sale transaction event.

As mentioned above, there are both operational/administrative reasons and taxation reasons why the closely held company owners may enter into a buy/sell agreement.

Some of the reasons why the company (and the company owners) may implement a buy/sell agreement include the following:

1. The agreement allows for a continuity of the company business operations at the time of an owner's employment termination, disability, or death.
2. The agreement liquidity provision creates a market (i.e., a liquidity event) for an ownership interest that may otherwise be nonmarketable.
3. The agreement transferability restrictions prevent the securities from being owned by unwanted investors (e.g., the new husband of the founder's divorced wife).
4. The agreement funding mechanisms (e.g., life insurance proceeds, note payable provisions, etc.) plan for the amount of cash or financing necessary to pay for the ownership interest transfer.
5. The agreement may provide that only family members who are active in the private company can be equity holders—while other family members receive wealth from selling any company securities received through a gift or bequest.
6. The contractual provisions regarding business valuation, ownership restrictions, and transferability restrictions are intended to minimize conflicts among family members (and between family members and the company)—particularly at a time when the company founders may no longer be around to arbitrate such disputes.

Typical Buy/Sell Agreement Provisions

The buy/sell agreement is a contract between either (1) the various company owners or (2) the various company owners and the private company itself. The contract calls for a private sale of (or for an offer to sell) the company securities at certain specified triggering events. The contract provides for the sale (or for the offer to sell) to be priced based on either (1) a valuation formula or (2) another appraisal mechanism.

The transaction triggering events often include the company owner's death, disability, or termination of employment with the company. The triggering events may include the company owner's filing for divorce or filing for bankruptcy protection.

Typical Buy/Sell Agreement Pricing Mechanisms

The buy/sell agreement typically specifies a pricing provision for the transfer of the ownership interest. The pricing provision could be one of the following:

1. An accounting-based formula
2. A valuation-based formula
3. An appraisal process

The reference to an accounting-based formula means that the agreement provides for a price that can be calculated based on the company's financial statements. Typical examples of an accounting-based formula include a per-share or per-unit price based on one of the following:

1. Balance sheet net book value
2. Balance sheet tangible net book value
3. A price discount to net book value (e.g., 75 percent of book value)
4. A price premium to net book value (e.g., 125 percent of book value)

Applying such an accounting-based formula, the agreement should specify the time period for the financial statement measurement (e.g., the latest month-end, the latest fiscal-quarter-end, the latest fiscal year-end). The agreement should specify whether the financial statement should be adjusted or normalized in any way.

And, the agreement should specify whether the financial statement should be audited or prepared in accordance with U.S. generally accepted accounting principles or prepared in accordance with any other accounting standards.

The reference to a valuation-based formula means that the agreement provides for a price that can be calculated based on a formula or an equation that is intended to approximate a current value.

Typical examples of a valuation-based formula or equation include a per-share or per-unit price based on one of the following:

1. A stated pricing multiple times the company's net income
2. A stated pricing multiple times the company's earnings before interest, taxes, depreciation, and amortization ("EBITDA")

3. A stated pricing multiple times the company's revenue

Applying such a valuation-based formula, the agreement should specify the pricing multiple (and any procedure for updating the pricing multiple for changes in market conditions). The agreement should specify what time period over which the financial fundamental should be calculated (e.g., the latest 12-month period, the latest fiscal year-end, the average of the last three fiscal years).

The agreement should specify any provisions for normalizing the company's historical financial results for any extraordinary or nonrecurring item.

And, the agreement should specify whether the company financial statements need to be audited, prepared in accordance with U.S. generally accepted accounting principles, or prepared in accordance with any other accounting standards.

The reference to an appraisal process means that the agreement provides instructions for a price to be determined by an independent valuation professional. The work product of the valuation professional should be intended to reflect a current value for the subject ownership interest. The agreement should provide instructions as to whether the valuation specialist should:

1. be a specific professional service provider—for example, a named accounting firm, valuation firm, or investment banking firm;
2. be a particular type of professional services provider—for example, an unnamed "nationally recognized" accounting firm, valuation firm, or investment banking firm;
3. possess specific professional credentials—for example, a certified public accountant, a chartered financial analyst;
4. comply with specific professional standards—for example, the *Uniform Standards of Professional Appraisal Practice*, the American Institute of Certified Public Accountants professional standards.

Applying such an appraisal-process-based provision, the agreement should specify the appropriate valuation date, the appropriate standard (or definition) of value, the appropriate premise of value. The agreement should provide any specific instructions that the contract counterparties want the valuation analyst to follow. For example, the agreement may specify whether or not the analyst should consider any per-share or per-unit valuation discounts or valuation premiums.

In addition, the agreement should specify the type of work product that the valuation analyst is expected to deliver. For example, do the contract counterparties want a value opinion (or letter) report only? Or, do the contract counterparties require a comprehensive narrative valuation report?

In addition to the operational reasons for the buy/sell agreement, closely held company owners often consider the taxation reasons for implementing buy/sell agreements. These taxation considerations include estate planning, estate tax compliance, and estate tax controversies. The estate tax controversies often relate to the valuation considerations related to the buy/sell agreements (i.e., the value of the company ownership interest in the decedent's estate).

Particularly with regard to per-share or per-unit valuation issues, the estate tax controversies often revolve around the valuation impact of the buy/sell agreement transferability restrictions. Therefore, the following discussion focusses on buy/sell agreement ownership interest transferability restrictions—and particularly how such restrictions affect estate tax valuations.

Buy/Sell Agreement Transferability Restrictions

As mentioned above, one of the typical operational purposes of the buy/sell agreement is to restrict the company owner's ability to transfer the closely held company ownership interest. In particular, the agreement is intended to restrict the company owner's ability to transfer the company securities to unwanted owners.

This objective is contractually accomplished by limiting the circumstances during which the company owner can dispose of the ownership interest. In fact, the buy/sell agreement may also limit the parties to whom the company owner can transfer the subject securities.

That is, the buy/sell agreement may create a limited market (under specified circumstances) for the sale of otherwise nonmarketable securities.

However, that same buy/sell agreement may dictate (1) under what circumstances the company owner may transfer the subject securities and (2) to whom the company owner may transfer the subject securities.

Depending on the terms of the buy/sell agreement, it may be possible for a mandatory transfer or a voluntary transfer on the occasion of a triggering

event. That is, when the triggering event occurs, the agreement may:

1. require the remaining owners—or the company itself—to buy the company owner's securities (such an agreement provides for a mandatory purchase of the company securities) or
2. allow the remaining owners—or the company itself—to buy the company owner's securities (such an agreement provides for a right of first refusal to purchase the company securities).

Based on the contractual requirements or restrictions related to the agreement ownership interest transfers, such a buy/sell agreement often influences the valuation of the company owner's equity securities for transfer tax purposes.

It should be noted, however, that an agreement that values the closely held company securities at a fixed price, set when the agreement was first created, will be ignored for transfer price purposes. See, for example, *Bommer Revocable Trust*, T.C. Memo. 1997-380.

It should also be noted that the Internal Revenue Service ("Service") may determine that the buy/sell agreement is actually a device to transfer the company owner's securities to family members for less than full and fair consideration. In that case, the Service may redetermine the value (i.e., ignore the buy/sell agreement-determined value) for transfer tax purposes. For purposes of this discussion, the term transfer tax includes gift tax, estate tax, and GST tax.

The Service may also challenge a buy/sell-agreement-determined value when it determines that the company owner decedent was attempting to transfer the securities for less than full consideration to a nonfamily member. The Service may consider such a transfer to be a disguised gift. See, for example, *Gloeckner*, 152 F.3rd 208 (2nd Cir. 1998).

Internal Revenue Code Section 2703 Requirements

Internal Revenue Code Section 2703 provides the general requirements regarding the valuation of property for transfer tax purposes.

Section 2703(a) provides that the value of a closely held company (or security) is to be determined without regard to:

1. any option, agreement, or other right to acquire or use the ownership interest at a price less than fair market value or
2. any restriction on the right to sell or use the ownership interest.

Exceptions to the Section 2703 General Rule

The general requirements of Section 2703 may not apply if certain conditions are met. The agreement counterparties should carefully adhere to these requirements if the buy/sell agreement is to be used to value the closely held company or securities for transfer tax purposes.

According to Section 2703(b), the Section 2703 general rule does not apply to any option, agreement, right, or restriction that meets all of the following requirements:

- It is a bona fide business arrangement.
- It is not a device to transfer the ownership interest to members of the decedent's family for less than full and adequate consideration.
- Its terms are comparable to similar business arrangements entered into by persons engaged in arm's-length transactions.

It is noteworthy that the company owner's unilateral ability to modify the buy/sell agreement

renders it ineffective for purposes of determining the fair market value of the closely held company. See, for example, *Estate of Blount*, T.C. Memo. 2004-116, aff'd, 428 F3d 1338 (11th Cir. 2005). Therefore, the agreement counterparties should carefully consider any proposed modification to the buy/sell agreement before such a change is formally adopted.

Regulation 25.2703-1(b)(3) provides that all of these requirements are met if more than 50 percent of the fair market value of the closely held company subject to restriction is owned—directly or indirectly—by individuals who are not members of the transferor's family.

This regulation only applies if the business interests owned by the nonfamily member owners are subject to the same restrictions as the business interests owned by the decedent company owner.

For purposes of this regulation, members of the decedent's family include the decedent's spouse, ancestors of the decedent or the decedent's spouse, and any other individual who is a natural object of the decedent's bounty.

The regulations do not specify who is a natural object of the decedent's bounty. For example, it is unclear whether siblings and cousins automatically fall within this category.

The determination of "natural object" is based on the relevant facts and circumstances. In general, a long-term personal friend will likely be treated as an unrelated person.

To illustrate this regulation, let's assume that CHC, Inc., is an S corporation. The three founders—Alpha, Beta, and Gamma—each own one-third of the shares of this closely held company.

Let's assume that the three company owners enter into a buy/sell agreement requiring the remaining two owners to buy the ownership interest of a shareholder who retires or dies. The amount paid for the retiring or deceased shareholder's interest is based on a valuation-based capitalized EBITDA formula.

Let's assume that Alpha dies and leaves his shares in the closely held company to his son, Delta. Because more than 50 percent of the closely held company is owned by unrelated individuals, all three requirements under the exception to Section 2703 are considered to be satisfied. Therefore, the fair market value of the decedent's shares in CHC, Inc., can be determined based on the terms of the buy/sell agreement.

As another illustrative example, let's consider Close, LLC. Close, LLC, also has three equal equity holders. The three LLC members are also the three company founders. However, let's assume that Zeta and Eta, two of the LLC members, are sisters.

Let's assume that Zeta passes away and leaves her Close, LLC, units to her children. Based on this set of illustrative facts, the buy/sell agreement will have to meet each of the three Section 2703(b) tests in order for the valuation-based formula in the agreement to determine the estate tax value of the decedent's ownership interest.

That is, with regard to the Close, LLC fact set, the company's buy/sell agreement must:

1. be a bona fide business arrangement,
2. not be a device to transfer the ownership interest to members of the decedent's family for less than fair market value, and
3. provide terms that are comparable to business arrangements entered into by persons engaged in arm's-length transactions.

Satisfying the Section 2703(b) Provisions—the Bona Fide Business Arrangement Provision

Both the statutory language and the Treasury regulations are silent as to the specifics of this Section 2703(b) requirement. It appears that the Section 2703(b) requirement will be met if the taxpayer can show that the purpose of the buy/sell agreement was to maintain a continuity of company management and of family ownership control. See, for example, *Estate of Lauder*, T.C. Memo. 1992-736.

The operational and administrative reasons for executing the closely held company's buy/sell agreement should be well documented. For example, these may be written correspondence between the company owners (or between the company itself) and the company owner's (or the company's) legal or tax advisers.

There are instances where the U.S. Tax Court has held that planning for the future liquidity needs of the company owner decedent's estate is considered to be a bona fide business purpose. See, for example, *Estate of Amlie*, T.C. Memo. 2006-76).

However, the Tax Court (affirmed by the Eighth Circuit) has also held that a closely held company that simply owned marketable securities was *not* a bona fide business arrangement. See, for example, *Holman*, 130 T.C. 170 (2008), *aff'd*, 601 F.3d 763 (8th Cir. 2010).

The Not a Device to Transfer the Securities for Less than Full Consideration Provision

This Section 2703(b) requirement is often simply referred to as the nondevice test. The purpose of

this statutory provision is to ensure that the buy/sell agreement is not simply a device to reduce the estate tax value of the closely held company securities. However, neither the statute nor the regulations provide guidance on the specifics of this Section 2703(b) requirement.

In *Estate of Lauder*, however, the U.S. Tax Court provided insight into how this test may be applied. In the *Estate of Lauder* decision, the Tax Court concluded that a buy/sell agreement would be merely a device to reduce estate taxes when:

1. testamentary considerations had influenced the agreement counterparties and
2. the valuation-based formula in the buy/sell agreement did not reflect full and adequate consideration—because it did not set a fair price for the subject ownership interest.

In the *Estate of Lauder* decision, the agreement's valuation-based formula was an adjusted book value formula. The Tax Court concluded that such a valuation formula was arbitrary in nature. Because that buy/sell agreement did not pass the nondevice test, the terms of that agreement did not control the estate tax value of the decedent Joseph Lauder's ownership interest.

When creating a closely held company buy/sell agreement, the company owner—or the company itself—should consider retaining an independent valuation specialist to verify that the valuation formula selected actually concludes the fair market value of the subject ownership interest.

A valuation formula developed by a professional valuation specialist may be more readily accepted by the Service than a valuation formula based on accounting book value or some other arbitrarily determined factor.

The Terms Are Comparable to Third-Party Arrangement Provisions

According to Regulation 25.2703(1)(b)(4), a buy/sell agreement is considered to be comparable to similar arm's-length business arrangements if the agreement is one that could be obtained in a fair bargain among unrelated parties, who are dealing with each other at arm's length.

A buy/sell agreement is generally considered to be a fair bargain if it conforms to the general practice of unrelated parties under negotiated agreements in the same business. Buy/sell agreement contractual terms that mirror any state law default provisions may also help prove that the subject agreement is comparable or at arm's length.

Some of the factors that the company owners may consider in assessing whether the subject buy/sell agreement compares to the fair-bargain standard include the following:

- The expected term of the buy/sell agreement
- The company's current fair market value
- Any anticipated changes in the company's fair market value during the term of the buy/sell agreement
- The adequacy of any consideration given in exchange for the contractual rights granted in the buy/sell agreement

In determining whether the subject buy/sell agreement is comparable to third-party business arrangements, the agreement should follow the general business practices of the relevant industry.

The following guidelines may help to assess whether the agreement follows general business practices:

- Isolated comparable agreements may not be sufficient to establish general business practices.
- If more than one valuation formula or methodology is typically applied in the relevant industry, the buy/sell agreement may not fail the general business practices requirement simply because it only applied one valuation method.
- It is not necessary that the terms of the subject buy/sell agreement parallel the terms of any one particular comparable buy/sell agreement.
- If comparable buy/sell agreements are difficult to find because the subject business is unique, then comparable agreements from similar businesses may be used.

As a practical matter, the company owners (or the company itself) may obtain an expert's opinion as to whether the subject buy/sell agreement is considered to be comparable to the relevant industry standards. The company owner decedent bears the burden of proving that the subject buy/sell agreement meets this Section 2703(b) requirement.

As an additional consideration, it is possible that the actual buy/sell agreement may set a formula purchase price for the company owner decedent's ownership interest that results in a price less than the value ultimately allowed by the Service for estate tax purposes.

This situation may occur because the Section 2703 requirements were not met. In that case, the heirs will receive the lower price for the decedent's ownership interest under the by/sell agreement, even though the estate tax value may be based on the higher value.

Provisions for Grandfathered Buy/Sell Agreements

The Section 2703 provisions do not apply to any buy/sell agreement that was entered into prior to October 9, 1990. Such a "grandfathered" buy/sell agreement may not be substantially modified after that date. This "grandfathering" provision is provided for in Regulation 25.2703-2.

The Service has ruled that changes to the quality, value, or timing of the agreement counterparties' rights for pre-October 9, 1990, agreements were *de minimis* and were not considered substantial modifications. See, for example, IRS Letter Rulings 9652009, 9652010, and 9711017.

The Service has also ruled that clarifying the provisions to buy/sell agreements may not be considered substantial modifications. See, for example, IRS Letter Ruling 200625011.

Summary of Tax-Related Agreement provisions

The agreement counterparties (or the company itself) should consider including the following provisions (either in the buy/sell agreement or in the company's shareholder or partnership or operating agreement) when implementing a buy/sell agreement:

- Establish a predetermined valuation-based formula or methodology.
- Identify the method of—and the source of—the funding for the securities sale, such as cash, life insurance proceeds, or an installment note.
- Require an interim closing of the company's books in order to allocate any items of income and loss to the company owner who disposes of his or her entire interest in the closely held company.
- Require minimum distributions to all company owners in an amount equivalent to the income tax payable on each owner's distributive share of the pass-through entity's income or gain (this provision is particularly beneficial to the pass-through entity's minority ownership interest holders).
- For an LLC or a partnership, require that the entity consider a Section 754 election—however, this election may not be appropriate if the value of the tax pass-through entity's assets has decreased (or is likely to decrease in the future).
- For an LLC or a partnership, address when or whether a third-party purchaser can become a partner/member—instead of an assignee.

Summary and Conclusion

Closely held companies often implement a buy/sell agreement among the company owners both (1) for operational (or administrative) reasons and (2) for taxation reasons. This discussion summarized both types of reasons for implementing the closely held company buy/sell agreement. With regard to the taxation reasons, this discussion focused on closely held tax pass-through entities.

This discussion considered the two principal types of buy/sell agreements: (1) cross-purchase agreements and (2) redemption agreements. This discussion considered the various events that may trigger the sale of the company owner's equity interest under the buy/sell agreement.

This discussion summarized various considerations related to funding the buy/sell agreement securities sale transaction. And, this discussion described typical business or security pricing and valuation provisions within the context of the buy/sell agreement.

Finally, this discussion considered the influence of buy/sell agreement valuation provisions with regard to valuing the company owner's interests for transfer tax purposes. This discussion included both statutory provisions and practical guidelines related to the reliance on the buy/sell agreements valuation provision—particularly with regard to estate tax planning and estate tax compliance.

In the design and implementation of any buy/sell agreement, the closely held company owners (and the company itself) should consult with legal counsel, tax advisers, and valuation specialists. These professionals typically work together to create a buy/sell agreement that will achieve administrative objectives and taxation objectives—both for the closely held company and for the company owners.

Robert Reilly is a managing director of the firm and located in the Chicago practice office. Robert can be reached at (773) 399-4318 or at rfreilly@willamette.com.

Valuation Analyst Considerations in the S Corporation Sale Transaction

Robert F. Reilly, CPA

Valuation analysts ("analysts") are often asked to assist with the pricing and structuring of private company sale transactions. Analysts will often perform particular due diligence procedures with regard to the sale of the S corporation private company. These due diligence procedures often include the analyst's review of the private company buy/sell agreements, stock redemption agreements, and other shareholder agreements. This due diligence may relate to the concern that the shareholder agreement (particularly the shareholder agreement share pricing provisions) may have created a second class of company stock. Such a second class of company stock could possibly invalidate the private company's S election. Such a concern would affect both the corporate acquired and the individual sellers of the S corporation private company. This discussion focuses on the analyst's review of such shareholder agreements, particularly during the structuring of the S corporation/private company sale transaction.

Introduction

Valuation analysts and other financial advisors (collectively referred to herein as "analysts") may be retained by private company owners (or by the company's legal counsel or other transactional advisers) to assist in the pricing and structuring of a business sale transaction.

These analysts often provide such transaction advisory services by working as part of a team of professionals. That transaction team may include corporate counsel, tax counsel, financial accountants, and others. Accordingly, analysts do not provide legal, accounting, or taxation advice related to the potential business sale transaction. Instead, other professionals are retained to provide such transactional advice.

However, analysts are expected to be knowledgeable enough about these legal, accounting, or taxation areas to both:

1. identify the relevant transactional issues and
2. work with the appropriate professionals in order to protect the client's interests.

Analysts may be asked to provide such transaction pricing and structuring services to private company owners in all industry sectors.

This discussion uses the term private company instead of the term closely held company. In this discussion, the term private company simply means that the target company securities are not publicly traded.

In many merger and acquisition ("M&A") transactions, the target company can be quite large. Such large target companies may have 100 or more shareholders, many of whom may not be current employees (or otherwise involved in the management) of the private company. With such a large number of shareholders, such target companies are not closely held. However, such large companies are still private companies.

S Corporation Sale Transactions

Many private companies have elected S corporation status for federal income tax purposes. That is, many of these private companies are tax pass-through entities.

An S corporation does not recognize taxable income at the company level—including with regard to any gain (or loss) on the sale of the company assets. Rather, the S corporation's income is "passed through" to the company shareholders. The individual shareholders recognize their share of the S corporation income (including any gains or losses on the sale of the company assets) on their personal income tax returns.

Many private companies are owned by members of what is often called the Baby Boomer generation. These private company owners are now reaching retirement age.

As part of their retirement planning and/or other personal financial planning, these company owners may have to consider an ownership transition related to their private company. Such an ownership transition is often implemented through the sale of the private company, with the company sale structured as some type of an M&A transaction.

This trend in Baby-Boomer-owned private company M&A transactions has been strong in the last several years. Due to the aging of those Baby Boomer private company owners, this trend of private company M&A transactions (in many industry sectors) is expected to continue for the next several years.

The Sale of the S Corporation and the Section 338(h)(10) Election

These private companies may be attractive acquisition candidates for larger corporate acquirers. This conclusion is true whether the acquirer is a private company or a publicly traded company. Because of the target company's S corporation tax status, many corporate acquirers will consider making an Internal Revenue Code Section 338(h)(10) election with regard to the private company acquisition.

Through this tax election, the corporate acquirer can treat the purchase of the target company stock as if it was the purchase of the target company assets. For S corporation acquisitions, this Section 338(h)(10) election may provide significant income tax benefits to the corporate acquirer, often at a relatively little income tax cost to the target company sellers.

In an M&A transaction regarding an S corporation target company, both the buyer and the seller typically perform due diligence procedures to ensure that there are no problems with regard to the target company's S corporation tax status.

In an M&A transaction, the corporate acquirer may be particularly concerned about the validity of the target company's S election status. This tax status concern is particularly relevant for a corporate acquirer that intends to make the Section 338(h)(10) election.

This concern is why the corporate acquirer often requires the private company seller to indemnify the buyer with regard to the target company's S corporation income tax status. And, this concern is why the seller also wants to identify any S election issues or concerns prior to negotiating the M&A transaction. Analysts can assist the private company seller with these due diligence considerations.

S Corporation Shareholder Agreements

Analysts should be aware that the typical private company often has a shareholder agreement with each of the company owners. There are numerous operational and legal reasons why a private company may have such shareholder agreements.

In particular, an S corporation typically has a shareholder agreement with each of its owners. One reason for this is to ensure that a party that is not qualified to be an S corporation shareholder does not become an owner of the company stock. In other words, one reason for such a shareholder agreement is to protect the private company's S election tax status.

However, the private company owners—and the analyst—should be concerned that the shareholder agreement does not create a second class of company stock. Such a second class of company stock could possibly invalidate the company's S election. For this reason, corporate acquirers may devote particular due diligence efforts to the review of any shareholder agreements associated with S corporation acquisition.

Accordingly, in preparing for the acquirer's acquisition due diligence, the private company sellers—with the analyst's assistance—should also review any shareholder agreements. This seller's (and analyst's) review is intended to ensure that there are no second class of stock concerns.

This discussion focuses on the due diligence considerations related to the S corporation shareholder agreement.

Stock Purchase versus Asset Purchase Transaction Structure

In the private company M&A transaction, the corporate acquirer typically prefers to structure the transaction as an asset purchase rather than as a stock purchase. There are both legal reasons and taxation reasons for this transaction structure preference.

The Asset Purchase Structure

In an asset purchase transaction structure, the acquirer will allocate the total purchase price consideration paid to the acquired tangible assets and intangible assets. Following the purchase price allocation rules of Section 1060, the acquirer allocates the transaction purchase price based on the fair market value of the acquired tangible assets and intangible assets.

Any residual purchase price (above the total fair market value of the tangible assets and the identifiable intangible assets acquired) is allocated to the acquired goodwill.

Accordingly, the acquirer gets to "step up" the depreciable tax basis in all of the acquired assets—up to the total amount of the consideration paid. Even the residual goodwill amount is amortizable (i.e., the buyer enjoys an amortization expense income tax deduction) over a statutory 15-year amortization period. This is because the purchased goodwill is a Section 197 intangible asset.

The Stock Purchase Structure

Alternatively, in the purchase of C corporation stock, the acquirer typically maintains the carryover depreciable tax basis in the target company's assets. So, let's assume a stock purchase transaction where the acquirer pays a $100 million total consideration for a target company, and the target company currently has a tax basis in its assets of $40 million.

In that case, the acquirer would continue to depreciate the $40 million carryover tax basis of the target company assets.

In such a transaction, the C corporation selling shareholders would recognize capital gain on the difference between:

1. their tax basis in their shares of the company stock and
2. their pro rata allocation of the $100 million purchase price.

In such a C corporation stock purchase transaction, the Section 338(h)(10) election would have positive income tax consequences to the acquirer but negative income tax consequences to the selling shareholder. After making such an election, the acquirer would be able to step up the depreciable tax basis in the target company's assets to the total amount of the purchase price consideration. However, the selling shareholder would recognize significantly negative income tax consequences.

As it would with an actual sale of the company's assets, the C corporation itself would recognize a taxable gain on the Section 338 deemed sale of its assets (resulting in a reduced amount of net after-tax sale proceeds available to distribute to the sellers). In addition, the selling shareholders would also recognize gain on the distribution of the remaining transaction net proceeds.

Effectively, such a transaction structure results in two levels of taxation to the selling shareholders: first at the C corporation level and again at the selling shareholder level.

The Section 338(h)(10) Election Deemed Asset Purchase

In contrast, in the purchase of S corporation stock, the Section 338(h)(10) election has fewer negative income tax consequences to the target company sellers The corporate acquirer gets to step up the depreciable tax basis in the acquired assets to the total purchase price paid. But, as a tax pass-through entity, the target company does not recognize taxable income on this deemed asset sale. The gain from the deemed asset sale is passed through to the selling shareholders.

Typically, only a portion of that gain is recognized as ordinary income by the selling shareholders (e.g., depreciation recapture income, the sale of cash basis receivables, the sale of inventory).

Therefore, most of the gain on the sale transaction is recognized as capital gain by the selling shareholders. And, if the target company shareholders negotiate effectively, the corporate acquirer may be willing to compensate the selling shareholders for the tax on the ordinary income recognized on the deemed asset sale.

Accordingly, the target company's S corporation status allows the corporate acquirer to make the Section 338(h)(10) election—an election that would typically not make taxation sense (at least to the selling shareholders) in the case of a C corporation acquisition. That is, the target company's S corporation status allows the acquirer to structure the M&A transaction as a purchase of stock (and enjoy the associated legal protections of that deal structure)—but also get the income tax benefits of a deemed purchase of assets.

The Target Company's S Corporation Tax Status

For the reasons summarized above, the corporate acquirer entering into a Section 338(h)(10) transaction will perform due diligence procedures to ensure that the target company has a valid S election. If the target company's S election is not valid, then the acquirer may have acquired a C corporation that has to pay income tax on the deemed asset sale at the corporation level.

In addition, the acquired C corporation (i.e., the target company with an invalid S election) may have a substantial income tax liability associated with prior years.

As part of its acquisition due diligence process, the corporate acquirer will want to verify the validity of the target company's S election. In particular, the acquirer's analyst will typically review all of the target company's shareholder agreements.

If there is a shareholder agreement (as is common in S corporations), the acquired professional advisers should confirm that the shareholder agreement does not create a second class of target company stock. This is because having a second class of stock could invalidate the target company's S election under Section 1361(b)(1)(D).

If the acquirer's analyst is concerned about this shareholder agreement issue, then the target company's analyst should also be concerned about this shareholder agreement issue. That is, the analyst (and the target company's other transaction advisers) should identify—and resolve—any shareholder-agreement-related S election issue before the target company is put up for sale.

The following section summarizes some of the shareholder agreement issues that the analyst should look for in the due diligence review process related to the target company. This due diligence review process should include the analyst's consideration of any stock buy-sell provisions, stock redemption provisions, and stock valuation provisions in the shareholder agreement.

Review of the Private Company Shareholder Buy-Sell and Redemption Agreement

To review the shareholder agreement's impact on the S corporation one-class-of-stock requirement, the acquirer and its advisers—and the target company and its advisers—should consider Regulation Section 1.1361-1(l)(2)(iii)(A).

This regulation states that S corporation shareholder buy-sell and redemption agreements are disregarded in determining whether the shares of stock confer identical distribution and liquidations rights, unless:

1. a principal purpose of the shareholder agreement is to circumvent the S corporation one-class-of-stock requirement of Section 1361(b)(1)(D) and
2. the shareholder agreement establishes a purchase price that, at the time that the agreement is entered into, is significantly in excess of—or significantly below—the stock's fair market value.

Regulation 1.1361-1(l)(2)(iii)(A) also provides a safe-harbor price range for the S corporation stock. The regulation provides that a stock price

set at book value per share or between book value and fair market value per share does not cause the shareholder agreement to establish a price that is significantly above—or significantly below—the stock's fair market value.

As part of the target company's due diligence, the analyst should review the buy-sell provisions, other redemption provisions, and share price determination provisions of any S corporation shareholder agreement.

Important to the target company (and to the analyst), Regulation 1.1361-1(1)(2)(v) provides a special rule related to a transaction involving a Section 338(h)(10) election. If the S corporation shareholders sell the company stock in a transaction for which a Section 338(h)(10) election is made, the receipt by the shareholders of varying price amounts per share will not cause the S corporation to have more than one class of stock.

However, this special provision only applies when the varying price amounts per share are determined in "arm's-length negotiations" with the corporate acquirer.

The Impact of Regulations and Letter Rulings

Regulation 1.1361-1(l)(2)(v) provides a special rule for the payment of a differing purchase price per share in S corporation acquisitions involving Section 338(h)(10) elections—under certain conditions.

The Internal Revenue Service has been willing to issue letter rulings on the impact of shareholder agreements on the S corporation one-class-of-stock requirement. The vast majority of these letter rulings are considered to be taxpayer-favorable.

One ruling, Internal Revenue Service Letter Ruling 9413023, addressed a shareholder agreement that provided for a stock price including a discount for lack of control (sometimes referred to as a minority interest discount).

Using similar logic to that implied in Regulation 1.1361-1(l)(2)(v), the Internal Revenue Service stated the following in Letter Ruling 9413023:

> The facts reveal that the buy-sell agreement . . . established a purchase price of fair market value less a minority discount. When a purchase price is the result of arm's-length business negotiations, the mere presence, or absence, of a minority discount does not cause an agreement to establish a purchase price that is significantly in excess of or below the fair market value of the stock. Therefore, the agreement will be disregarded in determining whether . . . shares of stock confer identical distribution and liquidation rights.

"As part of the target company's due diligence, the analyst should review the buy-sell provisions, other redemption provisions, and share price determination provisions of any S corporation shareholder agreement."

Analysts should be aware that there are both taxpayer-friendly regulations and taxpayer-friendly letter rulings issued related to this issue. Therefore, acquirers should not automatically assume that shareholder buy-sell or redemption agreements that are reasonably entered into for valid business purposes will be disregarded in the analysis of whether an S corporation has a second class of stock.

Accordingly, a target company's shareholder agreement will not necessarily prohibit the corporate acquirer of an S corporation from making the Section 338(h)(10) election.

However, in practice, corporate acquirers often express concern about the provisions in the S corporation's shareholder buy-sell or redemption agreements. Corporate acquirers may express those concerns by asking for an increase in the amount of the deal funds to be held in escrow in order to:

1. cover any potential income tax exposure should the target company's S election be invalidated and/or
2. reprice or restructure the pending M&A transaction.

Given the importance of the target company's S status to the Section 338(h)(10) election, it is understandable why a corporate acquirer may take a hard line related to this particular taxation issue—even though there appears to be relatively little risk to the acquirer. If the target company's S election has been in effect for a long time, it may be difficult—if not impossible—for the corporate acquirer to verify that the S election has been valid for all of the years involved.

This corporate acquirer consideration is particularly important if there have been a large number of target company shareholders over the years, including trusts.

"The private company shareholders . . . should be prepared to verify the validity of the company's S corporation tax status once the owners decide to offer the company for sale."

The Target and the Acquirer Due Diligence Procedures

A target company's inadvertent misstep through the years could have caused its S election to be invalidated. If the purchase price of the M&A transaction is substantial, the corporate acquirer may not be willing to accept the risk, under any circumstances, that the target company's S election may be invalid.

Given this concern, the existence of a shareholder agreement is one reason for a corporate acquirer to create doubt about the target company's S election validity.

One solution that may be proposed by a corporate acquirer is to have the target company's seller enter into a tax-free F reorganization under Section 368(a)(1)(F). This transaction structure is accomplished by forming a new corporation ("Newco"). Newco becomes the parent corporation of the existing target S corporation.

A qualified subchapter S subsidiary ("QSub") election is then filed. That QSub election then terminates the existing S corporation for income tax purposes. Newco is then not required to file a new S election under the F reorganization. However, the corporate acquirer may insist that Newco go ahead and file a new S election anyway—just as a precaution.

The corporate acquirer may also look to increase the amount of funds to be included in the M&A transaction escrow account. The purpose of this escrow amount is to cover any corporate income tax that would be owed for open tax years in the event that the target company's S election is found to be invalid.

Alternative Transaction Structures

Other procedures are available to safeguard the corporate acquirer in the S corporation M&A transaction. Effectively, these other procedures put substantially all the risk of an invalid S election on the target company's selling shareholders.

One example of such a procedure is to convert the target S corporation to a limited liability company ("LLC") immediately prior to the transaction closing. In this structure, the target S corporation is considered to have liquidated in a taxable transaction as of the formation of the LLC.

The uncertainty of the target company's S corporation status should end at that point. The corporate acquirer purchases the units of the LLC immediately after the conversion. Any potential corporate income tax liability will then fall upon the target company's selling shareholders—who received the S corporation's assets in liquidation.

Summary and Conclusion

The private company shareholders—and the valuation analyst—should be prepared to verify the validity of the company's S corporation tax status once the owners decide to offer the company for sale.

The target company—and the analyst—should perform adequate due diligence procedures in order to provide the necessary documentation to a corporate acquirer in order to substantiate the company's S corporation tax status.

As soon as possible in the due diligence process, the analyst should inform the private company selling shareholders about this potential transaction issue. The analyst can assist the selling shareholders in the review of any private company shareholder agreement.

In particular, the analyst should review the valuation issues and the pricing issues with regard to any buy-sell or other redemption provisions in these shareholder agreements.

Alternatively, all of the parties to the potential M&A transaction may consider implementing an alternative transaction structure that does not involve the corporate acquirer making a Section 338(h)(10) election.

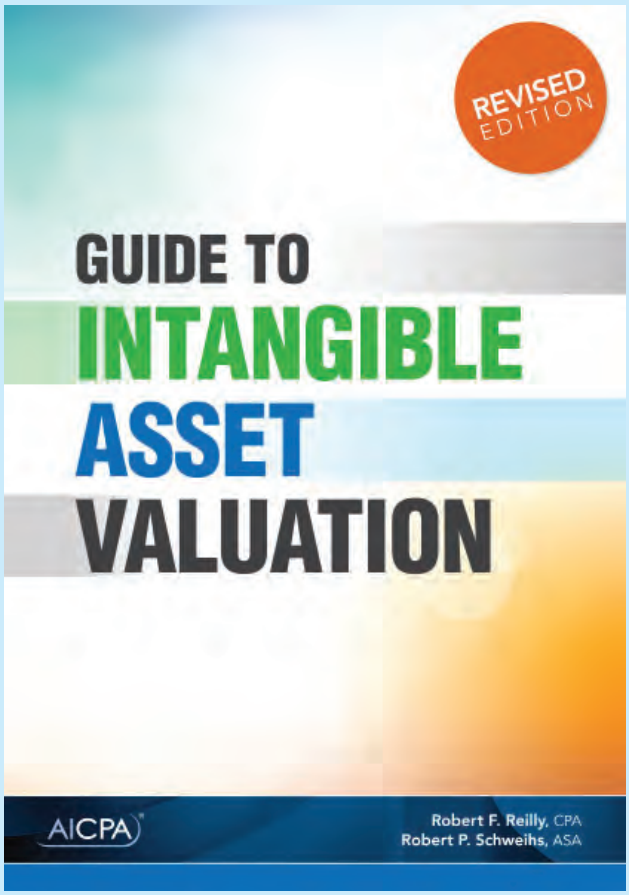
Without the forethought of the analyst—and of the private company's other transactional advisers—any consideration of the validity of the target company's S election often comes up fairly late in the M&A transaction due diligence process. At such a late stage in the pending M&A transaction, any uncertainty regarding the target company's S corporation tax status may cause the corporate acquirer to reconsider making the otherwise attractive acquisition.

Robert Reilly is a managing director of the firm and is located in our Chicago practice office. Robert can be reached at (773) 399-4318 or at rfreilly@willamette.com.

We are pleased to announce the Revised Edition of . . .

Guide to Intangible Asset Valuation

by Robert F. Reilly and Robert P. Schweihs



This 745-page book, originally published in 2013 by the American Institute of Certified Public Accountants, has been improved! The book, now in hardback, explores the disciplines of intangible asset valuation, economic damages, and transfer price analysis. *Guide to Intangible Asset Valuation* examines the economic attributes and the economic influences that create, monetize, and transfer the value of intangible assets.

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Guide to Intangible Asset Valuation

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On Our Website

Recent Articles and Presentations

Robert Reilly, a managing director of our firm, authored a three-part article that appeared in the February/March 2020, April/May 2020, and June/July 2020 issues of *Financial Valuation and Litigation Expert*. The title of Robert's article is "Intellectual Property Valuations within Bankruptcy Controversies—Parts 1, 2, and 3."

There are many reasons why a valuation analyst may be asked to value debtor company intellectual property within a bankruptcy environment.

Part 1 of Robert's article explains and illustrates the generally accepted intellectual property valuation approaches and methods that analysts typically consider in a bankruptcy-related controversy. Robert also describes the intellectual property valuation synthesis and conclusion process. And, Robert's article recommends best practices related to (1) the attributes of an effective intellectual property valuation report and (2) the types of professionals who should serve as intellectual property valuation testifying experts.

Part 2 of this article describes the three general approaches to IP valuation: the cost approach, the market approach, and the income approach.

In Part 3, Robert examines the income approach as it is used in IP valuations within the bankruptcy context. Robert also discusses the synthesis and conclusion procedures. Finally, Robert presents the attributes of an effective valuation expert report and identifies who should perform IP valuations.

Benjamin Duffy authored an article that appeared in the June 2, 2020, issue of *QuickRead*, the National Association of Certified Valuators and Analyst's online publication located at quickreadbuzz.com. The title of that article is "ESOP Implementation Considerations: A Leverage ESOP vs. a Non-Leverage ESOP."

An employee stock ownership plan (ESOP) is a qualified retirement plan that allows employees to hold equity in the sponsor company that employs them. There are various strategies that may be considered when the sponsor company forms and ESOP. One important structural decision regarding the ESOP formation is whether the ESOP will be leveraged or nonleveraged. Ben's article compares the leveraged ESOP structure and the nonleveraged ESOP structure. He explores various characteristics and advantages associated with leveraged and nonleveraged ESOP structures.

Justin Nielsen, a senior director with FTI Consulting, and Charlene Blalock, a senior research analyst in our Portland office, authored an article that appeared in the Winter 2020 issue of the *American Journal of Family Law*. The title of Justin and Charlene's article is "Considering the Subject Industry When Applying the Income Approach in a Family Law Context"

The income approach is often performed in the valuation of closely held businesses for family law purposes. Analysts often obtain projections from the subject company management. Industry research may be helpful in performing due diligence and reviewing the reasonableness of such management-prepared projections. This article summarizes the relationship between the income approach and the subject industry. In addition, it provides practical guidance regarding the analyst's role in properly addressing the subject industry when applying the income approach and conducting company management interviews in a family-law-related business valuation.

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Communiqué

In Print

Robert Reilly, firm managing director, authored an article that appeared in the January/February 2020 issue of *Construction Accounting and Taxation*. The title of Robert's article was "Compensating Key Employees with Stock-Based Compensation Grants."

Robert Reilly also authored an article that appeared in the February 20, 2020, issue of *QuickRead*, the National Association of Certified Valuators and Analyst's online publication located at quickreadbuzz.com. The title of that article was "Private Company Stock-Based Compensation Arrangements to Attract or Retain Key Employees."

Robert Reilly also authored an article that appeared in the March/April 2020 issue of the *Journal of Multistate Taxation and Incentives*. The title of that article was "Due Diligence Considerations in the Application of Market-Based Evidence."

Robert Reilly also authored a three-part article series that appeared in *Financial Valuation and Litigation Expert*. The title of that three-part article series was "Intellectual Property Valuations within Bankruptcy Controversies." Part 1 appeared in the February/March 2020 issue, part 2 appeared in the April/May 2020 issue, and part 3 appeared in the June/July 2020 issue.

Robert Reilly and Connor Thurman, an associate in our Portland, Oregon, practice office, authored an article that appeared in the May/June 2020 issue of *Construction Accounting and Taxation*. The title of their article was "Measuring Obsolescence in Property Tax Appeals."

Tim Meinhart, managing director and Chicago office director, authored an article that appeared in the May 2020 issue of *Trusts & Estates*. The title of Tim's article was "Are We Overestimating the Value of Control in Estate-Planning Valuations?"

Benjamin Duffy, a manager in our Atlanta office, authored an article that appeared in the June 2, 2020, issue of *QuickRead*, the National Association of Certified Valuators and Analyst's online publication located at quickreadbuzz.com. The title of that article was "ESOP Implementation Considerations."

In Person

Kyle Wishing, Atlanta office director of ESOP valuation services, was one of the presenters in a May 5, 2020, webinar sponsored by Business Valuation Resources. The topic of the Business Valuation Resources webinar was "Projection issues Raised in ESOP Litigation."

Robert Reilly and Kyle Wishing presented a webinar on April 16, 2020, for Valuation Products and Services. The topic of the Valuation Products and Services webinar was "Estimating Long-Term Growth Rates in Times of Economic Uncertainty."

Encomium

Curt Kimball, managing director in our Atlanta office, recently earned the accredited senior appraiser—appraisal review & management—valuation credential awarded by the American Society of Appraisers.

Dean Driskell, managing director and Atlanta office director, recently earned the accredited in business valuation ("ABV") professional valuation credential awarded by the American Institute of Certified Public Accountants.

Weston Kirk, Atlanta office vice president, was recently recognized with the "40 under 40" recognition from Georgia State University.

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