

Generally Accepted Intangible Property Valuation Approaches, Methods, and Procedures

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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 “lifying 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.

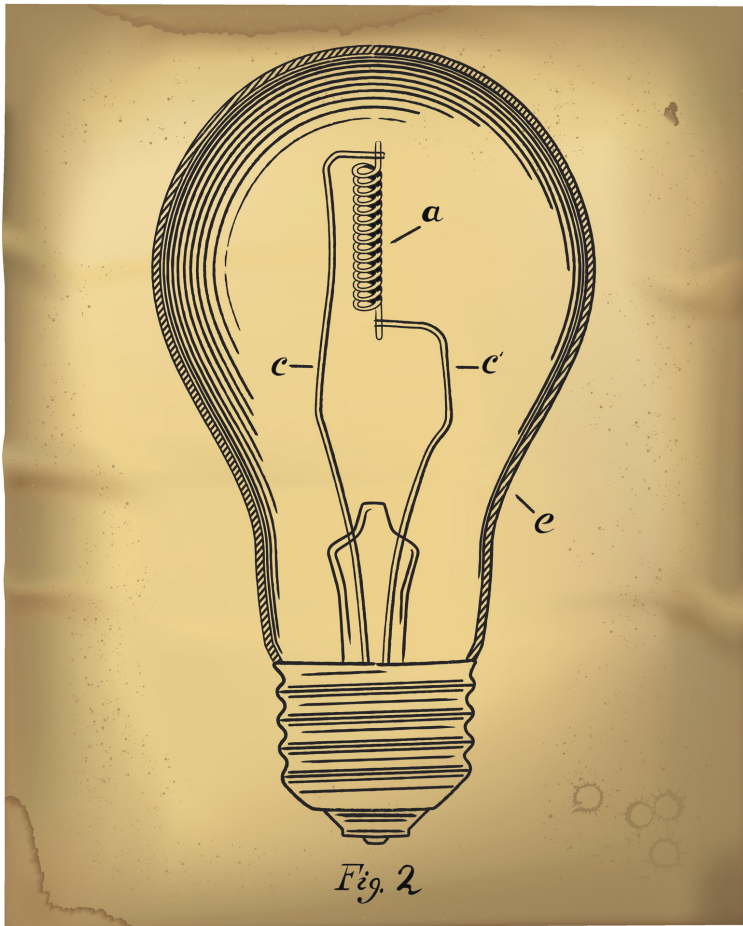


Fig. 2

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 dis-

count 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

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- 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. Schweih, *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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