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Thought Leadership in the Asset-Based Approach to Business Valuation

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Thought Leadership

Insights

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Thought Leadership in The Asset-Based Approach to Business Valuation
Editor for This Issue: Robert F. Reilly, CPA

Business Valuation Thought Leadership

Property Valuation Thought Leadership

Willamette Management Associates Insights

2017 Recipient of the Apex Literary Award

Forethoughts

This issue of *Insights* focuses on thought leadership with regard to the application of the asset-based approach to the valuation of businesses, business ownership interests, and securities. Although less frequently applied by many valuation analysts than the income approach or the market approach, the asset-based approach is a generally accepted business valuation approach.

As there is less professional literature published with regard to the asset-based approach, this *Insights* issue is intended to provide thought leadership with regard to the applicable business valuation methods and procedures. The asset-based approach is a generally accepted business valuation approach that may be applied to value either operating companies or asset holding companies. Contrary to the common misconception that an asset-based approach analysis concludes a liquidation value, this business valuation approach may be used to value operating companies on a going-concern basis.

This *Insights* issue includes a thought leadership discussion related to the theory and application of the asset-based approach. This issue also includes discussions with regard to the application of (1) the asset accumulation method and (2) the adjusted net asset value method.

The valuation of various tangible asset and intangible asset categories is a common component in the application of the asset-based business valuation approach. Accordingly, this *Insights* issue also includes discussions on the valuation of (1) industrial and commercial real estate, (2) industrial and commercial tangible personal property, and (3) commercial intangible assets—including intellectual property.

Willamette Management Associates analysts are experienced at performing asset-based approach business valuations for various transaction, taxation, accounting, financing, planning, and litigation purposes.

About the Editor

Robert F. Reilly

Robert Reilly, CPA, is a managing director of Willamette Management Associates, a business valuation, forensic analysis, and financial advisory firm. He resides in our Chicago office.

Robert's practice includes the valuation of businesses, business ownership interests, securities, and intangible assets for accounting, taxation, transaction financing, planning, and controversy purposes.

Robert's practice also includes forensic analysis and economic damages analysis with regard to breach of contract disputes and tort disputes.

And, Robert's practice includes intercompany transfer price analysis—particularly with regard to intangible property—for accounting, taxation, licensing, controversy, and other purposes.

Robert holds a BA degree in economics from Columbia College and an MBA degree in finance from the Columbia University Graduate School of Business.

Robert is a certified public accountant, chartered global management accountant, certified management accountant, chartered financial analyst, accredited tax adviser, and enrolled agent.

Robert is a certified business appraiser and a certified valuation analyst. Robert holds an accreditation in business valuation and he is certified in financial forensics.

He is a certified real estate appraiser, certified review appraiser, certified valuation analyst, and state-certified general appraiser.

Robert is the co-author or co-editor of 12 valuation textbooks. Most recently, he is the co-author of *Practical Guide to Bankruptcy Valuation*, second edition, published by the American Bankruptcy Institute, and he is the co-author of *Guide to Intangible Asset Valuation*, revised edition, published by the American Institute of Certified Public Accountants. Robert is also the author of over 900 professional journal articles and textbook chapters on topics related to business, security, and intellectual property valuation.

Thought Leadership Discussion

Fundamentals of the Asset-Based Business Valuation Approach

Weston C. Kirk and Kyle J. Wishing

Valuation analysts ("analysts") value closely held business and business ownership interests for various transaction, financing, taxation, accounting, litigation, and planning purposes. Analysts should consider the application of all three generally accepted business valuation approaches in these analyses: the income approach, the market approach, and the asset-based approach. However, most analysts rarely apply the asset-based approach, at least in valuations of going-concern operating companies. This discussion describes the theory and application of the asset-based approach. And, this discussion explains how this approach can be used to value operating companies—as well as asset-holding investment companies—on a going-concern basis. The asset-based approach is not usually recommended as the sole basis for the business valuation. However, due to data or other constraints, the income approach and the market approach are not always available to value an operating company. In addition, the asset-based approach may be used as a complementary or confirmatory analysis in conjunction with both income approach and market approach valuation analyses.

Introduction

Valuation analysts ("analysts") are often asked by clients, by their clients' legal counsel ("counsel"), or by their clients' other professional advisers to value closely held businesses and professional practices, business ownership interests, and securities for various reasons. The value of the closely held business or professional practice may be important for a variety of client purposes.

These client purposes may include transaction pricing and structuring, taxation planning and compliance, financing collateralization or securitization, forensic and economic damages analyses, corporate strategy and personal financial planning, financial accounting and public reporting, and regulatory compliance or controversies.

The value of the business, business ownership interest, or security could be important to the client (or counsel) with regard to business estate planning, a business ownership transition, or a business merger and acquisition structuring. In addition, the current and ongoing value of the business may be important when the client (or counsel) is designing or implementing buy/sell agreements or other shareholder agreements.

The business or security value can be important for various taxation planning, compliance, and controversy reasons. These taxation-related reasons include gift tax, estate tax, generation-skipping transfer tax, and income tax.

Some of the income tax issues may include worthless stock deductions, charitable contributions, stock or asset basis determination, insolvency related to debt cancellation income, intercompany transfer price determination, reasonableness of shareholder/employee compensation, and others.

The value of the business or security may be important when the client is involved in a family

law dispute, commercial bankruptcy matter, shareholder dispute, lender liability claim, infringement claim, many types of breach of contract claims, and many types of breach of fiduciary duty or other tort claims.

Such litigation-related matters may include dissenting shareholder appraisal rights claims and shareholder oppression claims.

Generally Accepted Business Valuation Approaches

Regardless of the purpose of the closely held business or security valuation, analysts should consider all three generally accepted business valuation approaches. These approaches (or categories of related business valuation methods) are as follows:

1. The income approach
2. The market approach
3. The asset-based approach

Although less commonly applied than the income approach or the market approach, the asset-based approach is a generally accepted business valuation approach. The asset-based approach is described in most comprehensive business valuation textbooks. In addition, consideration of the asset-based approach is required by most authoritative business valuation professional standards.

For example, professional standards such as the American Institute of Certified Public Accountants ("AICPA") *Statement on Standards for Valuation Services* ("SSVS") and the *Uniform Standards of Professional Appraisal Practice* ("USPAP") require the valuation analyst to at least consider the application of the asset-based approach (in addition to other business valuation approaches).

That is to say, such professional business valuation standards require the consideration of—but not necessarily the application of—the asset-based approach.

In practice, however, many analysts (and many clients and legal counsel) immediately reject the use of asset-based approach methods in a business, professional practice, or security valuation. These analysts conclude that this approach is too difficult, too time consuming, too client disruptive, or simply (and only without adequate explanation) not applicable to the subject closely held company.

In truth, many analysts (and clients and counsel) do not seriously consider applying the asset-based approach in the typical closely held business or security valuation. This is because these analysts (and clients and counsel) are not sufficiently familiar with the generally accepted methods and procedures within this business valuation approach.

In addition, many analysts (and clients and counsel) labor under misconceptions about when—and when not—to apply this valuation approach. And, many analysts (and clients and counsel) also hold misconceptions about interpreting the quantitative results of the asset-based valuation approach.

Hopefully, this discussion will correct many of the common misconceptions about this business valuation approach. This discussion will present the most important considerations that analysts, clients, and clients' professional advisers need to know with regard to the asset-based approach valuation of closely held companies, professional practices, and business securities.

As will be discussed below, the proper application of this business valuation approach requires a slightly different set of skills than does the application of the income approach or the market approach. Not all analysts have the experience or expertise to perform a comprehensive asset-based approach business valuation analysis.

It is also true that the completion of the asset-based approach often requires more analyst time and associated cost than other business valuation approaches. That additional analyst time typically translates into additional professional fees charged to the client. Therefore, clients often discourage the use of the asset-based approach when they come to learn of both (1) the additional elapsed time and (2) the additional costs associated with this particular valuation analysis.

Also, the successful performance of this valuation approach often requires more data from—and more involvement by—the subject closely held company executives. Again, when these additional commitments are understood, many clients may discourage the use of the asset-based approach.

In many dispute-related business valuation assignments, the analyst may not be granted sufficient access to the closely held company facilities or to the closely held company executives in order to practically implement this valuation approach.

In addition, particularly in a retrospective assignment, the subject company data that the analyst needs—and the subject company personnel that the analyst needs access to—are simply no longer available. In many of these controversy-related contexts, it may simply be impractical for

the analyst to perform some asset-based approach valuation methods.

This first discussion in this three-part series of *Insights* discussions relates to the application of the asset-based business valuation approach within a transaction, taxation, or controversy context. This *Insights* discussion describes the theory of—and the general application of—the asset-based approach.

The second discussion in this three-part series of *Insights* discussions describes and illustrates a common asset-based approach valuation method—the asset accumulation ("AA") method. The AA method involves the identification and valuation of each individual category of the company assets (both tangible and intangible).

And, the final discussion in this three-part series of *Insights* discussion describes and illustrates the adjusted net asset value ("ANAV") method. The ANAV method involves a single aggregate allocation of all of the company's total collective assets.

Theory of the Asset-Based Approach

The asset-based approach is sometimes called the asset approach to business valuation. Either name for this approach is generally accepted among valuation analysts and in the valuation literature.

The asset-based approach encompasses a set of methods that value the company by reference to its balance sheet. In contrast, income approach and market approach valuation methods primarily focus on the company's income statement and/or cash flow statement.

One of the very first procedures in any closely held business valuation is to define the business ownership interest subject to valuation. That is, the assignment should specify whether the valuation intended to conclude a defined value for the subject company:

1. total assets,
2. total long-term interest-bearing debt and total owners' equity,
3. total owners' equity, or
4. one particular class of owners' equity.

Each of the above descriptions is a valid objective of a business valuation. And, each conclusion is often referred to as a "business value." Yet, each of these business value conclusions will be quantitatively different for the same company. And, each of these business value conclusions will be perfectly appropriate in the right circumstance—usually based on the actual or hypothetical transaction that is being analyzed.

For example, knowing the company's total asset value is necessary in an acquisition structured as an asset purchase (instead of as a stock purchase). The company's total invested value ("TIC")—often called the market value of invested capital (or "MVIC")—is the value of all long-term debt plus all classes of owners' equity. Knowing the value of the TIC is important in a deal structure where the buyer will acquire all the company's equity and assume all of the company's debt.

Knowing the value of the total owners' equity is important when only the company's equity securities (say all common stock and all preferred stock) are at issue in the transaction.

And, knowing the value of one particular class of equity only (say only the company's common stock) is important when only that class of security is the subject of the proposed transaction.

In any event, the asset-based approach is based on the principle that the value of the subject company is equal to:

the value of the subject company's total assets
minus
the value of the subject company's total liabilities

If properly applied, this valuation formula can be used to indicate the value of any of the valuation objectives listed above. There are two particularly important words in the asset-based approach valuation formula defined above:

1. Value
2. Total

First, the asset-based approach is based on the value of (and not the recorded balance of) all of the assets and all of the liabilities of the subject company. The standard of value in the analysis has to be defined. And, the valuation date of the analysis has to be defined. The standard of value is determined by the assignment.

Common standards of value for various business valuation purposes include fair market value and fair value. Other common standards of value include the following

- Investment value
- Owner value
- Use value

"In the information age, . . . intangible asset categories often represent the major sources of value for any subject business entity."

- User value

Whatever the assignment-specific standard of value is, the value conclusion is likely going to be different from the recorded account balances presented on the subject company's balance sheet. Those balance-sheet-recorded account balances are probably presented in compliance with GAAP, which typically includes a combination of historical cost-based measures and GAAP-based fair value measures.

Second, the asset-based approach is also based on the total of all of the subject company's assets and liabilities. GAAP-based balance sheets typically exclude major categories of company assets and company liabilities. For example, GAAP-based balance sheets do not record most internally created intangible assets.

In the information age, such intangible asset categories often represent the major sources of value for any subject business entity. This statement is obvious for technology-related entities. However, this statement is also true for most companies.

Under U.S. GAAP, the values of an entity's internally created employee relationships, supplier relationships, customer relationships, and goodwill are not recorded on the entity's balance sheet. Likewise, the value of the entity's contingent liabilities are not recorded under U.S. GAAP. Therefore, employee lawsuits, environmental claims, unresolved income tax audits, and other claims against the company are typically not recorded on the entity's balance sheet.

Unlike the company's GAAP-based balance sheet, the asset-based approach value-based balance sheet recognizes the current value of:

1. all of the company's assets (tangible and intangible) and
2. all of the company's liabilities (recorded and contingent).

To conclude the assignment—defined value for the company's assets and liabilities (whether individually or collectively)—the analyst applies generally accepted asset (and liability) valuation methods.

These valuation methods are categorized into the three categories of generally accepted property valuation approaches: the income approach, the market approach, and the cost approach.

When to Apply the Asset-Based Approach

First, it is noteworthy that, under most business valuation professional standards, the analyst should consider the application of generally accepted valuation approaches. Accordingly, the relevant analyst question is not: when should I perform the asset-based approach? Rather, the relevant analyst question should be: when can I not perform the asset-based approach?

That is, as a general principle, the asset-based approach should at least be considered (if not completed) in every business valuation assignment. The reasons why an asset-based approach analysis is not performed should be described in the business valuation report. And, these reasons should be substantive and not perfunctory. In other words, the statement that "the subject company is an operating company" may not be a sufficient explanation.

Second, the analyst's selection of the applicable valuation approach is a function of four primary factors:

1. The type of subject company
2. The type of subject business interest
3. The type of subject transaction
4. The availability of necessary data

Many clients (and their counsel and other professional advisers) believe that the asset-based approach is only applicable to so-called asset-intensive companies. This statement is technically correct. However, this conclusion ignores the reality that virtually every company is an asset-intensive company.

The fact is that the asset-based approach is applicable to tangible-asset-intensive companies and to intangible-asset-intensive companies.

Virtually all companies are either tangible-asset-intensive or intangible-asset-intensive (or a combination of both asset types). Therefore, at least for analysts who are qualified to perform intangible asset valuations, the asset-based approach is applicable to most types of companies.

Many clients (and their counsel and other professional advisors) also believe that the asset-based approach is only applicable to so-called asset holding (or investment management) companies.

Rather, this valuation approach is applicable to any company that owns assets. Therefore, the asset-based approach may apply in the valuation of asset holding companies, and the asset-based approach may apply in the valuation of asset operating companies. And, just about every company falls into one (or both) of these two descriptive categories.

In other words, at least for analysts who are qualified to perform asset valuations on a going-concern premise of value basis, the asset-based approach is applicable to the valuation of most types of closely held companies or professional practices.

The type of valuation subject interest may influence the selection of the valuation approach. This is because the asset-based approach (without adjustment) concludes a controlling, marketable ownership interest level of value. Therefore, asset-based approach is particularly applicable to the valuation of an overall business enterprise—a valuation objective that often relates to a business purchase or sale transaction.

Alternatively, the asset-based business valuation approach is not particularly applicable to the valuation of a nonmarketable, noncontrolling block of nonvoting common stock—a valuation objective that often relates to (say) a tax planning, compliance, or controversy assignment.

As the previous paragraphs imply, the type of the subject transaction (or the type of the subject assignment) influences the selection of the valuation approach.

An overall business valuation is well-served by the asset-based valuation approach. That is, this valuation approach is particularly applicable to a company merger and acquisition analysis, a stock exchange ratio analysis, a fairness opinion, a solvency opinion, or to the analysis of any other transaction involving the overall business enterprise.

It is noteworthy that the asset-based approach is particularly applicable to the analysis of a company acquisition that is structured as an asset purchase transaction (as compared to a stock purchase transaction). This is because the deal price is directly related to the value of the subject company tangible assets and intangible assets.

The asset-based approach is also applicable to the analysis of any transaction that is structured as a taxable transaction (as compared to a nontaxable transaction tax structure). This is because the transaction deal price will depend on the prospective depreciation and amortization expense and income tax rates associated with the revalued tax basis of the transferred assets.

The asset-based valuation approach is particularly applicable to analyses performed for asset-based secured financing purposes. In such an instance, different creditors could have different claims on different asset classes. And, this valuation approach is particularly applicable for various taxation-related assignments, such as a closely held company conversion from C corporation tax status to S corporation tax status.

Finally, the quantity and quality of available data affects the analyst's selection of a business valuation approach. For example, the fact that there are no sufficiently comparable publicly traded companies in the subject industry sector affects the analyst's ability to use the market approach guideline publicly traded company method.

The fact that there are no sufficiently comparable merger and acquisition transactions in the subject industry sector affects the analyst's ability to use the market approach precedent transaction method.

Likewise, the fact that there is no prospective financial information in existence at the subject company affects the analyst's ability to use the income approach discounted cash flow method.

If the analyst has no access to company asset-specific information (e.g., no available information regarding the company's individual tangible assets or intangible assets), this fact will affect the analyst's ability to use the asset-based approach AA method.

If the analyst is working for the outside party in a transaction or in a litigation proceeding, this fact may affect the analyst's ability to obtain sufficient data (or sufficient asset access) to use the AA method. And, if the valuation is retrospective—and all of the company's tangible and intangible assets have materially changed since the valuation date—this fact may affect the analyst's ability to use the AA method.

Nonetheless, the above-mentioned data limitations primarily relate to the AA method. Asset-specific data limitations, asset access limitations, and retrospective valuation dates are less important in the application of the ANAV method (than they are to the application of the AA method).

Therefore, these issues may affect the analyst's selection of which asset-based approach valuation method to apply. But, these issues do not necessarily eliminate the application of all asset-based approach considerations.

Finally, the most relevant reasons why analysts do not apply the asset-based valuation approach in law-related engagements are as follows:

1. There are additional costs and time requirements associated with this approach.
2. The audience for the valuation (including company board of directors, legal counsel, and the judicial finder of fact) may not be particularly familiar with asset-based valuation analyses.

The Asset-Based Approach Is Not the Cost Approach

The asset-based approach is a generally accepted business valuation approach. The cost approach is a generally accepted property valuation approach. This is a very important distinction.

The objective of the asset-based approach is to estimate a business equity (or total net asset) value. The objective of the cost approach is to estimate the value of an individual tangible asset or intangible asset.

In the asset-based approach, the individual asset categories may be valued using the cost approach, the market approach, or the income approach. In the typical asset-based approach analysis, the analyst may expect that all of the property valuation approaches will be used.

Some asset categories will be valued by reference to cost approach methods. Some asset categories will be valued by reference to market approach methods. And, some asset categories will be valued by reference to income approach methods.

In fact, as a general rule, at least one of the subject company's asset categories will be valued by reference to an income approach property valuation method, typically either:

1. a capitalized excess earnings method ("CEEM") or
2. a multiperiod excess earnings method ("MEEM").

In the typical asset-based approach analysis, these income approach property valuation methods are used to conclude whether:

1. there is intangible value in the nature of goodwill for the subject company (i.e., a positive CEEM indication) or
2. there is an economic obsolescence adjustment that needs to be made to the cost approach tangible and intangible asset values (i.e., a negative CEEM indication).

There are several generally accepted cost approach valuation methods. The following cost approach methods can be used to value many tangible asset categories and intangible asset categories:

1. Reproduction cost new less depreciation method
2. Replacement cost new less depreciation
3. Trended historical cost less depreciation method

However, these cost approach methods are not particularly applicable to all tangible and intangible asset categories. Many tangible and intangible assets are more efficiently valued by reference to the market approach. And, in particular, many intangible assets are more efficiently valued by reference to the income approach.

For example, in a business valuation, it is possible to value a company's goodwill by reference to the cost approach (e.g., the capitalization of the lost income opportunity cost during a total asset recreation period). However, in the typical business valuation, it is more common for analysts to value a company's goodwill using the CEEM of the income approach.

In summary, the cost approach can be used to value various categories of company tangible assets (e.g., machinery and equipment) or intangible assets (e.g., a trained and assembled workforce). However, it is practically impossible to value all of the assets of a going-concern company by using the cost approach exclusively. Such an analysis may ignore the income generation capacity of the company, and it may not appropriately encompass either:

1. the company's goodwill (positive capitalized excess earnings) or
2. the company's economic obsolescence (negative capitalized excess earnings).

The asset-based business valuation approach typically incorporates cost approach property valuation methods to value certain tangible and intangible asset categories. However, the asset-based approach also incorporates other property valuation approaches (i.e., the income approach and the market approach) to value certain other tangible and intangible asset categories of the subject company.

Analysts (and clients and counsel and other professional advisers) who confuse the nomenclature or the methodology of the cost approach versus the asset-based approach may not understand either valuation approach.

The Asset-Based Approach Is Not Limited to Asset Holding Companies

The premise of the asset-based approach is that the value of the company's assets minus the value of the company's liabilities equals the value of the company's equity.

This formula doesn't only work for the valuation of holding companies that passively own investment assets. This formula also works for the valuation of operating companies that both own and operate tangible and intangible property.

In practice, the asset-based approach often works as well for operating companies as it does for investment holding companies. The primary differences in the two types of companies are the categories of the individual assets that are included in the valuation analysis.

For example, the illustrative categories of assets and liabilities included in an investment holding company valuation analysis may include the items listed in Exhibit 1.

Exhibit 1
Client Investment Holding Company
Illustrative Asset and Liability Categories

	Assets
	Cash and money market instruments
	Publicly traded stocks and bonds
	Oil and gas exploration/production interests
	Land and land improvements
	Options and other derivative securities
	Interests in private entities
Less:	Liabilities
	Accounts payable and taxes payable
	Mortgages payable
	Notes payable
Equals:	Net asset value

An alternative example applies the same asset-based approach valuation formula to an operating company. Illustrative operating company categories of assets and liabilities may include the items listed in Exhibit 2 on the following page.

All assets can be valued using the generally accepted property valuation approaches and methods. This statement is equally true for tangible assets and for intangible assets. And, this statement is equally true for investment assets and for operating assets.

When an analyst asserts that the asset-based approach is only applicable to investment holding companies, often the assertion should really be: "I only know how to apply the asset-based approach to investment holding companies; I really don't know how to value operating tangible and intangible assets."

The more correct analyst assertion may be: "The asset-based approach is ideally suited to the valuation of investment holding companies; however, the asset-based approach is also applicable to the valuation of operating companies."

Exhibit 2
Client Operating Company
Illustrative Asset and Liability Categories

	Assets
	Cash, receivables, and inventory
	Land and buildings
	Machinery and equipment
	Trademarks and trade names
	Trained and assembled workforce
	Current customer (contract) relationships
	Goodwill
Less:	Liabilities
	Accounts payable and accrued expenses
	Taxes payable
	Bonds, notes, and mortgages payable
	Contingent liabilities
Equals:	Net asset value

The Asset-Based Approach Does Not Conclude a Liquidation Value

Many analysts (and clients and counsel) believe that the application of the asset-based approach concludes a liquidation value (that is, not a going-concern value) for the subject company. These analysts (and clients and counsel) maintain this (erroneous) belief whether the asset-based approach is applied to an investment holding company or to an operating entity.

These analysts (correctly) believe that the asset-based approach is based on a defined value for the subject assets. And, the defined value (whatever standard of value applies) is usually based on the expected sale price of the subject asset between some defined parties.

However, these analysts (incorrectly) assume that any sale of any asset is a liquidation transaction that yields a liquidation value. This analyst belief is simply misplaced.

Let's use the fair market value ("FMV") standard of value as an example. An FMV transaction occurs between a hypothetical willing buyer and a hypothetical willing seller. Presumably, the asset buyer is always willing to enter into the subject FMV transaction.

If the asset seller decides to sell the subject asset by the end of the week (say, because a loan payment is coming due), that transaction may result in a liquidation value. Even if the seller exposes the subject asset for sale during a normal market exposure period—if the buyer will not continue to operate the asset in a going-concern business—that asset sale transaction may result in a liquidation value.

Now, let's extend the example to assume that the seller has been operating the subject asset as part of a going-concern company. Let's assume that the seller exposes the asset for sale during a normal market exposure period. The buyer acquires the subject asset and then uses the acquired asset as part of the buyer's going-concern company. Certainly, even the above-mentioned analysts would recognize these asset sale transaction-based FMV indications as going-concern value (and not liquidation value) indications.

In addition to individual operating assets being sold from one going-concern seller to one going-concern buyer, going-concern companies themselves are often bought and sold. The purchase price allocation of that company sale price will indicate the going-concern value of the acquired assets. These overall company transaction-based FMV indications obviously conclude going-concern value (not liquidation value) conclusions.

In summary, it is true that the asset-based approach may conclude a liquidation value for the subject company if all of the individual asset values were concluded on a liquidation premise of value basis.

Likewise, it is also true that the asset-based approach will conclude a going-concern value for the subject company if all of the individual tangible asset and intangible asset values were concluded on a going-concern premise of value basis.

Valuation of Liabilities in the Asset-Based Approach

Most analysts (and clients and counsel) focus on the valuation of the company assets during the application of any asset-based approach valuation method. However, the valuation of the company liabilities can also be an important procedure in this valuation approach.

The first procedure in the liability valuation is to understand the appropriate standard of value

objective and the subject assignment purpose. That is, the analyst may conclude a different value for the same liability if the standard of value is fair value versus fair market value versus investment value versus some other standard of value.

For example, if the valuation purpose is a solvency analysis prepared within a bankruptcy context, then the analyst will typically consider the recorded balances in the company liability accounts. After all, those are the liability amounts that the creditors can claim in a bankruptcy proceeding. And, one objective of the bankruptcy solvency analysis is to determine if the value of the debtor company assets (based on a fair valuation amount) exceeds the amount of the debtor company liabilities (based on a recorded amount).

Outside of a bankruptcy solvency analysis, however, the analyst may be more concerned with the current value of the company liabilities than with the recorded balance of the company liabilities. Depending on the applicable standard of value, the analyst may be more concerned with an expected trading price for the company's debt instruments.

That is, the analyst may conclude: how much would an investor pay to own, say, the company's note payable? Or, the analyst may conclude: how much would the debtor have to pay to the creditor (i.e., how much would the creditor be willing to receive) to extinguish the company's note payable?

In an analysis of the current value of the subject company liabilities, the analyst typically considers factors such as the following:

1. The debt instrument's term to maturity
2. The entity's historical debt service record
3. The debt instrument's embedded interest rate versus a current market interest rate
4. The debt instrument's liquidation preference
5. Whether the debt instrument is callable (and what are the call triggers)
6. Any security interests related to the debt
7. The company's current credit rating
8. The company's current financial condition
9. The company's budget or financial projections
10. Any prepayment or other penalties related to the debt
11. Any recent trades of guideline debt instruments
12. The subject debt amortization (payment) schedule
13. The existence and timing of any debt balloon payments

So, as one part of the asset-based approach, the analyst may revalue all of the company recorded bond, note, mortgage, and debenture liabilities. This analysis would include the entirety of the company liability accounts, including any long-term debt amounts that are recorded as a current liability for financial accounting purposes.

In addition, the analyst may identify and value all of the company contingent liabilities. Such contingent liabilities do not meet the GAAP requirements to be recorded on the company balance sheet for financial accounting purposes. Nonetheless, such unrecorded liabilities could have a material effect on the value of the subject company's equity.

There are several generally accepted methods that may be used to value contingent liabilities. Often, the analyst attempts to estimate the net present value ("NPV") of the expected future cash payments associated with extinguishing that liability. That NPV analysis considers the expected amounts of—and the expected timing of—the future cash payments.

Such an NPV analysis typically considers the probabilities associated with the company future contingent liability payments. This consideration may be quantified either through scenario analysis or through a risk-adjusted present value discount rate.

Such contingent liabilities may include the following types of claims against the subject company:

1. Tax audit or other taxation-related disputes
2. Employee-related disputes
3. Environmental claims and other clean-up issues
4. Tort (such as infringement) litigation claims
5. Breach of contract litigation claims

Unlike liabilities that are recorded on the company balance sheet, there is no single data source for the analyst to identify off-balance-sheet contingent liabilities. If such interviews are available, the analyst may interview the company management and legal counsel.

In addition, analysts often review board of directors meeting minutes, company management committee meetings records and documents, and company financial plans and forecasts in order to identify possible contingent liabilities.

Treatment of Income Taxes in the Asset-Based Approach

There is a diversity of practice with regard to the treatment of income taxes in the asset-based approach analysis. The issue is this: The asset-based approach assumes the sale (not a liquidation sale, but a going-concern transfer) of the company assets. Such an asset sale would normally be a taxable event.

In an actual sale transaction, the asset seller would be responsible for income taxes related to any gain on the sale. And, that gain on the sale would be calculated as (1) asset sale price (based on the concluded asset value) minus (2) the asset tax basis.

For many of the intangible assets included in the valuation analysis, the tax basis for such assets is often zero.

Most analysts implement one of three alternative procedures with regard to the treatment of income taxes in the asset-based approach:

1. Ignore all income tax consequences related to the revaluation of the company assets
2. Calculate the expected income tax liability associated with the asset revaluation and recognize that specific liability on the revalued balance sheet
3. Calculate a deferred income tax liability account based on the present value of the expected future income tax payments

The use of the first procedure is often justified by several explanations.

Some analysts may say that they often do not have the data they need to calculate the exact income tax liability related to the asset revaluation.

Some analysts may also say that they are not income tax accounting experts, and they do not have the expertise to calculate the implied income tax liability.

And, some analysts may say that the company assets will not actually be sold and the income tax payment will not actually be made. The company asset revaluation is just a hypothetical transaction that is part of a theoretical valuation exercise.

The use of the second procedure is often justified by several explanations.

These analysts recognize that they may need data from company management or technical assistance from the company (or other) accountants. However, these analysts recognize that the hypothetical asset revaluation in the asset-based approach will not be tax-free to the hypothetical transaction participants.

That is, if the company assets are hypothetically sold by the asset seller, then that asset seller will incur a corresponding hypothetical income tax liability. And, these analysts conclude that if the asset revaluation occurs on the valuation date, then the corresponding tax liability should be recognized on the valuation date.

The use of the third procedure is also justified by several explanations.

These analysts recognize that there is a built-in capital gain associated with the asset-based approach revaluation of the company assets. This built-in capital gain is analogous to the built-in gain ("BIG") valuation discount that is often associated with stock valuations prepared for federal gift, estate, and generation-skipping transfer tax purposes.

These analysts recognize that an actual asset revaluation (that would occur in, for example, post-bankruptcy fresh start accounting) would result in a deferred federal income tax liability being recorded on a GAAP balance sheet.

And, these analysts recognize that there is some uncertainty as to:

1. how much income tax will ultimately be paid (i.e., what the company's effective income tax rate will be) and
2. when the income tax liability will ultimately be paid (i.e., when the asset would actually be sold in real life).

Since there is a divergence of analyst practice regarding the treatment of income taxes in the asset-based approach, this discussion does not recommend a right or wrong procedure. However, this discussion does recommend that each analyst make a conscious decision as to which income tax liability convention to implement.

And, the analyst should document the rationale for this decision in the valuation work paper file. In the asset-based approach analysis, the default decision (to ignore income taxes) has a direct impact on the valuation analysis and on the net asset value conclusion.

Why the Asset-Based Approach Is Not More Commonly Used

For most types of closely held companies—and for most business valuation assignments—the asset-

based approach is the less commonly applied valuation approach. That is, in most engagements performed for legal, transaction, or taxation purposes, analysts more commonly gravitate to the income approach and the market approach.

That said, the asset-based approach is still a generally accepted business valuation approach. And, both the professional literature and the professional standards guide analysts to consider applying the asset-based approach in a business valuation analysis.

Although particularly applicable for many closely held business, professional practice, and security valuation assignments, the asset-based approach is less commonly applied for the following reasons:

1. Analysts need more data to perform this approach than they may otherwise need to perform other valuation approaches.
2. This valuation approach is more client-intrusive than other valuation approaches.
3. This approach typically takes more analyst time to complete than other valuation approaches.
4. Due to the increased analyst time required, this approach typically costs more to complete (in terms of client fees) than other valuation approaches.
5. This approach requires the analyst to demonstrate expertise in the valuation of both assets and liabilities.
6. This approach requires the analyst to identify and value both tangible assets and intangible assets.
7. This approach requires the analyst to identify and value both recorded liabilities and contingent liabilities.
8. This approach requires the analyst to demonstrate some expertise with regard to both financial accounting matters and income tax accounting matters.
9. Compared to other valuation approaches, the application of this approach typically requires a much more comprehensive discussion in the written or oral valuation report.
10. This approach is less well known to (and less understood by) lenders, potential transaction participants, lawyers, and judicial finders of fact.

The above-stated observations should not invalidate the use of the asset-based approach. And, these observations should not discourage the analyst from performing the asset-based approach.

However, analysts should be aware of these considerations when performing the asset-based approach analysis, reaching the value conclusion, and preparing the business valuation report.

The Asset-Based Approach and the Valuation Synthesis and Conclusion

In valuations performed for transaction, taxation, controversy, or many other purposes, analysts should consider asset-based approach value indications—along with income approach and market approach value indications.

It is unlikely (but possible) that the analyst will rely solely on the asset-based approach value indication. Likewise, it is unlikely (but possible) that the analyst will rely solely on the income approach or market approach value indications.

As with any other business valuation synthesis and conclusion, the analyst may assign either a quantitative weighting or a qualitative ranking to each value indication.

The analyst may assign either this explicit weighting or implicit weighting to the asset-based approach value indication based on:

1. the quantity and quality of available data for this approach,
2. the degree to which market participants consider this approach in the subject industry transactions,
3. the degree of confidence the analyst has in the analyses performed,
4. the degree of confidence the analyst has in the value conclusions reached, and
5. the amount of due diligence the analyst was able to perform with regard to the application of this approach.

Ideally, the asset-based approach value indications will reconcile reasonably well with other value indications. When there are differences in value indications between approaches, these value differences should be explainable.

If there are material differences between value indications, the analyst may have to perform additional due diligence with regard to all of the business valuation analyses.

If the asset-based approach value is materially lower than other value indications, that may indicate one or more of the following:

1. The company owns additional intangible assets that were not included in the valuation.
2. One of the intangible assets—such as goodwill—could be undervalued.
3. One or more of the company liabilities could be overvalued.

If the asset-based approach value is materially greater than other value indications, it may indicate one or more of the following:

1. There is unrecognized economic obsolescence that should be considered in both the tangible asset and the intangible asset valuations.
2. One or more intangible assets may be overvalued (potentially due to the double counting of intangible asset value).
3. The values of the company liabilities (particularly contingent liabilities) could be understated.

The analyst's additional due diligence procedures should be able to identify and correct any of these situations.

Summary

The asset-based approach is a generally accepted business valuation approach. The asset-based approach to business valuation should not be confused with the cost approach to property valuation.

The cost approach is a generally accepted approach to value individual tangible assets and intangible assets. In the application of the asset-based approach, analysts often use the cost approach to value certain categories of the company tangible assets or intangible assets.

The asset-based approach is based on the following relationship:

the value of the total company assets
(both tangible and intangible)

minus

the value of the total company liabilities
(both recorded and contingent)

equals

the value of the total company equity

Since the values of the company tangible assets and intangible assets are typically estimated based on a value in continued use premise of value, the asset-based approach normally concludes a going-concern value for the subject company. However, with numerous specific adjustments, the asset-based approach value may be adjusted to conclude a liquidation value for the subject company.

Normally, the asset-based approach will conclude a controlling, marketable ownership interest level of value for the company equity. If the subject assignment calls for a noncontrolling, nonmarketable ownership interest level of value, then the analyst may have to consider a discount for lack of control and a discount for lack of marketability to the unadjusted value indication.

There are several generally accepted asset-based approach business valuation methods. The most common methods within this approach are the AA method and the ANAV method.

Both of these methods are intended to conclude the value of all of the owned and all of the operated assets of the company. Therefore, while this valuation approach is applicable to the valuation of an asset holding company, it is also applicable to the valuation of an operating company.

The conduct of the asset-based approach may require additional data, additional client disruption, and additional analyst time and associated cost—compared to other business valuation approaches. There are numerous instances when the asset-based approach is perfectly applicable to the business, practice, or security valuation engagement.

Relevant valuation professional literature and valuation professional standards guide the analyst to consider the asset-based approach in every business valuation.

Accordingly, the analyst should conclude and document the reasons for performing—or for not performing—the asset-based approach in each business valuation analysis.

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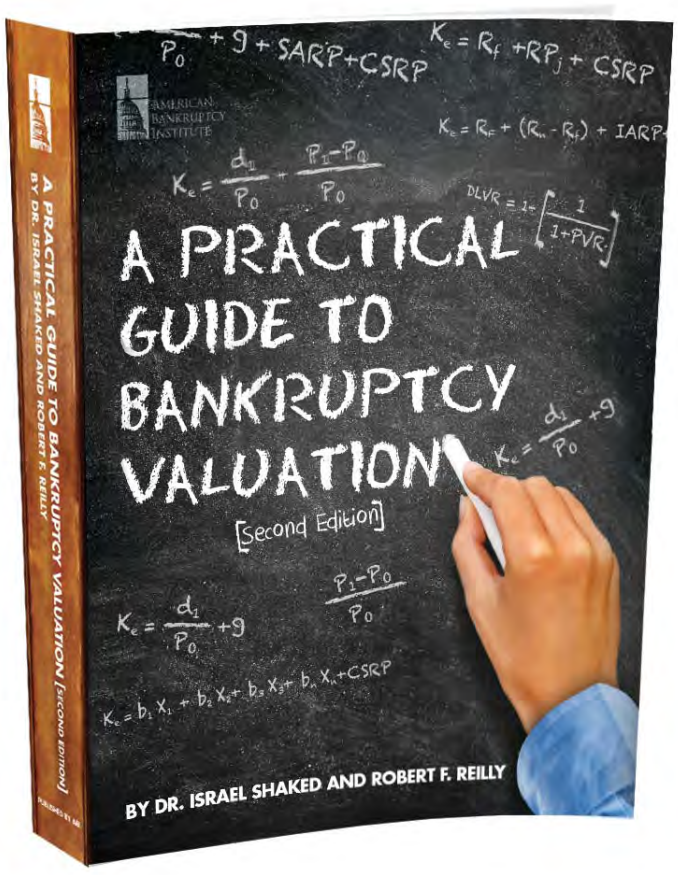

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A PRACTICAL GUIDE TO BANKRUPTCY VALUATION

Dr. Israel Shaked and Robert F. Reilly

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The Asset-Based Approach—The Asset Accumulation Method

Nathan P. Novak and Robert F. Reilly, CPA

Valuation analysts ("analysts") are often called on to value closely held businesses, business ownership interests, and securities for a variety of client reasons. The engagements could involve transaction, taxation, financing, controversy, planning, and other reasons. Such analysts often immediately disregard the asset-based approach as a viable analytical approach to value the subject closely held company. However, the asset-based approach is a generally accepted business valuation approach that deserves consideration either as a primary—or as a confirmatory—valuation analysis. Two of the common asset-based approach valuation methods include (1) the asset accumulation method and (2) the adjusted net asset value method. This discussion describes and illustrates the application of the asset accumulation method.

Introduction

The previous discussion in this three-part series of *Insights* discussions introduced the theoretical concepts and the practical applications of the asset-based approach to business valuation.

This *Insights* discussion describes and illustrates one common asset-based approach valuation method: the asset accumulation ("AA") method.

The third discussion in this three-part *Insights* series describes and illustrates the other common asset-based approach valuation method: the adjusted net asset value ("ANAV") method.

The AA method and the ANAV method are both generally accepted business valuation methods of the asset-based approach.

In addition to the income approach and the market approach, the asset-based approach is a generally accepted business valuation approach. And, in addition to the income approach and the market approach, the asset-based approach should be considered in the valuation of closely held businesses, business ownership interests, and securities performed for transaction, taxation, litigation, financial accounting, financing, bankruptcy, or planning purposes.

The Asset-Accumulation Method

The AA method is well suited for business and security valuations performed for transaction, taxation, and controversy purposes. All business valuation approaches and methods can indicate the defined value of the subject business entity.

In addition, the AA method also helps to explain the concluded value—by specifically identifying the value impact of each category of the subject entity assets and liabilities.

This informational content of the AA method is particularly useful in a transaction, taxation, or controversy context when the particular analysis is used to identify:

1. which asset categories are contributing how much value to the total entity value;
2. which asset accounts serve as the collateral for each secured creditor;
3. which asset accounts are available to serve as collateral for future secured financing;
4. which asset accounts are available to be sold off from the business entity core operations;

5. which asset accounts are available to enter into either a lease or a license transaction;
6. what would be the asset revaluation-related income tax consequences of alternative transaction structures for the sale of the subject entity;
7. what the opening balance sheet would look like to the acquirer after the sale of the subject entity;
8. what the value of the subject entity would be under various premise of value scenarios, such as a going-concern valuation versus an orderly liquidation valuation;
9. what are the values of the individual asset categories contributed by individual investors in the formation of a joint venture or LLP or LLC; and
10. what was the amount of damages suffered by the individual asset categories of an entity that experienced a tort, a breach of contract, or some other damages event.

In particular, the AA method is well suited for business and security valuations performed for litigation and other controversy purposes.

The AA method is also well suited for business valuations performed for transaction pricing and structuring, financing securitization and collateralization, fair value accounting and financial reporting, taxation planning and compliance, and forensic (including economic damages) analysis purposes.

Asset Accumulation Method Procedures

Procedurally, the AA method may be the most difficult business valuation method to perform. However, conceptually, the AA method may be the most intuitive business valuation method to understand.

The first procedure in the AA method is the identification of all of the entity's asset and liability categories. Typically, this procedure starts with the entity's financial accounting balance sheet.

Some analysts prefer to start this valuation procedure with an audited balance sheet. However, this analyst preference is not a requirement to perform the AA method.

All of the entity's asset and liability accounts are subject to revaluation to the valuation assignment standard of value. Therefore, it is not particularly important if the analyst starts with an audited, reviewed, compiled, or internally prepared balance sheet.

Likewise, it is not particularly important whether the balance sheet is prepared in compliance with U.S. GAAP or international GAAP. Again, the reported asset and liability accounts are going to be restated to the intended standard of value.

It is helpful for the analyst to start with a balance sheet prepared as close as possible to the assignment valuation date. However, this is a convenience and not a requirement. Sometimes, the analyst will simply not have an entity balance sheet available at the beginning of the AA method analysis.

In that case, the analyst has to start with a blank page and independently identify all of the asset categories and liability categories associated with the subject entity.

In this first procedure, the analyst identifies all of the entity's assets. This process includes all of the assets that are already recorded on the entity's balance sheet. And, this process includes all of the assets that are owned and operated by the entity—but that are not recorded on the entity's balance sheet.

In particular, most internally created intangible assets will not be recorded on the entity's balance sheet. Therefore, the analyst will have to identify and capitalize (which simply means record) these off-balance sheet intangible assets on the revalued entity balance sheet.

Also in this first procedure, the analyst identifies all of the entity's liabilities. This process includes all of the liabilities that are already recorded on the entity's balance sheet.

And this process includes all of the liabilities that are either (1) not typically recorded on a balance sheet or (2) created as part of the hypothetical sale transaction.

For example, contingent liabilities are not typically recorded on a balance sheet but would be considered in an AA method valuation analysis. Also, income taxes related to the hypothetical asset sale and expenses related to the hypothetical entity sale transaction are examples of liabilities that would be created in the valuation process.

The second procedure in the AA method is to value all of the identified asset and liability accounts. The analyst will restate all of the recorded asset and liability accounts to the assignment standard of value. And the analyst will record all of the previously unrecorded assets and liabilities at the assignment standard of value.

The analyst will consider all of the generally accepted property valuation approaches in this

procedure. That is, this analysis will include consideration of all cost approach, market approach, and income approach property valuation methods.

In particular, the analyst will ensure that the individual asset and liability accounts are restated to the same standard of value—and to the same premise of value—as was intended for the overall business valuation assignment.

The third procedure in the method is the mathematical subtraction of the total liabilities value from the total asset value. This subtraction indicates the value of the entity's total equity.

Of course, this value indication can be adjusted:

1. to conclude the value of the entity's invested capital (i.e., long-term debt plus total equity) or
2. to conclude the value of one class of the entity's equity (e.g., the entity's voting common stock).

And, the analyst should be aware that the AA method value conclusion is typically stated as a marketable, controlling ownership interest level of value. To the extent that another level of value is appropriate for the subject business valuation assignment (e.g., a nonmarketable, noncontrolling level of value), then the analyst will assess appropriate valuation adjustments.

The remainder of this discussion focuses on the identification and valuation of an entity's individual asset and liability accounts.

Current Asset Accounts

Current asset accounts typically include cash, marketable securities, prepaid expenses, accounts receivable, materials and supplies, and inventory.

First, the analyst performs whatever due diligence procedures that may be necessary to confirm the existence of these current asset accounts.

Second, the analyst restates the asset account balances to a current value as of the assignment valuation date.

For most current asset accounts, the account value does not change materially under alternative standards of value. And for many valuation analyses, the analyst often applies a simplifying assumption: that the recorded current asset account balance is representative of the intended standard of value account balance.

Sometimes, if there are material amounts of accounts receivable or inventory balances, then the analyst may revalue these accounts. When valuing the accounts receivable balance, the analyst may create a contra-asset account (similar to a reserve for uncollectible accounts) to conclude the current value of this asset. In quantifying this reserve (or reduction) account, the analyst will consider the following:

1. The age of the subject receivables
2. The collectability of the subject receivables

The analyst may restate the historical cost of the entity's inventory account to a current value as of the valuation date. The current inventory value is often reflected by a replacement cost estimation or a FIFO inventory accounting convention for the subject asset.

In addition to estimating the replacement cost for the subject inventory, the analyst may consider appropriate contra-asset valuation reserves for inventory shrinkage or inventory obsolescence.

Real Estate and Tangible Personal Property

This category of assets includes two principal subcategories:

1. Real estate
2. Tangible personal property

Real estate typically includes land, land improvements, buildings, and building improvements. Tangible personal property ("TPP") includes productive machinery and equipment, tools and dies, computer and office equipment, furniture and fixtures, and vehicles and transportation equipment.

Depending on the age of these assets, there may be a material difference between the historical cost basis asset balances recorded on the entity's balance sheet and the asset current values as of the assignment valuation date.

And depending on the experience and expertise of the analyst, the analyst may:

1. perform the asset revaluation or
2. rely on property appraisals performed by third-party specialists.

In either case, the value of land and land improvements is often based on the market approach and the sales comparison method. The value of the buildings and building improvements is often based on the cost approach and the replacement cost new less depreciation ("RCNLD") method.

Buildings and building improvements may also be valued by reference to the market approach if sales of sufficiently comparable properties are available. However, the use of the cost approach is somewhat more common when applying the AA method—particularly if the value in continued use premise of value is appropriate.

The value of the machinery, equipment, and other TPP is typically based on the cost approach and the RCNLD method. The analyst may test the replacement cost new ("RCN") indications by analyzing recent purchases of sufficiently comparable new equipment items.

It is unlikely that the analyst will be able to identify sales of sufficiently comparable portfolios of operating assets. For this reason, the market approach is not often used to value TPP in the AA method analysis.

It is also uncommon for the analyst to be able to associate a specific income stream with the TPP. For that reason, the income approach is not often used to value TPP in the AA method analysis.

Most of the owned real estate and TPP will be recorded on the entity's balance sheet. Accordingly, the analysis of this asset category is primarily a valuation analysis instead of an identification analysis.

The analyst may investigate whether the entity operates leased TPP in addition to owned TPP. Such leases may be accounted for as operating leases under GAAP. However, for AA method valuation purposes, the analyst may consider capitalizing the value of the entity's leasehold interest in the equipment.

Throughout the valuation analysis of this asset category, the analyst should be mindful to apply a consistent standard of value and a consistent premise of value. And, of course, the asset valuation standard of value and premise of value should be consistent with the standard and premise that is appropriate for the overall subject valuation assignment.

Intangible Real Property and Intangible Personal Property

The intangible real property ("IRP") category includes the following types of assets:

1. Real property leases
2. Easements and rights of way
3. Air rights, water rights, surface use rights
4. Mineral, mining, and extraction rights
5. Building permits and development licenses

Each of these groups of IRP can be valued by using various cost approach, market approach, or income approach property valuation methods.

The intangible personal property ("IPP") category includes the following types of assets:

1. Customer-related intangible assets (e.g., customer contracts, customer relationships)
2. Contract-related intangible assets (e.g., licenses and permits, supplier contracts)
3. Employee-related intangible assets (e.g., employment agreements, assembled workforce)
4. Data-processing-related intangible assets (e.g., computer software, automated databases)
5. Engineering-related intangible assets (e.g., engineering drawings, product formulations)
6. Intellectual property intangible assets (e.g., patents, copyrights, trademarks)

Each of these examples of IPP can be valued by using various cost approach, market approach, or income approach property valuation methods.

The effort in this part of the analysis is as much about asset identification as it is about asset valuation. Most categories of IRP and IPP are not reported on the entity's balance sheet. Typically, internally created intangible assets are not recorded on an entity's balance sheet.

Therefore, the analyst first has to identify all of the intangible assets that are owned by the entity. Then, the analyst has to value each of the identified categories of IRP and IPP.

And, the analyst has to consider that the right to use an intangible asset is itself an intangible asset. For example, if a corporate subsidiary has the right to use the parent company's trademark or computer software or patents, then that subsidiary owns an intangible asset (i.e., the right to use the parent's intangible asset).

It is common for the analyst to apply different valuation methods to value different categories of intangible assets.

For example, computer software, engineering drawings, and the assembled workforce are often valued using the cost approach and the RCNLD method.

Trademarks, patents, and copyrights are often valued using the market approach and the relief from royalty ("RFR") method.

And, customer relationships, proprietary product formula, and licenses and permits are often valued using the income approach and the multiperiod excess earnings method ("MEEM").

Because it is common to use multiple valuation methods, the analyst should be careful not to overvalue the intangible asset values. That is, the analyst should be careful not to assign the same value increment to more than one intangible asset category. Likewise, the analyst should be careful to value all of the entity's intangible asset categories—and not let any value increment "fall through the crack."

In the typical AA method analysis, the analyst will use one or more income approach methods to value some of the entity's intangible assets. Most income approach methods include some type of contributory asset charge procedure.

That procedure helps to avoid the double-counting of intangible asset values.

Similarly, most income approach methods include some type of residual earnings or excess earnings calculation procedure. That procedure helps to avoid the undercounting of intangible asset values.

Intangible Value in the Nature of Goodwill

This category of assets includes the entity's goodwill and going-concern value. It is relatively easy for the analyst to identify the existence of goodwill. If the entity is a going-concern business, it probably owns goodwill. Both the existence of historical financial statements and the existence of financial projections and forecasts are indicia of goodwill.

It is noteworthy that the existence of goodwill does not indicate the value of goodwill. That is, just because an entity owns goodwill, that doesn't mean that the goodwill has a positive value. An entity's goodwill can have a positive value, a zero value, or a negative value.

Analysts often apply the capitalized excess earnings method ("CEEM") to estimate the value of goodwill in the application of the AA method. The CEEM is particularly applicable in an AA method analysis. This is because the CEEM relies on the values already assigned by the analyst to the entity's (1) current assets, (2) real estate and TPP, and (3) IRP and IPP.

In the CEEM, the analyst assigns a fair rate of return (usually based on the entity's cost of capital) to all of the entity's identifiable assets. This calculation indicates the required earnings. The analyst compares the entity's actual earnings (usually measured at the earnings before interest and taxes level) to the entity's required earnings.

If the actual earnings exceed the required earnings, then the difference (the excess earnings amount) is capitalized as an annuity in perpetuity. This positive annuity value is called goodwill.

If the actual earnings are less than the required earnings, then the difference (the income shortfall) is capitalized as an annuity in perpetuity. This negative annuity value is called economic obsolescence. This economic obsolescence (or negative goodwill value) is used to reduce the values of the entity's other identified assets.

Using this particular CEEM application, the analyst can use the goodwill value (positive or negative) to avoid overcounting or undercounting asset values in the AA method.

Other Assets

The other assets category is principally composed of two groups of assets:

1. Noncurrent financial assets
2. Excess or nonoperating assets

The noncurrent financial assets include such assets as deferred federal income tax ("DFIT") and investments in unconsolidated subsidiaries. The value of the DFIT account may change based on the analyst's revaluation of depreciable tangible assets or amortizable intangible assets. The DFIT account value may also change based on the entity's assumed sale transaction structure.

The value of investments in subsidiaries (or in long-term notes receivable or similar investments) will change if the analyst revalues the underlying subsidiary entity. The analyst may or may not revalue these noncurrent financial assets depending on their materiality compared to the entity.

The excess or nonoperating assets are usually tangible assets that are not being used by the entity. Examples of this asset category include land held for investment purposes, assets of discontinued operations, or assets held for sale.

Regardless of the standard of value and premise of value used in the entity analysis, this asset category is typically valued based on a net realizable value. That value represents the expected selling price of the asset less the expected costs of disposal.

Current Liability Accounts

The entity's current liabilities often include accounts and notes payable, accrued expenses, and income taxes payable. Customer deposits are also recorded

as current liabilities if they are expected to be earned during the next year. This account category also includes the current portion of the entity's long-term debt.

Since these liability accounts are all due in less than one year, there is usually little revaluation involved with the current liability accounts. However, it is common for the analyst to include the current portion of noncurrent liabilities with the long-term debt accounts—and then revalue the entire long-term liabilities balance.

Long-Term Liability Accounts

Long-term liabilities typically include bonds, notes, mortgages, and debentures payable. In the AA method analysis, the long-term liability accounts are easy for the analyst to identify. This is because these liabilities are recorded on the entity's balance sheet.

Depending on the applicable standard of value in the assignment, these liabilities are often restated to the amount at which the liability could be extinguished as of the valuation date.

The analyst may consider various factors in the current value analysis of these long-term liabilities, such as embedded interest rate versus current market interest rate, term to maturity, payment history, prepayment penalties, conversion features, and whether the instrument is callable.

If the current value amounts are materially different from the recorded balances, the analyst will substitute the current values of the long-term liability accounts on the entity's balance sheet.

Contingent Liabilities

Unlike long-term liabilities, contingent liabilities are not recorded on the entity's balance sheet. The existence of contingent liabilities may be disclosed in the footnotes to audited financial statements.

Often, these disclosures tell the analyst where to look. However, these disclosures do not tell the analyst the value of the contingent liabilities. And, often, the valuation date is not the same as the audited financial statement date.

Therefore, the analyst may have to perform a fair amount of due diligence to identify the existence of contingent liabilities. The analyst will often interview operations and financial management (and general counsel), if such executives are made available as part of the valuation process.

While there are many types of contingent liabilities, the analyst may inquire about employee disputes, litigation claims, contract disputes, taxation audits and other issues, and regulatory agency reviews.

The first step related to contingent liabilities is to identify the liability. The second step is to estimate a value for the liability. The analyst can use many different methods to conclude a fair value for these contingencies, including scenario analysis, decision tree analysis, and others.

Ultimately, all of these analyses involve estimating the following:

1. An amount of the liability payment
2. The timing of the liability payment
3. The probability of the liability payment

The present value of the various alternative payout events is an indication of the contingent liability value.

Net Asset Value Conclusion

The net asset value conclusion represents the purely mathematical procedure in the AA method analysis. The analyst has used judgment and applied valuation approaches and methods to estimate the value of all of the entity asset accounts.

And, the analyst has used judgment and applied valuation approaches and methods to estimate the value of all of the entity liability accounts. At this point in the analysis, the analyst only has to subtract the total liability value from the total asset value to conclude the net asset value.

The net asset value is also called the total equity value. It is the total of all of the entity's equity accounts. So, this total would include both common stock and preferred stock. And, this total would include both voting stock and nonvoting stock.

As mentioned above, this total equity indication is typically concluded on a marketable, controlling ownership interest level of value. If the valuation subject is some ownership interest other than 100 percent of the entity equity, then the analyst will have to identify and apply appropriate valuation adjustments.

Such valuation adjustments may include the following:

1. Discount for lack of control
2. Discount for lack of marketability

Presumably, any other entity-level valuation adjustments were already considered in the asset-category valuation analyses. Such entity-level

valuation adjustments may include key person dependence, key customer dependence, key supplier dependence, and so forth.

Illustrative Example

An analyst has been retained to estimate the fair market value of the total equity of Brown Client Company ("Brown") as of December 31, 2016. Let's assume that Brown is a family-owned construction contractor company.

The analyst decided to use the asset-based valuation approach and the AA valuation method.

The Brown GAAP-basis balance sheet for December 31, 2016, is presented on Exhibit 1. All financial data are presented in $000s.

On this GAAP-basis balance sheet, tangible assets are recorded at historical cost less depreciation. In addition, no internally developed intangible assets are recorded on this balance sheet.

The analyst documented the AA method valuation analysis on Exhibit 2.

First, the analyst considered all of the Brown current asset accounts. Based on an analysis of the aged accounts receivable balance, the analyst revalued this account from $4,000 to $3,000.

In addition, the analyst restated the inventory balance from the $5,000 last-in, first-out ("LIFO") accounting convention to a $6,000 current replacement cost value.

Second, the analyst considered all of the Brown real estate and TPP. The analyst used the cost approach and the RCNLD method to value both the real estate and the TPP.

Based on the RCNLD analysis, the analyst estimated the fair market value of the real estate to be $35,000—compared to a historical cost less depreciation ("HCLD") of $30,000. And, based on the RCNLD analysis, the analyst estimated the fair market value of the TPP to be $20,000—compared to an HCLD of $10,000.

Third, the analyst separately valued the Brown unconsolidated ownership interest in its subsidiary, Green Roadbuilders ("Green"). The analyst used the market approach and the guideline publicly traded company ("GPTC") method to value the total equity of Green at $20,000.

Brown owns 40 percent of the Green equity. Accordingly, the analyst valued the Brown ownership interest at $8,000. This $8,000 fair market value estimate represents a value decrement compared to the $10,000 carrying value of this investment.

Exhibit 1
Brown Client Company
Balance Sheet
As of December 31, 2016
in $000s

Assets	
Current Assets:	
Cash	1,000
Accounts Receivable	4,000
Inventory	5,000
Total Current Assets	10,000
Property, Plant, and Equipment:	
Land	10,000
Buildings	20,000
Equipment	30,000
Less: Accumulated Depreciation	(20,000)
Property, Plant, and Equipment, Net	40,000
Other Assets:	
Investments to Subsidiaries	10,000
Total Assets	60,000
Liabilities and Owners' Equity	
Current Liabilities:	
Accounts Payable	4,000
Accrued Expenses	4,000
Total Current Liabilities	8,000
Long-Term Liabilities:	
Notes Payable	12,000
Mortgages Payable	10,000
Total Long-Term Liabilities	22,000
Total Owners' Equity	30,000
Total Liabilities and Owners' Equity	60,000

Fourth, the analyst performed a comprehensive due diligence analysis to identify all of the Brown IRP and IPP. This due diligence revealed the following intangible assets: internally developed computer software, customer contracts (for, let's say, construction projects in progress), and a trained and assembled workforce.

Brown uses its internally developed and proprietary computer software for all of its administrative and project management functions. The analyst used the cost approach and the RCNLD method to estimate a $7,000 fair market value for this intangible asset.

Exhibit 2
Brown Client Company
Fair Market Value
As of December 31, 2016
in $000s

Assets	
Current Assets:	
Cash	1,000
Accounts Receivable	3,000
Inventory	6,000
	10,000
Property, Plant, and Equipment:	
Land and Buildings	35,000
Machinery and Equipment	20,000
	55,000
Other Assets:	
Investment in Subsidiaries	8,000
Intangible Assets:	
Internally Developed Computer Software	7,000
Trained and Assembled Workforce	3,000
Customer Construction Contracts	5,000
Intangible Value in the Nature of Goodwill	2,000
	17,000
Total Assets	90,000
Liabilities and Owners' Equity	
Current Liabilities:	
Accounts Payable	4,000
Accrued Expenses	4,000
	8,000
Long-Term Liabilities:	
Notes Payable	12,000
Mortgages Payable	10,000
	22,000
Contingent Liabilities:	
Litigation Claims	10,000
Total Liabilities	40,000
Total Owners' Equity	50,000
Total Liabilities and Owners' Equity	90,000

Over the years, Brown has assembled an executive, technical, and operations staff of considerable experience and expertise. This assembled workforce is a valuable intangible asset. The analyst used the cost approach and the RCNLD method to estimate the $3,000 cost to recreate a workforce of comparable experience and expertise.

At any point in time, Brown has several dozen customer construction projects in various stages of completion. The analyst used the income approach and the MEEM to value the customer contracts.

Working with company management, the analyst projected the remaining profit (measured as net cash flow) to be earned on each contract. The analyst present valued that future cash flow projection at the Brown 10 percent weighted average cost of capital ("WACC"). This analysis indicated a $5,000 fair market value for this customer-related intangible asset.

Finally with regard to intangible assets, the analyst used the income approach and the CEEM to estimate the fair market value of the goodwill.

At this point in the analysis, the analyst had concluded the fair market value of the working capital assets (current assets minus current liabilities), real estate and TPP, and identifiable intangible assets. The analyst assigned a fair rate of return (based on the Brown WACC) to this total asset value to conclude the Brown required earnings.

The analyst compared the Brown actual earnings (measured as EBIT) to this required earnings level. Based on this comparison, Brown was generating a small amount of excess earnings. The analyst capitalized these excess earnings as an annuity in perpetuity to conclude a $2,000 fair market value for the goodwill.

Fifth, the analyst conceptually moved from the asset side of the balance sheet to the liability side of the balance sheet. The analyst next considered the current liability accounts.

The analyst concluded that the $4,000 recorded balance for accounts payable and the $4,000 recorded balance for the accrued expenses indicated the fair market values of those accounts. The analysis included the current portion of long-term debt in the valuation of the noncurrent liabilities.

Sixth, the analyst considered the notes payable and mortgage payable. The analyst concluded that the embedded interest rates on these debt instruments were sufficiently close to current market interest rates so that no liability revaluation was required. The analyst included the current portion of the long-term debt in the noncurrent liability account.

Seventh, the analyst performed additional due diligence procedures to identify and value any contingent liabilities. The analyst identified several litigation claims against Brown, all related to previous construction projects.

The analyst worked with both company management and legal counsel to estimate expected future claim payment amounts, including probabilities and timing of payments.

The analyst calculated a present value of the mathematical (probability weighted) expectation of future claims payments of $10,000. The analyst recorded this $10,000 contingent liability value on the valuation balance sheet.

Eighth, the analyst can calculate the net asset value by reference to the Exhibit 2 fair market value-basis balance sheet. At this point in the valuation, the analyst has concluded the fair market value of all of the total assets (both tangible assets and intangible assets) of $90,000.

In addition, at this point in the valuation, the analyst has concluded the fair market value of all of the liabilities (both recorded and contingent) of $40,000. The difference between these two value indications (i.e., total asset value minus total liability value) is the fair market value of the total equity.

As indicated on Exhibit 2, and based on this illustrative AA method analysis, the analyst concluded $50,000 as the fair market value of the Brown total equity.

Summary

The asset-based approach is a generally accepted business valuation approach. And, the AA method is a generally accepted asset-based approach valuation method.

The AA method is particularly applicable to the business valuations of asset-intensive companies, whether the company is (1) tangible asset intensive or (2) intangible asset intensive.

The AA method is also particularly applicable for business and security valuations performed for transaction-, taxation-, and controversy-related purposes. That is because this valuation method not only provides a business value conclusion, it also identifies each tangible asset and intangible asset component of the total business value.

This discussion summarized the conceptual basis for the AA method. This discussion also presented summary comments with regard to each typical category of entity assets and entity liabilities. And, this discussion presented a simplified illustrative example of the application of the AA method to value the hypothetical Brown Client Company.

As long as the analyst is careful to include all of the entity assets (both tangible and intangible) and all of the entity liabilities (both recorded and contingent) in the analysis, the AA method will provide a credible valuation of the subject closely held business, business ownership interest, or security.

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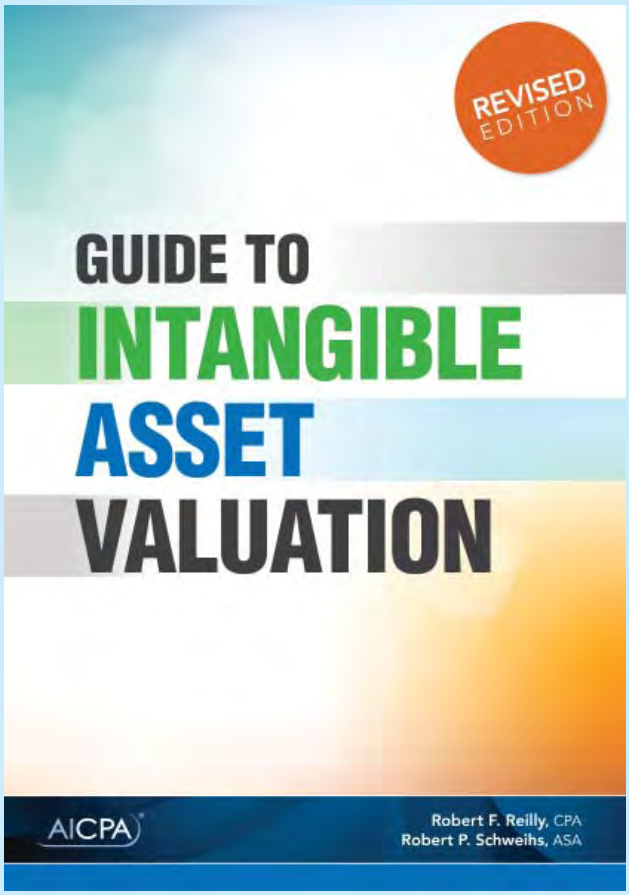
We are pleased to announce the Revised Edition of . . .

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.

Robert Reilly and Bob Schweihs, Willamette Management Associates managing directors, discuss such topics as:

- Identifying intangible assets and intellectual property
- Structuring the intangible asset valuation, damages, or transfer price assignment
- Generally accepted valuation approaches, methods, and procedures
- Economic damages due diligence procedures and measurement methods
- Allowable intercompany transfer price analysis methods
- Intangible asset fair value accounting valuation issues
- Valuation of specific types of intangible assets (e.g., intellectual property, contract-related intangible assets, and goodwill)

Illustrative examples are provided throughout the book, and detailed examples are presented for each generally accepted (cost, market, and income) valuation approach.

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- Litigation counsel involved in tort or breach of contract matters
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Guide to Intangible Asset Valuation

Table of Contents

The Asset-Based Approach—The Adjusted Net Asset Value Method

Scott R. Miller and Robert F. Reilly, CPA

Valuation analysts ("analysts") typically claim to consider all three generally accepted business valuation approaches in the valuation of a closely held business, business ownership interest, or security. However, most analysts then immediately dismiss the asset-based approach in favor of the income approach and the market approach. These analysts usually provide little or no explanation for this analytical dismissal. There are two common asset-based approach business valuation methods: (1) the asset accumulation method and (2) the adjusted net asset value method. This discussion explains and illustrates the application of the adjusted net asset value method in the valuation of a typical closely held business or security.

Introduction

The first discussion of this three-part series of *Insights* discussions described the theory and application of the asset-based business valuation approach.

The second *Insights* discussion described the theory and application of one asset-based approach method: the asset accumulation ("AA") method.

This final discussion of this three-part series of *Insights* discussions describes the theory and application of another asset-based approach method: the adjusted net asset value ("ANAV") method.

When properly applied using consistent valuation variables, all asset-based business valuation approach methods should conclude approximately the same value for the subject business enterprise.

Additionally, when properly applied using consistent valuation variables, all asset-based business valuation approach methods may be used to conclude any of the following ownership interests:

1. Total business enterprise (i.e., total long-term debt and total owners' equity)
2. Total business assets (i.e., total subject entity tangible and intangible assets)
3. Total business owners' equity (e.g., all classes of equity)
4. A single class of owners' equity (e.g., total common stock)
5. A specific block of owners' equity (e.g., class B nonvoting stock)

Like the other asset-based approach methods, the ANAV method typically concludes a marketable, controlling ownership interest level of value. If the valuation subject is a different level of value (say a nonmarketable, noncontrolling ownership interest in the company common stock), then the analyst may need to identify and quantify appropriate valuation adjustments.

Such adjustments could include a discount for lack of marketability, a discount for lack of control, or a discount for contractual transferability (or other) restrictions.

For several reasons, the ANAV method is not the same analysis as the net book value ("NBV") method.

First, the NBV method is not a generally accepted business valuation method at all. The NBV "method" is a financial accounting calculation.

In the so-called NBV method, the analyst relies entirely on data from the company's financial statements, without the application of valuation analyses or analyst professional judgment. The analyst subtracts the company's recorded amount of liabilities (both current and noncurrent) from the company's recorded amount of assets (both current and noncurrent). This calculation provides what is often called the NBV of the subject company.

This NBV calculation describes the mathematical relationships between the assets and the liabilities recorded on the company's balance sheet. For a balance sheet prepared in accordance with GAAP, these accounts should typically be recorded on a historical cost basis. That historical cost basis is typically not indicative of a current value estimation for the company owners' equity.

Second, in contrast, the ANAV method may start with the NBV of the company assets and liabilities. Then, the analyst applies professional judgment and employs a series of valuation procedures. The result of these valuation procedures is a current value estimation of the company owners' equity.

This *Insights* discussion summarizes the ANAV method analytical procedures. This discussion explains the strengths and weaknesses of the ANAV as a law-related business valuation method. Finally, this discussion also presents several illustrative examples of the ANAV method.

One of these examples illustrates how the ANAV analysis accommodates a negative aggregate valuation adjustment. In other words, this illustrative example considers how the analyst handles negative goodwill in the application of the ANAV method.

ANAV Methodology

First, the analyst typically starts with the subject company's GAAP-based balance sheet. The analyst will use the balance sheet dated closest to the analysis valuation date. Preferably, the analyst will use the company's balance sheet that was prepared just before the analysis valuation date.

Second, the analyst identifies and separates (for further analysis) any nonoperating or excess assets reported on the balance sheet. Such assets may include vacant land or other assets held for investment purposes. Such assets may also include those assets that are not necessary for the business but that are enjoyed primarily by the business owners.

This asset category may include a private aircraft or a vacation home owned by the company. And, nonoperating assets sometimes include the tangible assets of company discontinued operations that are being held for disposal.

In any event, these excess or nonoperating assets are analyzed separately from the ANAV valuation of the going-concern business.

Third, the analyst lists all of the reported account balances for the following categories of business operating assets:

1. Working capital assets (including current assets less current liabilities)
2. Tangible assets (including land, buildings, and equipment)
3. Intangible assets (including any recorded identifiable intangible assets)
4. Other assets (such as deferred income taxes and unconsolidated investments)

The sum of these recorded asset balances represents the amount of the company's total net operating assets. The total operating assets are typically analyzed net of the current liabilities accounts. However, for this purpose, the current liability component of any long-term debt is excluded from this total.

In other words, the total net operating assets should equal the total long-term debt (including the current portion of that debt) plus the total owners' equity recorded on the company balance sheet.

Fourth, the analyst begins the process of performing an aggregate revaluation of all of the company's total net assets. The most common valuation method that is used to perform this single, collective revaluation of the net operating assets is the capitalized excess earnings method ("CEEM"). The result of the CEEM analysis is often called intangible value in the nature of goodwill.

This CEEM goodwill value represents the total value increment (or value decrement) compared to the company's recorded cost-based net operating assets.

That is, this CEEM goodwill calculation may not represent the same goodwill calculation that could be indicated by (1) the AA method of business valuation or (2) the GAAP-based acquisition accounting method residual goodwill calculation.

For both the AA method and the acquisition price allocation analysis, goodwill represents an individual intangible asset. That goodwill intangible asset is quantified after:

1. all of the company tangible assets have been revalued and
2. all of the company identifiable intangible assets have been revalued.

In the CEEM analysis, the goodwill calculation typically includes all of the following:

1. The total revaluation (above the cost-based accounting balance) of the company's recorded tangible assets
2. The total revaluation (above the cost-based accounting balance) of all of the company's recorded intangible assets
3. The total valuation of all of the company's identifiable but unrecorded intangible assets
4. The valuation of any remaining company business value in excess of the value increment associated with the company's recorded tangible assets, recorded intangible assets, and unrecorded intangible assets

Therefore, in the CEEM analysis, the value conclusion represents more than the value of the company's residual goodwill amount. The CEEM value conclusion represents an aggregate revaluation of all of the company's recorded balance sheet accounts.

For this reason, the CEEM conclusion is often referred to as intangible value in the nature of goodwill. That name is intended to distinguish the CEEM goodwill adjustment from the residual amount of goodwill that is concluded (1) in an AA method analysis or (2) in a GAAP accounting purchase price allocation.

The CEEM analysis involves multiplying a fair rate of return by the company's net operating assets balance. The mathematical product of this multiplication is called the company's required earnings. The analyst compares the company's required earnings to the company's actual earnings.

If the actual earnings exceed the required earnings, then the company is generating excess earnings. The excess earnings are typically capitalized as an annuity in perpetuity. The capitalized excess earnings represents the intangible value in the nature of goodwill for the subject company.

Fifth, the analyst adds the net operating assets balance to the goodwill balance calculated from the CEEM analysis. This summation represents the current value indication for all of the company's net assets (i.e., total assets minus current liabilities).

The analyst can also subtract the company's long-term debt from the calculated net asset value indication. The remainder of that subtraction process indicates the current value of the company owners' equity.

Sixth, as a final procedure, the analyst will add the value of any excess or nonoperating assets to the value of the net operating assets—in order to conclude a total business value.

Strengths of the ANAV Method

The first advantage of the ANAV method is that it is relatively quick and easy to perform. For the most part, the analyst only needs the company's historical financial statements in order to perform the ANAV analysis.

In other words, the ANAV is based on the same company financial data that the analyst would collect in order to perform either a market approach or an income approach business valuation.

In contrast, the AA method analysis requires valuations of each category of the company's tangible assets and intangible assets. In contrast to the AA method, the ANAV method does not require the time or the cost of either:

1. the analyst performing numerous tangible asset and intangible asset valuations or
2. a third-party appraisal specialist performing numerous tangible asset and intangible asset valuations.

The second advantage of the ANAV method is that it is relatively easy for the analyst to explain and relatively easy for counsel and other parties relying on the business valuation to understand. The application of the AA method often involves the use of numerous valuation approaches and methods. And, the AA method involves valuations of interrelated assets.

Considerations related to contributory asset charges and profit split analyses are often difficult for counsel and other parties relying on the valuation to understand and follow.

A third advantage of the ANAV method is that it is intuitively obvious. The analysis starts with the company balance sheet. If the company earns an amount of income greater than a fair return on its balance sheet assets, then the business value is proportionately greater than its NBV. If the company earns an amount of income less than a fair return on its balance sheet assets, then the business value is proportionately less than its NBV.

Fourth, because of the relatively limited data requirements, the analyst does not have to disrupt the company business operations to the same extent as the AA method. That is, the breadth of management interviews and company visits is often less obtrusive with the ANAV method (as compared to the AA method). Therefore, it is easier for the analyst to perform the ANAV method (than the AA method) in a litigation valuation environment.

Fifth, the ANAV method can be used effectively and efficiently to identify whether or not the company is earning a fair return on investment for the company owners. This business valuation method also quickly identifies whether the GAAP balance sheet overvalues or undervalues the company's net assets (in the aggregate).

In summary, the ANAV method allows the analyst to perform an asset-based approach analysis without the cost and time requirements of the AA method.

Such an analysis is usually sufficient to allow the analyst to reconcile the ANAV value indication with the market approach and the income approach value indications in order to synthesize an overall business value conclusion.

Weaknesses of the ANAV Method

First, the ANAV method can be used to conclude the following:

1. Subject company total asset value
2. Subject company total business enterprise (long-term debt plus equity) value
3. Subject company total equity value

"[T]he ANAV method can be used effectively and efficiently to identify whether or not the company is earning a fair return on investment for the company owners."

The ANAV method cannot be used to estimate the value of any particular asset or bundle of assets. It does not effectively distinguish between tangible asset value and intangible asset value. And, it cannot identify the value of assets that are pledged as debt collateral—compared to the value of assets that are available to pledge as debt collateral.

Second, the ANAV method may be deceptively simple. Analysts, legal counsel, judicial finders of fact, and any other party relying on the valuation need to appreciate the importance of each valuation variable in the methodology.

There are different versions of the ANAV method. Some versions involve no revaluation of the company assets. Other versions allow for limited revaluation of certain company assets (such as real estate).

Issues such as the selection of the fair rate of return on assets, the consistency of the level of company income and the rate of return measurement, and the selection of the direct capitalization rate are more complex than they may seem on the surface.

Third, the ANAV method will conclude a business value for the company. However, and unlike the AA method, the ANAV method does not identify the source of the business value.

That is, the ANAV method does not determine if any company excess earnings is due to efficient plant and equipment use, strong customer relationships, valuable intellectual property assets, or any other reason.

Fourth, the ANAV method typically doesn't identify asset spin-off opportunities, undervalued asset refinancing opportunities, or intellectual property license opportunities. In other words, this method indicates a reasonable business value conclusion. However, this method is limited with regard to telling the company management how to maximize (or even increase) the value of the company.

Fifth, the ANAV method has application limitations with regard to comparing business values under alternative standard of value scenarios and alternative premise of value scenarios.

As a relatively simple methodology, the ANAV method typically concludes a market-based standard of value and a going-concern premise of value. It is difficult to adjust the valuation variables to conclude alternative standards of value or alternative premises of value.

In summary, as with any valuation method, the analyst has to be aware of the importance of each individual valuation variable in the ANAV method. And, the analyst has to appreciate that the ANAV method produces a reasonable indication of the company current business value.

However, this method has somewhat limited application when it comes to analyzing issues related to alternative tax structures, financing structures, transaction structures, and so forth.

Specific Issues in the ANAV Method

There are a handful of technical issues that the analyst should focus on in the application of the ANAV method. Most of these issues relate to the importance of internal consistency in the selection of the valuation variables.

Some of these issues relate to the analyst's professional judgment with regard to the direction (increasing or decreasing) and duration (limited or perpetual) of any company excess earnings.

The first issue that the analyst should consider is that (as with any business valuation method) there are alternative versions of the ANAV method. In the simplest application of the method, none of the company assets or liabilities are restated from their balance sheet account balances.

That is, each asset and liability category is stated at its historical cost as presented on a recent GAAP balance sheet. An example of this ANAV version will be presented later in this discussion.

Alternatively, sometimes the analyst has available current values for some (but only some) of the company's recorded assets. For example, the company management may present the analyst with contemporaneous appraisals of the company's real estate or other tangible assets.

Of course, the analyst should understand the purpose and objective of such appraisals before incorporating them into the ANAV analysis. However, the analyst can use the ANAV method based on current appraisals of some of the company assets—but not others.

If the analyst is careful in selecting valuation variables, any value appreciation that is accounted for in the tangible asset appraisals should reduce the value concluded in the CEEM analysis.

That is, part of the company value may be transferred from the CEEM intangible goodwill value to the appraised tangible asset value. Other than for rounding errors, the total business value should remain the same. An example of this ANAV method version is also presented later in this discussion.

The analyst has to decide what level of company income should be included in the CEEM analysis. Some of the common alternative levels of company income include EBIT, EBITDA, net operating income (EBIT after taxes), and net cash flow. Any of these alternative measures of the company income may be used in the CEEM analysis.

However, the analyst has to select both (1) a rate of return and (2) a capitalization rate that are consistent with the level of income selected to measure the company required earnings level and the company actual earnings level.

In other words, all income measures and all rate measures should be calculated based on the same level of income with regard to income taxes, interest expense, depreciation expenses, and so forth.

Some analysts apply the CEEM calculation by assigning a single fair rate of return to all company asset categories. In this version of the CEEM, the single fair rate of return is often the company weighted average cost of capital ("WACC").

In this version, each asset category is assigned a portion of the total company earnings based on the asset category balance multiplied by the WACC. This version is a common application of the CEEM, based on a simplifying assumption that all assets have the same degree of investment risk with regard to the company.

In this CEEM application, the direct capitalization rate used to capitalize any excess earnings is also based on the company WACC.

All analysts have to make a decision with regard to the expected future growth rate (g) related to any excess earnings (or to any negative earnings—or income shortfall). This decision is quantified in the direct capitalization rate used to capitalize any excess (or deficiency in) earnings.

If the analyst doesn't expect the excess earnings to increase (or decrease) over time, then the capitalization rate will equal the WACC.

If the analyst expects the excess earnings to increase at the rate of positive g percent over time, then the capitalization rate will typically be:

$$(\text{WACC} - g)\%.$$

If the analyst expects the excess earnings to decrease at the rate of negative g percent over time, then the capitalization rate will typically be: (WACC + g)%.

The most important factor that analysts should consider in the ANAV method is consistency. That is, when the analyst uses the CEEM to measure a company's intangible value in the nature of goodwill, all of the valuation variables within the analysis should be internally consistent.

How to Handle Negative Goodwill

Based on the application of the CEEM, it is possible for the analyst to calculate a negative figure for the company intangible value in the nature of goodwill. This result will occur any time the company's required earnings are greater than the company's expected actual earnings.

In other words, when the company is generating deficit earnings (instead of excess earnings), the capitalization of the earnings deficiency will indicate negative goodwill.

Negative goodwill would not be reported on a company's balance sheet prepared in compliance with GAAP. And, negative goodwill should not be reported on the company's valuation-based balance sheet prepared as part of an ANAV method analysis.

The CEEM-derived negative goodwill should be eliminated by reducing the concluded value of the company's previously valued tangible assets and identifiable intangible assets.

The CEEM result of negative goodwill is an indication that the company is experiencing economic obsolescence. In fact, the mathematical result of negative goodwill is one common procedure for measuring economic obsolescence.

Economic obsolescence occurs when an operating company does not earn a fair rate of return on the indicated value of its tangible assets and intangible assets. The existence (and measurement) of economic obsolescence indicates that all of the subject assets that were valued by reference to a cost approach method should be decreased in value (by the amount of the economic obsolescence).

Typically, the analyst will decrease the value of all of the cost-approach-measured assets (both tangible and intangible) until the amount of economic obsolescence is reduced to zero.

For example, let's assume that the company CEEM analysis indicates a $1 million negative goodwill conclusion. This conclusion indicates the existence of economic obsolescence at the company.

Let's assume that the analyst previously valued other company tangible and intangible assets using the cost approach and the replacement cost new less depreciation ("RCNLD") method. The sum of all of the other cost-approach-derived asset values was $10 million.

In this case, the analyst would reduce the cost-approach-derived asset values by 10 percent ($1 million economic obsolescence divided by $10 million total RCNLD).

The resulting cost approach value conclusions—after economic obsolescence—would be $9 million. At a $9 million total tangible and intangible asset value conclusion, the CEEM analysis should indicate $0 of goodwill—and $0 of remaining economic obsolescence.

In many situations, in the recognition of economic obsolescence, the analyst will only decrease asset values that were concluded using a cost approach valuation method. This is because assets that were valued by reference to either income-approach-based business valuation methods or market-approach-based business valuation methods have already recognized the owner/operator's economic obsolescence in the value conclusions.

For example, the income projections and the discount and capitalization rates used in the income approach valuations should be implicitly influenced by the existence of economic obsolescence.

Likewise, the market-derived sales and the market-derived lease and royalty rates may be implicitly influenced by the existence of economic obsolescence. These statements are true for the valuations of both tangible assets and intangible assets.

Economic obsolescence may still exist for assets valued using an income-based approach and/or a market-based approach, if not applied in the context of a business valuation. For example, the income approach methods and market approach methods relied on in a real property appraisal may not accurately account for the economic obsolescence that exists for the subject assets in the context of a business valuation.

However, the illustrative examples in the article will reflect the common scenario where the company income-approach-valued assets and market-approach-valued assets do not need to be explicitly adjusted for the existence of economic obsolescence. In contrast, if negative goodwill exists, the company cost-approach-valued assets do need to be explicitly adjusted for the existence of economic obsolescence.

Illustrative Example—No Individual Asset Revaluation

Let's assume that an analyst is retained to estimate the value of 100 percent of the owners' equity of Red Client Company ("Red"), as of December 31, 2016. Let's assume that the assignment is to conclude fair market value of the Red equity on a marketable, controlling ownership interest basis.

Let's assume that the analyst decides to apply the asset-based business valuation approach and the ANAV method. The analyst is going to revalue the equity in the aggregate using the CEEM to conclude the total intangible value in the nature of goodwill.

Let's assume that Exhibit 1 presents the historical cost-based balance sheet for Red as of the December 31, 2016, valuation date. All financial data are presented in $000s.

Now, let's assume that the analyst has worked with the company management, performed a reasonable due diligence analysis, and concluded that the next period normalized EBIT will be $9 million.

For purposes of this analysis, the analyst concluded that EBIT was the appropriate measure of operating income to use to apply the CEEM analysis.

The analyst has concluded that the appropriate fair rate of return on all of the tangible and intangible assets is 15 percent. The analyst selected this rate of return based on the Red WACC.

And, the analyst concluded a 0 percent expected long-term growth rate in excess earnings. Therefore, the analyst concluded a 15 percent direct capitalization rate.

Exhibit 2 presents the analyst's CEEM analysis. In this application of the ANAV method, the analyst will not revalue any of the Red assets—either the recorded tangible assets or the unrecorded intangible assets. That is, the analyst will apply the CEEM analysis based on the Red GAAP basis balance sheet accounts.

Finally, the analyst prepared the ANAV method valuation-based balance sheet as of the December 31, 2016, valuation date. The analyst adjusted the GAAP-based balance sheet for the result of the CEEM aggregate asset revaluation analysis. This ANAV balance sheet is presented in Exhibit 3.

Based on the simplified fact set in this illustrative example, the analyst performed the asset-based approach and the ANAV method to value the Red total equity. The analyst applied the CEEM analysis to conclude the aggregate asset revaluation amount to include in the ANAV method valuation. The analyst concluded $16,000 as the total asset revaluation.

As presented in Exhibit 3, the analyst concluded $36,000 as the fair market value of 100 percent of the Red owners' equity as of December 31, 2016.

Exhibit 1
Red Client Company
Balance Sheet
As of December 31, 2016
in $000s

Assets	
Current Assets:	
Cash	2,000
Accounts Receivable	3,000
Inventory	5,000
Total Current Assets	10,000
Property, Plant, and Equipment:	
Land	10,000
Buildings	20,000
Equipment	30,000
Less: Accumulated Depreciation	(20,000)
Property, Plant, and Equipment, Net	40,000
Total Assets	50,000
Liabilities and Owners' Equity	
Current Liabilities:	
Accounts Payable	2,000
Wages Payable	2,000
Taxes Payable	2,000
Total Current Liabilities	6,000
Long-Term Liabilities:	
Notes Payable	14,000
Mortgages Payable	10,000
Total Long-Term Liabilities	24,000
Owners' Equity	
Total Owners' Equity	20,000
Total Liabilities and Owners' Equity	50,000

Illustrative Example—Tangible Asset Valuation

Let's assume that the analyst is again retained to estimate the value of 100 percent of the owners'

equity of the subject company, White Client Company ("White"), as of December 31, 2016.

Again, the valuation assignment calls for a fair market value standard of value and a marketable, controlling ownership interest level of value. White has the same GAAP-based balance sheet as did the hypothetical Red Client Company. Again, all financial data are presented in $000s.

Again, the analyst decides to apply the asset-based approach and the ANAV method to value the equity. The analyst decides to use the CEEM analysis to measure the appropriate total valuation adjustment to the GAAP-based balance sheet.

The analyst performs a due diligence analysis of the company and estimates that White will generate $9,000 of EBIT next year.

Exhibit 2
Red Client Company
Adjusted Net Asset Value Method Analysis
Intangible Value in the Nature of Goodwill
As of December 31, 2016
in $000s

Red Account Balances:		Fair Rate of Return	Required Earnings
Working Capital Assets [a]	4,000	15%	600
Property, Plant, and Equipment	40,000	15%	6,000
Total Assets	44,000		6,600
Excess Earnings Analysis:			
Red Next Period Normalized Earnings	9,000		
– Red Required Earnings	6,600		
= Red Excess Earnings	2,400		
Capitalized Excess Earnings Analysis:			
Red Excess Earnings	2,400		
÷ Direct Capitalization Rate	15%		
= Capitalized Excess Earnings	16,000		
Intangible Value in the Nature of Goodwill	16,000		

[a] Working capital assets = current assets minus current liabilities

In this valuation, the analyst decides to use EBIT as the appropriate income metric to measure any excess earnings. And, the analyst performs a WACC analysis and concludes that 15 percent is the appropriate rate of return on the White assets.

Finally, the analyst again concludes a zero expected long-term growth rate in any company excess earnings. Therefore, the analyst concluded a 15 percent direct capitalization rate for use in the CEEM analysis.

In the case of White, the analyst is able to revalue certain of the assets that are already recorded on the balance sheet. Let's assume that the analyst perform a market approach analysis to value the inventory.

The analyst estimated the expected selling price of the inventory less the corresponding expected selling expense. The analyst concluded a $6,000 fair market value for the inventory.

White management provided the analyst with contemporaneous appraisals of the company property, plant, and equipment. Based on a market approach (and a sales comparison method analysis), the fair market value of the White land was $12,000. Based on a cost approach (and an RCNLD method analysis), the fair market value of the White building was $14,000 and the fair market value of the White equipment was $24,000.

All of these assets (including the inventory) were appraised based on a value in continued use premise of value.

Since the analyst had individually revalued account balances in this fact set example, the analyst could have applied different required rates of return to each asset category.

For example, the analyst could have applied a lower (than 15 percent) rate of return to the inventory and tangible assets. Then the analyst would have applied a higher (than 15 percent) capitalization rate as part of the goodwill-related valuation. Using such a procedure, the analyst would have to ensure that the White weighted average return on assets ("WARA") equals the White WACC in the CEEM analysis.

To maintain the simplicity of this illustrative example, the analyst consistently used the White 15 percent WACC as the required rate of return on all of the asset categories in this CEEM analysis.

Exhibit 3
Red Client Company
Asset-Based Approach Business Valuation
Adjusted Net Asset Value Method Analysis
As of December 31, 2016
in $000s

Assets	
Current Assets:	
Cash	2,000
Accounts Receivable	3,000
Inventory	5,000
Total Current Assets	10,000
Property, Plant, and Equipment:	
Land	10,000
Buildings	20,000
Equipment	30,000
Less: Accumulated Depreciation	(20,000)
Property, Plant, and Equipment, Net	40,000
Intangible Assets:	
Intangible Value in the Nature of Goodwill	16,000
Total Assets	66,000
Liabilities and Owners' Equity	
Current Liabilities:	
Accounts Payable	2,000
Wages Payable	2,000
Taxes Payable	2,000
Total Current Liabilities	6,000
Long-Term Liabilities:	
Notes Payable	14,000
Mortgages Payable	10,000
Total Long-Term Liabilities	24,000
Owners' Equity	
Total Owners' Equity	36,000
Total Liabilities and Owners' Equity	66,000

Since the analyst received or performed current valuations of certain of the asset accounts, the analyst used these valuations in the ANAV method analysis. Let's assume that the analyst did not have valuations for any of the intangible assets.

Based on a White historical cost balance sheet that was equal to the Red historical cost balance sheet and based on the current values for the White inventory and tangible assets, the analyst performed the CEEM analysis summarized in Exhibit 4.

Finally, the analyst prepared the ANAV method valuation-based balance sheet as of the December 31, 2016, valuation date.

The analyst adjusted the GAAP-based balance sheet for both:

1. the results of the separately valued individual asset accounts and
2. the conclusions of the CEEM analysis.

The White ANAV balance sheet is presented in Exhibit 5. All financial data are presented in $000s.

Based on the simplified fact set in this illustrative example, the analyst performed the asset-based approach and the ANAV method to value the White total equity.

The analyst:

1. used current values for several White asset categories and
2. applied the CEEM analysis to collectively revalue all other White tangible assets and intangible assets.

Based on this CEEM analysis, the analyst concluded a $5,000 conclusion for the aggregate intangible value in the nature of goodwill.

And, based on the ANAV method analysis, the analyst concluded a $36,000 value for 100 percent of the White owners' equity as of December 31, 2016.

Illustrative Example—Negative Goodwill

Let's assume that the analyst is again retained to estimate the value of 100 percent of the owners' equity of a company as of December 31, 2016. In this final example, the hypothetical company is called Blue Client Company ("Blue").

Again, the assignment calls for a fair market value standard of value and a marketable, controlling ownership interest level of value.

Let's assume that the Blue December 31, 2016, historical cost basis balance sheet is again the same as the Red December 31, 2016, historical cost basis balance sheet. All financial data are presented in $000s.

The analyst again decides to apply the asset-based business valuation approach and the ANAV valuation method to conclude the Blue total equity value.

Exhibit 4
White Client Company
Adjusted Net Asset Value Method Analysis
Intangible Value n the Nature of Goodwill
As of December 31, 2016
in $000s

White Account Balances:		Fair Rate of Return	Required Earnings
Working Capital Assets [a]	5,000	15%	750
Property, Plant, and Equipment [b]	50,000	15%	7,500
Total Assets	55,000		8,250
Excess Earnings Analysis:			
White Next Period Normalized Earnings	9,000		
– White Required Earnings	8,250		
= White Excess Earnings	750		
Capitalized Excess Earnings Analysis:			
White Excess Earnings	750		
÷ Direct Capitalization Rate	15%		
= Capitalized Excess Earnings	5,000		
Intangible Value in the Nature of Goodwill	5,000		

[a] Working capital includes $11 million of current assets less $6 million of current liabilities.
[b] Property, plant, and equipment includes $12 million of land, $14 million of buildings, and $24 million of equipment.

The analyst performs the same due diligence analysis of the company and concludes the same valuation variables used in the prior two examples with regard to WACC, expected long-term growth rate in excess earnings, and direct capitalization rate.

As with the White analysis, the analyst has the opportunity to discretely appraise certain of the Blue asset categories. Using the same market approach analysis, the analyst values the inventory at $6,000. And, the company management provides the analyst with current fair market value appraisals of the property, plant, and equipment.

The Blue land is valued at $12,000 using the market approach, and the Blue building is valued at $14,000 using the cost approach.

The only difference between the Blue fact set and the White fact set is that, this time, management provides the analyst with a $30,000 appraisal for the Blue equipment. That $30,000 fair market value conclusion is based on a cost approach and an RCNLD method analysis.

The analyst used the inventory and the tangible asset valuations in the ANAV method analysis. The analyst did not have access to any intangible asset valuations with regard to Blue.

Based on the Blue historical cost balance sheet and the current valuations for the Blue inventory and tangible assets, the analyst performed the CEEM analysis summarized in Exhibit 6:

Since the "excess earnings" results in an income shortfall, the result of the CEEM analysis indicates the existence of economic obsolescence at Blue. The analyst will have to reflect the economic obsolescence by recognizing a proportional value decrease in all tangible and intangible assets that were valued by the application of the cost approach.

In the Blue valuation, none of the working capital accounts are valued by reference to the cost approach. And, no identifiable intangible assets were valued in the Blue illustrative example. Therefore, the analyst considered the Blue tangible asset accounts.

The Blue land was valued by reference to the market approach, so no economic obsolescence

Exhibit 5
White Client Company
Asset-Based Approach Business Valuation
Adjusted Net Asset Value Method Analysis
As of December 31, 2016
in $000s

Assets	
Current Assets:	
Cash	2,000
Accounts Receivable	3,000
Inventory	6,000
Total Current Assets	11,000
Property, Plant, and Equipment:	
Land	12,000
Buildings	14,000
Equipment	24,000
Property, Plant, and Equipment	50,000
Intangible Assets:	
Intangible Value in the Nature of Goodwill	5,000
Total Assets	66,000
Liabilities and Owners' Equity	
Current Liabilities:	
Accounts Payable	2,000
Wages Payable	2,000
Taxes Payable	2,000
Total Current Liabilities	6,000
Long-Term Liabilities:	
Notes Payable	14,000
Mortgages Payable	10,000
Total Long-Term Liabilities	24,000
Owners' Equity:	
Total Owners' Equity	36,000
Total Liabilities and Owners' Equity	66,000

adjustment is necessary to the land value. The buildings and equipment were both valued by the application of the cost approach and the RCNLD method.

Therefore, the analyst will have to make an economic obsolescence adjustment to the building and equipment values. This economic obsolescence adjustment is summarized in Exhibit 7.

Based on the above-summarized allocation of economic obsolescence, the final fair market value indication for the buildings is $13,700 and the final fair market value indication for the equipment is $29,300. The analyst can use these final value conclusions in the ANAV method analysis.

After this recognition of economic obsolescence, the CEEM analysis will conclude no positive intangible value in the nature of goodwill—and no negative goodwill related to a capitalized income shortfall.

Finally, the analyst prepared the ANAV method valuation-based balance sheet for Blue as of the December 31, 2016, valuation date. The analyst adjusted the GAAP-based balance sheet for both:

1. the results of the separately valued individual asset accounts and
2. the conclusion of the CEEM analysis (requiring an individual asset value adjustment for economic obsolescence).

The Blue ANAV method balance sheet is presented in Exhibit 8.

Based on the simplified fact set in this Blue illustrative example, the analyst performed the asset-based approach and the ANAV method. The analyst separately valued certain working capital and tangible asset assets. The analyst applied a CEEM analysis to collectively revalue the remaining asset accounts.

Based on the CEEM analysis, the analyst could not identify any intangible value in the nature of goodwill. Rather, the analyst quantified negative goodwill, indicating the existence of economic obsolescence. The analyst adjusted the value of the cost-approach-derived asset accounts for the recognition of this economic obsolescence.

Based on the CEEM analysis (after the recognition of economic obsolescence), the analyst concluded $0 intangible value in the nature of goodwill. And, based on the ANAV method valuation, the analyst concluded a $36,000 fair market value for 100 percent of the Blue owners' equity as of December 31, 2016.

Conclusion

The asset-based approach is a generally accepted business valuation approach. And, the AA method and the ANAV method are both generally accepted asset-based approach business valuation methods.

Clients (and their counsel and other professional advisers) often call on analysts to value closely held company and professional practice ownership interests for various taxation, transaction, financing, litigation, planning, and other reasons.

Exhibit 6
Blue Client Company
Adjusted Net Asset Value Method Analysis
Intangible Value in the Nature of Goodwill
As of December 31, 2016
in $000s

Capitalized Excess Earnings Method Valuation Analysis:

Blue Account Balances:		Fair Rate of Return	Required Earnings
Working Capital Assets [a]	5,000	15%	750
Property, Plant, and Equipment [b]	56,000	15%	8,400
Total Assets	61,000		9,150

Excess Earnings/Income Shortfall Analysis:

Blue Next Period Normalized Earnings	9,000
– Blue Required Earnings	9,150
= Blue Income Shortfall	(150)

Capitalized Excess Earnings/Income Shortfall Analysis:

Blue Income Shortfall	(150)
÷ Direct Capitalization Rate	15%
= Capitalized Income Shortfall	(1,000)
Economic Obsolescence	(1,000)

[a] Working capital includes $11 million of current assets less $6 million of current liabilities.
[b] Property, plant, and equipment includes $12 million of land, $14 million of buildings, and $30 million of equipment.

Exhibit 7
Blue Client Company
Recognition of Economic Obsolescence
As of December 31, 2016
in $000s

Accounts Valued by the Cost Approach	RCNLD Indication	Economic Obsolescence	Economic Obsolescence %	Economic Obsolescence	Fair Market Value
Buildings	14,000		2.3 [a]	(300)	13,700
Equipment	30,000		2.3 [a]	(700)	29,300
Total Cost Approach Assets	44,000	(1,000)	2.3 [a]	(1,000)	43,000

[a] The 2.3 percent economic obsolescence percent is calculated as $1 million economic obsolescence ÷ $44 million total RCNLD.

Exhibit 8
Blue Client Company
Asset-Based Approach Business Valuation
Adjusted Net Asset Value Method Analysis
As of December 31, 2016
in $000s

Assets	
Current Assets:	
Cash	2,000
Accounts Receivable	3,000
Inventory	6,000
Total Current Assets	11,000
Property, Plant, and Equipment:	
Land	12,000
Buildings	13,700
Equipment	29,300
Property, Plant, and Equipment	55,000
Total Assets	66,000
Liabilities and Owners' Equity	
Current Liabilities:	
Accounts Payable	2,000
Wages Payable	2,000
Taxes Payable	2,000
Total Current Liabilities	6,000
Long-Term Liabilities:	
Notes Payable	14,000
Mortgages Payable	10,000
Total Long-Term Liabilities	24,000
Owners' Equity:	
Total Owners' Equity	36,000
Total Liabilities and Owners' Equity	66,000

This discussion explained and illustrated the application of the ANAV method for experienced (and less experienced) analysts. And, this discussion summarized what clients (and their counsel and other advisers) need to know about the application of the ANAV business valuation method.

The AA method requires the discrete revaluation of all of the company's assets (both tangible and intangible) and all of the company's liabilities (both recorded and contingent). The ANAV method typically involves the aggregate revaluation of all of the company's tangible and intangible assets. However, the ANAV method can also be used if the analyst has access to the current valuations of any of the company asset categories (such as inventory or real estate).

The ANAV method is an effective asset-based approach method when the analyst has limited access to the company management or the company facilities. And, the ANAV method is an effective asset-based approach method when either time, budget, or data constraints limit the analyst's ability to perform the AA method.

All asset-based approach methods inform both the client and any other parties relying on the business valuation as to the tangible asset versus intangible asset source of value within the company.

Accordingly, the ANAV method can be applied to a company that is either tangible-asset-intensive or intangible-asset-intensive. And, like any other asset-based approach method, both the AA method and the ANAV method can be used to value either operating companies or asset holding companies.

In addition, both the AA method and the ANAV method can typically be applied to conclude various alternative standards of value and alternative premises of value.

Like all asset-based approach business valuation methods, both the AA method and the ANAV method typically conclude a marketable, controlling ownership interest level of value.

If the subject valuation assignment calls for a different level of value, then the analyst may have to consider the application of valuation adjustments—such as a discount for lack of marketability or a discount for lack of control.

Finally, both the AA method and the ANAV method may be a particularly applicable method in a valuation when other business valuation approaches and methods are not applicable for one reason or another.

And, either the AA method or the ANAV method may always be used as a supplemental or supporting business valuation method to be used in the reconciliation of income approach or market approach valuation methods in the closely held business, business ownership interest, or security valuation.

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Insights Wins the APEX 2017 Publication of Excellence Awards Competition

Introduction

We are proud to announce that the quarterly business valuation journal *Insights*, published by Willamette Management Associates, received a publication excellence award in the 2017 APEX Award of Excellence competition.

This is the eighth year in a row that the thought leadership in *Insights* has been recognized with an Apex Award of Publication Excellence.

APEX Awards of Publication Excellence

The APEX Awards of Publication Excellence are presented based on an annual competition for writers, editors, publication staffs, and business and nonprofit organization communicators. International in scope, the APEX competition recognizes outstanding publications ranging from institutional newsletters and magazines to corporate annual reports, brochures, and websites.

There were nearly 1,400 entries in the APEX 29th annual awards program. *Insights* was a winner in the Magazine & Journal Print category of the 2017 annual APEX award of excellence competition.

"We are honored to receive the APEX Publication of Excellence Award for our quarterly business valuation journal *Insights*," said firm managing director Robert Reilly. "This is the eighth year in a row that we have received the APEX recognition for publication excellence in the Magazine & Journal Print category. This award motivates us to continue to provide thought leadership in a journal that focuses on the business valuation, forensic analysis, and financial opinion disciplines."

Each quarterly issue of *Insights* presents current thought leadership related to one or more of our firm's financial advisory services disciplines. These professional disciplines include economic damages measurement and lost profits analysis, business and security valuation, intangible asset and intellectual property analysis, intercompany transfer price analysis, bankruptcy and reorganization analysis, forensic accounting and expert testimony, and corporate transaction opinion services.

Each quarterly *Insights* issue typically includes about 8 to 10 discussions. In most of the 96-page issues, about half of the *Insights* discussions are written by Willamette Management Associates authors. And, about half of the *Insights* discussions in each issue are authored by lawyers, bankers, accountants, or academics who are not associated with Willamette Management Associates.

About Willamette Management Associates

Founded in 1969, Willamette Management Associates provides thought leadership in its business valuation, forensic analysis, and financial opinion services. Our clients range from substantial family-owned companies to Fortune 500 corporations. And, our clients also include financial institutions, the accounting and audit profession, the legal community, and government and regulatory agencies.

Tangible and Intangible Property Valuation Due Diligence Procedures

Casey D. Karlsen and Robert F. Reilly, CPA

One component of many asset-based approach business valuation analyses is the valuation of the subject company's tangible property assets and/or intangible property assets. This discussion summarizes what valuation analysts ("analysts")—and other parties who rely on business valuation analyses—need to know about the analyst's property valuation due diligence procedures.

Introduction

The asset-based approach to business valuation involves the valuation of the tangible property and the intangible property of the subject business entity. This statement is obvious for the application of the asset accumulation ("AA") method of the asset-based approach. This statement is also true for the application of the adjusted net asset value ("ANAV") method of the asset-based approach.

The ANAV method typically involves the aggregate revaluation of all of the subject company assets through the application of the capitalized excess earnings method ("CEEM"). The CEEM quantifies one of the following:

1. Aggregate intangible value in the nature of goodwill (i.e., the total valuation adjustment to the subject company net asset value)
2. Aggregate economic obsolescence to be applied to all company assets valued by reference to the cost approach

However, the ANAV method can also involve the revaluation of individual categories of subject company tangible property or intangible property.

Accordingly, valuation analysts ("analysts") may also include the revaluation of individual categories of tangible property or intangible property in the application of the business valuation asset-based approach.

For purposes of this discussion, tangible property includes (1) real estate and (2) tangible personal property. And, for purposes of this discussion, intangible property includes (1) intangible real property, (2) intangible personal property, and (3) intellectual property.

This discussion focuses on the due diligence procedures that analysts should perform in the process of valuing tangible property and intangible property in the application of the asset-based approach analysis.

Before starting the quantitative valuation analysis, the analyst should understand:

1. the subject company assets and
2. the bundle of legal rights subject to the valuation.

The analyst should also understand the business-valuation-related purpose and objective of the property valuation.

The analyst should understand that the asset-based approach is a generally accepted business valuation approach that may be used for transaction, taxation, financing, planning, litigation, or other purposes.

Before selecting and performing the property valuation procedures, the analyst should perform reasonable due diligence procedures. This discussion summarizes both the data gathering procedures

and the due diligence procedures that analysts typically conduct during the asset-based approach valuation of the subject company tangible property or intangible property.

Subject Company Data Gathering

If this information is available and relevant, the analyst typically requests information from the subject company with respect to the following:

1. The historical development and maintenance of the subject property categories or asset(s)
2. The subject company business operations
3. The operations of the individual subject company asset(s)

Sometimes, such subject company information simply is not available. It is not uncommon for subject companies to create (or maintain) relatively few documents or data regarding the operation of their individual assets. If the analyst is working for an opposing litigant, it may be difficult to obtain all of the asset-specific information that he or she would like.

Also, depending on the type of subject company asset and on the property valuation approach selected, certain information may be more or less relevant. For a subject company asset that may be valued using a cost approach method, information regarding the asset development process may be particularly relevant. For a subject company asset that may be valued using an income approach method, information regarding the asset development process may be less relevant.

The analyst may inquire about the subject company general business operations. The subject company business operations are the environment in which the asset actually operates. In these inquiries, the analyst may request descriptions of the following:

1. How the asset functions within the subject company
2. How the asset contributes to the operations of the company
3. How the asset functions with respect to other subject company tangible assets and intangible assets
4. How company employees use, maintain, protect, or commercialize the asset

The analyst may inquire about the operation of the asset within the company. In these inquiries, the appraiser may also pose the following questions:

1. Does the asset contribute to the generation of the company operating income?
2. Does the asset contribute to the generation of company ownership (i.e., royalty) income?
3. Has the company ever been approached with a sale, license, or other offer regarding the asset?

Subject Company Asset Data Gathering

In any business-valuation-related property appraisal, the analyst typically considers the economic benefits related to the subject asset. These economic benefits could be considered from the perspective of the current owner/operator company, another individual owner/operator, or the market in general (or the population of hypothetical asset owner/operators).

These asset-generated economic benefits could include any or all of the following:

1. Some measure of operating income
2. Some measure of license income
3. Some protection of alternative income sources (e.g., through forbearance)
4. Some measure of risk reduction (e.g., through licenses, contracts, or other competitive advantages)
5. Some deferral or reduction of expenses, capital costs, or other investments

The analyst may inquire as to how the subject company management perceives the economic benefits associated with the individual asset or property. This inquiry could include the historical benefits to the subject company, the current benefits to the subject company, and/or the prospective benefits to subject company.

The subject company management is often in a knowledgeable position to identify and quantify these economic benefits. However, the analyst should be mindful that the company management is not the analyst. Therefore, the analyst should perform reasonable due diligence procedures with regard to any data provided by the subject company management.

"[T]he analyst may be interested in the company management's ability to accurately predict future results of operations."

Due Diligence Procedures for the Subject Company Data

With regard to the historical benefits from the asset/property ownership, the analyst may compare such company-provided statements with the company historical financial statements. Presumably, the claimed revenue increase, expense decrease, or any other asset economic benefits are evident in the company historical results of operations.

Likewise, the impact of any asset or property benefits may be included in the subject company current financial statements. That is, whatever economic benefit that is identified by the subject company (e.g., increased product selling price, decreased operating expense, etc.) may be encompassed in the company results of operations.

Often, the company management expresses the subject asset or property benefits in terms of financial or operational projections. This economic contribution is converted into a value indication when the analyst performs a profit split, multiperiod excess earnings, capitalized excess earnings, or similar property valuation method analysis.

Before performing such property valuation analyses, the analyst should subject these financial projections to various due diligence procedures, including the following:

1. The analyst should compare the historically prepared financial projections to the company historical results of operations; whether the previous projections relate to the subject asset or to the overall company, the analyst may be interested in the company management's ability to accurately predict future results of operations.
2. The analyst should compare the current financial projections to any current company capacity (or other) constraints; the analyst may consider if the asset-related projections exceed the current plant capacity (without additional capital expenditures), assume new product/service introductions (without additional R&D expenditures), or exceed current regulatory requirements (e.g., the number of certificate of need patient beds for a hospital or the environmental discharge limitations for an oil refinery).
3. The analyst should compare the financial projections to guideline public company financial projections. Many publicly traded guideline companies provide multiyear financial projections to the market of security analysts; security analysts also provide multiyear financial projections for the publicly traded guideline companies that they follow. The analyst may consider if the company projection variables (e.g., growth rates, profit margins) are (or are not) in line with guideline public company financial projections.
4. The analyst should compare the company financial projections to published industry benchmark projections. Trade associations, financial reporting agencies, industry consultants, and others publish both (a) compilations of industry financial ratios and (b) outlook projections for various industries. The analyst may consider the reasons why the company projection variables (e.g., growth rates, profit margins) are not in line with published industry benchmarks.

Strategic and Competitive Analysis

Before selecting or performing any property valuation methods, typically the analyst will consider the competitive position of the subject asset or property. This procedure often involves an assessment of the subject asset competitive strengths, weaknesses, opportunities, and threats ("SWOT").

This SWOT assessment is often performed by comparing the subject asset to the corresponding assets of the subject company competitors. Typically, the analyst will consider the SWOT position of the subject tangible or intangible property within the SWOT position of the subject company.

As part of due diligence, the analyst may consider the following questions with regard to the tangible or intangible property's SWOT:

1. How important is the property to the subject company?
2. What would the subject company do if the property did not exist?
3. Does the property protect the subject company from competition?
4. Is the property susceptible to infringement or other wrongful use?
5. Does the subject company adequately protect, improve, and commercialize the property type?

6. Is the property primarily used to defend other assets or income sources?
7. Could the property category be further commercialized (e.g., through licensing)?
8. Do the subject company customers, stockholders, and other stakeholders perceive the value of the property category?
9. When practical, is the property safeguarded through contracts, nondisclosure agreements, noncompetition agreements, and documentation safekeeping practices?
10. Is the property subject to obsolescence influences of any type?
11. How does the subject company tangible or intangible property compare to comparable property owned by competitor companies?
12. How susceptible is the utility and value of the property to changes in its operating environment?
13. How easily can the property be replaced using alternatives from the marketplace?

The analyst may consider these general competitive factors (1) when assessing the reasonableness of the economic benefits (and other data) provided by the company and (2) when selecting the appropriate property analyst approach or approaches.

Due Diligence Inquiries

If these data are available and relevant, the analyst may investigate the following lines of inquiry:

1. The subject company operations before the development of the tangible or intangible property
2. The subject company operations without the existence of the property
3. The competitors' operations without the subject property category
4. How the subject property differs from the competitors' corresponding property
5. The property's life cycle, at the subject company specifically or in the industry generally

If such access to management is available, the analyst may inquire as to how the company functioned before the purchase or development of the current version of the tangible or intangible property. The analyst may consider the following questions:

1. Was there a time when the subject company did not have any version of the property?
2. What was the impact on the subject company of developing (or buying) the tangible or intangible property?
3. Were there previous versions of the tangible or intangible property?
4. When and how were the previous property versions created?
5. Did the property naturally evolve over time (e.g., an assembled workforce) or are there discrete generations of the property (e.g., a patent or license)?

The analyst may also inquire as to how the subject company would hypothetically function if it did not have access to the tangible or intangible property. The analyst may consider the following questions:

1. Would the subject company buy or build a replacement property?
2. Could the subject company buy or build a replacement property?
3. How would the subject company replace the property?
4. Could the subject company function with the current version of the property?
5. Could the subject company function with any prior version of the property?

In addition, the analyst may inquire as to how the subject company's industry competitors function without the tangible or intangible property. Let's say that while the subject company enjoys the use of the tangible or intangible property, its competitors do not. Its competitors may or may not have assets that are comparable (or, at least, corresponding) to the tangible or intangible property.

Therefore, the analyst may consider the following questions:

1. Do industry competitors have property types that correspond to the subject (or, is the subject property unique in the industry)?
2. Did the competitors build or buy their corresponding property?
3. Are there discernible generations of the corresponding property in the industry?

"The analyst should consider available data related to the risk factors affecting the property category."

4. Have any competitors recently been acquired and, if so, do the acquirers report the fair value of the corresponding property categories in any public financial statements?
5. Are there any competitors who operate without a corresponding property category and, if so, how?

Property Valuation Due Diligence Additional Analyst Considerations

When performing these tangible and intangible property valuation due diligence procedures, the analyst may consider the following issues:

1. Prior to the asset-based approach analysis, the subject company may have never previously considered the valuation of the tangible or intangible property. Therefore, the analyst should not be surprised if the company management does not have the related documents and data immediately available. Also, the analyst should not be surprised if the company management does not have immediate answers to the analyst's due diligence questions. The company management may have never before received similar inquiries about its tangible or intangible property. Therefore, if data are available, it may take management a relatively long time to compile the data and transmit it to the analyst.
2. The analyst should not be surprised if the company management does not have data and documents that are specifically related to the property category. The analyst may have to accept information related to the business unit that uses the property category—because there is typically no financial accounting or other requirement for the subject company to maintain property-specific information.
3. The analyst should consider available data with regard to property maintenance expenditures. This is because most assets require some level of maintenance expenditures in order to stay operational and competitive. The analyst may consider if such expenditures are material to the subject company. If so, the analyst should somehow consider such expenditures in the property valuation analysis. For example, such consideration could be made in the estimate of the asset obsolescence.
4. The analyst should consider available data with regard to the competition in the subject company's industry. This consideration may include any available data with respect to the corresponding tangible or intangible property operated by the competitors.
5. The analyst should consider available data related to the risk factors affecting the property category. Such risk factors may include the expected impact of obsolescence, potential regulatory changes, competitive weaknesses and threats related to the subject company, legal challenges to the property type, and other factors.
6. The analyst should consider available data regarding expenditures or efforts required to legally protect the tangible or intangible property. These expenditures and efforts could be defensive (i.e., to defend against legal or regulatory challenges) or offensive (i.e., to prosecute breach of contract, infringement, or other legal claims) in nature.
7. The analyst should consider the contractual implications of the tangible or intangible property. To the extent that the asset is the creation of a contract or is obligated to perform according to a contract, the analyst may consider these contractual implications.
8. The analyst may consider alternative perspectives regarding the property category from within the subject company, if possible. Some property categories are so user-specific that only a small subset of company personnel are knowledgeable regarding the property type. In other cases, the analyst may be able to obtain information from various company personnel in various departments.
9. The analyst should maintain clear documentation as to which members of management provide each relevant document. This item may be especially important at later stages of the valuation analysis to explain how certain valuation variables were selected.

Summary and Conclusion

Valuation analysts are often asked to value the subject company individual assets—that is, real estate, tangible personal property, intangible real property, and intangible personal property—as part of the asset-based approach to business valuation.

These property valuations are typically performed as part of the AA business valuation method. And, these property valuations may also be performed as part of the ANAV business valuation method.

The analyst typically obtains most of the asset-specific valuation information from the subject company management. Such information may include the following:

- The owner/operator company financial documents and operational data
- Summaries of historical development costs and efforts
- Estimates of economic benefits and other prospective financial information
- Other relevant documents

However, depending on what party the analyst is working for in the business valuation engagement, he or she may not have direct access to the subject company management.

In all cases, the analyst will consider reasonable due diligence procedures with regard to the tangible property or intangible property information. These property valuation due diligence procedures could relate to historical, contemporaneous, and prospective information.

Many of the tangible and intangible property valuation due diligence procedures are comparative in nature. That is, the analyst may compare the subject tangible or intangible property information to:

1. subject company historical information benchmarks,
2. subject company capacity or other constraints,
3. guideline public company benchmarks,
4. competitor industry benchmarks, and
5. guideline sale or license transaction data.

A competitive (or SWOT) assessment is a common property valuation due diligence procedure. In that procedure, the analyst assesses the reasonableness of the tangible or intangible property economic benefits to the owner/operator. As part of the competitive analysis, the analyst may consider the following:

1. How the owner/operator company functioned before the purchase or development of the property category
2. How the owner/operator company would function without the property category
3. How the owner/operator company competitors function without the property category.

"The analyst typically obtains most of the asset-specific valuation information from the subject company management."

When the analyst receives asset-specific information from the owner/operator company, the analyst should be aware that the subject company management:

1. may never have assembled this type of information before,
2. may not maintain asset-specific data and documents,
3. may not consider all maintenance and legal expenses in the response, and
4. may not consider all risk factors (including obsolescence considerations) in the response.

Even with these caveats, the analyst will typically gather as much asset development and operation information as possible to use in the valuation of the subject company's real estate, tangible personal property, intangible real property, intangible personal property, or intellectual property.

All of this information may be useful to the analyst in the property category valuation phase of the asset-based approach business valuation.

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Industrial and Commercial Real Estate Appraisal Procedures

John C. Ramirez

The application of the asset-based approach to business valuation often involves the appraisal of the subject company's industrial and commercial real estate. This discussion summarizes what valuation analysts—and the parties who rely on their business valuations—need to know about the appraisal of operating company industrial and commercial real estate appraisal as part of the asset-based approach business valuation analysis.

Introduction

The asset-based approach is a generally accepted approach to the valuation of both operating companies and asset holding companies. Particularly with regard to the asset accumulation ("AA") method, the asset-based approach encompasses the valuation date appraisal of the following categories of subject company assets: working capital accounts, owned and leased real estate, tangible personal property, and intangible personal property.

Most going-concern businesses own or lease some amount of industrial or commercial real estate. This discussion summarizes the commercial real estate appraisal process from the perspective of the asset-based business valuation approach.

In the asset-based approach to business valuation, the value of the operating company's industrial, commercial, or other real estate is frequently an important component of the valuation. Accordingly, valuation analysts ("analysts") who perform asset-based approach business valuations often need to work with and rely on commercial real estate appraisers ("appraisers"). Such analysts may need to retain appraisers, instruct appraisers, work with appraisers, review appraisal reports, and understand and use appraisal conclusions.

Likewise, the business valuation clients also need to understand and rely on the results of the industrial and commercial real state appraisal. And, the parties who rely on the asset-based approach business valuation—including corporate acquirers, financial institutions and financial intermediaries, government regulators, taxation authorities, and legal counsel and judicial finders of fact—need to understand and rely on the results of the industrial and commercial real estate appraisal.

This discussion summarizes the basic components of a real estate appraisal report, illustrates the typical sections presented in an appraisal report, and summarizes the factors to look for in an appraisal report. The inclusion of these components, sections, and factors should make the real estate appraisal report a useful component to the asset-based approach business valuation process.

The Appraisal Report

The *Uniform Standards of Professional Appraisal Practice* ("USPAP") 2016-2017 edition, defines the term "report" as "any communication, written or oral, of an appraisal or appraisal review that is transmitted to the client upon completion of an assignment."

USPAP Standard 2 is titled "Real Property Appraisal, Reporting." USPAP Standards Rule 2-1 allows for the real estate appraiser to issue either a written or an oral real property appraisal report. USPAP Standards Rule 2-2 allows for two types of written appraisal reports:

1. An appraisal report—The contents of an appraisal report are explained in Standards Rule 2-2(a).

2. A restricted appraisal report—The contents of a restricted appraisal report are explained in Standards Rule 2-2(b).

The selection of the appropriate type of real estate appraisal report to prepare in a business valuation assignment is influenced by the specific instructions of the analyst's client, the relevant statutory authority, judicial precedent or administrative rules, and the experience and judgment of the individual analyst. For purposes of this discussion, let's assume the following:

1. The valuation subject is the commercial real estate of the client operating company.
2. The valuation subject bundle of legal rights is a fee simple ownership interest in the subject property.

This discussion assumes that the real estate appraiser prepares a written appraisal report for use in the asset-based approach business valuation of the client operating company. This discussion assumes that the business valuation will be subject to some contrarian review—that is, either an administrative/regulatory challenge or a judicial proceeding.

During any contrarian review regarding the real estate component of the business valuation (whether at an administrative or judicial level), the appraiser will often refer to the written appraisal report during both direct examination and cross examination. In fact, many experienced real estate appraisers consider the written appraisal report to be "the appraiser's best friend" during expert testimony.

Real Estate Appraisal Report Outline

Exhibit 1 presents an illustrative table of contents (or report outline) for a typical industrial and commercial real estate appraisal report. This illustrative table of contents is consistent with the USPAP requirements for an appraisal report, that is, a report prepared under Standards Rule 2-2(a).

It is noteworthy that each element in the Exhibit 1 table of contents is not required for USPAP compliance. For example, USPAP Standards Rule 2-2(a) does not require that the appraisal report include photographs. Rather, the Exhibit 1 table of contents is presented to illustrate all of the topics that the appraiser could include in the industrial or commercial real estate appraisal report.

Real Estate Appraisal Report Contents

The description below summarizes the typical contents of an industrial and commercial real estate appraisal report.

1. Title Page. The title page should clearly identify the subject of the real estate appraisal report. The title page will typically identify the property address, the definition of value, and the "as of" valuation date. And, the title page will identify the name and address of the real estate appraiser and the name and address of the subject appraisal client.
2. Letter of Transmittal. The letter of transmittal typically includes the following information:
   a. Date of letter and salutation
   b. Street address of the property and a brief description of the industrial and commercial property
   c. Identification of the subject property ownership interest
   d. Statement that a property inspection and other necessary investigations and analyses were made by the real estate appraiser
   e. Reference that the transmittal letter is an integral component of an accompanying real estate appraisal report
   f. Identification of the type of property appraisal and type of real estate appraisal report
   g. Standard of value (or definition of value) concluded in the real estate appraisal report
   h. Effective date of the industrial and commercial real estate appraisal
   i. Opinion of value
   j. Identification of any extraordinary assumptions and hypothetical conditions
   k. Real estate appraiser's signature
3. Table of Contents. The appraisal report table of contents typically lists all of the report sections in the order in which they are presented.
4. Certification. The certification is typically presented as a separate page in the real estate appraisal report introduction section. The certification typically follows the final value conclusion. The real estate appraiser

Exhibit 1
Industrial and Commercial Real Estate Appraisal Report
Illustrative Table of Contents

Item Topic

will sign and date the certification. The certification will indicate whether the real estate appraiser has personally conducted the appraisal in accordance with USPAP.

According to USPAP Standards Rule 2-3, each written real estate appraisal report should contain a signed certification.

5. Summary of Important Conclusions. The summary of important conclusions page, sometimes called the executive summary page, typically includes the following items:
   a. Brief identification of the subject industrial and commercial property
   b. Estimate of the highest and best use of the land as if vacant
   c. Estimate of the highest and best use of the industrial and commercial property as improved
   d. Age of the improvements
   e. Abbreviated site description
   f. Land value opinions
   g. Value indication from the cost approach
   h. Value indication from the sales comparison approach
   i. Value indication from the income capitalization approach
   j. Reconciliation and final value opinion
   k. Description of any extraordinary assumptions or hypothetical conditions
6. Identification of the Type of Appraisal and Report Format. The real estate appraisal report format—that is, either appraisal report or restricted appraisal report—should be stated.
7. Identification of the Client. The client is the party who engages the real estate appraiser (or, in the case of the asset-based approach business valuation, the analyst).
8. Identification of Intended User(s) Other than the Client. If the names of any intended users are withheld from the real estate appraisal report, that fact should be disclosed.
9. Statement of Intended Use. The real estate appraisal report reader should understand the intent of the property appraisal.
10. Identification of the Subject Property. A legal description is commonly used to identify the subject industrial and commercial property.
11. Identification of the Property Rights Appraised. The real estate appraiser should state and define the particular rights of interests being valued.
12. Type and Definition of Value. The definition of the concluded value should be presented. USPAP requires a citation or source for the definition of value presented.
13. Effective Date of the Appraisal. The real estate appraisal conclusion may be stated as of a current date, a retrospective date, or a prospective date.
14. Extraordinary Assumptions and Hypothetical Conditions. USPAP defines an extraordinary assumption as follows:

    > An assumption, directly related to a specific assignment, as of the effective date of the assignment results, which, if found to be false, could alter the appraiser's opinions or conclusions.

    USPAP defines a hypothetical condition as follows:

    > A condition, directly related to a specific assignment, which is contrary to what is known by the appraiser to exist on the effective date of the assignment results, but is used for the purpose of analysis.
15. General Assumptions and Limiting Conditions. The general assumptions deal with such issues as legal and title considerations, liens and encumbrances, property management, information furnished by others, hazardous substances in the property, and compliance with zoning regulations and other state and local laws.
16. Scope of Work. USPAP requires that the real estate appraisal report include sufficient information to allow the intended users to understand the scope of work that the appraiser performed.
17. Legal Description. The industrial and commercial real estate is identified so that it cannot be confused with any other piece of real estate.
18. History. USPAP requires that current history and prior sales of the industrial and commercial property within three years of the effective date be disclosed and analyzed in the real estate appraisal report.
19. Identification of Any Personal Property or Other Items That Are Not Real Property. The real estate appraisal report should identify any tangible personal property, intangible personal property, or other intangible

business value that may be included with the real estate appraisal.

20. Market Area, City, Neighborhood, and Location Data. Real estate appraisers often indicate that no other aspect of appraisal is as important as the market area, city, neighborhood, and location analysis. However, defining the subject neighborhood is sometimes difficult in the appraisal of an industrial or commercial property.

    Four categories of factors affect the market area analysis: physical factors, economic factors, social factors, and political factors. Each of these factors is summarized below:

    a. Physical and Locational Factors. The physical factors that affect market area desirability and quality include the natural features of location, as well as those created by people. Natural features include topography, trees, lakes, and other visual amenities. Natural features that affect market areas also include climate and geological conditions such as weather, soil quality and flood, slide, and earthquake zones.

    b. Economic Factors. An important economic factor to consider is whether the income level of the area occupants is sufficient to maintain existing structures. This factor strongly relates to employment opportunities available, as well as the stability of existing employment. Other economic factors include growth rate, trend of property values, supply and demand, marketing time for properties and land-use changes.

    c. Social Factors. Area or location desirability is influenced by the many social characteristics of the occupants. Neighborhood desirability depends on the effort and money that neighborhood occupants put into the maintenance and modernization of buildings. Community support for the existing legal and political order is also a factor, since neighborhood attitudes can influence political decisions, such as the number of city services provided, tax rates, and the quality of the schools.

    d. Political Factors. The level of taxes, assessment fairness, police and fire protection and other city services provided, public education, and protective zoning or planning all have an effect on neighborhood desirability. Governmental positions on air, soil, and water pollution, job safety, social programs and noise, odor, and ecological controls can also be noted. Many political factors are the result of social attitudes, whether regional or local.

    Exhibit 2 presents a listing of data that the real estate appraiser typically considers in a market area, city, neighborhood, and location analysis.

21. Land Description. Land that has been graded and prepared for a specific purpose is typically referred to as a site. A site has features that are classified as physical, locational, legal, and economic. Land is immobile, and, therefore, it is significantly influenced by its surroundings. The value of land is a function of its ability to satisfy a market need and to serve as a site for either existing or proposed improvements.

    In addition, land value is determined by its highest and best use under current market conditions. The common factors that the real estate appraiser should consider in the land description include size and shape,

Exhibit 2
Industrial and Commercial Real Estate Appraisal
Typical City, Neighborhood, and Location Data

Typical City, Neighborhood, and Location Data	Typical Types of Information
Area topography	Typical utilities or improvements available (streets, curbs, sidewalks; water; electricity; telephone; gas; sewers)
Available public transportation:	Neighborhood percent built up
Air	Neighborhood boundaries
Rail	Predominant types of buildings
Bus	Typical age of buildings
Subway	Typical condition of buildings
Route maps	Price range of typical neighborhood properties
Area expressways	Typical marketability
Area traffic patterns	Neighborhood land value trends
Regional population trends	Location of facilities: churches, schools, shopping, recreational, cultural
Zoning types	Neighborhood avenues of approach
Typical building codes	Area availability of personnel
Regional employment level	Neighborhood employee amenities (shopping, eating, and banking facilities)
Area average family income	Neighborhood competition for subject property
Typical rents and lease features	Typical types of industry (light, heavy)
Typical percentage of vacancies	Sources of raw materials
Neighborhood new buildings (amount and kind)	Neighborhood hazards and nuisances
Number of building permits issued	Deed restrictions
Property tax structure and rates	Changing use of area

topography, frontage, drainage and water runoff, soil conditions, environmental conditions, site access and transportation patterns, visibility, and neighboring property users.

22. Improvement Description. This section of the industrial and commercial real estate appraisal report presents a description of the physical improvements, which include any structure on the site as well as any improvements added to the site, such as parking lots, utility lines, storm drainage, and landscaping. Each improvement has its own specific characteristics that should be analyzed by the real estate appraiser. Structural improvements consist of a combination of physical components designed to serve a specific purpose.

    The typical factors included in the improvements description are listed below:

    a. Use
    b. Size
    c. Architectural style
    d. Construction type
    e. Site preparation and foundation
    f. Frame
    g. Floor structure
    h. Floor covering
    i. Ceiling
    j. Interior constructions
    k. Plumbing
    l. Sprinkler system
    m. Heating, ventilation, and air conditioning
    n. Electrical system
    o. Exterior walls
    p. Roof
    q. Insulation

23. Taxes and Assessment Data. The current property tax assessment is typically reported and the current property tax expense is typically calculated.
24. Marketability Study. In the real estate appraisal of an income-producing commercial property, a marketability study may be performed to find out how the subject property fits into the overall market in terms of supply and demand levels and absorption rates.
25. Analysis of Highest and Best Use as If Vacant. The analysis and conclusion of the subject property highest and best use is a standard procedure in any real estate appraisal. Concluding highest and best use is not only a generally accepted procedure, it is a USPAP requirement.

    USPAP Standards Rule 1-3 provides the following instruction with regard to highest and best use:

    > When necessary for credible assignment results in developing a market value opinion, the real estate appraiser should:
    >
    > a. identify and analyze the effect on use and value of existing land use regulations, reasonably probably modifications of such land use regulations, economic supply and demand, the physical adaptability of the real estate and market area trends; and
    >
    > b. develop an opinion of the highest and best use of the real estate.
    >
    > In a highest and best use analysis, the real estate appraiser determines the property use that fulfills the following four tests:
    >
    > a. physically possible
    >
    > b. legally permitted
    >
    > c. economically feasible
    >
    > d. maximally productive

26. Analysis of Highest and Best Use as Improved. The real estate appraiser first concludes highest and best use of the site as if vacant and ready for development. Next, the real estate appraiser analyzes the highest and best use of the industrial or commercial property as currently improved. The highest and best use of the industrial or commercial property as improved is the use that results in the highest present property value.

    That present value is the present worth of all projected net cash flow discounted at a market-derived rate of return. If the value of the improvements, based on their highest and best use, is less than the value of the land based on its highest and best use, minus the cost of demolition of the improvements, then the improvements would contribute no value. The highest and best use would be to remove the improvements.
27. Land Value. The land value can be a major component of the total industrial or commercial property value. Real estate appraisers typically estimate land value separately, even when valuing properties with extensive improvements. The real estate appraiser can use several methods to estimate land value, including the following:
    a. Sales comparison method
    b. Extraction method
    c. Allocation method
    d. Subdivision development method
    e. Land residual method
    f. Ground rent capitalization method

    In real estate appraisals performed as a component of the asset-based approach, the most common method to estimate land value is the sales comparison method. However, when few sales are available or when the value indications of the sales comparison method need additional support, the other land valuation methods may be used.
28. Cost Approach. The principal procedures in a cost approach analysis are summarized as follows:
    a. Estimate the highest and best use of the site. This initial procedure provides a basis for selecting comparable site sales. In addition, this procedure provides a basis for setting a benchmark against which accrued depreciation of the improvements is measured.
    b. Estimate the current dollar cost of either reproducing or replacing the subject improvements. In addition to direct costs and indirect costs, current cost estimate typically includes both a developer's profit and an entrepreneurial incentive based on local market evidence.

c. Estimate the total dollar amount of accrued depreciation from all causes. This total accrued depreciation typically includes three categories of deprecation:
    i. Physical deterioration
    ii. Functional obsolescence
    iii. External obsolescence
d. Subtract the dollar amount of total accrued depreciation from the estimate of the current reproduction or replacement cost new. This difference, if computed accurately, approximates the current value of the subject major improvements.
e. Estimate the replacement (or reproduction) cost new less depreciation for any minor buildings and other on-site improvements, such as landscaping, fencing, and driveways. An important component of this procedure is to estimate the value (rather than the cost) that these improvements add to the overall value of the property.
f. Add the site value to the depreciated cost of (i) the building major improvements and (ii) the other on-site improvements. The resulting sum is the estimated value of the subject property according to the cost approach.

In the estimation of current cost, all cost components should be considered. Total current construction costs (either reproduction or replacement) are often identified as direct and indirect costs. Direct costs are labor and materials and typically include the following:

a. Labor hired by the general contractors and subcontractors
b. Materials used, beginning with site clearance to the final cleanup
c. Equipment, leased or owned
d. Temporary electric service
e. Developer's overhead and profit

Indirect costs typically include the following:

a. Professional service fees, including legal, appraisal, financial feasibility, engineering, architectural, and surveying
b. Construction and possibly permanent loan charges
c. Property management commissions
d. Project management fees
e. Land lease rent, if appropriate
f. Real estate taxes
g. Project promotion charges
h. Any other interim carrying costs

The common construction cost estimation methods include the following:

a. Quantity survey method
b. Unit-in-place construction method
c. Comparative unit method
d. Historical cost indexing method

The real estate appraisal report should also describe the analyses related to estimating depreciation. Accrued depreciation is typically defined as a loss in value from any cause. The three types of accrued depreciation are as follows:

a. Physical deterioration
b. Functional obsolescence
c. External obsolescence

The real estate appraisal report should distinguish the concept of cost from the concept of value. Cost is typically a measure of a past expenditure either of labor or materials or both. That is, cost represents a measure of past expenditures. Value, on the other hand, is influenced by the future. This is because value, by definition, constitutes the present worth of future right sand benefits. Therefore, cost is the amount of money necessary to acquire or to create an item, while value represents its worth.

29. Sales Comparison Approach. The comparability of the selected sale transactions may be a controversial aspect of the sales comparison approach analysis. Therefore, market sale transactions are typically not to be used unless the sales data have been confirmed by the real estate appraiser or by a reliable delegate. This confirmation process may include inquiries into the circumstances causing the sale or affecting the transaction price. Price represents the amount paid for the real estate in terms of dollars.

    Before accepting the price as evidence of value, the real estate appraiser may verify the transaction for the following conditions:

    a. Relationship of the parties
    b. Date of sale
    c. Financial terms of sale

Another issue in the real estate appraisal may be the appraiser's adjustments to the comparable sales to account for differences between the comparable properties and the subject property. Any adjustments related to differences due to variations in age, size, and quality of comparable versus subject building construction should be identified and quantified in the appraisal report.

Real estate appraisers may use either the detailed property analysis method or the overall property rating method to justify these market comparison adjustments:

a. Detailed Property Analysis Method. After confirming the sale prices and terms of sale with respective buyers, sellers, or brokers, the appraiser may inspect comparable properties for size and details of construction. This allows the appraiser to make price adjustments to make each sale as comparable as possible to the subject property.

b. Overall Property Rating Method. Under this method, market comparison is based on an overall judgment as to the percentage value adjustment called for in order to make each sale comparable with the subject property. The overall percentage applied to each comparable property in turn is justified by the appraiser's explanation that the subject property is better, poorer, or the same in relation to its construction as to type, size, features, age, and building condition. By adjusting the comparable sale prices upward or downward in accordance with the characteristics of the subject property, a market value estimate is derived.

For industrial/commercial properties, sale price adjustments are often made by the unit comparison method based on one or more of the following:

a. Price per square or cubic foot of building volume

b. Price per square foot of net rentable area

c. Price per apartment including land investment

d. Price per room or price per floor

e. Gross annual or monthly income multiplier

f. Its use as a special purpose property (for example, hospital, per bed; restaurant and theater, per seat)

The sales comparison approach is well adapted to situations in which there are an adequate number of similar properties that have recently sold. In using these sales, the real estate appraiser attempts to verify each sale in order to confirm the relationship of the parties, date of sale, and any financing terms. In analyzing comparable sales, it may be necessary to adjust a price if prices have changed between (a) the time that the comparable property sold and (b) the subject appraisal date.

Also, an adjustment is typically required if a comparable sale property's price was influenced by financing terms. The cash equivalency method is often used to adjust for this price influence. The purpose of this adjustment is to reveal the price that a comparable property would have brought without the influence of atypical financing.

There are two methods to analyze comparable sales properties: (a) the detailed

property analysis method and (b) the overall property rating method. The first method requires the real estate appraiser to make a detailed analysis of all features in the industrial or commercial property that influenced the price paid as well as transactional, location, and time influences. The second method allows the real estate appraiser to make an overall price adjustment to the comparable sale price. The overall property rating method is more commonly used in real estate appraisals performed as a component of an asset-based approach valuation.

30. Income Capitalization Approach. The income capitalization approach converts the property's expected income or cash flow into a present value. There are two categories of income capitalization methods: (a) direct capitalization and (b) yield capitalization.

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

    Value estimates may be calculated by applying an appropriate multiplier or capitalization rate to the subject property's expected income or cash flow. The term direct capitalization is sometimes used to refer to the procedure of extracting income multipliers or capitalization rates from comparable sales.

    Capitalization rates and income multipliers derived from comparable sales do not explicitly address profitability. Rather, they are simply observed ratios of income to value. Nonetheless, such market-derived capitalization rates can provide reliable estimates of value if:

    a. the expected cash flow is a representative income projection and
    b. the income multiplier or capitalization rate is derived from comparable sales with the same potential for future income.

    Common direct capitalization multipliers or rates include (a) income multipliers such as potential gross income multiplier ("PGIM"), effective gross income multiplier ("EGIM"), and net income multiplier ("NIM") and (b) several capitalization rates such as overall capitalization rate, land capitalization rate, and building capitalization rate.

    The industrial or commercial property value is commonly estimated by dividing one period of net operating income ("NOI") by an overall capitalization rate. The rate is estimated by (a) extracting overall rates from comparable property sales; (b) comparing the comparable property attributes (physical, locational, financial) to the subject property; and (c) selecting an appropriate overall rate.

    As with the PGIM, EGIM, and NIM, an implied assumption is that the future performances of the comparable properties and the subject industrial or commercial property will be similar.

    Values are often estimated by projecting cash flow over a typical holding period and discounting the cash flow to a present value estimate 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 property.

    The cash flow components typically projected in an industrial or commercial appraisal are (a) NOI and (b) the net proceeds from the property resale. The discount rate is sometimes called the property yield rate or the overall yield rate.

    All income approach methods are categorized as either direct capitalization or yield capitalization. Direct capitalization uses a one period measure of income or cash flow to estimate value. This procedure includes the use of income multipliers such as the potential gross income multiplier, effective gross income multiplier, and net income multiplier. This procedure also includes the use of capitalization rates such as the overall capitalization rate, the land capitalization rate, and the building capitalization rate.

    Yield capitalization requires a projection of the estimated future income of the industrial or commercial property. Value is estimated by discounting this income, including any proceeds from reversion, at an appropriate yield rate. A specific procedure of the yield capitalization method is the discounted cash flow analysis.

    When estimating value using yield capitalization, the first year NOI is explicitly

estimated. The property income after the first year is either (a) explicitly estimated for each year of the investment holding period or (b) projected to change according to a particular mathematical process. Several common alternative property income patterns include level income, compound change, and straight-line change.

31. Reconciliation and Final Opinion of Value. The final procedure is the reconciliation of the various value indications into the final opinion of value. For real estate appraisals performed for many purposes, it may be reasonable to conclude a range of values as the final value opinion. For real estate appraisals performed as part of an asset-based approach analysis, however, it is more common to conclude a point estimate as the final value opinion.

    The nature of the reconciliation procedure depends on:

    a. the purpose and objective of the industrial or commercial property appraisal,
    b. the individual valuation approaches and methods used, and
    c. the real estate appraiser's estimate of the reliability of each of the value indications derived.

    When all three property valuation approaches are used, the real estate appraiser typically considers the relative dependability and applicability of each approach given (a) the subject property type as well as (b) the quantity and quality of data used.

    In the reconciliation section of the property appraisal report, the real estate appraiser may explain variations among the value indications of the different approaches used and account for differences between the value conclusions derived.

32. Estimate of Exposure Time. USPAP defines exposure time as follows:

    > Estimated length of time that the property interest being appraised would have been offered on the market prior to the hypothetical consummation of a sale at market value on the effective date of the appraisal.

33. Professional Qualifications of the Appraiser. The statement of the professional qualifications should describe the appraiser's education and training, experience and expertise, and professional credentials and designations. For real estate appraisals performed as part of an asset-based approach analysis, this statement should emphasize the appraiser's experience with regard to similar industrial or commercial properties.

34. Addenda. The following items may be incorporated in the real estate appraisal report addenda:

    a. Building specifications
    b. Charts and graphs
    c. City, neighborhood, and other maps
    d. Detailed estimates of the replacement or reproduction cost
    e. Historical income and expense data
    f. Lease and lease abstracts
    g. Photographs of properties referred to in the report
    h. Plans and elevations of the buildings
    i. Plot plan
    j. Sales and listing data

Summary and Conclusion

The asset-based approach business valuation involves the appraisal of all of the assets of either an operating company or an asset-holding company. For the typical operating company, these asset categories often include working capital assets, owned and leased real estate, tangible personal property, and intangible personal property.

This discussion focused on the appraisal of an operating company's industrial or commercial real estate—as part of the asset-based approach to business valuation. This discussion summarized what the valuation analyst needs to know about the industrial and commercial real estate appraisal process. Analysts have to work with—and understand—commercial real estate appraisers.

This discussion also summarizes what the parties who rely on the business valuation need to know about the industrial and commercial real estate appraisal process. These parties have to rely on the contributions of commercial real estate appraisals to the asset-based approach business valuation.

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Industrial and Commercial Personal Property Appraisal Procedures

John C. Ramirez

The asset-based approach to business valuation often involves the appraisal of an operating company's industrial or commercial tangible personal property. This discussion summarizes what valuation analysts—and the parties who rely on their business valuations—need to know about the industrial or commercial personal property appraisal process as part of the asset-based approach business valuation analysis.

Introduction

The asset-based approach is a generally accepted business valuation approach. Applicable to the going-concern valuation of either operating companies or asset-holding companies, this business valuation approach typically involves the appraisal of the following categories of the subject company assets: working capital assets, owned and leased real estate, tangible personal property, and intangible personal property.

This discussion focuses on the typical procedures related to the appraisal of industrial and commercial personal property. This is the type of tangible personal property ("TPP") that is typically owned and operated by most operating companies.

This discussion summarizes what the valuation analyst ("analyst") needs to know about TPP appraisals. These analysts work with—and rely on—TPP appraisers as part of the asset-based approach valuation process. And, this discussion focuses on what the parties who rely on asset-based approach business valuations need to know about industrial and commercial TPP appraisals.

The Tangible Personal Property Appraisal Report Summary

The *Uniform Standards of Professional Appraisal Practice* ("USPAP") 2016–2017 edition includes Standard 8, entitled "Personal Property Appraisal, Reporting." USPAP Standards Rule 8-1 allows for either oral or written TPP appraisal reports.

USPAP Standards Rule 8-2 allows for two types of written TPP appraisal reports:

1. An appraisal report
2. A restricted appraisal report

Standards Rule 8-2(a) describes the required content of an appraisal report. Standards Rule 8-2(b) describes the required content of a restricted appraisal report.

Exhibit 1 presents an illustrative table of contents (or report outline) for a typical TPP narrative appraisal report. Such an appraisal report may be applicable for asset-based approach business valuation purposes. This table of contents is consistent with the USPAP requirements for an appraisal report—that is, a report prepared in compliance with USPAP Standards Rule 8-2(a).

It is noteworthy that not all of the items in the illustrative table of contents are required for compliance with Standards Rule 82-(a). For example, USPAP does not require that the TPP appraisal report include photographs.

The table of contents in Exhibit 1 is presented for illustrative purposes only. A TPP appraisal report that includes most of the items included on this table of contents should comply with the USPAP Standards Rule 8-2(a) requirements for an appraisal report.

Tangible Personal Property Appraisal Report Contents

1. Title Page. The title page should clearly identify the TPP appraisal report subject for all report users. The title page should identify the subject TPP, the location of the TPP, the definition of value concluded, and the "as of" valuation date. The title page should identify the name and address of the TPP appraiser and the name and address of the client.
2. Letter of Transmittal. The letter of transmittal typically includes the following information:
   a. Date of letter and salutation
   b. A brief description of the TPP
   c. Identification of the TPP ownership interest
   d. Statement that a property inspection and other necessary investigations and analyses were made by the TPP appraiser
   e. Reference that the transmittal letter is an integral component of an accompanying appraisal report
   f.. Identification of the type of TPP appraisal and the type of TPP appraisal report
   g. Standard (or definition) of value concluded in the appraisal report
   h. "As of" date of the appraisal
   i. Opinion of value
   j. TPP appraiser's signature
3. Table of Contents. The table of contents typically lists all of the sections of the TPP appraisal report in the order in which they are presented. If there are major divisions within the report, they may also be presented in the table of contents.
4. Certification. The certification is typically presented as a separate page in the introduction section of the appraisal report. The certification may be presented after the final value conclusion. In any event, the TPP appraiser(s) will sign and date the certification.

   If USPAP compliance is applicable to the TPP appraisal, the certification will indicate whether the appraiser has personally conducted the appraisal in accordance with USPAP. According to USPAP Standards Rule 8-3, each written TPP appraisal report is required to contain a signed certification.
5. Summary of Important Conclusions. The summary of important conclusions page will typically include the following items:
   a. A brief identification of the TPP
   b. Typical ages of the TPP

Exhibit 1
Typical TPP Narrative Appraisal Report
Illustrative Table of Contents

Item Topic

c. Value indication from the cost approach
d. Value indication from the income capitalization approach
e. Value indication from the sales comparison approach
f. Final opinion of value

6. Photographs. As a general rule, there cannot be too many photographs in a TPP appraisal report. One of the appraiser's responsibilities is to adequately acquaint the appraisal report intended user(s) with the TPP. Photographs help this process.
7. The Plant Description. This section provides a summary description of the facility in which the TPP is located. This description needs to be adequate to provide the appraisal report intended user(s) with an overview of the location and the condition of the TPP. Where appropriate, this description can include photographs, engineering drawings, plant diagrams and schematics, and so forth.
8. The Plant Layout. This section provides a summary description of the layout or configuration of the TPP. This description should familiarize the appraisal report intended user(s) with (a) where the major equipment/processes are located within the plant and (b) where the major equipment/processes are located with respect to each other.

   Again, this description needs to be enough to provide the appraisal report intended user(s) with an overview of the location and condition of the TPP. When appropriate, this description can include diagrams, schematics, engineering drawings, process/product flow charts, and so forth.
9. The Plant Process. This report section provides a summary description of the processes by which (a) the major property components operate together and (b) the subject product is converted from raw material to finished goods. This description should explain how the major property components are associated with each other, both physically and functionally.

   Ideally, this description will allow the appraisal report intended user(s) to mentally "walk through" the plant, following the manufacturing/processing flow, from the raw materials receiving dock to the finished goods shipping dock. Product processing and/or manufacturing flow charts are often included in this section of the industrial or commercial TPP appraisal report.
10. The Plant Product. This report section provides a summary description of the goods produced by the TPP. The subject to the appraisal is the TPP, not the finished goods inventory.

    However, it is usually helpful for the appraisal report intended user(s) to understand the end product produced/manufactured by the TPP. Product photographs, product descriptions, and product listings are often included in this section of the appraisal report.
11. Types of TPP Appraisal and Type of TPP Appraisal Report. USPAP Standards Rule 8-2 defines two alternative types of TPP appraisal reports: (a) appraisal report and (b) restricted appraisal report. The industrial or commercial TPP appraisal report format should be identified.
12. Extraordinary Assumptions and Hypothetical Conditions. Hypothetical conditions or extraordinary assumptions that affect the value conclusion may be an important part of an appraisal report prepared for use as part of an asset-based approach business valuation. Accordingly, such extraordinary assumptions and hypothetical conditions should be clearly stated.

    When a personal property value conclusion is subject to an extraordinary assumption or hypothetical condition (such as a pending sale agreement, atypical financing, or a known but not-yet-quantified environmental issue), the appraiser should describe the condition in the TPP appraisal report so that its effect on the value conclusion is clear.
13. General Assumptions and Limiting Conditions. These statements are used to help protect the TPP appraiser and to inform the client and other intended users of the report.

    The general assumptions and limiting conditions are an important part of the TPP appraisal report. The reported conditions establish the framework for what the appraisal does—and does not—include. Particularly in a bankruptcy-related appraisal, the TPP appraiser may obtain legal advice when preparing the statement of general assumptions and limiting conditions.

14. Purpose and Intended User(s) of the TPP Appraisal. To avoid an unintended (and inappropriate) use of the TPP appraisal report, the intended use and the intended user of the appraisal should be specified in the report.

    USPAP defines both the terms "intended use" and "intended user" as follows:

    > *Intended Use*: the use or uses of an appraiser's reported appraisal, appraisal review assignment opinions and conclusions, as identified by the appraiser based on communication with the client at the time of the assignment.
    >
    > *Intended User*: the client and any other party as identified, by name or type, as users of the appraisal, appraisal review report by the appraiser on the basis of communication with the client at the time of the assignment.

15. Scope of the Work. A clear and accurate description of the scope of the TPP appraisal work is useful to all individuals (and particularly to the finder of fact) who may rely on the appraisal. The scope of the work refers to the amount and type of information researched and the analyses performed in the TPP appraisal assignment.

    Professional standards impose a responsibility on the personal property appraiser to determine the appropriate scope of work in order to conclude the value opinion and prepare the TPP appraisal report.

16. Definition of Value and Date of Value Opinion. The definition of value (also called the standard of value) is the type of value that is estimated in a TPP appraisal report. The premise of value is the hypothetical set of circumstances under which the parties described in the definition of value come together to consummate a transaction.

    In addition to the definition of value, the applicable premise of value should be defined in the appraisal report. The date of the value opinion (also called the effective date of the appraisal) is the "as of" date to which the value opinion applies.

17. Identification and Description of the TPP. This report section provides a detailed description of the industrial or commercial TPP. The TPP may be described by asset type or category, financial accounting account code or category, production process (or location within the total manufacturing process), or physical location within the subject facility.

    In this section, the appraiser both identifies the specific TPP and describes the condition of the specific TPP. Typically, this appraisal report section will refer to (and be supplemented by) detailed asset listings and/or inventories.

18. Ownership and History. The appraisal report should discuss both the current ownership of the TPP and the history of recent sales of the TPP. Unlike in a real estate appraisal, this discussion is not a USPAP requirement. However, a discussion of the current ownership both documents the appraiser's due diligence investigation and further describes the TPP for the appraisal report intended user(s).

19. Highest and Best Use Analysis. The analysis of highest and best use is a USPAP requirement for industrial and commercial TPP appraisals. The conclusion of highest and best use often influences the TPP appraiser's selection of the appropriate premise of value for the appraisal.

    In a highest and best use analysis, the appraiser determines the use that fulfills the following four tests. The TPP selected highest and best use should be:

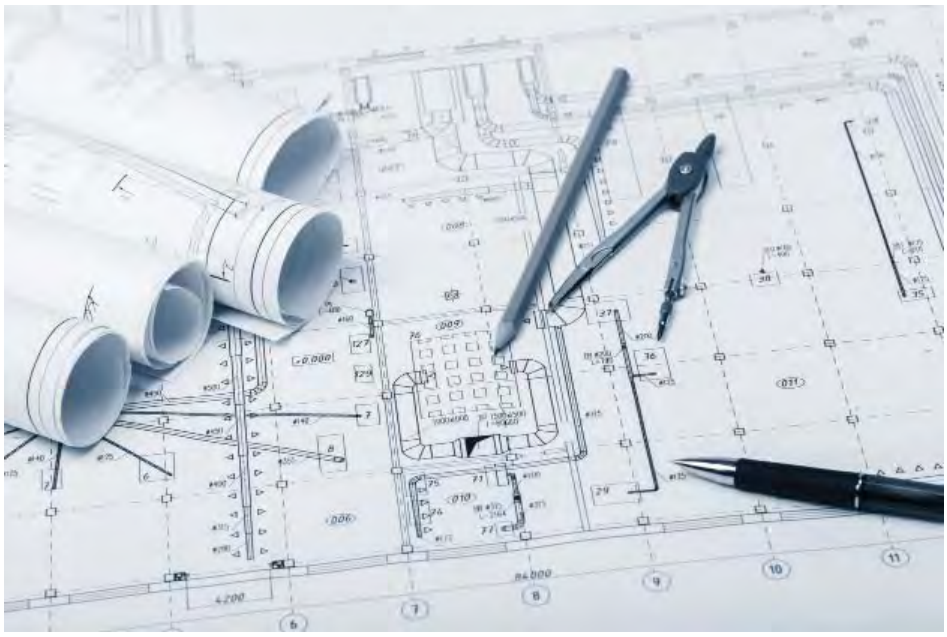
    a. physically possible,
    b. legally permitted,
    c. economically feasible, and
    d. maximally productive.

    Each of these four areas of analysis is affected by the others. The amount of income that a particular use could generate is meaningless if legal approval for the use cannot be obtained. Likewise, not every legally permitted use will warrant the expenditure of funds required to bring it about. The appropriate combination of all four factors results in the single use that can be identified as the TPP highest and best use.

20. Cost Approach. The cost approach is a common TPP valuation approach with regard to appraisals performed as a component of an asset-based approach business valuation. Accordingly, the cost approach section of the appraisal report should thoroughly explain the particular cost approach methods and procedures used

in the appraisal. All appraisal terminology should be identified and explained.

For example, the TPP appraiser should not assume that the appraisal report intended user(s) understands the subtle (but important) differences between (a) reproduction cost new less depreciation and (b) replacement cost new less deprecation. In particular, it will confuse any appraisal report intended user(s) if these two terms are used interchangeably in the appraisal report or if these two terms are both abbreviated as RCNLD in the appraisal report.



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

The appraisal report should clarify the cost measure used as the starting point in the cost approach analysis: (a) replacement cost new, (b) reproduction cost new, or (c) some other defined measure of cost.

21. Cost New. *Valuing Machinery and Equipment* explains the terms "replacement cost new" and "reproduction cost new" as follows:

> It is essential that the appraiser understand the difference between replacement cost new and reproduction cost new. 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 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.[1]

A cost approach analysis starts with either the replacement cost new or the reproduction cost new of the TPP and then deducts for the loss in value caused by physical deterioration, functional obsolescence, and economic obsolescence. The economic foundation for the cost approach is the principle of substitution: A prudent buyer will not pay for a property more than the cost of acquiring a substitute property of equivalent utility. The principle can be applied either to an individual asset or to an entire facility full of TPP.

The TPP appraisal report should clearly identify:

a. the measure (or type) of cost new estimated,
b. the method used to estimate cost new, and
c. the data sources used to estimate cost new.

Valuing Machinery and Equipment describes the alternative methods for estimating cost new 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 expenditures 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.[2]

Trending is a method of estimating a property's reproduction cost new (not replacement cost new) 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.

As used in this book, 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.[3]

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.[4]

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.[5]

As mentioned above, there are several methods for estimating the new cost of TPP. The common methods include the detail method, trending, cost to capacity, and other engineering methods. Of these four methods, the detail method and the trending method are commonly used in appraisals performed as part of an asset-based approach analysis.

The detail method, also known as the summation method, allows for a new 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 new of the whole.

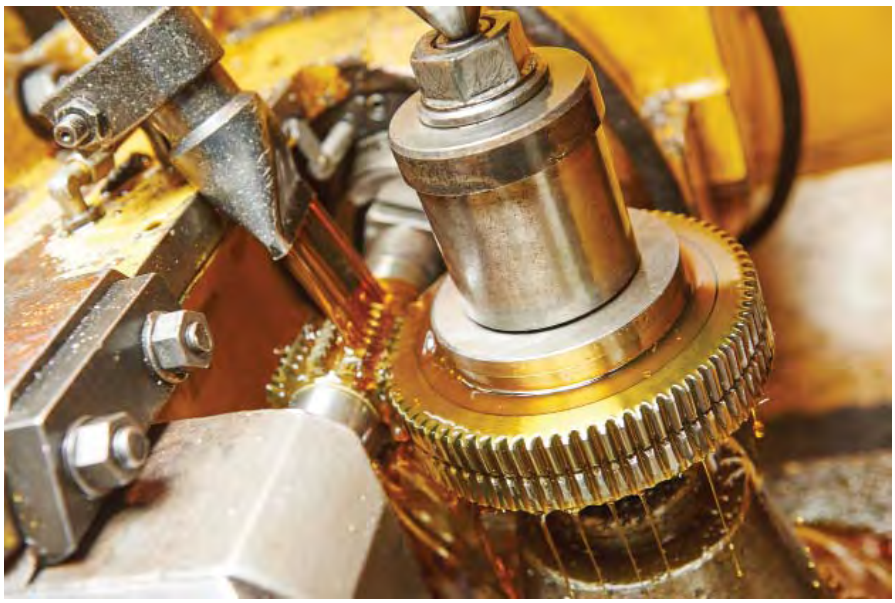
The trending method estimates the TPP reproduction cost new (not replacement cost new). In the trending method, an index or trend factor is applied to the TPP historical cost in order to convert (a) the known historical cost into an estimation of (b) the reproduction cost new.

22. Physical Deterioration. *Valuing Machinery and Equipment* describes the types or causes of TPP depreciation as follows:

> The three types or causes of appraisal depreciation traditionally recognized by appraisers are physical deterioration, functional obsolescence and economic obsolescence. The traditional definitions of these terms are 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.
> >
> > 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.

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; or similar factors.[6]



The particular method used to estimate physical deterioration should be identified and defined. The specific procedures used by the TPP appraiser within the identified method should be explained. In addition, all significant data sources should be identified.

The three common methods for measuring personal property physical deterioration are (a) the physical observation method, (b) the age/life method, and (c) the direct dollar measurement method.

The appraisal report should adequately describe the method that was used and how it was used in the personal property appraisal. All appraisal terminology should be identified and defined. This recommendation is particularly relevant to the age/life method, which involves numerous nonintuitive "age" and "life" measures.

Valuing Machinery and Equipment presents the following summary description of these three common 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 deprecation, it should not be confused with accounting depreciation because the appraiser uses valuation rather than accounting concepts of age and life.[7]

23. Functional Obsolescence. The industrial or commercial TPP appraisal report should:
    a. describe the concept of functional obsolescence,
    b. explain the method(s) used to identify and quantify functional obsolescence, and
    c. describe the data sources used in the functional obsolescence analysis.

    Valuing Machinery and Equipment offers the following definitions of functional obsolescence (and of the related value decrement, technology obsolescence):

> The next step in implementing the cost approach is to consider functional obsolescence. Functional obsolescence has been previously defined as the loss in value or usefulness of property 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 (i.e., manufacturing) cost, excess construction (excess capital) cost, over-capacity, inadequacy, lack of utility or similar conditions.
>
> Some appraisers draw a distinction between functional obsolescence and technological obsolescence. They define functional obsolescence as a loss in value resulting form differences in capability between a new machine and the appraised machine, and technological obsolescence as a loss in value resulting from the difference between design and materials of construction used in present-day machines compared with those used in the machine being appraised. There is a legitimate difference of opinion as to how appraisers apply the concepts to measure the functional and technological aspects affecting value. Regardless of the terms used, the important thing is for the appraiser to measure the various factors that contribute to functional obsolescence.[8]

Two methods that are commonly used to quantify TPP functional obsolescence are as follows:

a. Analysis of excess capital costs
b. Analysis of excess operating costs

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

> Functional obsolescence, particularly operating obsolescence, is typically found in the following situations:
>
> a. plants involved in the process industries;
> b. plants involved in industries that either use assets or manufacture products with a high degree of technology;
> c. older plants that have increased in size over time;
> d. plants in which there are a number of identical units;
> e. plants involved in industries that handle large volumes of material; and
> f. plants with areas of inactive machinery.[9]

24. External Obsolescence. Particularly in a TPP appraisal performed as part of an asset-based approach analysis, the TPP appraiser should describe:

    a. the factors considered in identifying external obsolescence,
    b. the methods used to quantify external obsolescence, and
    c. the specific data sources relied on in the external obsolescence analysis.

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

    Locational obsolescence affects real estate more often than it affects TPP. If applicable, the TPP appraisal report should distinguish between these two forms of external obsolescence.

25. Income Capitalization Approach. The income approach is particularly applicable to the valuation of TPP that is leased. 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. When estimating value by the income approach, the TPP appraiser converts the property's expected rental income or cash flow into a present value.

There are two categories of income capitalization methods: (a) direct capitalization and (b) yield capitalization.

Direct capitalization methods rely on direct capitalization rates typically extracted from comparable 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. Since TPP has a limited life, yield capitalization is more commonly used than direct capitalization in TPP appraisals.

Value estimates may be calculated by applying an appropriate multiplier or capitalization rate to the TPP expected income or cash flow. The term "direct capitalization" is sometime used to refer to the procedure of extracting income multipliers or capitalization rates from comparable sales. Capitalization rates and income multipliers derived from comparable sales do not explicitly address profitability. Rather, they are simply observed ratios of income to value. Nonetheless, such market-derived capitalization rates can provide reliable estimates of value if:

a. the expected cash flow is a representative income projection and
b. the income multiplier or capitalization rate is derived from comparable sales with the same potential for future income.

The most common direct capitalization multiplier used for TPP is the gross income multiplier ("GIM"). The GIM is derived by:

a. extracting GIMs from comparable TPP sales;
b. comparing the comparable TPP attributes (physical, functional, and financial) to the subject TPP; and
c. selecting an appropriate multiplier.

When either calculating value or extracting multipliers, the appraiser should ensure that the income (however measured) is calculated on the same basis.

Personal property value is commonly estimated by dividing the one period net operating income ("NOI") by a capitalization rate. That rate is estimated by:

a. extracting overall rates from comparable TPP sales;
b. comparing the comparable TPP attributes (physical, functional, and financial) to the subject TPP; and
c. 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 estimate 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 subject personal property. The cash flow components typically projected in a TPP appraisal are NOI and the net proceeds from the property resale. The discount rate is also called the yield capitalization rate.

26. Sales Comparison Approach. The comparability of the selected sale transactions may be a controversial aspect of the sales comparison approach analysis. Therefore, market sale transactions data may be confirmed by the TPP appraiser or by a reliable delegate. This confirmation process may include inquiries into the circumstances causing the sale or affecting the transaction price.

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 comparable sale and the appraisal date. Market prices move upward or downward with changes in supply and demand, variations in business cycles, and changes in the value of money.

Another issue is the appraiser's adjustments to the comparable sales to account for differences between the comparable properties and the subject TPP. Any adjustments related to differences due to variations in age, features, and quality of the comparable TPP versus the subject TPP should be identified and quantified in the appraisal report.

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

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

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

27. Reconciliation and Final Opinion of Value. The final procedure is the reconciliation of the various value indications into a final opinion of value. For TPP appraisals performed for many purposes, it is reasonable to conclude a range of values as the final value opinion.

    For TPP appraisals that will be used in an asset-based approach analysis, however, it is more common to conclude a point estimate as the final value opinion. The nature of the reconciliation procedure depends on:

    a. the purpose and objective of the TPP appraisal,
    b. the individual valuation approaches and methods used, and
    c. the TPP appraiser's estimate of the reliability of each value indications derived.

    When all three property valuation approaches are used, the TPP appraiser typically considers the relative dependability and applicability of each approach given (a) the TPP type and (b) the quantity and quality of data used.

    In the reconciliation section of the appraisal report, the appraiser may (a) explain variations among the value indications of the different approaches used and (b) account for differences among the value conclusions derived.

28. Qualifications of the TPP Appraiser. The statement of the qualifications should describe the TPP appraiser's education and training, experience and expertise, and professional credentials and designations. For appraisals used within an asset-based approach analysis, this statement should emphasize the appraiser's experience in conducting appraisals of similar industrial and commercial TPP.

29. Addenda. This section of the TPP appraisal report may include all exhibits, diagrams, schematics, flow charts, photographs, financial statements, legal documents, and other supplemental data not included in the narrative section of the report.

    It is a good idea to include a table of contents at the beginning of the addendum. This table of contents should list the contents of the TPP appraisal report addendum.

Summary and Conclusion

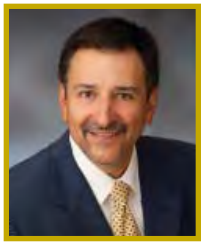
The asset-based approach is a generally accepted business valuation approach. The asset-based approach analysis of an operating company often includes the appraisals of the following asset categories: working capital assets, owned and leased real estate, tangible personal property, and intangible personal property.

This discussion focused on the appraisal of industrial or commercial TPP—as part of the asset-based approach to business valuation.

This discussion summarizes what analysts need to know about the industrial and commercial TPP appraisal process. And, this discussion summarizes what parties who rely on an asset-based approach business valuation need to know about the industrial and commercial TPP appraisal process.

Notes:

1. *Valuing Machinery and Equipment,* 3d ed. (Washington, D.C.: American Society of Appraisers, 2011), 39.
2. Ibid., 43.
3. Ibid., 50.
4. Ibid., 51.
5. Ibid., 55.
6. Ibid., 56.
7. Ibid., 59.
8. Ibid., 70.
9. Ibid., 72.



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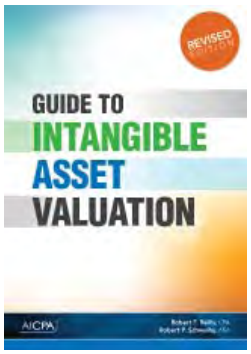
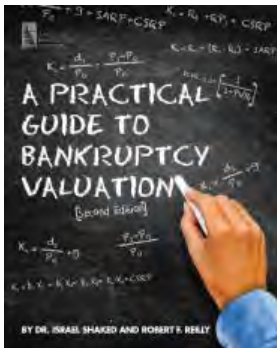
Valuation Textbooks Authored by Robert Reilly and Robert Schweihs





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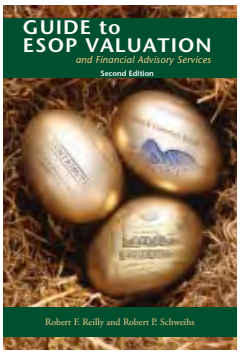

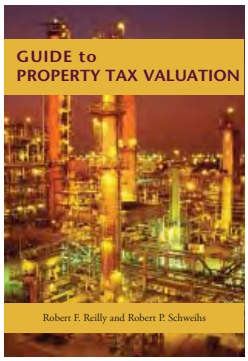

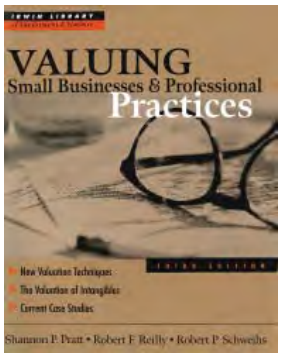

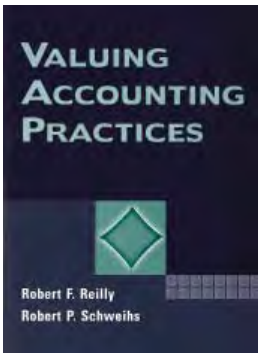

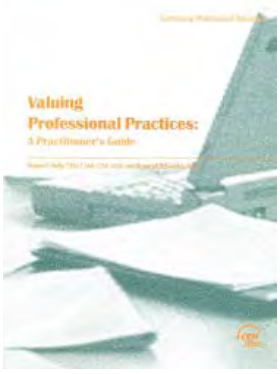

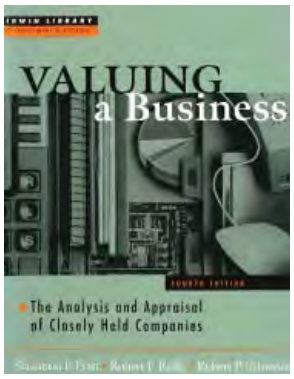

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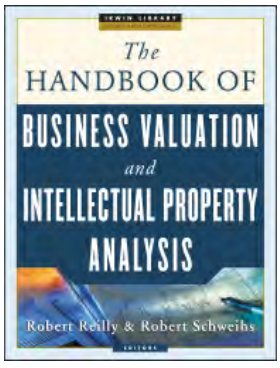

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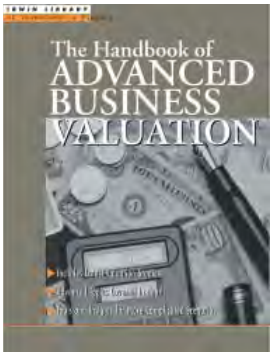

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* Authored by Robert Reilly and Israel Shaked, Ph.D.
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Willamette Management Associates

Best Practices Discussion

Valuation of Intellectual Property as Part of the Asset-Based Approach

Kevin M. Zanni and Robert F. Reilly, CPA

The asset-based approach is a generally accepted business valuation approach. This approach may be used to value either operating companies or asset-holding companies for transaction, taxation, financing, litigation, planning, and other purposes. The generally accepted asset-based approach valuation methods often involve the valuation of the operating company tangible assets and intangible assets. And, one common component of the intangible asset valuation process is the identification and valuation of the operating company's intellectual property. This discussion summarizes what valuation analysts (and their clients) need to know about valuing intellectual property as part of the application of an asset-based approach business valuation.

Overview

The asset-based approach is a generally accepted business valuation approach. The asset-based approach may be used by valuation analysts ("analysts") to conclude the going-concern value of various types of operating companies—including industrial and commercial companies.

Analysts sometimes use the asset-based approach in conjunction with—or as confirmation of—income approach and market approach business valuation methods. And, analysts sometimes use the asset-based approach when income approach or market approach business valuation methods are not applicable (for example, due to data constraints).

There are various generally accepted valuation methods within the asset-based approach. Many of these methods involve the valuation of the intangible assets of the subject operating company. Intellectual property is one category of general commercial intangible assets. Most industrial or commercial companies own and operate at least some intellectual property.

This discussion summarizes what analysts (and their clients) need to know about the valuation of intellectual property as part of the application of the asset-based business valuation approach.

Intellectual Property as a Subset of Intangible Assets

An intellectual property is an intangible asset that enjoys special legal recognition and legal protection. The special legal status of intellectual property comes from either federal statutes (for trademarks, patents, and copyrights) or state statutes (for trade secrets). Accordingly, intellectual property assets are a subset of general intangible assets.

There are four types of intellectual property:

- Patents
- Trademarks
- Copyrights
- Trade secrets

There may be other intangible assets that are associated with these intellectual property categories. For example, patents are often operated with—and transferred with—patent applications, unpatented proprietary technology, engineering drawings, schematics and diagrams, and other technical documentation. And, trademarks are often associated with—and transferred with—trade dress and advertising and promotional campaign materials.

Valuation Data Gathering and Due Diligence

One of the procedures in the application of the asset-based approach is the due diligence process. Data gathering is one procedure in the analyst's valuation due diligence process.

There are several ways to categorize the documents that the analyst may gather. First, this discussion considers intellectual property documents from a time period perspective. If such documents are available, the analyst considers documents related to the historical operations, the current operations, and the expected future operations of the intellectual property.

Second, if such documents are available, the analyst considers documents from a functional perspective, including the following:

1. The development of the intellectual property
2. The owner/operator's current use of the intellectual property
3. A new owner/operator's potential use of the intellectual property

Third, if possible, the analyst collects and assesses data related to different competitive or strategic perspectives of the intellectual property. This competitive assessment considers the intellectual property's strategic strengths, weaknesses, opportunities, and threats ("SWOT"), including the intangible asset SWOT compared to the owner/operator's resources and limitations, guideline company benchmarks, and industry benchmarks.

The analyst performs reasonable due diligence efforts with regard to the intellectual property documents and data. In this due diligence, the analyst typically compares any intellectual property documents and data (particularly any prospective financial information) to the following:

1. Historical data regarding the intellectual property operations
2. Historical data regarding the owner/operator operations
3. Current resources or constraints regarding the owner/operator
4. Publicly available (and presumably objective) data regarding guideline intellectual property, guideline companies, and the subject industry

The analyst may ask the owner/operator to provide information regarding the economic benefits associated with the intellectual property. The analyst performs reasonable due diligence procedures related to such economic benefit information.

This caveat should not imply that the owner/operator will attempt to improperly influence the analyst's valuation opinion or to inflate or deflate the intellectual property economic benefits. The caveat only recognizes that the owner/operator is not a valuation analyst.

Owner/Operator Data Gathering

If this information is available and relevant, the analyst typically requests information from the owner/operator with respect to the following:

1. The intellectual property development and maintenance
2. The owner/operator business operations (including the intellectual property)
3. The operations of the individual intellectual property

Sometimes, such owner/operator information is simply not available. It is not uncommon for the owner/operator to have created (or maintained) very few documents or data regarding the intellectual property. The analyst may be performing the valuation within a litigation or other contrarian environment. If the analyst is working for an opposing litigant, regulatory authority, taxing agency, or similar entity and not for the owner/operator, it may be difficult for the analyst to obtain all of the desired intellectual property information.

Typically, the analyst interviews the owner/operator regarding the intellectual property development process. The analyst may request descriptions of the following:

1. When the intellectual property was created
2. Why the intellectual property was created (that is, how the owner/operator functioned before the subject intellectual property was developed)
3. How the intellectual property was created (that is, what parties inside and outside the owner/operator entity) were involved in the development
4. The length of time associated with the intellectual property initial development and subsequent evolution (through the valuation date)
5. How the intellectual property evolved throughout its life cycle (for example, evolution due to continuing research and development investments, competition, obsolescence, or any other factors)

The analyst may also inquire about the maintenance of the intellectual property. This discussion may involve both maintenance expenditures and maintenance efforts. This information may be used in the assessment of the intellectual property remaining useful life ("RUL").

The analyst may inquire about the owner/operator's general business operations. These general business operations compose the environment in which the intellectual property actually operates. The analyst may request descriptions of the following:

1. How the intellectual property functions within the activities of the owner/operator
2. How the intellectual property contributes to the success of the owner/operator
3. How the subject intellectual property functions with respect to other intangible assets
4. How the subject intellectual property functions with respect to other tangible assets
5. What owner/operator employees use, maintain, protect, or commercialize the intellectual property

The analyst may inquire about the operation of the intellectual property within the owner/operator entity. The analyst may request responses to the following questions:

1. Does the intellectual property contribute to the generation of entity operating income?
2. Does the intellectual property contribute to the generation of entity ownership (royalty) income?
3. Has the owner/operator ever considered the inbound or outbound license of the intellectual property?
4. If it is not currently licensed, could the intellectual property be licensed?
5. Has the owner/operator ever been approached by a third party about an intellectual property sale, license, or other commercialization offer?

Economic Benefit Data Gathering

The analyst may consider the economic benefits related to the intellectual property. These economic benefits may be considered from the perspective of the current owner/operator, another individual owner/operator, or "the market" in general (in other words, the population of hypothetical owner/operators). These economic benefits could include any or all of the following:

1. Some measure of operating income
2. Some measure of license income
3. Some protection of alternative income sources (such as through forbearance)
4. Some measure of risk reduction (such as through licenses, contracts, or other competitive advantages)
5. Some deferral or reduction of expenses, capital costs, or other investments.

The analyst may inquire as to how the owner/operator perceives the economic benefits of the intellectual property. This inquiry may include the following information:

1. The intellectual property historical benefits to the owner/operator
2. The intellectual property current benefits to the owner/operator
3. The intellectual property prospective benefits to the owner/operator.

The owner/operator is often in a knowledgeable position to identify and quantify these economic benefits. With respect to intellectual property benefits, the owner/operator typically does not prepare such documents and assemble such data in the normal course of business. Therefore, the analyst should perform reasonable due diligence procedures with regard to the intellectual property data provided by the owner/operator.

Due Diligence Procedures for Owner/Operator Data

With regard to the historical benefits from the intellectual property ownership, the analyst typically compares such statements with the owner/operator's historical financial statements. The claimed revenue increase, expense decrease, or other intellectual property economic benefit may be evident in the owner/operator's historical results of operations.

The impact of the intellectual property can be encompassed in the current owner/operator's financial statements. Whatever economic benefit is identified by the owner/operator (for example, increased product selling price or decreased operating expense) may be encompassed in the owner/operator results of operations.

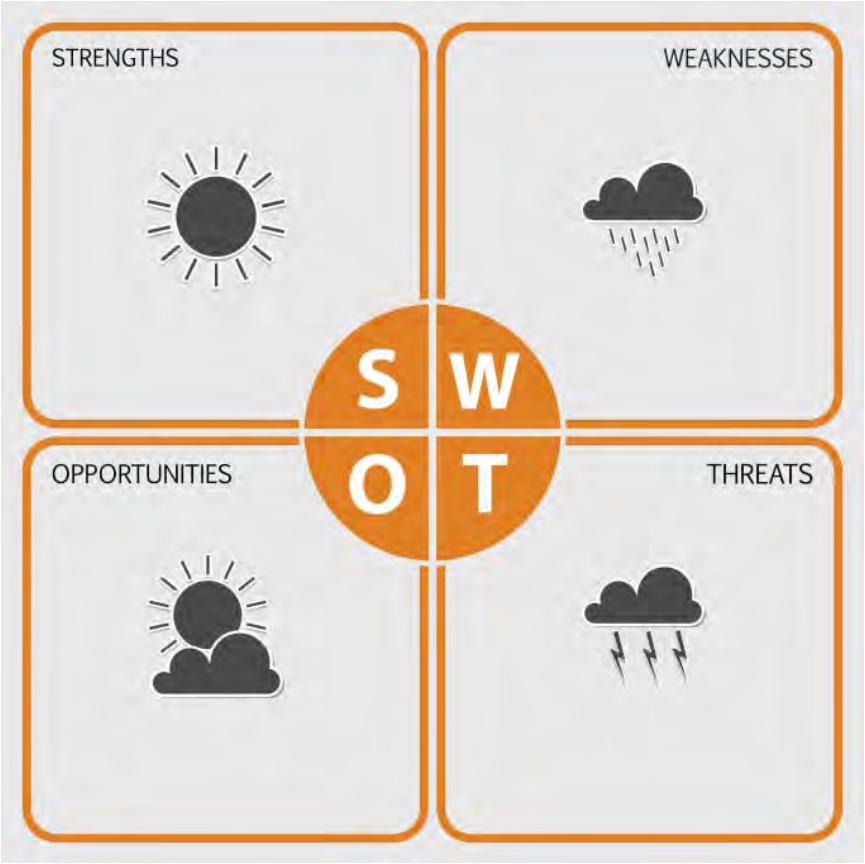
For a newer intellectual property, the analyst may be able to compare current (with the intellectual property) financial statements to historical (without the intellectual property) financial statements. The economic benefit of the recently developed

intellectual property may be demonstrated by increased revenue growth, decreased expense ratios, and so forth, between the two periods.

The owner/operator may express the benefits in terms of financial or operational projections. Regardless of whether the subject is old or is recently developed, the owner/operator indicates the extent to which the intellectual property will contribute to the entity's operating results in the future. This economic contribution is converted into a value indication when the analyst performs a profit split, multiperiod excess earnings, capitalized excess earnings, or similar type of valuation analysis.

Strategic and Competitive Analysis

Before selecting or performing the valuation methods, the analyst typically considers the competitive position of the intellectual property. This due diligence procedure often involves an assessment of the intellectual property SWOT. The SWOT assessment is performed by comparing the subject intellectual property to the corresponding intellectual property of the owner/operator's competitors. Typically, the analyst considers the SWOT position of the intellectual property within the SWOT position of the owner/operator entity.



At this stage of the valuation, the analyst can only consider general aspects of the intellectual property SWOT. More specific SWOT considerations may relate to the individual intellectual property types.

As part of data gathering and due diligence procedures, the analyst may consider the following questions with regard to the intellectual property SWOT:

1. How important is the intellectual property to the owner/operator entity?
2. What would the owner/operator entity do if the intellectual property did not exist?
3. Does the intellectual property protect the owner/operator from competition?
4. Is the intellectual property susceptible to infringement or other wrongful use?
5. Does the owner/operator adequately protect, improve, and commercialize the intellectual property?
6. Is the intellectual property primarily used to defend other assets or income sources?
7. Could the intellectual property be further commercialized (such as through licensing)?
8. Do the owner/operator's customers, stockholders, and other stakeholders perceive the value of the entity's intellectual property?
9. When practical, are the intellectual property safeguarded through contracts, nondisclosure agreements, noncompetition agreements, and documentation safekeeping practices?
10. Is the existence of the intellectual property sufficiently documented?
11. Is the intellectual property subject to obsolescence influences of any type?
12. What efforts are the owner/operator making to prolong the intellectual property RUL?

The analyst may consider these general competitive factors when assessing the reasonableness of the intellectual property economic benefits (and other data) provided by the owner/operator and selecting the appropriate valuation approach or approaches.

Information Sources regarding Intellectual Property Sale and License Transactions

The application of the market approach and the associated valuation methods (for example, the comparable sales method and the relief from royalty method) are explained later in this discussion. Before considering the application of the market approach, the analyst often performs due diligence procedures related to guideline intellectual property sale or license transactions. In this due diligence process, the analyst assesses the existence of, and the volume of, such sale or license transactions.

At this stage of the valuation process, the analyst typically does not examine these data to select a comparable uncontrolled transaction ("CUT"). Rather, the analyst typically considers these data simply to see if there are any sale or license transactions of a type of intellectual property that:

1. may provide meaningful valuation guidance for the subject intellectual property and
2. are in the same (or similar) industry as the owner/operator.

In one respect, this procedure is related to the analyst's strategic assessment of the intellectual property. If there is a fair amount of sale or license transactional data, that fact may mean that there is market interest in the intellectual property type. If there are little or no transactional data, that fact may mean that there is limited market interest in the intellectual property type. As with all due diligence procedures, the analyst should apply professional judgment.

The fact that there are few or no transactional data may mean that the intellectual property is an internal use only type of intangible asset or is the type of intellectual property that typically transacts with other tangible or intangible assets.

The due diligence procedures regarding sale or license transactional data may inform the analyst as to whether it is even possible to perform a market approach valuation analysis. If the market approach is practical, the analyst still has to select and analyze CUT data. Such valuation analysis procedures are typically performed after the due diligence process is complete.

Valuation Analyst Due Diligence Inquiries

If these data are available and relevant, the analyst may investigate the following lines of inquiry:

1. The owner/operator operations before the development of the intellectual property
2. The owner/operator operations without the existence of the intellectual property
3. The competitors' operations without the intellectual property
4. How the subject intellectual property is different from the competitors' intellectual property
5. The intellectual property life cycle (at the owner/operator specifically or in the industry generally)

Depending on who the analyst is working for in the engagement, he or she may not have access to due diligence data sources related to the listed inquiries. The analyst's due diligence questions may be affected by whether the intellectual property is an internal-use only intangible asset or an intellectual property that does (or could) generate operating or license income, or both.

If such access is available, the analyst may inquire as to how the owner/operator entity functioned before the development of the current version of the intellectual property. The analyst may consider the following questions:

1. Were there previous versions of the intellectual property?
2. When and how were the previous intellectual property versions created?
3. Did the intellectual property naturally evolve over time (like know-how or technical documentation) or are there discrete generations of the intellectual property (like a patent or license)?
4. Was there a time when the owner/operator did not have any version of the intellectual property?
5. What was the impact on the owner/operator entity of developing (or buying) the intellectual property?

The analyst may also inquire as to how the owner/operator entity would hypothetically function if it did not have access to the subject intellectual property. The analyst may consider the following questions:

1. Would the owner/operator buy or build a replacement intellectual property?
2. Could the owner/operator buy or build a replacement intellectual property?
3. How would the owner/operator replace the intellectual property?

4. Could the owner/operator function with the current version of the intellectual property?
5. Could the owner/operator function with any current version of the intellectual property?

The analyst may also inquire as to how the industry competitors function without the intellectual property. The owner/operator enjoys the use of the intellectual property, and the competitors do not enjoy the use of the intellectual property. The competitors may or may not have intellectual property that are comparable (or at least corresponding) to the subject intellectual property. The analyst may consider the following inquiries:

1. Do industry competitors have intellectual property that correspond to the subject (or is the subject intellectual property unique in the industry)?
2. Did the competitors build or buy their corresponding intellectual property?
3. Are there discernible generations of the corresponding intellectual property in the industry?
4. Have any competitors been acquired recently, and, if so, do the acquirers report the fair value of the corresponding intellectual property in any public financial statements?
5. Are there any competitors who operate without a corresponding intellectual property and, if so, how (for example, a contract manufacturer that does not manufacture its own product brands)?

The analyst may inquire as to how the competitors' corresponding intellectual property (if any) compare to the subject intellectual property. The analyst may consider the following questions:

1. Is there any objective measure of relative intellectual property effectiveness (like a consumer brand awareness study regarding product trademarks)?
2. Is there any objective measure of the relative size of intellectual property between the competitors (such as the number of patents owned by the competitors)?
3. Is there any way to compare relative age or RUL of intellectual property among the competitors?
4. Is there a reported market for the intellectual property in the industry (such as for FCC spectrum licenses)?
5. Is there a verifiable industry benchmark or rule-of-thumb regarding the intellectual property in the industry (like price per customer, subscriber, or patient)?

The analyst may inquire about the life cycle of the intellectual property and the relative position of the intellectual property within that life cycle. The analyst may consider the following questions:

1. Is it possible to estimate the intellectual property RUL?
2. Is it possible to estimate the intellectual property total life cycle?
3. Is it possible to estimate the typical life cycle of any corresponding intellectual property in the industry?
4. How does obsolescence (in any form) affect the performance of the intellectual property?
5. What efforts or expenditures have the owner/operator made to extend the RUL of the intellectual property?

Generally Accepted Intellectual Property Valuation Approaches

There are three generally accepted intellectual property valuation approaches: the cost approach, the market approach, and the income approach. Valuation analysts typically consider, and attempt to apply, all three approaches in each intellectual property valuation. This is because multiple approaches provide multiple value indications. These multiple value indications often reconcile into a reasonable range of values (e.g., with the analyst considering the mean, median, modes, interquartile measures, and other measures). In addition, ideally, these multiple value indications provide mutually supportive evidence of the analyst's final value conclusion.

Practically, most intellectual property valuations are based principally on one approach. For each intellectual property valuation, the analyst will select the approach (or approaches) based on the following:

1. Those with the greatest quantity and quality of available data
2. Those that best reflect the actual transactional negotiations of market participants in that industry
3. Those that best fit the characteristics (e.g., use, age, etc.) of the subject intellectual property

4. Those that are most consistent with the practical experience and professional judgment of the analyst

Within each approach, there are several valuation methods that the analyst can select and apply. Therefore, valuation methods are performed within an approach to conclude a value indication. And, within each method, there are numerous procedures that the analyst can perform. Therefore, valuation procedures are performed within a method to conclude a value indication.

The analyst may perform two or more valuation methods within a single approach. For example, the analyst may perform three different income approach methods and reconcile the three value indications to conclude a single income approach value indication.

Cost Approach Valuation Methods

There are several valuation methods within the cost approach. Each valuation method uses a particular definition (or measurement metric) of cost. Two common cost definitions are as follows:

1. Reproduction cost new
2. Replacement cost new

Reproduction cost new measures the total cost, at current prices, to develop an exact duplicate of the subject intellectual property. Replacement cost new measures the total cost, at current prices, to develop an intangible asset having the same functionality or utility as the subject intellectual property. Functionality is an engineering concept that means the ability of the intellectual property to perform the task for which it was designed. Utility is an economics concept that means the ability of the intellectual property to provide an equivalent amount of satisfaction to the owner/operator.

There are also other cost definitions that may be applicable to a cost approach valuation. Some valuation analysts consider a measure of cost avoidance as a cost approach method. This method quantifies either historical or prospective development costs that are avoided because the owner/operator already owns the subject intellectual property.

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

1. the subject intellectual property is relatively new or
2. the owner/operator has fairly complete records regarding the historical development costs and efforts.

In addition, the cost trend index should be appropriate to the type of costs that are being indexed to current prices.

Regardless of the specific cost definition that is used in the cost accounting analysis, all cost approach methods (including reproduction cost, replacement cost, or some other cost measurement) should include a comprehensive measurement of cost.

The cost measurement typically includes the following four cost components: (1) direct costs (e.g., materials and supplies), (2) indirect costs (e.g., engineering and design expenses, legal fees), (3) an intellectual property developer's profit (e.g., a profit margin percent applied to the direct cost and indirect cost investment), and (4) an opportunity cost/entrepreneurial incentive (e.g., a measure of lost income opportunity cost during the intellectual property development period adequate to motivate the development process).

The intellectual property cost new (however measured) should be adjusted for any decreases in value due to the following:

1. Physical deterioration
2. Functional obsolescence
3. Economic obsolescence

Physical deterioration is the reduction in asset value due to physical wear and tear. It is unlikely that an intellectual property will experience physical deterioration.

Functional obsolescence is the reduction in asset value due to the subject intellectual property's inability to perform the function (or yield the periodic utility) for which it was originally designed. The technological component of functional obsolescence is a decrease in asset value due to improvements in technology that make the subject intellectual property less than the ideal replacement for itself.

Economic obsolescence is a reduction in asset value due to the effects, events, or conditions that are external to—and not controlled by—the intellectual property's current use or condition. The impact of economic obsolescence is typically beyond the control of the intellectual property owner/operator. Economic obsolescence is often analyzed with respect to the owner/operator's ability to earn a fair rate of return on the actual intellectual property.

Cost Approach Example—Copyrights and Trade Secrets

As part of an asset-based approach business valuation, the analyst was retained to value the copyrights and trade secrets related to the internally developed computer software owned and operated by Alpha to Omega Railroad Company ("AORR"). The software-related copyrights and trade secrets are referred to collectively as "the subject software."

The objective of the assignment is to estimate the fair market value of the subject software as of January 1, 2018.

The subject software encompasses the copyrights on—and the trade secrets related to—all management information systems, including software required for payroll, customer billing, regulatory filing, financial analyses, and the like. The number of physical lines of code for this software is approximately 28 million.

Based on the quantity and quality of available data, the analyst decided to use the cost approach—and the reproduction cost new less deprecation ("RCNLD") method—in this valuation. The analyst used two software development effort estimation models to provide input into the replacement cost new estimate:

1. the constructive cost model (or COCOMO) and
2. the SPR KnowledgePLAN model (or KPLAN).

The analyst estimated a full absorption cost per software developer person-month based on data provided by AORR management. AORR management provided data related to salary, bonus, salary incentive, payroll taxes, fringe benefits, and overhead for the AORR employees involved in software development. AORR management provided data related to hourly costs for both onshore and offshore contractors used in the software development.

The analyst made several specific adjustments in order to recognize any value decrement associated with obsolescence. These adjustments provide an allowance for obsolescence (a reduction in the value that would be estimated if obsolescence was not recognized). These obsolescence adjustments are summarized as follows:

1. The analyst made an adjustment to the software line-of-code counts to eliminate duplicate, inactive, obsolete, and one-time programs from our analysis.
2. The analyst made adjustments for any software systems that were partially or fully retired or are in the process of being retired or replaced.

One of the primary inputs to both COCOMO and KPLAN is the size of the software to be developed. The software size measure used in COCOMO is lines of source code. Source code refers to the program as written by a programmer. This type of code is different from the object code, which is the machine language code executed by the computer. Source code is converted to object code by use of a compiler, assembler, or interpreter. Hereafter, all references to lines of code are to lines of source code.

The analyst was provided with line-of-code counts by software system.

Employee counts and total monthly salary figures for AORR applications development employees are presented in Exhibit 1. These figures are presented by job title within job level. As of January 1, 2018, there were 422 AORR application development employees with a total monthly salary of $3,137,465. The average monthly salary for these employees was $7,435.

The full absorption cost per person-month estimate analysis is presented in Exhibit 2. To estimate a full absorption cost per person-month, the analyst estimated the costs, in addition to the direct salaries, related to the AORR employees as a percent of the direct salaries.

The analyst was provided with the dollar amounts of the bonus and salary incentive pools for AORR applications development employees. Because these are annual pools, the analyst compared these pools to total annual salaries (total monthly salaries times 12) to estimate bonus and salary incentives as a percent of salaries. The AORR bonus and salary incentive pools represented 14 percent and 3 percent, respectively, of total annual AORR applications development salaries.

AORR management estimated (1) payroll taxes and employee benefits for AORR employees to be 44.1 percent of salaries and (2) rent, utilities, and other overhead to be 8.0 percent of salaries.

Based on the described additional costs as a percent of salaries, the analyst estimated a direct and indirect cost per person-month for the AORR applications development employees of $12,573.

AORR also uses both domestic contractors and offshore contractors to develop software. The domestic and offshore contractors' costs include a developer's profit. For AORR personnel, in order to add a developer's profit estimate, the analyst added a developer's profit of 3 percent to the AORR personnel cost of $71.44 to estimate a cost of $73.58.

The analyst estimated a blended direct cost, indirect cost, and developer's profit cost per person-month based on the actual mix of AORR employees,

Exhibit 1
Alpha to Omega Railroad Company
Software Copyrights and Trade Secrets
Cost per Person-Month Analysis
As of January 1, 2018

Personnel Level	Number of Employees	Personnel Titles	Average Monthly Salary $	Total Monthly Salary $
Mid A	13	Associate Applications Developer (13)	4,745	61,685
High A	29	Applications Developer (24) Junior Protect Consultant (5)	4,903	142,187
Low B	32	Associate Project Analyst (7) Associate Project Engineer (5) Senior Applications Developer (20)	5,095	163,040
Mid B	85	Project Analyst (5) Project Engineer (21) Analyst Systems & Method (2) Senior Project Consultant (17) Senior Project Engineer (40)	6,209	527,765
High B	90	Associate Systems Consultant (13) Associate Systems Engineer (68) Associate Systems Engineer (2) Manager (7)	7,409	666,810
Low C	69	Systems Consultant (13) Systems Engineer (56)	8,396	579,324
Mid C	68	Senior Manager (39) Senior System Consultant (9) Senior System Engineer (20)	9,127	620,636
High C	20	Director (15) Principal Consultant (2) Principal Engineer (3)	9,964	199,280
Low D	2	Director Train Control System (2)	10,951	21,902
Mid D	1	Senior Principal Engineer (1)	10,900	10,900
High D	13	General Director (12) General Director (1)	11,072	143,936
Exhibit Totals	422			3,137,465
		Total Weighted Average Monthly Salary		$ 7,435

Exhibit 2
Alpha to Omega Railroad Company
Software Copyrights and Trade Secrets
Full Absorption Cost per Person-Month Analysis
As of January 1, 2018

Cost of Intellectual Property Development	AORR Personnel $ Costs	AORR Personnel % Costs	Domestic Contractors	Offshore Contractors	Total AORR and Contractors
Bonus and Salary Incentive Pools as a Percent of Annual Salary					
Total Monthly Salary (from Exhibit 1)	$3,137,465				
Times: 12 Months	12				
Annual Salary	37,649,580				
Total Bonus Pool	5,260,300				
Bonus Pool as a Percent of Annual Salary (rounded)		14%			
Total Salary Incentive Pool	1,113,180				
Salary Incentive Pool as a Percent of Annual Salary (rounded)		3%			
Full Absorption Cost per Person-Month					
Direct Costs Weighted Average Monthly Salary (from Exhibit 1)	7,435				
Additional Indirect Costs as a Percent of Salary					
Bonus Pool (from above)		14%			
Salary Incentive (from above)		3%			
Payroll Taxes and Fringe Benefits		44%			
Rent, Utilities, and Overhead		8%			
Total Indirect Costs as a Percent of Salary		69%			
Indirect Costs (total indirect cost as a percent of salary times average monthly salary)	5,138				
Direct and Indirect Cost per Month (average monthly salary plus additional costs)	12,573				
Divided by: Number of Hours per Month	176				
Direct and Indirect Cost per Hour	71.44				
Computer Software Developer's Profit		3%			
Direct Cost, Indirect Cost, and Developer's Profit per Hour (AORR at $71.44 * (1+.03))	73.58		74.50	21.69	
Times: Number of Personnel (AORR employees)	422		116	470	1008
Total Direct Cost, Indirect Cost, and Developer's Profit per Hour	31,052		8,642	10,194	49,887
Total Direct Cost, Indirect Cost, and Developer's Profit per Hour (including contractors)	49,887				
Divided by: Total Number of Personnel (including contractors)	1,008				
Weighted Average Direct Cost, Indirect Cost, and Developer's Profit Cost per Person-Hour	49.49				
Times: Hours per Person-Month	176				
Weighted Average Direct Cost, Indirect Cost, and Developer's Profit per Person-Month	8,710				
Entrepreneurial Incentive as a Percent of Direct Cost, Indirect Cost, and Developer's Profit		24%			
Weighted Average Full Absorption Cost per Person-Month (rounded)		$10,800			

domestic contractors, and offshore contractors. AORR management provided the average hourly fees paid to onshore contractors and offshore contractors. The analyst converted the estimated direct and indirect cost per person-month to equivalent costs per hour using 176 hours per person-month (8 hours per day times 22 days per month).

The analyst computed a weighted average direct cost, indirect cost, and developer's profit cost per hour based on the number of employees and contractors in each of the three groups and the average cost per hour for each of the three groups. This calculation resulted in an estimated direct cost, indirect cost, and developer's profit cost per hour of $49.49.

The analyst multiplied this hourly figure by 176 hours (see the preceding paragraph) to estimate a weighted average direct cost, indirect cost, and developer's profit cost per person-month of $8,710. The analyst multiplied this monthly rate by an entrepreneurial incentive rate of 24 percent to estimate the weighted average full absorption cost per person-month of $10,800.

Based on the analysis of the average salary structure for the AORR software development personnel and other personnel related expenses incurred by AORR (including contractor fees), the analyst estimated a full absorption cost per person-month of $10,800.

The analyst estimated the computer software development effort estimate by calculating an average of the COCOMO and KPLAN software development effort estimates. This analysis is summarized in Exhibit 3.

The analyst multiplied the computer software development effort estimate by the full absorption cost per person-month to estimate the software RCNLD. This full absorption cost per person-month includes salary, bonus, payroll taxes, employee benefits, and overhead for AORR employees blended with costs related to domestic and offshore contractors, developer's profit, and an entrepreneurial incentive cost. This analysis is also summarized in Exhibit 3.

The analyst applied the cost approach and the RCNLD method to estimate the fair market value of the copyrights and trade secrets associated with the AORR software (the "subject software").

Based on the analysis summarized in Exhibit 3, the fair market value of the subject software intellectual property, as of January 1, 2018, is $222,600,000.

Market Approach Valuation Methods

Analysts typically attempt to apply market approach methods first in an intellectual property valuation. This is because "the market"—that is, the economic environment where arm's-length sale or license transactions between unrelated parties occur—is often the best indicator of value.

However, the market approach will only provide meaningful valuation evidence when the subject intellectual property is sufficiently similar to the intellectual properties that are actually transacting (by sale or license) in the marketplace. If that is the case, the guideline intellectual property transaction (sale or license) prices may provide evidence of the expected price for the subject intellectual property.

There are two principal intellectual property market approach valuation methods:

1. The comparable uncontrolled transaction ("CUT") method
2. The comparable profit margin ("CPM") method.

In the CUT method, the analyst searches for arm's-length sales or licenses of benchmark intellectual property. In applying the CUT method, the analyst often performs a relief from royalty ("RFR") method analysis. In the CPM method, the analyst searches for companies that provide useful benchmarks to the subject owner/operator company.

In the CUT method, the analyst will more likely rely on CUT license transactions than on CUT sale transactions. This is because third-party licenses of intellectual property are more common than third-party sales of intellectual property. Nonetheless, for both sale and license transactions, the valuation analyst will follow a systematic methodological process in the CUT method valuation.

First, the analyst should research the appropriate exchange markets to obtain information about sale or license transactions involving guideline (i.e., generally similar) or comparable (i.e., almost identical) intellectual property that may be compared to the subject intellectual property. Some of the relevant comparison attributes include characteristics such as intellectual property type, intellectual property use, historical and expected future usage, industry in which the intellectual property operates, date of sale or license, and so forth.

Second, the analyst should verify the transactional information by confirming that (1) the transactional data are factually accurate and (2) the sale or license exchange transactions reflect arm's-

Exhibit 3
Alpha to Omega Railroad Company
Software Copyrights and Trade Secrets
Cost Approach
Reproduction Cost New less Depreciation Method
Valuation Summary
As of January 1, 2018

Valuation Variable	RCNLD Component
COCOMO Model Development Effort Estimate before Obsolescence - Number of Person-Months	26,649
KnowledgePLAN Model Development Effort Estimate before Obsolescence - Number of Person-Months	21,953
Average COCOMO and KnowledgePLAN Person-Month Effort Estimate before Obsolescence Adjustment	24,301
Direct Cost, Indirect Cost, and Developer's Profit Cost Components per Person-Month	$8,710
Total Direct Cost, Indirect Cost, and Developer's Profit Replacement Cost Components	$211,672,125
COCOMO Model Development Effort Estimate Net of Obsolescence	21,507
KnowledgePLAN Model Development Effort Estimate Net of Obsolescence	19,710
Average COCOMO and KnowledgePLAN Person-Month Effort Estimate after Obsolescence Adjustment	20,609
Full Absorption RCNLD per Person-Month	$10,800
Computer Software RCNLD	$222,571,800
Fair Market Value of Software Copyrights and Trade Secrets (rounded)	$222,600,000

length market considerations. If the guideline sale or license transaction was not concluded at arm's-length market conditions, then adjustments to the transactional pricing data may be necessary. This verification procedure may also elicit additional information about the current market conditions for the sale or license of the subject intellectual property.

Third, the analyst should select relevant units of comparison (e.g., income pricing multiples or dollars per unit—such as price "per drawing" or "per line of code"). Then, the analyst should develop a comparative analysis for each selected unit of comparison.

Fourth, the analyst also compares the selected guideline or comparable sale or license transactions with the subject intellectual property, using the selected elements of comparison. Next, the analyst adjusts the sale or license price of each guideline transaction for any differences between the guideline/comparable intellectual property and the subject intellectual property. If such comparative adjustments cannot be measured, then the analyst may eliminate the sale or license transaction as a guideline/comparable for future consideration.

Fifth, the analyst selects the subject intellectual-property-specific pricing metrics from the range of pricing metrics indicated from the guideline or comparable transactions. The analyst may select pricing multiples at the low end, midpoint, high end, or even outside of the range of pricing metrics indicated by the guideline sale or license transactional data. The valuation analyst selects the subject-specific pricing metrics based on the analyst's comparison of the subject intellectual property to the guideline/comparable intellectual property.

Sixth, the analyst applies the subject-specific selected pricing metrics to the subject intellectual property financial or operational fundamentals (e.g., revenue, income, number of drawings, number of lines of code, etc.). This procedure typically results in several market-derived value indications for the subject intellectual property.

Seventh, the analyst should reconcile the various value indications produced from the analysis of the guideline sale and/or license transactions into a single market approach value indication. In this final reconciliation procedure, the valuation analyst summarizes and reviews (1) the transactional data and (2) the quantitative analyses (i.e., various pricing multiples) that resulted in each value indication. Finally, the valuation analyst should resolve these value indications into a single market approach value indication.

The CPM method is also based on a comparative analysis. However, in this valuation method, the analyst is not relying on sales or licenses of comparable or guideline intellectual property. Rather, the valuation analyst is searching for comparable or guideline companies. The objective of the CPM method is to identify guideline companies that are comparative to the owner/operator in all ways except one. The owner/operator, of course, owns the subject intellectual property.

Ideally, the selected guideline companies should operate in the same industry as the owner/operator and should provide a comparable benchmark to the owner/operator. However, the selected guideline companies do not own a comparable intellectual property.

Ideally, the CPM method guideline companies operate in the same industry as the owner/operator. Ideally, the guideline companies have the same types of raw materials and the same types of sources of supply. Ideally, the guideline companies have the same type of customers. Ideally, the guideline companies produce the same type of products or services. And, ideally, the only material difference should be that the owner/operator has an established trademark and the guideline companies have generic trademarks. Or, the owner/operator owns the subject patent and the guideline companies produce unpatented (and presumably inferior) products.

Because of the economic benefit that the intellectual property provides, the owner/operator should earn a higher profit margin than the selected guideline companies. This profit margin comparison is usually made at the earnings before interest and taxes (or EBIT) level of income. The incremental (or superior) profit margin (typically measured as the EBIT margin) earned by the owner/operator can then be converted into an intellectual-property-related royalty rate.

Typically, all of the excess profit margin is assigned to the intellectual property (if the subject intellectual property is the only reason for the owner/operator superior profit margin).

This royalty rate (derived from the excess profit margin) is then multiplied by the owner/operator revenue in order to estimate the amount of implied royalty income generated from the subject intellectual property. This hypothetical royalty income is typically capitalized over the intellectual property expected RUL. The result of this capitalization procedure is an estimate of the intellectual property value, according to the CPM method.

In summary, there are several intellectual property market approach valuation methods. These

methods are all based on comparative analyses of either comparable (or guideline) intellectual property sales, comparable intellectual property license royalty rates, or comparable companies (that own and operate generic intellectual property).

Market Approach Example—Trademarks

Phi Company ("Phi") is a designer and manufacturer of high-end women's apparel products. Phi retained the analyst to perform an asset-based approach business valuation as of January 31, 2018. One of the Phi intangible assets is the Chi trademark and trade name. Chi is a trademark of high-end women's apparel products, particularly sportswear apparel.

The analyst decided to use the market approach and the RFR method to value the Chi trademarks.

The analyst performed the following procedures to estimate an arm's-length royalty rate appropriate to the Chi trademark:

- Discussed the intended use of the Chi trademark with Phi management
- Searched for guideline arm's-length license transactions to use in the valuation
- Estimated the appropriate market-based royalty rate for the Chi trademark
- Estimated the Chi trademark required rate of return
- Estimated the Chi trademark RUL to apply in the RFR method to conclude an initial value indication
- Adjusted the initial value indication for a tax amortization benefit adjustment (that is, market participants would expect to benefit from the amortization income tax deductions related to the subject Section 197 intangible asset)
- Concluded a final value indication for the Chi trademark.

The analyst reviewed several databases that report arm's-length intellectual property license agreements. These license agreements indicated an average and a median market-based royalty rate of 6.2 percent and 6.5 percent, respectively.

Based on the analyst's assessment of the various trademark or trade name arm's-length license agreements in the marketplace, and the analyst's consideration of the Phi management plans to showcase the Chi brand within the Phi clothing segment, the analyst concluded a royalty rate of 6.5 percent for the Chi trademark.

The analyst calculated the fair market value of the trademark as the present value of the expected after-tax "relief from royalty" payment savings attributed to the acquired trademark. The analyst calculated the relieved royalty payment by applying the selected royalty rate to the projected Chi product line revenue.

The analyst applied the selected royalty rate of 6.5 percent to the projected revenue attributed to Chi branded products for the fiscal years ended January 31, 2019, through January 31, 2024. The projected revenue, which was based on Phi management revenue projections, contemplates a 2 percent annual growth rate in the dollar volume of Chi branded products.

After the year ended January 31, 2024, Phi management expects to replace the Chi trademark and trade name with a new trademark and trade name. Therefore, the analyst selected five years as the Chi trademark RUL. The analyst reviewed the selected CUT license agreements. In these agreements, the licensor was responsible for the intangible asset maintenance and legal expenses. Therefore, the analyst does not need to adjust the relief from royalty payment for any expenses that would be paid by Phi (as the hypothetical licensee).

The analyst adjusted the annual royalty payment for income taxes and discounted the after-tax savings to a present value. The present value discount rate reflects the risks inherent in the trademark intangible asset. The analyst used a present value discount rate of 14 percent, which was the Phi cost of capital.

This analysis is summarized in Exhibit 4.

Based on the RFR method, the indicated fair market value of the Chi trademark is approximately $15,284,000. Based on the market approach and the RFR method analysis, the fair market value of the Chi trademark as of January 31, 2018, was $15,300,000 (rounded).

Income Approach Valuation Methods

In this valuation approach, the intellectual property value is estimated as the present value of the future income from the ownership/operation of the subject intellectual property. The present value calculation has three principal components:

1. An estimate of the duration (or term) of the intellectual property income projection period, typically measured as the intellectual property RUL

Exhibit 4
Phi Corporation
Chi Trademarks and Trade Names
Market Approach
Relief from Royalty Method
As of January 31, 2018

	Projected Fiscal Year Ended January 31,					
Valuation Variable	2019 $000	2020 $000	2021 $000	2022 $000	2023 $000	2024 $000
Projected Product Line Revenue [a]	84,846	86,543	88,274	90,039	91,480	93,677
Arm's-Length License Royalty Rate [b]	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%
Pretax Royalty Payment Relief	5,515	5,625	5,738	5,853	5,946	6,089
Income Taxes at 36% [c]	1,985	2,025	2,066	2,107	2,141	2,192
After-Tax Royalty Payment Relief	3,530	3,600	3,672	3,746	3,806	3,897
Present Value Factor at 14% [d]	0.9366	0.8216	0.7207	0.6322	0.5545	0.4864
Discounted Royalty Payment Relief	3,306	2,958	2,646	2,368	2,110	1,896
Total Present Value of Royalty Payment Relief	15,284					
Fair Market Value of Chi Trademarks (rounded)	15,300					

[a] Revenue estimates based on Phi management projections.
[b] Royalty rate based on analysis of CUT trademark license agreements.
[c] Based on Phi management estimates.
[d] Present value factors are based on Phi cost of capital and assumes a midyear discounting convention.

2. An estimate of the intellectual-property-related income for each period in the projection, typically measured as either owner income (e.g., license royalty income), operator income (e.g., some portion of business enterprise income), or both
3. An estimate of the appropriate present value discount rate or direct capitalization rate, typically measured as the required rate of return on an investment in the intellectual property

For purposes of the income approach, the RUL relates to the period of time over which the owner/operator expects to receive any income related to the intellectual property (1) license, (2) use, or (3) forbearance of use. In addition to the term of the RUL, the analyst is also interested in the shape of the RUL curve. That is, the analyst is interested in the annual rate of decay of the intellectual property future income.

For purposes of the income approach, many different intellectual property income measures may be relevant. If properly applied, these different income measures can be used in the income approach to derive an intellectual property value indication. Some of the different intellectual-property-related income measures include the following:

1. Gross or net revenue
2. Gross income (or gross profit)
3. Net operating income
4. Net income before tax
5. Net income after tax
6. Operating cash flow
7. Net cash flow
8. Incremental income
9. Differential income
10. Royalty income
11. Excess earnings income
12. Several others (such as incremental income)

Because there are different income measures that may be used in the income approach, it is important for the capitalization rate (either the present value discount rate or the direct capitalization rate) to be derived on a basis consistent with the income measure used.

Income Approach Example—Trade Secret

This subject trade secret relates to the manufacture of soda pop that uses nitrogen instead of carbon dioxide to create the fizz. The company that manufactures the soda pop is called Nitroco, and the soda pop is called NitroPop. This trade secret includes the proprietary manufacturing process by which the soda pop is manufactured and placed in cans with the nitrogen cartridges.

The trade secret is the canning and fizzing manufacturing process ("the process") of the NitroPop product recipe and formulation. The nitrogen fizzing process creates a creamier and more fizzy soda pop. The process works especially well for root beer and cream soda, but it is also used for cola and other soda flavors. This process is documented in a proprietary, confidential set of engineering drawings and process flow chart notebook.

Nitroco management has elected not to patent this proprietary process for competitive reasons. Both the Nitroco engineers and legal counsel believe that the process would be patentable. However, if the proprietary process became public knowledge through the patent process, management is concerned that the company's competitors could reverse engineer an equally effective manufacturing process that does not violate the patent.

Nitroco management considers this proprietary technology to be a trade secret. All of the engineering and other documentation related to this manufacturing process is protected in a locked cabinet in the process engineering department. Only a select number of engineering and production managers have access to that information, and all of those employees have signed nondisclosure agreements.

Management also believes that this process gives the NitroPop product a distinct competitive advantage. Nitroco marketing personnel stress this product differentiation feature in all of the company's marketing materials and presentations.

As part of an asset-based approach business valuation, the analyst was retained to estimate the fair market value of the Nitro process trade secret as of December 31, 2017.

The Nitro process is used in the manufacture of a soda pop product line that is projected to generate $147 million in revenue next year.

Based on the quality and quantity of available data, the analyst decided to use the income approach and the comparative income method to value the trade secret.

Income Approach Analysis

Using the comparative income method, the analyst first projected the Nitroco prospective cash flow associated with the use of the proprietary process in its current operation. Second, the analyst projected the prospective cash flow that would be generated by Nitroco without the use of the proprietary process. The income approach value indication is based on the difference between the present value indications from the two different operating scenarios (that is, with and without the proprietary process trade secret in current operation).

Nitroco management provided the analyst with projections of the NitroPop product unit selling price, unit volume, and market share for the five years after the valuation date. Management also projected the cost of goods sold and the capital expenditure data related to the production of the NitroPop product. Management prepared a five-year projection of the selling, general, and administrative expenses related to the NitroPop product line.

After a due diligence review of the financial projections, including interviews with company management, the analyst concluded that these financial projections were reasonable. Based on the quality and quantity of these prospective financial data, the analyst concluded that the income approach, using a comparative income method, provides a supportable value estimate.

This valuation method measures the difference in the income potential of Nitroco both with and without the operation of the trade secret. The income potential represents the amount of income that is available to the business owners after consideration of a required level of reinvestment for continued operations and for expected growth. Based on the prospective financial data available, the analyst selected net cash flow as the appropriate measure of income.

For purposes of this valuation, the analyst defined net cash flow as follows.

	Net sales
–	Cost of sales
–	Operating expenses
=	Net income before taxes
–	Income taxes
+	Depreciation and amortization expense
–	Capital expenditures
–	Additions to net working capital
–	Capital charge on contributory assets
=	Net cash flow

In this analysis, the product line net cash flow was projected over the trade secret's RUL. The

analyst discounted the net cash flow projection at an appropriate discount rate to conclude a present value. The difference between the present value of the product line net cash flow with the proprietary process in operation and without the proprietary process in operation indicates the preliminary value estimate for the trade secret.

Both Nitroco and its competitors continuously develop improved soda pop products that are produced by improved manufacturing processes. The Nitroco process engineering staff is already working on the development of a new and improved fizzing process. Management expects that the new and improved process will be developed, tested, and implemented within five years. At that time, the current proprietary process will be obsolete and completely replaced by the new and improved fizzing process.

The analyst selected the following valuation variables for this analysis:

Scenario I: With the proprietary process trade secret in operation

- Net sales growth rate: 10 percent per year
- Gross margin percentage: 26 percent of net sales
- Operating expenses: 11 percent of net sales
- Effective income tax rate: 36 percent of pretax income
- Depreciation expense: 1 percent of net sales
- Net capital expenditures: equal to depreciation expense
- Capital charge on all contributory assets: $2.2 million per year
- Incremental net working capital: 5 percent of net sales
- Present value discount rate: 15 percent
- RUL estimate: five years

Scenario II: Without the proprietary process trade secret in operation

- Expected sales decrement: (-10 percent) per year
- Operating expenses: 11.5 percent of net sales
- Incremental net working capital: 7 percent of net sales
- All other valuation variables remain unchanged from scenario I

The contributory asset charge ("CAC") is included to account for the fair return of the investment of all the contributory assets that are used or used up in the production of the income associated with the subject trade secret. The contributory assets include net working capital, tangible operating assets, and the trade name.

The projected decrease in product line sales without the proprietary process in operation is based on valuation analyst discussions with management. This projected sales decrease indicates management's estimate of the consumer response to the decrease in taste, fizziness, and retail shelf life of the company's product without the proprietary process.

The decrease in sales reflects management's projection of the combined effects of decreased unit selling price and decreased unit volume sales. Without the product differentiation provided by the Nitroco process, management estimates that it would have to increase its marketing expense. This marketing expense increase accounts for the one-half of 1 percent projected increase in other operating expenses.

In addition, management projects that it would have to relax its customer credit policy in order to stimulate sales of the less desirable NitroPop product. Management estimates that it would have to give 60-day credit terms instead of 30-day credit terms. This change in credit policy would affect the company's accounts receivable balances and would result in a change in the company's net working capital investment.

The 15 percent present value discount rate is based on the analyst's estimate of the Nitroco weighted average cost of capital. The analyst concluded that this discount rate is appropriate based on the selected measure of income and the stated standard of value and premise of value.

As presented in Exhibit 5, the sum of the product line discounted cash flow with the proprietary process in operation is $49,500,000. As presented in Exhibit 6, the sum of the product line discounted cash flow without the proprietary process in operation is $40,900,000. The difference between these two limited life income projections indicates a discounted cash flow differential related to the proprietary process trade secret of $8,600,000.

The unadjusted discounted net cash flow differential associated with the proprietary process is $8,600,000. However, this unadjusted cash flow differential does not consider the fact that this intellectual property would qualify as an Section 197 intangible asset to the buyer. Therefore, the economic benefit related to TAB should be considered in the valuation.

An intellectual property that is amortizable for federal income tax purposes provides an income tax

Exhibit 5
Nitroco, Inc.
NitroPop Product Trade Secret
Income Approach
Comparative Income Method
Scenario I: With the Proprietary Process Trade Secret in Operation

NitroPop Product Line Projection Variables ($ in 000s)	Year 1	Year 2	Year 3	Year 4	Year 5
Net Sales	$146,912	$161,603	$177,764	$195,540	$215,094
Gross Margin	38,197	42,017	46,219	50,840	55,924
Operating Expenses	-16,160	-17,776	-19,554	-21,509	-23,660
Earnings before Interest and Taxes	22,037	24,240	26,665	29,331	32,264
Income Tax Expense	-7,933	-8,727	-9,599	-10,559	-11,615
Debt-free Net Income	14,104	15,514	17,065	18,772	20,649
Depreciation Expense	1,469	1,616	1,778	1,955	2,151
Capital Expenditures	-1,469	-1,616	-1,778	-1,955	-2,151
Capital Charge on Contributory Assets	-2,200	-2,200	-2,200	-2,200	-2,200
Incremental Net Working Capital Investment	-696	-735	-808	-889	-978
Net Cash Flow	11,208	12,579	14,057	15,683	17,471
Present Value Discount Factor [a]	0.9325	0.8109	0.7051	0.6131	0.5332
Discounted Net Cash Flow	10,451	10,200	9,912	9,616	9,315
Sum of Product Line Discounted Net Cash Flow (rounded)	49,500				

[a] Present value factors are based on Nitroco weighted average cost of capital and assumes a midyear discounting convention.

expense reduction (that is, a cash flow benefit) to the intellectual property buyer. That cash flow benefit is typically calculated as the present value of the expected reduction in future income tax expense due to the intellectual property amortization tax deductions.

The calculation of this TAB factor value increment follows:

$$\frac{1}{1-\left(\left(\frac{income\ tax\ rate}{amortization\ period}\right)\times present\ value\ annuity\ factor\right)}$$

Based on the TAB formula, the TAB factor for this analysis is 1.2 (rounded). The discounted net cash flow differential of $8,600,000 multiplied by the TAB factor of 1.2 indicates the income approach final value of the trade secret.

As presented in Exhibit 7, the fair market value of the trade secret as indicated by the income approach and the comparative income method, as of December 31, 2017, is $10,300,000.

Summary and Conclusion

This discussion summarized what analysts need to know about the valuation of intellectual property as part of the application of the asset-based approach to business valuation. This generally accepted business valuation approach may be used to conclude a going-concern value for an industrial or commercial operating company.

The asset-based approach valuation methods often include the valuation of the subject company tangible assets and intangible assets. Intellectual property is a common category of intangible assets for many industrial and commercial companies, Therefore, intellectual property valuation is one common component in the application of the asset-based approach to business valuation.

Kevin Zanni is a director in our Chicago practice office. Kevin can be reached at (773) 399-4333 or at kmzanni@willamette.com.

Robert Reilly is a managing director of the firm and is resident in our Chicago practice office. Robert can be reached at (773) 399-4318 or at rfreilly@willamette.com.

Exhibit 6
Nitroco, Inc.
NitroPop Product Trade Secret
Income Approach
Comparative Income Method
Scenario II: Without the Proprietary Process Trade Secret in Operation

NitroPop Product Line Projection Variables ($ in 000s):	Year 1	Year 2	Year 3	Year 4	Year 5
Net Sales	$ 146,912	$ 161,603	$ 177,764	$ 195,540	$ 215,094
Expected Sales Decrement without NitroPop Process	(14,691)	(16,160)	(17,776)	(19,554)	(21,509)
Net Sales without Proprietary Process in Operation	$ 132,221	$ 145,443	$ 159,988	$ 175,986	$ 193,585
Gross Margin	34,377	37,815	41,597	45,756	50,332
Operating Expenses	(15,205)	(16,726)	(18,399)	(20,238)	(22,262)
Earnings before Interest and Taxes	19,172	21,089	23,198	25,518	28,070
Income Tax Expense	(6,902)	(7,592)	(8,351)	(9,186)	(10,105)
Debt-free Net Income	12,270	13,497	14,847	16,331	17,965
Depreciation Expense	1,322	1,454	1,600	1,760	1,936
Capital Expenditures	(1,322)	(1,454)	(1,600)	(1,760)	(1,936)
Capital Charge on Contributory Assets	(2,200)	(2,200)	(2,200)	(2,200)	(2,200)
Incremental Net Working Capital Investment	(841)	(926)	(1,018)	(1,120)	(1,232)
Net Cash Flow	9,229	10,371	11,629	13,011	14,533
Present Value Discount Factor [a]	0.9325	0.8109	0.7051	0.6131	0.5332
Discounted Net Cash Flow	8,606	8,410	8,200	7,978	7,749
Sum of Product Line Discounted Net Cash Flow (rounded)	40,900				

[a] Present value factors are based on Nitroco weighted average cost of captial and assumes a midyear discounting convention.

Exhibit 7
Nitroco, Inc.
NitroPop Product Trade Secret
Income Approach
Comparative Income Method
As of December 31, 2017

Sum of the Product Line Discounted Net Cash Flow	$ in (000s)
Scenario I: With the Proprietary Process Trade Secret	$ 49,500
Scenario II: Without the Proprietary Process Trade Secret	40,900
Trade Secret Discounted Net Cash Flow Differential	8,600
Times: Tax Amortization Benefit Factor (rounded) [a]	1.2
Indicated Fair Market Value of the Proprietary Process Trade Secret (rounded)	$ 10,300

[a] Tax amortization benefit factor =

$$\frac{1}{1-\left(\left(\frac{income\ tax\ rate}{amortization\ period}\right)\times present\ value\ annuity\ factor\right)}$$

Willamette Management Associates
Thought Leadership in Valuation, Damages Analyses, and Transfer Price Analyses

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 government. Our analysts have provided thought leadership in breach of contract, tort, bankruptcy, taxation, family law, 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 some recent cases in which we provided expert testimony on behalf of the prevailing party.

Transfer Pricing Testifying Expert Services

In the matter of ***Amazon.com, Inc. & Subsidiaries v. Commissioner*** (148 T.C. No. 8 (2017)), the U.S. Tax Court found in favor of the taxpayer plaintiff. The 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 assets required to operate Amazon's European website business. The Tax Court held 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; (3) the Service abused its discretion in determining that 100% of technology and content costs constitute intangible development costs (IDCs); and (4) Amazon's cost-allocation method (with certain adjustments) was a reasonable basis for allocating costs to IDCs. Robert Reilly, a managing director of our firm, provided expert testimony on behalf of taxpayer Amazon in this Section 482 intercompany transfer pricing case.

Income Taxation Testifying Expert Services

On February 21, 2017, the U.S. Court of Federal Claims dismissed (with prejudice) the complaint filed by plaintiff **Washington Mutual, Inc.**, against the United States (Nos. 08-321T, 08-211T). The taxpayer plaintiffs were seeking a refund of at least $149 million in certain federal taxes paid by H.F. Ahmanson & Co. ("Ahmanson") during several tax years in the 1990s, based upon the abandonment loss and amortization deductions available under the Internal Revenue Code. The case involved the fair market value determination of the regulatory right to open deposit-taking branches in certain states other than California ("branching rights"), the contractual approval right to treat the goodwill created by certain acquisitions as an asset for regulatory accounting purposes ("RAP rights"), and certain other intangible assets. Curtis Kimball, a managing director of our firm, critiqued the valuation report presented by the plaintiff's valuation expert and provided rebuttal expert testimony on behalf of the U.S. Department of Justice regarding the valuation of branching rights and RAP rights intangible assets. The Claims Court dismissed the plaintiffs' tax refund claims.

Condemnation Proceeding Testifying Expert Services

In the matter of ***Town of Mooresville v. Indiana American Water Company*** (2014), Willamette Management Associates was engaged by the defendant to perform a valuation analysis of the Indiana American Water Company (the "company") retail water system located in Mooresville, Indiana. The purpose of the analysis was to assist the company in a condemnation proceeding initiated by the town of Mooresville, Indiana. Our assignment was to estimate the fair market value of the company total operating assets (as part of a going concern). The primary valuation issue in the dispute was: should all of the company operating assets (financial asset accounts, tangible property, and intangible assets) be assigned value in a condemnation proceeding? Or, should the condemnee receive the accounting book value (or regulatory "rate base") of the tangible assets only? After a jury trial, at which Robert Reilly, a managing director of our firm, provided expert testimony, the jury's decision favored our analysis and awarded Indiana American Water Company the value of both its tangible assets and its intangible assets.

Family Law Testifying Expert Service

In a marital dissolution matter in 2016, the Superior Court of Arizona, Maricopa County, found in favor of the husband in the family law case ***In re the Marriage of Julie Anne Bowe and Gregory James Vogel, Sr.*** (No. FC2014-001952), Willamette Management Associates was engaged by Gregory Vogel, as president and owner of Land Advisors Organization (LAO), a national land brokerage business, to prepare a valuation analysis. Charles Wilhoite, a managing director of our firm, provided expert testimony. The purpose of the analysis was to assist with facilitating the property settlement aspects of the parties' marital dissolution. The primary valuation issues in the dispute were (1) the most appropriate valuation date and (2) the appropriate historical period of operating results to be relied on as a foundation for estimating the expected future earnings in a capitalization of cash flow business valuation analysis. The Court favored the Willamette positions, resulting in a judicially concluded value for LAO significantly lower than the opinion offered by the opposing valuation experts. This case is currently being appealed.

Bankruptcy Testifying Expert Services

Willamette Management Associates was engaged by the proponents of a reorganization plan to prepare a declaration in the matter of *In re Plant Insulation Company* (No. 09-31347, U.S. Bankruptcy Court, N.D. Cal. 2014). Our assignment was to review the declarations of the opposing experts in this case and to offer our opinion on certain shareholder agreements related to the matter. In particular, we were asked to review a right of first offer agreement and to opine on its impact on the control, transfer, and value of common stock and warrant interests in Bayside Insulation and Construction, Inc. Following a trial, at which Willamette managing director Curtis Kimball offered rebuttal expert testimony, the U.S. Bankruptcy Court accepted the plan of reorganization proposed by the Futures Representative of the Official Committee of Creditors.

Property Taxation Testifying Expert Services

Willamette Management Associates was engaged by the plaintiff to prepare a forensic analysis expert report for *Sandy Creek Energy Associates, LP, and Brazos Sandy Creek Electric Cooperative, Inc., v. McLennan County Appraisal District* (No. 2014-3336-4, Dist. Ct. McLennan County, Texas, August 2016). The purpose of the Willamette expert report and expert testimony was to assist the owners of the Sandy Creek coal-fired electric generating plant (the "plant") in a property taxation dispute with the McLennan County Appraisal District (the "district"). Our assignment was to review and rebut the unit valuation expert report and testimony provided by the district's valuation expert. One issue in the dispute was the amount of economic obsolescence associated with the plant. As of the property tax assessment date, the plant's cost to produce electricity was significantly greater than the wholesale price of electricity. As described in the Willamette expert report, these operating conditions indicated that economic obsolescence was present in the plant. After a week-long trial, at which Willamette managing director Robert Reilly offered expert testimony, a jury decided that the fair market value of the plant was less than half of the value asserted by the district. This jury decision significantly favored the taxpayer, and it resulted in a substantial reduction in the plant's property tax assessment.

Dissenting Shareholder Rights Testifying Expert Services

In the case, ***In Re Appraisal of The Orchard Enterprises, Inc.*** (No. 5713-CS, 2012 WL 2923305 (Del. Ch. 2012), *aff'd* No. 470, 2013 WL 1282001 (Del. 2013)), Willamette Management Associates was retained on behalf of the petitioners in a case where the subject of the dispute was the fair value of the Orchard Enterprises, Inc. ("Orchard") common stock at the time the company was taken private. Orchard was a digital media services company specializing in music from independent labels with a mission to acquire distribution rights, build sales channels, and monetize these rights in new and innovative ways. The petitioners had received $2.05 per share in the going-private transaction. At trial, Tim Meinhart, a managing director of our firm, testified that the fair value of the Orchard common stock at the time of the go-private transaction was $5.42 per share. The court agreed with our overall conclusion that the transaction occurred at a price that was lower than the fair value of the stock. The court concluded that the common stock fair value was $4.67 per share at the time of the go-private transaction.

On Our Web Site

Recent Articles and Presentations

Kevin Zanni, a director in our Chicago office, published an article in the November 15, 2017, issue of *QuickRead*, a publication of the National Association of Certified Valuators and Analysts. The title of Kevin's article is "The Application of Guideline Publicly Traded Company Risk Adjustment."

Using a recent Department of Justice investigation into a government contractor as an example, Kevin's article summarizes one method that a valuation analyst may consider in order to quantify the effect that a significant negative event may have on a company's stock value. Kevin reviews the company operations at the time of the valuation and identifies and summarizes the unique problem at issue. He presents several possible solutions for addressing the effect that the unique problem had on the company stock valuation. Finally, Kevin examines one possible valuation solution and describes the implementation of that solution.

Casey Karlsen, an associate in our Portland office, and Lisa Tran, a manager in our Portland office authored an article that appeared in the November 11, 2017 issue of *QuickRead*. The title of their article is "Reasonableness of Shareholder/Executive Compensation."

Casey and Lisa's article summarizes the federal income tax regulations and judicial precedent related to shareholder/executive compensation. The article includes a list of frequently relied upon data sources for estimating reasonable executive compensation. It also reviews several issues that were discussed in recent judicial decisions regarding shareholder/executive compensation.

Curtis R. Kimball, a managing director of our firm, along with Keri Brown, a partner at Baker Botts, delivered a presentation to the 26th Annual Advanced Course and Live Video Webcast, Estate Planning for the Family Business Owner, sponsored by the American Legal Institute. The course was held in Charleston, South Carolina on November 2-3, 2017. Curt and Keri's topic was "Valuation of a Family Business Interest: Selecting and Working with Appraisers."

Curt described the analyst's role in valuations for taxation purposes. He described basic valuation concepts and methodology. Curt and Keri reviewed qualifications necessary for analysts. They explored various valuation issues from the perspective of the Internal Revenue Service and from the perspective of the Tax Court. Sample professional services agreements were discussed.

Robert F. Reilly, a managing director of our firm, delievered a presentation to the Advanced Business Valuation Conference of the American Society of Appraisers. The conference was held in Houston on October 7-10, 2017. The topic of Robert's presentation was "Intellectual Property Valuation Application of the Relief from Royalty Method."

Robert described the four types of intellectual property. He examined the use of royalty rate data in intellectual property analyses and data sources for such royalty rates. Robert discussed the purpose of making royalty rate normalization adjustments. Robert also provided an illustrative example of the relief from royalty method.

These and many other articles and presentations may be found at www.willamette.com/resources_presentations.html.

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Communiqué

In Print

Robert Reilly, firm managing director, authored an article that appeared in the Fall 2017 issue of the *American Journal of Family Law*. The title of Robert's article is "The Asset-Based Approach to Business Valuation in Family Law (Part II of III):The AA Method. Part 1 of this series appeared in the Summer 2017 issue.

Robert Reilly also authored an article that appeared in the October/November 2017 issue of *Financial Valuation and Litigation Expert*. The title of Robert's article is "The Fair Value Valuation of Intangible Assets for Acquisition Accounting."

Robert Reilly also authored an article that appeared in the September/October 2017 issue of *Construction Accounting and Taxation*. The title of Robert's article is "Differences between Business Valuations, Unit Valuations, and Summation Valuations in the Construction Industry: Part II." Part I of this series appeared in the July/August 2017 issue.

Robert Reilly also authored an article that appeared in the September 2017 issue of *Practical Tax Strategies*. The title of Robert's article is "Unit, Summation, and Business Value in Property Tax Valuations."

Robert Reilly also authored an article that appeared in the July/August 2017 issue of *The Value Examiner*. The title of Robert's article is "Part I: Analytical Differences between Business Valuations, Unit Valuations, and Summation Valuations."

John Ramirez, Portland office vice president, and Casey Karlsen, Portland office associate, co-authored an article that appeared in the September 2017 issue of the *Journal of Multistate Taxation and Incentives*. The title of their article was "Extracting Relevant Pricing Data from Market-Based Evidence."

Sam Nicholls, Atlanta office manager, authored an article that appeared in the August 30, 2017, issue of NACVA's quickreadbuzz.com online magazine. The title of Sam's article was "The Value of a Business is Not Always What it Seems (Part I of II)."

In Person

Robert Reilly delivered a presentation at the annual American Society of Appraisers Advanced Business Valuation Conference held on October 10, 2017, in Houston, Texas. The topic of Robert's presentation was "Intellectual Property Valuation Application of the Relief from Royalty Method."

Robert Reilly also delivered a presentation at the National Association of Property Tax Representatives—Transportation, Energy, and Communications ("NAPTR-TEC") annual conference. The conference was held in St. Petersburg, Florida, this year, and Robert's presentation was on October 24, 2017. The topic of his presentation was "Differences between Unit Valuations, Summation Valuations, and Business Valuations for Property Tax Purposes."

Robert Reilly also delivered a presentation to the annual Business Valuation and Forensic Services Conference of the Virginia Society of Certified Publication Accountants. The conference was held in Richmond, Virginia, on September 19, 2012. The topic of Robert's presentation was "Application of the Asset-Based Approach to Business Valuation."

Robert Reilly delivered a continuing professional education ("CPE") webinar sponsored by Business Valuation Resources on November 2, 2017. The topic of Robert's webinar presentation was "Valuing Intangible Assets as Part of the Application of the Asset-Based Valuation Approach."

Encomium

Robert Schweihs, firm managing director, has been nominated by his peers as part of the *Who's Who Legal: Consulting Experts 2017* publication.

Robert Reilly has been asked to serve another year term as a member of the conference planning committee of the Wichita State University Appraisal for Ad Valorem Taxation annual conference. We appreciate Robert's service to this prestigious conference and to the ad valorem taxation profession.

Insights Archives

❑ Autumn 2017

Thought Leadership in Dispute Resolution and Forensic Analysis

❑ Autumn 2016

Thought Leadership in the Valuation of Options, Warrants, Grants, and Rights

❑ Autumn 2015

Focus on Dissenting Shareholder Appraisal Rights and Shareholder Oppression Litigation

❑ Summer 2017

Thought Leadership in Property Taxation Planning, Compliance, and Controversy

❑ Summer 2016

Thought Leadership in Property Tax Valuation Issues

❑ Summer 2015

Focus on Reasonable Compensation in Eminent Domain and Expropriation Controversies

❑ Spring 2017

Thought Leadership in Family Law Financial and Valuation Issues

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Focus on Intellectual Property

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Focus on Corporate Transaction Advisory Services

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Focus on Gift Tax, Estate Tax, and Generation-Skipping Transfer Tax Valuation

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Focus on Intercompany Transfer Price and Other Income Tax Insights

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Willamette Management Associates
thought leadership

Willamette Management Associates provides thought leadership in business valuation, forensic analysis, and financial opinion services. Our professional services include: business and intangible asset valuation, intellectual property valuation and royalty rate analysis, intercompany transfer price analysis, forensic analysis and expert testimony, transaction fairness opinions and solvency opinions, reasonableness of compensation analysis, lost profits and economic damages analysis, economic event analysis, M&A financial adviser and due diligence services, and ESOP financial adviser and adequate consideration opinions.

We provide thought leadership in valuation, forensic analysis, and financial opinion services for purposes of merger/acquisition transaction pricing and structuring, taxation planning and compliance, transaction financing, forensic analysis and expert testimony, bankruptcy and reorganization, management information and strategic planning, corporate governance and regulatory compliance, and ESOP transactions and ERISA compliance.

Our industrial and commercial clients range from substantial family-owned companies to Fortune 500 multinational corporations. We also serve financial institutions and financial intermediaries, governmental and regulatory agencies, fiduciaries and financial advisers, accountants and auditors, and the legal profession.

Willamette Management Associates analysts apply their experience, creativity, and responsiveness to each client engagement. And, our analysts are committed to providing thought leadership—by delivering the highest level of client service in every engagement.

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