

Best Practices Discussion

Intellectual Property Valuations for Property Tax Purposes

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Many industrial and commercial taxpayers are subject to the unit principle (sometimes called the utility principle) of appraisal for property tax purposes. In addition to centrally assessed utility-type taxpayers (e.g., electric companies, telephone companies, railroads, airlines, pipelines), locally assessed taxpayers in many industries are often subject to the unit valuation principle. Unit principle appraisals typically encompass the value of all of the taxpayer operating property, including working capital assets, real estate, tangible personal property, and intangible personal property. However, many taxing jurisdictions only tax real estate and/or tangible personal property for property tax purposes. Therefore, taxpayers operating in taxing jurisdictions that do not tax intangible property have to value such property—and exclude that value from the taxable bundle of taxpayer property. Many unit principle appraisal methods capture the value of the taxpayer’s intellectual property, including patents and technology, copyrights, trademarks and trade names, and trade secrets and know-how. This discussion summarizes the application of the market approach—and particularly the relief from royalty method—to value a taxpayer’s intellectual property. In particular, this discussion focuses on the valuation analyst’s use of license royalty rate databases in the valuation of taxpayer intellectual property for ad valorem property tax purposes.

INTRODUCTION

Some taxing jurisdictions assess and then tax the value of an industrial or commercial taxpayer’s intellectual property for ad valorem taxation purposes. That is, some taxing jurisdictions tax all of the tangible property and all of the intangible property of the industrial or commercial taxpayer.

Accordingly, such taxpayers—and such taxing authorities—need to know the value of the taxpayer’s intangible property—including the intellectual property category of intangible property—that is subject to taxation.

However, many taxing jurisdictions only tax the real estate and/or tangible personal property of the industrial or commercial taxpayer. In those taxing jurisdictions, the value of the taxpayer’s owned and

operated intangible property (including intellectual property) is exempt from property taxation.

Accordingly, such taxpayers—and such taxing authorities—should ensure that the taxpayer’s intangible property (including the intellectual property) are excluded from the total bundle of taxpayer property subject to property taxation.

This discussion summarizes the generally accepted approaches and methods related to the valuation of taxpayer intellectual property. In particular, this discussion focuses on the market approach—and the relief from royalty (“RFR”) method—related to the valuation of the taxpayer’s intellectual property.

This discussion describes the theoretical concepts supporting the RFR valuation method. And, this discussion presents several illustrative

examples of the application of the RFR method to value a taxpayer's intellectual property.

UNIT PRINCIPLE OF PROPERTY APPRAISAL

Many categories of industrial or commercial taxpayers are subject to the so-called unit principle of property appraisal. When applying the unit principle property appraisal, all of the taxpayer's property is valued collectively, as an aggregate bundle—or a “unit”—of operating property.

Such a unit principle appraisal typically concludes the total value of all of the taxpayer's property, operating together as part of a going-concern business entity.

That total bundle—or unit—of taxpayer property typically includes working capital accounts, real estate, tangible personal property, intangible personal property, and goodwill and (what is often called) the present value of growth opportunities.

Utility-type taxpayers are often assessed based on the application of the unit principle of property appraisal. Any taxpayer company where the operating assets are physically, functionally, and economically integrated may be a candidate for the unit principle of property appraisal.

In contrast, other industrial or commercial taxpayers are assessed based on the summation principle of property appraisal. When applying the summation appraisal principle, each category (or each item) of taxpayer real estate and tangible personal property is appraised individually. These individual property values are added together—or “summed”—to conclude the total value of all of the taxpayer's operating property.

Some types of taxpayers are subject to the application of the unit principle appraisal because of statutory or regulatory requirements. Such requirements often apply to multijurisdictional taxpayers such as railroads, airlines, interstate and intrastate pipelines, telephone companies, electric generation and distribution companies, and others. These taxpayers are often (although not always) centrally assessed by state taxing authorities.

In addition, locally assessed property taxpayers may also be assessed based on the unit principle of property appraisal. Such taxpayers may include water and wastewater companies, local gas distribution companies, hospitals, nursing homes, marinas, racetracks, refineries, sports stadiums, theaters, golf courses and resorts, country clubs, hotels and hospitality properties, quarries, mines, CATV systems, and others.

UNIT VALUATION PRINCIPLE AND SUMMATION VALUATION PRINCIPLE

Whether the taxpayer property is centrally assessed or locally assessed, the assessment is based on the unit principle of property appraisal if the following two components are included in the property appraisal:

1. The property income considered in the property appraisal is derived from the sale of goods and services.
2. The discount rates, capitalization rates, pricing multiples, or rates of return considered in the property appraisal are extracted from capital market (i.e., stock or bond market) data sources.

These two components may affect the property appraisal through income approach appraisal methods applied, the market approach appraisal methods applied, and the cost approach appraisal methods applied (typically through the analysis of economic obsolescence in the cost approach).

In contrast, the assessment (whether conducted by a state authority or a local authority) is based on the summation principle of property appraisal if the following two components are included in the property appraisal:

1. The property income considered in the property appraisal is derived only from the rental of real estate and tangible personal property.
2. The discount rates, capitalization rates, pricing multiples, or rates of return considered in the property appraisal are extracted from the sales of comparable properties.

These two components may affect the property appraisal through income approach appraisal methods applied, the market approach appraisal methods applied, and the cost approach appraisal methods applied (again, typically through the analysis of economic obsolescence).

Whether centrally assessed or locally assessed, many taxpayers are de facto assessed based on the unit principle of appraisal in taxing jurisdictions that do not tax intangible property. The unit principle appraisal conclusion includes the value of all of the taxpayer operating property, functioning collectively as a single unit.

Therefore, the unit appraisal conclusion typically includes the value of the taxpayer's working

capital assets, real estate, tangible personal property, and intangible personal property.

In many cases, the taxpayer (and the taxing authority) have to subtract (1) the value of the taxpayer's intangible property (including intellectual property) from (2) the taxpayer's total unit value in order to conclude (3) the residual value of the taxpayer's tangible property subject to property taxation.

TAXPAYER INTELLECTUAL PROPERTY

This discussion focuses on what taxpayers, tax counsel, tax assessors, and valuation analysts (“analysts”) need to know about one category of taxpayer intangible property: intellectual property. There are generally accepted cost approach, market approach, and income approach appraisal methods that may be used to value taxpayer intellectual property.

This discussion focuses on the application of the market approach. In particular, this discussion focuses on one market approach appraisal method—the RFR method.

The RFR method is often applied to value taxpayer intellectual property—particularly as a component of the unit valuation process. That is because the RFR method is particularly applicable to the appraisal of taxpayer intellectual property that should be subtracted from a total taxpayer unit value—in order to conclude the value of the taxpayer real estate and tangible personal property subject to property taxation.

The term “property” is a legal term. Property is subject to certain legal rights and protection, usually under state law. The term “assets” is an accounting term. An asset is recorded on an equity's balance sheet under the guidance of U.S. generally accepted accounting principles (“GAAP”).

Not all property is recorded on a balance sheet prepared in compliance with GAAP. Not all assets qualify as property. These two terms are not synonymous. However, many analysts use these two terms interchangeably.

Therefore, for purposes of this discussion only, we will consider the term intangible personal property to be equivalent to the term intangible asset.

CATEGORIES OF TAXPAYER INTELLECTUAL PROPERTY

Royalty rate data are often applied in many types of intellectual property economic analyses. This statement is true with regard to intellectual property valuation, damages measurement, and transfer

price determination analyses. And, this statement is particularly true for intellectual property appraisals developed for property tax planning, compliance, and controversy purposes.

This discussion explains and illustrates the use of royalty rate data within the context of an intellectual property appraisal prepared for property tax purposes.

For property tax purposes—as well as other purposes, there are four categories of intellectual property:

- Patents
- Trademarks
- Copyrights
- Trade secrets

Each of these intellectual property categories is summarized below.

As discussed below, royalty rate data are typically extracted from arm's-length, third-party commercial license agreements. Analysts should be aware that many arm's-length, third-party intellectual property license agreements encompass the use of both (1) intellectual property and (2) other intangible personal property.

Therefore, when using royalty rate data for property tax (and other) appraisal purposes, analysts should consider the bundle of intangible property that may be included in each license agreement—as well as the bundle of intellectual property legal rights that are included in each license agreement.

Patents and Related Intangible Property

This category of intellectual property includes the following types of patents:

- Utility patents
- Design patents
- Plant patents
- Process/method patents

In addition, third-party licenses (and other transfers) of patents often include the following taxpayer intangible property:

- Patent applications
- Technology sharing agreements
- Unpatented proprietary technology
- Regulatory approvals and licenses (e.g., FDA approvals, OSHA approvals)

- Technology development rights
- Engineering drawings and designs
- Schematics and technical documentation

Trademarks and Related Intangible Property

This category of intellectual property includes the following:

- Trademarks
- Trade names
- Service marks
- Service names
- Logos
- Trade dress

In addition, third-party licenses (and other transfers) of trademarks often include the following intangible property:

- Brand names
- Advertising programs
- Brochures and marketing materials
- Name-related goodwill

Copyrights and Related Intangible Property

This category of intellectual property includes copyrights related to:

- Literary works
- Musical works
- Dramatic works
- Pantomimes and choreographed works
- Pictorial, graphic, or sculptural works
- Motion pictures and audiovisual works
- Sound recordings
- Architectural works
- Computer software (including both object code and source code)

Third-party licenses (and other transfers) of copyrights may include the following intangible property:

- Engineering drawings
- Blueprints
- Manuals and procedures
- Training films

Trade Secrets and Related Intangible Property

This fourth and final category of intellectual property includes the following trade secrets and related documentation:

- Customer information
- Books and records
- Product formulas and recipes
- Procedures and know-how
- Pricing and cost information
- Accounting documentation

To maintain their confidentiality, trade secrets are rarely licensed in third-party license agreements. However, the sales and other transfers of trade secrets may include the following intangible property:

- Employee training materials
- Process flow charts
- Facility operation diagrams and schematics
- Financial plans and projections

TYPES OF INTELLECTUAL PROPERTY ECONOMIC ANALYSES

License agreement royalty rate data are often used in the following types of intellectual property analyses:

- Valuation analyses (prepared for property tax and many other purposes)
- Damages measurement analyses (typically related to breach of contract claims and tort claims)
- Transfer price analyses (including both intercompany transfers and third-party transfers)

Third-party arm's-length license royalty rate data are often used in intellectual property valuation analyses. Such arm's-length license agreement royalty rate data are typically used in the application of the market approach and, in particular, the RFR method.

These arm's-length data may be used to estimate a defined value for the taxpayer owner/operator's intellectual property. In addition to valuation analyses, such royalty rate data are also used in transactional fairness opinion analyses.

Such an independent opinion may be requested by any transaction participant or contract counterparty to assess the fairness of the following:

- A proposed intellectual sale transaction price
- A proposed intellectual property license royalty rate
- The terms of a proposed intellectual property (or portfolio of intellectual property) exchange or other transfer transaction

In addition to their use in valuation analyses, license agreement royalty rate data are often used in intellectual property lost profits and other damages measurements. Such empirical data may be used to conclude a reasonable royalty rate damages measurement to an aggrieved intellectual property owner/operator. And, such a reasonable royalty rate may be used in a tort damages measurement or in a breach of contract damages measurement.

Finally, arm's-length royalty rate data are often used as a component of intellectual property transfer price analyses. For intercompany transfer price determination purposes, royalty rate data are often used in the comparable uncontrolled transaction ("CUT") transfer price measurement method.

Such transfer price analyses are typically performed in transactions related to the following:

- International intercompany transfers of intangible property
- Interstate intercompany transfers of intangible property
- Intercompany intellectual property transfers between controlled entities where one of the entities has a noncontrolling ownership interest
- Arm's-length transfers of intellectual property use rights in a third-party license agreement

USES OF ROYALTY RATE DATA IN INTELLECTUAL PROPERTY ANALYSES

In addition to appraisals developed for property tax planning, compliance, or controversy purposes, license royalty rate data are routinely applied in various intellectual property analyses developed for non-property-tax purposes.

These various analyses include the following

- Transaction analyses related to:
 - arm's-length sales of intellectual property,

- arm's-length licenses of intellectual property,
- intercompany transfers of intellectual property within a controlled entity, or
- third-party transfers of intellectual property between a for-profit entity and a not-for-profit entity.

- Financing analyses related to:
 - intellectual property sale/licenseback and other financing collateral valuations or
 - debtor in possession or other intellectual property secured financing collateral valuations.
- Fair value measurement analyses related to:
 - GAAP acquisition accounting fair value measurements,
 - GAAP intangible asset impairment testing fair value measurements, or
 - GAAP post-bankruptcy fresh-start accounting fair value measurements.
- Federal taxation valuation analyses related to:
 - taxable (asset) acquisition transaction purchase price allocations,
 - basis in an intellectual property contributed by an equity holder to a corporation or a partnership,
 - charitable contribution deduction substantiation,
 - gift and estate tax planning and compliance,
 - intercompany transfer price arm's-length price ("ALP") determination,
 - taxpayer corporation solvency/insolvency analysis related to COD income recognition, or
 - the conversion of a C corporation to S corporation income tax status.
- Forensic analyses related to:
 - intellectual property infringement claim damages measurements,
 - intellectual property license breach of contract damages measurements,
 - condemnation and eminent domain taking of an entity's intellectual property, or
 - bankruptcy solvency/insolvency analysis of the intellectual property owner/operator.

GENERALLY ACCEPTED INTELLECTUAL PROPERTY APPRAISAL APPROACHES AND METHODS

There are generally accepted intellectual property appraisal approaches and methods. These generally accepted appraisal approaches and methods are described in numerous valuation textbooks, are included in valuation professional organization (“VPO”) professional standards, are taught in VPO training and credentialing materials, and are tested on VPO valuation credentialing examinations.

A description of each of these generally accepted appraisal approaches and methods is beyond the scope of this discussion. All intellectual property appraisal methods are typically grouped into three generally accepted intangible property appraisal approaches: the market approach, the cost approach, and the income approach.

A listing of the generally accepted intellectual property appraisal methods within each approach is presented below:

- Market approach methods
 - Relief from royalty method
 - Comparable uncontrolled transactions method
 - Comparable profit margin method
- Cost approach methods
 - Replacement cost new less depreciation method
 - Reproduction cost new less depreciation method
 - Trended historical cost less depreciation method
- Income approach methods
 - Multiperiod excess earnings method
 - Capitalized excess earnings method
 - Incremental income method
 - Differential income method
 - Profit split method
 - Residual profit split method

MARKET APPROACH INTELLECTUAL PROPERTY APPRAISAL CONSIDERATIONS

In the application of market approach appraisal methods, the selected valuation pricing metrics are typically based on either comparable or guideline:

- licenses of intellectual property,
- sales of intellectual property, or
- companies that use intellectual property.

In the application of the intellectual property market approach, the valuation variables that analysts select—and the valuation procedures that analysts perform—typically include the following:

- Quantitative/qualitative analyses of the taxpayer’s intellectual property
- Documentation of the guideline license/sale/company selection criteria
- Application of the guideline license/sale/company selection process
- Verification of the selected sale or license transactional data
- Quantitative and qualitative analysis of the selected sale or license transaction data
- Selection of the appropriate financial or operational pricing metrics to apply in the valuation analysis
- Selection of the specific pricing multiples to apply to the taxpayer’s intellectual property
- Application of the selected pricing multiples to the taxpayer’s intellectual property financial or operational metrics

Some of the individual factors that analysts consider in the application of the market approach appraisal methods include the following:

- Comparison of any seasoned guideline intellectual property to a taxpayer’s development stage intellectual property
- Comparison of any development stage guideline intellectual property to a taxpayer seasoned intellectual property
- Assessment of the current state of the competition in the taxpayer (i.e., the intellectual property owner/operator) industry
- Assessment as a part of a comparable profit margin (“CPM”) valuation method analysis: is the taxpayer’s intellectual property the only reason for the difference in profit margins between the taxpayer (i.e., the intellectual property owner/operator) and the selected CPM companies?

ELEMENTS OF THE INTELLECTUAL PROPERTY APPRAISAL ANALYSIS

The first element in any intellectual property appraisal is a complete definition of the taxpayer

intellectual property. This statement is true for intellectual property appraisals developed for any purpose. But this statement is particularly true for intellectual property appraisals performed for property tax purposes. This is because such appraisals are often subject to a contrarian review.

Particularly in the context of a taxpayer's intangible property exemption claim, the taxing authority will want to know exactly what intellectual property the taxpayer is claiming an exemption for. This is a legitimate question because the taxing authority wants to confirm that the intellectual property is, in fact, included in the taxpayer's total property assessment before the taxing authority allows the intangible property adjustment.

The intellectual property definition should specify exactly what patent, copyright, trademark, or trade secret is included in the valuation subject. This definition may include the registration number and country for an individual patent, copyright, or trademark (if registered). And, this definition will typically describe any other intangible properties that are included with the taxpayer's intellectual property appraisal.

The second element in the intellectual property appraisal is a description of the bundle of legal rights included in the analysis. For example, the description of the bundle of intellectual property rights will typically indicate which one of the following bundles is included in the property tax appraisal:

- Fee simple interest
- Term/reversion interest
- Licensor/licensee interest
- Sublicensee interest
- Territory (domestic/international) interest
- Product line/industry interest
- Life/residual interest
- Use rights
- Development rights
- Commercialization/exploitation rights

The third element of the intellectual property appraisal typically describes any contract or license terms in effect with regard to the taxpayer's intellectual property. If the taxpayer's intellectual property is subject to either an inbound or an outbound license, the analyst typically summarizes the following licensor/licensee responsibilities and license/contract terms:

- Identity of the licensor and the licensee
- Term of the license agreement (including any renewal options)

- The intellectual property legal protection requirements
- The dollar amount and responsibility for research and development expenditures
- The dollar amount and responsibility for marketing, advertising, or other promotional expenditures
- Each party's responsibility to obtain and maintain any licenses, permits, or other regulatory approvals
- Any milestone dates for regulatory approvals, commercialization events, sales levels, etc.
- Any contractual minimum use, production, or sales requirements
- Any contractual minimum marketing, promotion, or commercialization expense requirements
- The responsibility for any research and development technology development payments, development completion payments, etc.
- Each party's responsibility to obtain the required regulatory approvals
- Any milestone license payments made for any reason
- Each party's rights to any future intellectual property developments
- Each party's rights to sublicense the taxpayer intellectual property

The fourth element of the intellectual property appraisal is the standard (or definition) of value that the analyst is asked to conclude. For intellectual property appraisals developed for various purposes, the following standards of value may apply:

- Fair value
- Fair market value
- Use value
- User value
- Owner value
- Investment value
- Acquisition value
- Collateral value

For appraisals performed for property tax purposes, the appropriate standard of value is typically determined by statutory authority or administrative rulings. Many taxing jurisdictions

apply jurisdiction-specific standards of value, including fair market value, market value, true cash value, and many others.

Most property-tax-related standards of value incorporate the concept of an arm's-length transfer between a hypothetical willing buyer and a hypothetical willing seller.

The fifth element of the intellectual property appraisal is the premise of value that the analyst applies. For property tax appraisal purposes, the premise of value is often determined by statutory authority or administrative ruling. For appraisals developed for other purposes, the appropriate standard of value may be selected based on the analyst's highest and best use analysis of the subject intellectual property.

The intellectual property premises of value include the following:

- Value in continued use
- Value in place (but not in use)
- Value in exchange—or an orderly disposition basis
- Value in exchange—on a voluntary liquidation basis
- Value in exchange—as an involuntary liquidation basis

PURPOSE OF THE INTELLECTUAL PROPERTY APPRAISAL

The purpose of the intellectual property appraisal considers the following questions:

- What will the appraisal be used for?
- Who will rely on (or receive a copy of) the valuation?
- What form and format of valuation report is required?
- Are there any legal instructions (e.g., specific statutory definitions, judicial precedent, or reporting requirements) that the analyst should consider?

In an intellectual property appraisal developed for property tax purposes, the answers to the questions should be agreed to between the analyst and the taxpayer (or tax counsel). Particularly for property tax appraisal purposes, the answers to these questions may come in the form of instructions or directions from the taxpayer's legal counsel.

INTELLECTUAL PROPERTY APPRAISAL DATA GATHERING AND DUE DILIGENCE

For property tax appraisal purposes, the analyst typically gathers and analyzes information related to the taxpayer—that is, the intellectual property owner/operator.

Such taxpayer-specific information typically includes the following:

- Owner/operator historical and prospective financial statements at the “unit” level
- Owner/operator historical and prospective intellectual property development/maintenance costs
- Owner/operator current and expected resource/capacity constraints at the “unit” level

In this stage of the appraisal, the analyst typically documents a description and estimate of the intellectual property economic benefits to the taxpayer owner/operator.

Such taxpayer economic benefits may include the following:

- Any revenue increase associated with the taxpayer's intellectual property (e.g., related product unit price/volume, market size/position)
- Any expense decrease associated with the taxpayer's intellectual property (e.g., expense related to product returns, COGS, SGA, R&D)
- Any investment decrease associated with the taxpayer's intellectual property (e.g., inventory, capital expenditures)
- Any business risk decrease associated with the taxpayer's intellectual property (existence of intellectual property licenses/contracts, decrease of cost of capital components)
- An assessment of the intellectual property impact on the taxpayer owner/operator's strategic position: SWOT (strengths, weaknesses, opportunities, and threats)

The analyst may also consider the intellectual property's market potential outside of the taxpayer owner/operator. In this assessment of the intellectual property market potential, the analyst may consider the following factors:

- Change in the market definition or in the market size for an alternative (not the taxpayer) owner/user
- Change in alternative/competitive uses to an alternative (not the taxpayer) owner/user
- The subject intellectual property ability to create inbound/outbound license opportunities to an alternative (not the taxpayer) owner/user
- Whether the taxpayer owner can (1) operate the intellectual property and also (2) outboud license the intellectual property (in different products, different markets, different territories, etc.)
- Consider the quality and quantity of available inbound or outbound license data
- Perform an intellectual property useful economic life (“UEL”) analysis, with consideration of the following:
 - Legal/statutory life
 - Contract/license life
 - Technology obsolescence life
 - Economic obsolescence life
 - Lives of prior generations of the taxpayer’s intellectual property
 - Position of the taxpayer’s intellectual property in its life cycle

REVIEW OF INTELLECTUAL PROPERTY FINANCIAL PROJECTIONS

As part of the property tax appraisal, the analyst often receives financial projections related to the taxpayer’s business operations.

These financial projections may relate to the following levels within the taxpayer’s business enterprise:

1. The total taxpayer company
2. The taxable unit of taxpayer operating assets
3. The taxpayer’s intellectual property only

As part of the intellectual property appraisal, the analyst may review and challenge the following:

1. Any taxpayer-prepared financial projections
2. Any taxpayer-prepared measures of intellectual property economic benefits

In this due diligence of the taxpayer-prepared financial projections, the analyst may perform the following benchmark analyses:

- Compare the taxpayer’s prior projections (if any) to prior actual results of operations
- Compare the taxpayer’s projections to current capacity constraints
- Compare the taxpayer’s projections to the current total market size
- Consider published industry average CPM profitability metric data
- Consider guideline publicly traded company CPM profitability metric data

As part of the due diligence of the taxpayer’s financial and operational data—and particularly of the taxpayer’s financial projections—the analyst often considers industry data sources. These industry data sources may be used as benchmarks to test the reasonableness of taxpayer-projected profit margins and other financial metrics.

Some of the industry data sources that analysts typically use for such comparative benchmark analyses are listed in Exhibit 1.

In addition to industry data sources, analysts may consider financial and operational data related to guideline public companies that operate in the same industry as the taxpayer. The analyst may use these guideline company data as benchmarks to test the reasonableness of taxpayer-prepared profit margins and other financial metrics.

Some of the guideline company data sources that analysts typically use for such comparative benchmark analyses are summarized in Exhibit 2.

The various industry financial research and guideline publicly traded companies databases may be useful to analysts looking for industry profit margins and other financial metrics.

However, for purposes of intellectual property valuations, analysts should be aware that all of these databases have certain application strengths and weaknesses.

Several analyst considerations regarding the application strengths of the use of industry and guideline company databases are summarized in Exhibit 3.

Several analyst considerations regarding the application weaknesses of the use of industry and guideline company databases are summarized in Exhibit 4.

Exhibit 1

Taxpayer Intellectual Property Valuations

Typical Industry Data Sources

For Due Diligence Benchmark Analyses

1. Occupational Safety & Health Administration – The U.S. Department of Labor, Occupational Safety & Health Administration website provides Standard Industrial Classification (“SIC”) codes. Codes can be searched by keyword, or the SIC code “tree” can be viewed and browsed. This resource is available at <https://www.osha.gov/pls/imis/sicsearch.html>.
2. U.S. Census Bureau – The U.S. Census Bureau North American Industry Classification System (“NAICS”) website provides a searchable database of NAICS codes. NAICS codes are a more recent classification system than SIC codes. Therefore, they can be better for newer industries, such as some high tech industries. More information is available at <https://www.census.gov/eos/www/naics/>.
3. FirstResearch – FirstResearch is an industry research database that was developed to provide information for sales people. It provides an overview, valuation pricing multiples, growth rates, and information on how to analyze a company in a particular industry. Information is updated regularly. It is available from several different sources, including Business Valuation Resources, www.bvresources.com.
4. IBISWorld – IBISWorld is one of the largest independent publishers of U.S. industry research. Research includes information on major companies in the industry, growth rates, key financial data, and outlook for the industries. The research covers approximately 700 different market segments. Some international reports are also available. Information is updated quarterly for some industries and less frequently for other industries. IBISWorld is available at www.ibisworld.com and also through other database aggregators.
5. CFRA Industry Surveys – CFRA Industry Surveys (formerly S&P Industry Surveys) are available on approximately 50 industry sectors. The reports provide global industry information as well as information on U.S. industries. Major companies are discussed, and detailed information on the recent past and the outlook for the future are provided. A glossary of specialized terms is provided. Also, comparable financial information on major companies in the industry is provided. The information is updated twice a year. These surveys are available from CFRA MarketScope Advisor, www.advisor.marketscope.com.
6. ABI/Inform – Articles from U.S. and international general interest and trade publications may be searched. This database is available at most libraries and through database aggregators.
7. Bloomberg Industries – This component of the Bloomberg database provides industry data, interactive charting, and written analysis from a team of industry experts. Contact information for each industry expert is provided so that an analyst can follow up with questions if needed. More information is available at www.bloomberg.com/professional/.
8. MarketResearch.com – This database provides access to industry and market research reports from many different sources. It provides information on products, trends, regions, demographics, industries, and companies from its collection of over 700 research publishers. More information is available at www.marketresearch.com.
9. S&P Capital IQ – This database provides access to analyst research as well as some market research reports. Capital IQ uses S&P industry classifications. These classifications can be helpful in grouping companies in comparable industries. In addition, comparative ratio information is available. More information is available at www.capitaliq.com.
10. Refinitiv Workspace (formerly Thomson ONE/Eikon) – This database provides access to analyst research and market research reports. More information is available at www.refinitiv.com.
11. FactSet – FactSet also provides access to market research reports as well as analyst reports. The FactSet database is available at <https://www.factset.com>.
12. Westlaw – Articles from U.S. and international general interest and trade publications may be searched. Westlaw also provides access to the Investext analyst research database. More information is available at www.westlaw.com.
14. *Annual Statement Studies: Financial Ratio Benchmarks and eStatement Studies*, The Risk Management Association – Both the book and the online database contain financial statement ratios and common size balance sheet and income statement line items, arrayed by asset and sales size. Six different asset and sales size categories are presented. The book and database cover over 700 industries, sorted by NAICS codes. The book is issued annually. More information is available at www.rmahq.org and through BVDDataWorld.

Exhibit 1 (continued)

Taxpayer Intellectual Property Valuations

Typical Industry Data Sources

For Due Diligence Benchmark Analyses

15. Duff & Phelps Cost of Capital Navigator – This is an online platform that guides analysts through the process of developing global cost of capital estimates. The Cost of Capital Navigator provides users with multiple alternative models and corresponding required inputs as they use their professional judgement in developing their own estimates. Equity risk premiums (historical, supply-side, and Duff & Phelps recommended), industry risk premiums, full information betas, and size premiums are available in this platform. In addition, industry profiles are available by GICS code. These profiles provide various financial ratios, capital structure, industry betas, and other industry-specific information.
16. *IRS Corporate Ratios*, Schonfeld & Associates, Inc. – This book includes 76 financial ratios that are based on the most recently available income statement and balance sheet data compiled by the IRS. The data focuses on the comparison of financial ratios for companies with and without net income. The contrast between profitable and unprofitable companies highlights which ratios are critical in the achievement of financial success. The book is issued annually. More information is available at www.saibooks.com. The data from this book are also available in database form through BVDDataWorld.

Exhibit 2

Taxpayer Intellectual Property Valuations

Guideline Company Data Sources

For Due Diligence Benchmark Analyses

1. Bloomberg – Bloomberg is a fully searchable online database that provides financial information on nearly all (over 99 percent of total market capitalization) active and inactive U.S. publicly traded companies and active and inactive international companies. Companies may be searched by industry sectors or by SIC codes. Detailed financial information is available and updated frequently. More information is available at www.bloomberg.com/professional/.
2. MergentOnline – MergentOnline is a fully searchable online database that provides financial information on over 25,000 active and inactive U.S. publicly traded companies and 95 percent of non-US publicly traded companies. Companies are listed by SIC codes and by NAICS codes. More information is available at www.mergentonline.com.
3. S&P Capital IQ – S&P Capital IQ contains detailed information on approximately 62,000 publicly traded companies (both domestic and foreign), approximately 47,000 of which are active. The information is derived from documents filed with the Securities and Exchange Commission (“SEC”) and similar global stock regulators (as well as proprietary research). The database may be searched by SIC code or by Standard & Poor’s industry classifications. The information is updated frequently. More information is available at www.capitaliq.com.
4. Refinitiv Workspace – Refinitiv (formerly Thomson ONE and Thomson Eikon) is a fully searchable online database that provides financial information on approximately 77,000 public companies (54,000 of which are active). Companies may be searched by Global Industry Classification Standard (“GICS”) codes or SIC codes. Detailed financial information is available. The information is updated frequently. More information is available at www.refinitiv.com.
5. FactSet – FactSet is an online database that can be screened by numerous criteria, including industry; business description; financial data such as revenue, earnings, or assets; geographic location; closing price; and other criteria. The database contains information on over 75,000 companies worldwide. Over 2,000 unique financial data items are provided. More information is available at www.factset.com.

Exhibit 3 Taxpayer Intellectual Property Valuations Industry and Guideline Company Research Databases Analyst Consideration of Application Strengths

First, these guideline publicly traded company and industry financial research databases are generally organized and searchable by industry classification. This organizational structure allows the analyst to identify financial data that may be relevant to the taxpayer's intellectual property.

Second, many of these databases have relevant benchmarks and financial data already compiled and presented in a useful format. This format allows the analyst to efficiently identify, select, and utilize relevant industry data.

Third, these databases generally present numerous financial benchmarks (gross profit margin, pretax profit margin, liquidity ratios, etc.). The variety of the available data allows the analyst to select the financial data that are most relevant to the taxpayer's intellectual property valuation.

Fourth, many of these databases allow the analyst to narrow search parameters to identify financial data only from companies of a specific size (based on asset size, revenue size, market capitalization size, etc.). This size feature may be useful to analysts as many financial benchmarks such as profitability may be affected by either economies of scale or diseconomies of scale.

Exhibit 4 Taxpayer Intellectual Property Valuations Industry and Guideline Company Research Databases Analyst Consideration of Application Weaknesses

First, the identification of the individual companies that are included in each industry may not be available.

Second, the analyst may not have access to the underlying financial data that are used to calculate the industry benchmarks. And, these data may include outlier observations, adjusted data, or other data anomalies that are not meaningful.

Third, some of the companies listed in each industry category may be incorrectly categorized.

Fourth, the taxpayer may not be sufficiently similar to any of the industries that are included in the database.

Fifth, there is often a time lag in the aggregation of the data presented in some of these data sources. Therefore, the data presented in the databases may be a few years old.

THE RELIEF FROM ROYALTY APPRAISAL METHOD

The RFR method is one of the market approach appraisal methods that analysts apply to value intellectual property for property tax purposes—and for other purposes as well. The RFR method is based on a foundational assumption. The foundational assumption is that if the taxpayer did not own its intellectual property, it would have to inbound license that intellectual property from a third-party licensor.

An important procedure in the RFR method is the estimate of what amount of a license royalty rate the taxpayer would have to pay to inbound license the intellectual property from the third-party licensor.

Of course, the taxpayer actually owns its intellectual property. So, the taxpayer is “relieved” from having to pay a royalty payment related to such a hypothetical inbound license. Because the taxpayer owns its intellectual property, it experiences a “relief from royalty.”

Of course, the analyst has to select a subject-specific royalty rate. That royalty rate is used to quantify the amount of license royalty expense the taxpayer is “relieved” from paying.

In the application of the RFR appraisal method, analysts typically consider two types of arm's-length license agreement royalty rate data:

- The actual license compensation data (i.e., the raw royalty data)
- Royalty compensation normalization adjustment data

First, analysts select and assess base (or raw) royalty rate data. The base royalty rate is the contractual compensation specified in the selected arm's-length intellectual property license agreement. These base rate data include the "noise" of the actual royalty license consideration arrangements.

Second, the royalty adjustment data are the license-specific terms needed to "normalize" the actual CUT royalty arrangements—in order to make these CUT license data more comparable to the hypothetical license of the taxpayer's intellectual property.

So, in order to identify and extract the normalization adjustment data, analysts need to read each of the selected CUT intellectual property license agreements.

LICENSE-SPECIFIC "NOISE" MAY BE ENCOUNTERED IN THE CUT DATA

In applying the RFR method, analysts often have to deal with extraneous and unusable transactional data in their search for arm's-length CUT license agreements. These CUT license agreements are used to extract the market-derived, empirical royalty rate data needed to perform the RFR method appraisal analysis.

These normalization adjustments typically reduce the "noise" in what appears to be a wide range of aberrational and unrelated intellectual property license royalty rate data.

Analysts have to thoroughly review the third-party license agreements that are selected for consideration in the RFR method. The purpose of this review is to identify any terms and conditions that may need to be normalized. This normalization procedure is performed in order to make that CUT license agreement more useful to the RFR appraisal analysis.

Some of the license agreement normalization adjustments that analysts may look for include the following:

- Upfront fixed payments
- Milestone fixed payments
- Minimum/maximum fixed payments
- Litigation settlements or judicial orders
- Intercompany intellectual property transfers

- Equity transfers as part of the intellectual property license
- Unusually short or long license term periods
- An intellectual property sale transaction that is not a license
- A license royalty rate that is not expressed as a percent of licensee revenue
- A license royalty rate based on licensee sublicense income
- Multiple intellectual property assets included in the single license
- Product sale/distribution agreements
- Treatment of main/complementary products
- Relations of the intellectual property license to supplier, production, or other agreements

OTHER FACTORS THAT MAY AFFECT INTELLECTUAL PROPERTY LICENSE ROYALTY RATES

In addition to the license-specific "noise" terms that may need to be normalized in the selected CUT agreements, the analyst may consider industry and other general factors that affect intellectual property license royalty rate levels.

Analysts may consider these general factors that affect license royalty rates when analyzing the CUT data with respect to the taxpayer's intellectual property:

- State of the economy—at the CUT license inception date versus at the valuation date
- Size of the taxpayer's industry compared to the CUT industry
- Growth of the taxpayer's industry compared to the CUT industry
- Profitability of the taxpayer's industry compared to the CUT industry
- Market position of the taxpayer's intellectual property compared to the CUT intellectual property
- Market position of the CUT intellectual property in the CUT industry
- Position in the life cycle of the taxpayer's intellectual property
- Position in the life cycle of the CUT intellectual property

THREE PROCEDURES TO MANAGE THE “NOISE” IN ROYALTY RATE DATA

Analysts often apply one of three procedures to manage the “noise” associated with any anomalous royalty rate data found in the CUT license agreements.

These three royalty rate “noise” mitigation procedures follow:

- Eliminate the anomalous royalty rate observations from the selected royalty rate data
- Quantitatively adjust for the impact of the normalization factors
- Qualitatively assess the impact of the normalization factors

In addition to these three procedures, analysts may use central tendency analyses that minimize the impact of any anomalous CUT royalty rate observations:

- Median royalty rate calculation
- Trimmed mean royalty rate calculation
- Interquartile range of license royalty rates

In applying the RFR method, it is often appropriate for analysts to eliminate from consideration those anomalous royalty rate observations that cannot be normalized or adjusted. However, in any intellectual property appraisal, it is generally inappropriate for analysts to eliminate from consideration any anomalous royalty rate observations just because they fall outside of the typical range of royalty rate observation (i.e., because the aberrational royalty rates are not “Goldilocks” observations).

ROYALTY RATE DATA SOURCES

There are numerous commercial data sources that analysts may access to find arm’s-length intellectual property license agreement royalty rate data. Some of the commercial intellectual property license agreement databases are summarized in Exhibit 5.

The databases listed in Exhibit 5 are useful to analysts for identifying arm’s-length intellectual property license agreement royalty rate data. Analysts should be aware that each of these databases has data reliability strengths and weaknesses.

Exhibit 6 presents some of the analyst considerations regarding the application strengths of the intellectual property license databases.

Analysts should be aware that there are also limitations associated with the use of commercial intellectual license databases. Exhibit 7 presents some of the analyst considerations regarding the application weaknesses of the intellectual property license databases.

Analysts should consider all of these data reliability strengths and weaknesses when searching intellectual property license databases to extract royalty rates to use in the RFR method.

INTELLECTUAL PROPERTY APPRAISAL ILLUSTRATIVE EXAMPLE

Let’s consider the application of the RFR method to value a taxpayer’s intellectual property. Let’s assume the purpose of the appraisal is to claim an intangible property exemption claim to a property tax assessment. The Alpha Pharmaceutical Company (“Alpha”) owns and operates a special purpose pharmaceutical product manufacturing plant in Taxem County.

The high-technology facility is a state-of-the-art manufacturing plant. The special purpose plant is a continuous-process facility that is physically, functionally, and economically integrated.

The Taxem County assessor valued the Alpha plant (including all real estate and tangible personal property) at \$500 million as of the January 1, 2022, assessment date.

Even though the manufacturing plant is locally assessed, the assessor applied the unit principle of property appraisal to value the Alpha facility. The Taxem assessor applied both the income approach and the market approach to conclude the facility value.

Applying the income approach, the assessor capitalized the net operating income generated by the special purpose plant’s business operations. The Taxem County assessor derived the direct capitalization rate from capital market data related to publicly traded pharmaceutical companies. Applying the market approach, the Taxem assessor multiplied the plant’s earnings before interest, taxes, depreciation, and amortization (“EBITDA”) by a market-derived pricing multiple.

The Taxem assessor extracted the pricing multiple from the recent sales of going-concern pharmaceutical manufacturing facilities. The Taxem assessor reconciled the income approach value indication and the market approach value indication and concluded the value of the Alpha special purpose facility.

Exhibit 5

Taxpayer Intellectual Property Valuation Commercial Intellectual Property License Agreement Databases

1. ktMINE – ktMINE is an interactive intellectual property database that provides direct access to license royalty rates, actual license agreements, and detailed agreement summaries. The subscription-based database contains over 125,000 intellectual property license agreements. License agreements are searchable by industry, keyword, and various other parameters. The full text of each intellectual property license agreement is available. The ktMINE is available at www.bvmarketdata.com or at www.ktmine.com.
2. RoyaltySource – AUS Consultants offers a database that provides intellectual property license transaction royalty rates. This database, which is compiled from SEC filings and other sources, can be searched by industry, technology, and/or keyword. The information provided includes the license royalty rates, name of the licensee and the licensor, a description of the intellectual property licensed (or sold, if applicable), the transaction terms, and the original sources of the information provided. Preliminary results are available online, and a final report is sent to the subscriber via email. A subscription is not necessary. Analysts can pay per search. RoyaltySource is available at www.royaltysource.com.
3. RoyaltyRange – The RoyaltyRange database consists of manually gathered and analyzed data. RoyaltyRange reports contain more than 50 detailed standardized comparability factors on royalty rates and license terms. Each report is supplemented with original unredacted agreements, as well as filings and other types of documents. The RoyaltyRange database focuses on European transactions, but also contains some U.S. transactions. It excludes agreements between related parties, agreements with undisclosed remuneration mechanisms, royalty free agreements, agreements where royalties are expressed in other forms than percentage, and agreements with individuals, universities, and other noncommercial entities. The RoyaltyRange database is available at www.royaltyrange.com.
4. RoyaltyStat – RoyaltyStat is a subscription based database of intellectual property license royalty rates and license agreements, compiled from SEC documents. It is searchable by SIC code or by full text. The intellectual property transaction database is updated daily. The full text of each intellectual property license agreement in the database is available. RoyaltyStat is available at www.royalystat.com.
5. IntangibleSpring – IntangibleSpring is a subscription based database of royalty rates sourced from license agreements filed with the SEC. Using a combination of text mining, natural language processing, and manual review, this database identifies and extracts complete license agreements from filings with the SEC. This database excludes agreements with incomplete pricing data. IntangibleSpring is available at www.intangiblespring.com.
6. Markables – This database is different from the other databases discussed above. Rather than drawing royalty rates from actual license transactions of intellectual property, Markables gathers its data from purchase price allocations published in SEC filings. It has over 12,000 trademark valuations published in the financial reports of publicly traded companies from all over the world. Each record contains trademark value, revenues, reported or implied trademark royalty rates, customer value, enterprise value, trademark profit split, and a detailed description of the business as of the date of the valuation. Markables is available at www.markables.net.

Taxem County only taxes real estate and tangible personal property. That is, intangible personal property (including intellectual property) is not subject to property tax in this jurisdiction.

Alpha management believes that the assessor's unit value conclusion includes the value of the intellectual property that Alpha owns and operates at the plant. Alpha management wants to claim an intangible property exemption related to the value of that intellectual property.

Alpha manufactures several pharmaceutical products at the Taxem County plant. However, the

principal product manufactured at the plant is the patented and FDA-approved drug called Beta. Beta is an extremely effective (and extremely profitable) treatment for hypertension. Alpha management retained an analyst to value the Beta patent, proprietary technology, FDA license, and related intellectual property.

The analyst's valuation objective is to estimate the fair market value of the Beta pharmaceutical patent, proprietary technology, and related know-how that is owned and operated by Alpha at the Taxem County plant. The valuation date is January 1, 2022. Fair market value is the statutory definition

Exhibit 6 Taxpayer Intellectual Property Valuation Intellectual Property License Databases Analyst Consideration of Application Strengths

First, these databases allow the analyst to access thousands of license agreements. From these extensive collections of license agreements, the analyst may identify license agreements that are relevant to the valuation of the taxpayer's intellectual property.

Second, the extensive database search criteria allow the analyst to efficiently identify groups of potential license agreements that may be sufficiently similar to the taxpayer intellectual property. The analyst is able to search these databases based on (1) industry (SIC code or other classifications), (2) keyword, (3) time frame, (4) territory (worldwide or specific countries), and (5) a variety of other factors. Analysts may further narrow the search criteria to identify exclusive or nonexclusive licenses. These search criteria allow the analyst to identify a sample of potential license agreements through a relatively efficient, documented process.

Third, a strength of most of the above-mentioned databases is that the analyst may download the actual license agreements from the database. After selecting a sample of potential license agreements, the analyst should carefully review the actual license agreement in order to select royalty rate data that are sufficiently similar to the taxpayer's intellectual property.

Exhibit 7 Taxpayer Intellectual Property Valuation Intellectual Property License Databases Analyst Consideration of Application Weaknesses

First, there may be numerous duplicate license agreements included in these databases.

Second, there may be multiple updates of the same license agreement in the database (i.e., another type of data duplication).

Third, some "license agreements" may actually be asset purchase agreements or other types of transactional agreements. In other words, not every agreement is an intellectual property use license.

Fourth, some of the license agreements may be between related parties (and, therefore, may not be arm's-length agreements).

Fifth, some of the license agreements may involve several different types of intellectual property (e.g., a trademark and a patent), making it difficult for the analyst to extract a specific royalty rate for a single intellectual property.

Finally, the royalty consideration formula in the license agreement may be presented in a form that is not particularly useful to the analyst (e.g., a royalty dollar per 1,000 barrels of beer sold—rather than a royalty payment as a percent of licensee revenue).

of value used in Taxem County for ad valorem property tax purposes.

The analyst's valuation purpose is to assist Alpha management in its claim for an intangible property exemption related to its January 1, 2022, property tax assessment.

The analyst decided to apply the market approach and the RFR method to value the Beta patent, proprietary technology and related trade secret know-how.

ILLUSTRATIVE ROYALTY RATE SEARCH CRITERIA

The analyst searched for arm's-length intellectual property license agreements from which to extract market-derived royalty rate data to use in the RFR valuation of the Beta patent.

The analyst selected (and documented) the following criteria for researching CUT intellectual property licenses:

- SIC code 2834, pharmaceuticals industry
- Technology intangible assets and manufacturing/process intangible assets
- Either the licensor or the licensee is a U.S. company
- No geographic territory restrictions
- No restrictions on the type of the agreement (other than it must be patent or technology related)
- License start date must be after January 1, 2017, and the license has to still be in effect as of January 1, 2022

The Initial License Royalty Rate Search Results

In this illustrative example, the analyst searched both the ktMINE database and the RoyaltySource database to identify pharmaceutical industry patent and technology license agreements. The analyst will apply the royalty rate data extracted from the commercial databases (1) to apply the RFR appraisal method and (2) to value the Beta patent-related intellectual property.

Using the ktMINE database, the analyst's initial search identified 72 potential CUT license agreements for further consideration. Using the RoyaltySource database, the analyst requested 30 randomly selected pharmaceutical industry technology license agreements for future consideration.

The license royalty rates indicated by the 102 potential CUT licenses ranged from 2 percent of the licensee's product revenue up to 100 percent of the licensee's product sublicense revenue.

After reviewing each of the 102 pharmaceutical industry technology license agreements, the analyst noticed that numerous license royalty rates were expressed as:

- a percentage of licensee gross profits,
- a percentage of licensee net profits,
- dollars per kilogram of product produced,
- a percentage of the license product manufacturing costs,
- a fixed dollar amount per time period, or
- a fixed dollar amount for the term of the license.

In selecting the appropriate royalty rate to use in the Beta patent-related appraisal, the analyst had to make sense of over 100 divergent intellectual property license royalty rate data points.

Types of License Agreements Included in the Commercial Databases

The analyst noted that there were numerous types of intellectual-property-related agreements included in the commercial databases.

In order to assemble a reasonable amount of usable pharmaceutical product patent royalty data, the analyst concluded that the following types of agreements could be eliminated (from consideration), adjusted (quantitatively normalized), or assessed (qualitatively normalized):

- Territory production/manufacturing agreements
- Territory product distribution agreements
- Sublicense agreements
- Trademark license agreements
- Intercompany transfer price agreements
- Nonpatent technology licenses
- Intangible asset sale agreements
- Joint product development agreements
- Joint venture commercialization agreements
- Access to product data and library research agreements
- Intellectual property infringement settlement and court order agreements
- Stockholder litigation settlement agreements
- Technical assistance agreements

Types of Products Included in the Commercial Databases

Even though the analyst restricted the database searches to pharmaceutical industry patents, a wide array of license agreements were captured in the intellectual property royalty rate search.

To achieve a manageable number of usable royalty rate observations, the analyst concluded that the following products could be eliminated (from consideration), adjusted (quantitatively normalized), or assessed (qualitatively normalized):

- Generic drug products
- Cosmetic products
- Nonhuman drug products
- Medical and surgical device products
- Radiation delivery systems
- Over-the-counter products
- Dietary supplement products

- Nonprescription skin care products
- Multiple pharmaceutical products (multiple product portfolios)
- Multiple patents and know-how (multiple intellectual property portfolios)

Types of License Compensation Included in the Commercial Databases

Ideally, the analyst is searching for license agreements that have a royalty rate expressed as a percent of the licensee's product revenue. Such royalty rates are easier to apply in the RFR method. And, such royalty rates would be easy to apply to the RFR appraisal of the Beta patent, proprietary technology, and related know-how intellectual property.

However, the analyst's initial search of the 102 license agreements produced a very wide range of royalty rate compensation formula, plans, and methods.

In order to achieve a reasonable number of useful royalty rate observations, the analyst decided that these license royalty consideration arrangements could be eliminated (from consideration), adjusted (quantitatively normalized), or assessed (qualitatively normalized):

- A profit split percentage of the licensee gross profits
- A profit split percentage of the licensee net profits
- A profit split percentage of the licensee product profits
- A percentage of the sublicensee revenue/income
- A percentage of the licensee product manufacturing costs
- A percentage of the licensee total costs
- A percentage of some specified exit event price or consideration
- A percentage of the FMV assigned to the subject intellectual property
- A dollar amount per unit volume/weight of product produced

The analyst noted that some of these license consideration arrangements could be useful in the application of profit split appraisal methods or of cost plus appraisal methods. However, these license consideration methods were not particularly applicable in the application of the RFR method.

The analyst also noted that, with some supplemental analysis, some of these license consideration arrangements could be converted into a percent of revenue royalty rate equivalent—that could be used in the application of the RFR method.

EXAMPLES OF THE ELIMINATION OF ROYALTY RATE NOISE

Exhibit 8 illustrates several of the license agreements that the analyst had to eliminate from future consideration. The type of license agreement compensation arrangements did not lend themselves to use in the RFR method.

That is, the analyst was searching for intellectual property license agreements where the royalty rate was expressed as a percent of the licensee's pharmaceutical product revenue.

EXAMPLES OF THE QUANTITATIVE ADJUSTMENT (NORMALIZATION) OF ROYALTY RATE NOISE

The analyst's search produced numerous license agreements that had complex royalty compensation arrangements. However, with additional due diligence and research, the analyst could adjust the complex royalty arrangements to indicate an equivalent royalty rate expressed as a percent of licensee's revenue.

Exhibit 9 illustrates several of these quantitative adjustments that the analyst made to reduce the "noise" in the raw license agreement royalty rate data.

EXAMPLES OF QUALITATIVE ASSESSMENT (NORMALIZATION) OF ROYALTY RATE NOISE

The analyst noted that many of the license royalty consideration formulas were expressed as a percent of the licensee's product revenue. However, some of these licenses were also complex agreements. That is, the intellectual property license agreements were tied to manufacturing, joint venture, distribution, or other agreements.

In some of the agreements, a more fulsome bundle of assets was being licensed. In these cases, the analyst applied experience and judgment—as well as quantitative industry research—to qualitatively assess and adjust the license royalty rate arrangement.

Exhibit 8
Alpha Pharmaceutical Company
Beta-Patent-Selected Intellectual Property Valuation
Elimination of Royalty Rate Observations

Intellectual Property Licensor	Intellectual Property Licensee	Intellectual Property License Rights Transferred	License Royalty Consideration Formula
Cypress Pharmaceuticals	Pediatrix	Rights to distribute the product Granisol	\$1,000/month
Allergan	Nektar Therapeutics	Collaboration agreement to develop the product Levadex	50% of the product profits/loss
Axiom Pharmaceuticals	Biodelivery Sciences	Rights to the BWEMA patent and to develop new related products	#375,000/quarter
Epicept Corp.	Epicept GmbH	Compensation agreement to develop Caplene for AML remission treatment	\$2,000/day/employee
Columbia Laboratories	Scientelle	Right to use the patent to develop a diabetes drug for the licensor	150% of the product development expenses—to the licensee
Pharmos Corp.	Reperico Pharmaceuticals	Product development agreement—right to use the patent to develop small molecular drugs	50% of the fair market value of an exit (sale) event

As illustrated in Exhibit 10, many of these assessments involve the analyst’s royalty rate conclusion that is “less than” or “more than” the CUT license agreement stated royalty rate.

Exhibit 11 presents the CUT licenses that the analyst selected for use in the RFR method appraisal of the Beta patent, proprietary technology, and related know-how intellectual property.

EXAMPLES OF SELECTED CUT ROYALTY RATE DATA FOR THE BETA INTELLECTUAL PROPERTY APPRAISAL

The analyst noted that some (although relatively few) of the potential CUT license agreements were, in fact, “Goldilocks” licenses. That is, for the most part, these selected license agreements were “just right.” That is, they provided particularly useful market-derived arm’s-length agreement royalty rate data that could be used to value the Alpha intellectual property.

APPLICATION OF THE RELIEF FROM ROYALTY APPRAISAL METHOD

At this point in the analysis, the analyst has accessed intellectual property license databases, developed license agreement selection criteria, selected and reviewed 102 license agreements, and assembled (and normalized) empirical royalty rate data.

Based on the analyst’s assessment of the market-derived royalty rate data, the analyst has to answer the question: what is the appropriate market-derived royalty rate to use in the Beta patent-related intellectual property appraisal? That is, what is the market-derived royalty rate for the appraisal of Alpha’s intellectual property?

Exhibit 9
Alpha Pharmaceutical Company
Beta-Patent-Related Intellectual Property Valuation
Adjustment of Royalty Rate Observations

Intellectual Property Licensor	Intellectual Property Licensee	Intellectual Property License Rights Transferred	License Royalty Consideration Formula	Analyst's Quantitative Royalty Rate Adjustment
Glycomed	Paringenix	Patent rights to develop variations of the named products	100% of sublicense revenue	8% of revenue [a]
Keryx Biopharma	Torii Pharma	Right to use patent and technology to manufacture products to treat inflammatory cutaneous disorders	15% of manufacturing cost	7.5% of revenue [b]
Deponed	Solvany Pharma	Right to use patents, know-how, and technology to develop and manufacture pain medicine delivery device	15% of revenue	7.5% of revenue [c]
Impax Labs	Medicis Pharma	Rights to use patents, know-how, and technology to develop products for treatment of oral acene	25% of pretax profit	10% of revenue [d]
Columbia Labs	Coventry Pharma	Rights to patents and patented applications to develop small modular immune-pharmaceutical products	50% of pretax profit	7.5% of revenue [e]
DVSA Pharma	River's Edge Pharma	Rights to use patents and technology to develop and manufacture products for stated gastro-intestinal disease	\$5 million plus 25% of gross profit	10% of revenue [f]

[a] Assumes that 100 percent of the sublicense revenue becomes pretax margin; 8 percent is the average pretax margin in this industry sector.

[b] Manufacturing cost equals about 50 percent of product revenue in this industry sector.

[c] As a rule of thumb, medical device licenses generally generate about twice the royalty rate as pharmaceutical product licenses.

[d] Gross profit margin is approximately equal to 40 percent of revenue in this industry sector.

[e] Pretax margin is approximately 15 percent of revenue in this industry sector.

[f] Gross profit margin is approximately 40 percent of revenue; the \$5 million up-front payment settled a patent infringement lawsuit between the licensor and the licensee.

Exhibit 10
Alpha Pharmaceutical Company
Beta-Patent-Related Intellectual Property Valuation
Assessment of Royalty Rate Observations

Intellectual Property Licensor	Intellectual Property Licensee	Intellectual Property License Rights Transferred	License Royalty Consideration Formula	License Agreement Contract Term	Analyst's Qualitative Royalty Rate Adjustment
Hoffman-La Roche	Meda AB	Rights to patents, trademarks, and all intellectual property, inventory, contracts, and manufacturing technology—in an asset purchase agreement	10% of revenue	6 years	Less than 10% of revenue [a]
Combinatorix	Fovea Pharma	Collaboration agreement—right to collaborate to develop ophthalmic medicine to treat BOE diseases	4% of revenue	10 years	More than 4% of revenue [b]
CIBA Vision	Novartis Pharma	Right to use technology to develop a benzoporphyrin derivative mono acid ring for use in cataract surgery	20% of revenue	10 years	Less than 20% of revenue [c]
Coventry Pharma	Watson Pharma	Right to use patent, trademark, copyrights, regulatory filings, and promotional materials to develop Progesterone products	10% of revenue	Unit last intellectual property expires	Less than 10% of revenue [d]
PDL Biopharma	Alexion Pharma	Right to use PDL antibody patent family in the development and manufacture of other licensed pharmaceutical products	4% of revenue	Term of other licenses	More than 4% of revenue [e]

[a] The licensee is paying for the acquisition of a going-concern business.

[b] Both the licensor and the licensee have to contribute to the development of any new drug product.

[c] Medical devices typically extract higher royalty rates; this license also gives the licensee the right to buy materials from the licensor at cost.

[d] Includes multiple intellectual property assets and the right to operate a going-concern business.

[e] Patent can only be used with other licensed products; that contract arrangement also generates license royalty income to the licensor.

The purpose of this appraisal is to quantify the intangible property exemption related to the unit principle appraisal of Alpha's special purpose manufacturing facility in Taxem County.

As part of the RFR method appraisal, the analyst eliminated royalty rate data that did not present meaningful license royalty consideration. Then, the

analyst adjusted the royalty rate data to indicate an adjusted range of royalty rates of 7.5 percent to 10 percent of licensee product revenue.

This adjustment procedure produced the following royalty rate indications:

- Mean royalty rate – 8.4 percent of revenue
- Median royalty rate – 8 percent of revenue

Exhibit 11
Alpha Pharmaceutical Company
Beta-Patent-Related Intellectual Property Valuation
Selected Royalty Rate Observations

Intellectual Property Licensor	Intellectual Property Licensee	Intellectual Property License Rights Transferred	License Agreement Conduct Term	Licensor Royalty Rate Compensation
Cominatrix	Alphah Plan	Right to use patent and clinical research to adopt Prednisporin to treat glaucoma	6 years	8% of revenue
Cosmo Pharma	Santorus	Right to use patents and know-how to develop products containing Budesonide to treat ulcerative colitis	6 years	7% of revenue
Eli Lilly	United Therapeutics	Right to use patents and technology to develop and commercialize prescription products for treatment of pulmonary hypertension	20 years	6% of revenue
Baxter International	Eleison Pharma	Right to patent and technology to improve Glufosfamide related to the treatment of cancer	9 years	8% of revenue
Auxilium Pharma	Biospecifics	Right to use BTC patents in the development of the next generation of products to treat Peyronie's Disease	8 years	8.5% of revenue

- Mode royalty rate – 7.5 percent of revenue

As illustrated above, the analyst assessed royalty rate data that indicated a greater than/less than royalty rate range. Those data were the result of the analyst's qualitative assessment of the royalty rate noise in the entire sample of intellectual property licenses.

With regard to the Beta-related intellectual property, the greater than/less than range of royalty rates indicated the following:

- Royalty rate greater than 4 percent of revenue
- Royalty rate less than 20 percent of revenue
- Modes – greater than 4 percent of revenue, less than 10 percent of revenue

Based on the most comparable of the sample of license agreements, the analyst selected CUT royalty rate data that indicated a range of 6 percent to 8.5 percent of revenue. These selected license agree-

ments are sometimes referred to as “Goldilocks” agreements.

Based on the similarities of these selected licenses to the Beta-patent-related intellectual property, these individually selected agreements are “just right.”

The final selection of CUT license agreements indicated the following royalty rate range:

- Royalty rate mean – 7.5 percent of revenue
- Royalty rate median – 8 percent of revenue
- Royalty rate mode – 8 percent of revenue

Based on all of the above-described empirical royalty rate data, the analyst selected a royalty rate of 8 percent of revenue for use in the RFR method appraisal of the Beta-related intellectual property.

In addition to applying the selection criteria described above, the analyst considered the following factors in the final selection of the 8 percent of revenue royalty rate for the Beta-related intellectual property appraisal:

- The relative profitability of the Beta product compared to the CUT patent products, including consideration of the relative profit margins of Beta versus the CUTs and the relative returns on investment of Beta versus the CUTs
- The relative total size of the Beta market compared to the market sizes of the CUT patent markets
- The relative growth rate of the Beta market compared to the growth rates of the CUT patent markets
- The relative position of the Beta product in its market compared to relative position of the CUT patent products in their respective markets
- The relative availability of substitutes for the Beta product compared to relative availability of substitutes for the CUT patent products
- The relative age of the Beta product in its life cycle compared to relative ages of the CUT patent products in their life cycles

The analyst recognized that, ideally, these comparative analyses are prepared on a patent-to-patent (or product-by-product) basis. However, based on data constraints, these comparative Beta/CUT intellectual property analyses may have to be developed on either:

1. a company-to-company basis or
2. an industry-to-industry basis.

RELIEF FROM ROYALTY APPRAISAL METHOD ILLUSTRATIVE EXAMPLE

Exhibit 12 presents the analyst's application of the RFR method to estimate the fair market value of the Alpha Pharmaceutical Company's Beta patent-related intellectual property. This intellectual property appraisal is based on the market-derived intellectual property license analysis described above.

The analyst derived the other valuation variables applied in the RFR analysis after rigorous due diligence and consultation with Alpha management. A summary description of the selected valuation variables is presented in the footnotes to Exhibit 12.

RELIEF FROM ROYALTY METHOD APPRAISAL SUMMARY

Alpha management retained the analyst to estimate the fair market value of the Beta intellectual

property (i.e., the patent, proprietary technology, and related know-how trade secrets), as of January 1, 2022. The Alpha manufacturing facility was assessed by Taxem County based on a unit principle appraisal analysis.

That unit principle appraisal included the value of all of the Alpha (1) working capital assets, (2) real estate, (3) tangible personal property and (4) intangible personal property. Alpha retained an analyst to prepare the intellectual property appraisal in order to claim an intangible property exemption with regard to the Taxem County assessment of the special purpose pharmaceutical manufacturing facility.

The analyst concluded that the market approach and the RFR method was most appropriate to value Alpha's intellectual property. The analyst performed a comprehensive search—and a rigorous analysis—of CUT pharmaceutical product patent license agreements. Based on both quantitative and qualitative factors, the analyst selected a market-derived royalty rate to apply to the RFR method appraisal.

Working with Alpha management, the analyst developed the other valuation variables needed to complete the RFR method appraisal.

Based on the results of the RFR appraisal, and as summarized in Exhibit 12, the analyst concluded that the fair market value of the Beta-related intellectual property, as of January 1, 2022, was: \$130 million.

Alpha management used this intellectual property appraisal to request an intangible property exemption with regard to the \$500 million assessment of Alpha's special purpose manufacturing facility located in Taxem County.

INTELLECTUAL PROPERTY VALUATION ANALYST CAVEATS

There are several caveats that analysts should consider with regard to the application of the RFR method to value taxpayer intellectual property for property tax planning, compliance, or controversy purposes.

First, analysts should use several intellectual property license databases, if possible. Of course, there is a cost to using multiple databases. However, the use of several databases typically results in a more comprehensive sample of CUT license agreements.

Second, it is important for the analyst to understand what intellectual property is included in

Exhibit 12
Alpha Pharmaceutical Company
Beta-Patent-Related Intellectual Property Valuation
Market Approach—Relief from Royalty Appraisal Method
Fair Market Value
As of January 1, 2022
(in \$ millions)

Beta Patent-Related Intellectual Property Appraisal Analysis [a]	Projection Period								
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9
Beta Product Expected Revenue Growth Rate [b]	10%	10%	10%	0%	0%	0%	-12%	-12%	-12%
Beta Revenue Amount (year 0 base revenue = 400)	440	484	532	532	532	532	469	412	363
Selected Patent License Royalty Rate	<u>8%</u>	<u>8%</u>	<u>8%</u>	<u>8%</u>	<u>8%</u>	<u>8%</u>	<u>8%</u>	<u>8%</u>	<u>8%</u>
Projected License Royalty Expense Relief (founded)	35	39	43	43	43	43	38	33	29
Projected Income Tax Expense (40% income tax rate) [c]	14	16	17	17	17	17	15	13	12
Projected Net License Relief Expense Relief (rounded)	21	23	26	26	26	26	23	20	18
Present Value Discount Factor (at a 12% rate, using the midyear convention) [d]	<u>94</u>	<u>84</u>	<u>75</u>	<u>67</u>	<u>60</u>	<u>54</u>	<u>48</u>	<u>43</u>	<u>38</u>
Present Value of License Royalty Expense Relief	20	19	20	17	16	14	11	9	7
Total Present Value of License Royalty Relief	<u>133</u>								
Fair Market Value of the Beta-Patent-Related Intellectual Property (rounded)	<u>130</u>								

[a] The expected useful economic life (“UEL”) of the Beta product patent in 9 years; this UEL is based on Alpha management’s projection of the Beta product economic life. Alpha management is currently developing a replacement product. And, there are competitive pharmaceutical products that are beginning to enjoy market acceptance in competition to Beta.

[b] The analyst derived the projected revenue growth/decline rates (in conjunction with Alpha management) based on an analysis of similar drug product revenue growth/decline rates during the last half of their respective product patent life cycles.

[c] Assumes a 40 percent combined (federal and state) effective income tax rate, consistent with the income tax rate used in the unit principle appraisal of the Alpha manufacturing facility.

[d] Assumes a 12 percent after-tax present value discount rate, consistent with the after-tax weighted average cost of capital used in the unit principle appraisal of the Alpha manufacturing facility.

the valuation subject, what taxpayer industry is included in the valuation subject, and what bundle of intellectual property legal rights is included in the valuation subject.

Third, it is a best practice for the analyst to print and read each individual license agreement that may provide empirical royalty rate data.

Fourth, it is also a best practice for the analyst to examine each selected license agreement for terms and conditions that may justify the elimination, adjustment, or assessment of—or the analyst’s reliance on—the market-derived license royalty rate data.

Fifth, the analyst should be aware that the commercial license databases may include documents other than arm’s-length intellectual property license agreements.

For example, these commercial databases may also include the following types of transactional documents related to intellectual property:

- Business acquisition asset purchase agreements
- Intangible property intercompany transfer price agreements
- Product sale, manufacturing, or distribution agreements
- Joint venture, collaboration, development, etc., agreements

Sixth, the analyst should be aware that there are various types of license royalty compensation formula that are not particularly useful to an RFR method royalty rate analysis. That is, these royalty formula present compensation methods other than a royalty expressed as a percent of licensee revenue.

Examples of these other license compensation formula include the following:

- A dollar amount per unit sold or produced
- A dollar amount per time period
- Equity (stock shares) as a license payment
- A percentage of licensee gross profit or net profit

Seventh, and finally, the analyst should be prepared to eliminate, adjust, and assess the market-derived license royalty rate data in order to extract the most meaningful intellectual property pricing metrics. Intellectual property valuation analysts should be comfortable with this generally accepted valuation procedure.

For example, real estate appraisers regularly eliminate, adjust, and assess empirical sales data

in performing real estate appraisals. And, business valuation analysts regularly eliminate, adjust, and assess guideline company pricing multiple data in performing market approach business valuations.

Therefore, the procedure to eliminate, adjust, and assess empirical royalty rate data should be a well-used tool in the intellectual property valuation analyst’s toolbox.

THE EFFECTIVE INTELLECTUAL PROPERTY VALUATION REPORT

In addition to developing the intellectual property appraisal analysis, the analyst typically has to prepare a narrative valuation report. In order to encourage the report reader’s acceptance, the effective intellectual property valuation report should be:

- clear, convincing, and cogent;
- well organized, well written, and well presented;
- free of grammar, punctuation, spelling, and mathematical errors; and
- procedurally and mathematically replicable, without the use of any unexplained or unsourced valuation variables.

Particularly with regard to a report prepared for property tax purposes, the persuasive intellectual property valuation report should tell a narrative story that:

- defines the analyst’s assignment;
- describes the analyst’s data gathering and due diligence procedures;
- justifies the analyst’s selection of (and rejection of) the generally accepted intangible asset appraisal approaches, methods, and procedures;
- explains how the analyst performed the valuation reconciliation and synthesis and how the analyst reached the final value conclusion;
- defends the analyst’s intellectual property value conclusion; and
- describes all of the data sources that the analyst relied on in the appraisal (and includes copies of nonpublic source documents).

Particularly with regard to a report prepared for property tax purposes, an effective intellectual property valuation report will avoid these errors:

- Failure to apply the defined standard of value

- Failure to apply the defined premise of value
- Analytical internal inconsistencies
- Arithmetic errors in the intellectual property appraisal analysis
- Insufficient support for the selected valuation variables
- Reliance on industry or other rules of thumb
- Insufficient data and inadequate market research
- Inadequate due diligence procedures

In particular, expert reports prepared for property tax controversy purposes should be comprehensive. Typically, all of the analyst's valuation procedures and thought processes will be documented in the expert report.

Analysts who prepare appraisal analyses in property tax controversy cases may be familiar with this valuation report guidance: "if it's not in your report, you didn't do it."

SUMMARY AND CONCLUSION

Analysts understand that there is a lot of "noise" included in the intellectual property license database royalty rate raw data. Nonetheless, analysts can effectively use these empirical royalty rate data to develop intellectual property appraisals for property tax (and for other) purposes.

Analysts often use the "eliminate, adjust, and assess" procedures summarized in this discussion to reach a reasonable range of royalty rates—and a final, supportable intellectual property royalty rate conclusion.

However, analysts should not use the so-called "Goldilocks" procedure. That is, analysts should not:

1. select a predetermined intellectual property royalty rate that is "just right" for the subject appraisal and then
2. eliminate, adjust, and assess the empirical data in order to justify the predetermined "just right" intellectual property royalty rate.

There are many reasons to value a taxpayer's intellectual property within a property tax context. There are also many reasons to value intellectual property outside of the property tax content.

There are generally accepted approaches, methods, and procedures with regard to the appraisal

of intellectual property. Taxpayers, tax counsel, assessment authorities, and analysts should be familiar with these generally accepted appraisal approaches and methods. For many types of intellectual property, the market approach is a particularly applicable appraisal approach.

This discussion focused on the application of the market approach RFR appraisal method to value taxpayer intellectual property for ad valorem property tax planning, compliance, and controversy purposes.

In applying the RFR appraisal method, analysts typically access various commercial databases. These databases are used to extract market-derived royalty rates from the arm's-length licenses of intellectual property assets that are sufficiently similar to the taxpayer's intellectual property. These arm's-length intellectual property licenses are frequently referred to as comparable uncontrolled transactions—or CUTs.

This discussion presented an illustrative example of the application of the RFR method to value taxpayer's intellectual property. This example considered the analyst's appraisal of the hypothetical Beta patent method intellectual property for the Alpha Pharmaceutical Company.

Particularly with regard to intellectual property appraisals prepared for property tax controversy purposes, analyst should be prepared to explain all selections, rejections, or adjustments of available license royalty rate data.

If the license market for the taxpayer's intellectual property is efficient, then the analyst should be able to modulate the noise in the license royalty rate data—and be able to reach a reasonable range of royalty rates and a supportable intellectual property value conclusion.



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