Valuing Intangible Assets
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To our wives and children.
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Intent of the Book

This book covers a number of related topics, all of which may be generally described as the analysis and appraisal of intangible assets.

The first and principal topic relates to the valuation of intangible assets. This topic involves the estimation of a defined monetary value for a subject intangible.

The second topic relates to the economic analysis of intangible assets. This topic includes the estimation of the effect on an economic unit of the use or ownership of an intangible asset—for example, estimating the incremental value to a business of being awarded a major contract or a new patent. This topic also entails the estimation of the effect on an intangible asset of an exogenous event or influence—for example, estimating the value decrement or other measure of economic damages to a trademark due to an infringement.

The third topic relates to the analysis of the appropriate transfer price for an intangible asset. This topic involves estimating the sale price for an intangible asset—that is the transfer of a fee simple ownership interest in the asset. Sometimes intangible asset transfer price analysis entails estimating a license fee or royalty rate. In this case, the third topic includes the lease, license, or other transfer of certain ownership rights to the intangible for a certain period of time. Finally, this topic covers the estimation of an intercompany transfer price—a fair, market-derived economic rent to pay for the use of an intangible asset, such as proprietary technology or computer software.

It should be noted that throughout all these topics related to the analysis and appraisal of intangible assets, there is a common subtopic that cannot be overlooked. That subtopic may be the most complex—and sometimes the most critical—element of the analysis and appraisal of intangibles: the remaining useful life analysis of intangibles. That element of technical analysis (whether it be implicit or explicit) is one aspect of each of the other topics: valuation, economic event analysis or damage analysis, and transfer pricing.

This book responds to the challenge of documenting a recognizable, systematic approach to valuing intangible assets. Its intent is to clarify and advance the debate on a complex and controversial subject matter. Generally accepted financial valuation techniques regarding intangible assets continue to evolve, just as have the generally accepted valuation techniques regarding tangible real estate and tangible personal property. Future editions of this book will continue the process of explaining and documenting generally accepted intangible asset valuation techniques.
Content of the Book

This book is presented in six parts. The earlier parts are intended to be more general and fundamental in nature. Later chapters build on the earlier chapters, and they are more specific and more advanced in nature.

Part I presents an introduction and overview to the valuation and economic analysis of intangible assets. Chapter 1 discusses the general methods associated with identifying (or recognizing the legal existence of) intangible assets and with valuing (or recognizing the economic existence of) intangible assets. Chapter 2 also explains many of the more common events that create a reason for conducting a valuation or economic analysis of intangible assets. Chapter 3 discusses professional standards related to intangible asset appraisals. Chapter 4 provides an overview of the basic concepts related to valuing (or recognizing the economic existence of) intangible assets. Chapter 5 introduces the basic procedures related to intangible asset data collection and analysis.

Part II explains the generally accepted intangible asset valuation approaches, methods, and procedures. These approaches, methods, and procedures are presented within the logical context of what is called the appraisal process. Chapters 6 through 10 discuss the proper applications of these analytical procedures and present numerous examples.

Part III discusses the remaining useful life analysis of intangible assets. Various quantitative and qualitative remaining useful life analyses are presented and contrasted. Chapters 11 and 12 discuss the proper applications of these lifing-related analytical procedures and present numerous examples.

Part IV discusses the logical process for reaching an overall analytical conclusion. Chapters 13, 14, and 15 describe the process for synthesizing various alternative analysis methods and quantitative indications and explain the thought process for reaching a final conclusion from among a range of analytical results. As we shall see, this thought process is valid regardless of whether the conclusion is a value estimate, a damage estimate, a royalty rate or transfer price determination, or a remaining useful life or decay rate indication.

Part V describes the analyses associated with various individual categories of intangible assets. Chapters 16 through 24 describe various common categories of intangible assets. Category-specific valuation methods are explained, and category-specific data sources are referenced. An example is provided for each category of intangible asset.

Part VI presents the application of intangible asset valuation and economic analysis procedures to transfer pricing analysis in Chapter 25. Chapter 26 gives detailed examples of intangible asset valuation and economic analysis under several different sets of circumstances and for several different purposes.

Audience for the Book

This book should be useful to a variety of constituencies who are interested in the valuation and economic analysis of intangible assets, including:

1. Intangible asset owners (individual and institutional) who want to consider strategic alternatives in order to maximize the value of their ownership interests.
2. Intangible asset creators (individual and institutional) who want to implement programs to commercialize, and thereby create value from, their developments.

3. Accountants who want to measure the value of intangible assets for various recording, taxation, or regulatory purposes.

4. Attorneys who want to best represent their clients when those clients are exposed to—or initiate—an event that will affect the historical or prospective economic value of an intangible asset.

5. Market makers who are involved in negotiating and structuring intangible asset license, sale, sale-leaseback, financing, and other commercial exploitation agreements.

6. Appraisers, economists, and financial analysts who are involved in the valuation analysis of intangible assets either as individual economic entities or as contributors to the overall going-concern value of a business enterprise.

Each audience may have different levels of interest in the theoretical concepts, practical applications, and empirical data presented in this book. One word of caution is in order, however. Casual readers of a book like this often read only the first part and convince themselves that they have a rigorous comprehension of this complex subject. The valuation and economic analysis of intangible assets is an evolving discipline. Even the serious reader of the entire book will begin—but not complete—an exploration of this complex topic.

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Robert P. Schweihs
Chicago, Illinois
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Introduction

Evolution of This Subject

The appraisal and analysis of intangible assets has directly evolved from the academic discipline of economics. The theoretical concepts and quantitative procedures that collectively represent intangible asset valuation are unambiguous applications of applied microeconomics.

Indeed, the collective body of appraisal theory and practice—including the valuation of intangible assets—can ultimately be traced back to the classical economist, Adam Smith, and to his landmark treatise *The Wealth of Nations* that was published in 1776. Of course, the study of economic relationships has been greatly expanded and refined over the centuries. But the theoretical underpinnings of modern appraisal practice can be traced through Adam Smith to the classical economists David Ricardo and Thomas Malthus and, through them, to the neoclassical economists John Stuart Mill, Léon Walras, Alfred Marshall, and Irving Fisher. Of these inspired economists, Alfred Marshall presented the most comprehensive and cogent discussion of “value theory” in his authoritative text, *Principles of Economics*, published in 1890. Economic theory was brought into the modern era—and the foundations of appraisal theory embedded within economic theory became particularly obvious—in *The General Theory of Employment, Interest and Money*, the landmark work published in 1936 by John Meynard Keynes.

Around the time that Keynes published his authoritative text, “value theory” was beginning to be segmented for application to different types of assets, properties, and business interests. A number of land economists focused on the development of real estate appraisal analysis. The work of many of these land economists was ultimately synthesized in the first edition of *The Appraisal of Real Estate*, published in 1951 by the (then) Society of Real Estate Appraisers. A number of financial economists focused on the development of business appraisal and security analysis. The classic example of the development of this discipline segment is Benjamin Graham and David Dodd’s *Security Analysis*, first published in 1934.

In 1937, James Bonbright (then a professor of finance at Columbia University) published *The Valuation of Property*. Bonbright attempted to integrate the value theories of the land economists with those of the financial economists. He recognized that the common element in these theories was that the analyst is attempting to value property rights—or the bundle of legal rights and economic benefits related to property ownership (regardless of whether the property is real or personal, tangible or intangible).
The work begun by these economists has continuously evolved and (for better or worse) been further segmented to create the current state of the intangible asset valuation discipline.

Is the Discipline a Science or an Art?
More than the most esoteric technique or arcane formula used in intangible asset valuation, this question is academic and pedantic and without a purposeful answer. Nonetheless, the question is asked often enough that it should be addressed.

Intangible asset valuation is not a science in the same sense that chemistry and physics are sciences. In those disciplines, there are natural relationships that can be measured with certainty and precision. In chemistry, precise relationships exist between pressure, volume, and temperature. In physics, there are precise relationships between mass, energy, and velocity. These exact and repeatable relationships are based on the laws of nature. There are no corresponding universal laws of nature that relate to intangible asset valuation.

However, intangible asset valuation is a science in the sense that mathematics and economics are sciences. These soft sciences are based on logical relationships, rules of order, consistency, and generally accepted analytical protocols. Based upon such protocols, the various disciplines within mathematics, such as algebra, trigonometry, and calculus, function efficiently. Based upon similar protocols, the various disciplines within economics, such as money and banking, macroeconomics, land economics, and intangible asset valuation, function efficiently.

Some analysts assert that the valuation discipline is purely an art because the application of the discipline requires skill, experience, judgment, knowledge, study, and observation. It is true that the successful application of this discipline does require all these attributes. Of course, the same could be said for the successful application of physical chemistry, astrophysics, or any other recognized hard science.

If the art versus science debate is worth recognizing at all, the answer may be that the valuation discipline incorporates the best elements of both art and science.

Questions That Intangible Asset Analysis Will Answer
Practitioners involved in the valuation and economic analysis of intangible assets routinely address a variety of legitimate and complicated questions. These questions are often posed by intangible asset owners, by their accounting or legal advisors, by transaction participants, by transaction financing sources, and by lawyers and judges within the context of a controversy. This book is intended to provide a rational framework that will allow the analyst to study and answer questions such as the following:

1. What is an intangible asset? How does one identify an intangible asset? What set of attributes does a property need to have in order to qualify as an intangible asset?

2. What is the worth of an intangible asset? This question invariably leads to the question: Worth to whom? What is the value of the intangible to its current owner? Is that value different from the
value of the intangible to a particular buyer or licensee? Is that value different from the value of the intangible to the commercial marketplace in general?

3. What effect will a certain set of circumstances or events have on the worth of the intangible asset? How will the value of the intangible asset change in response to changes in market conditions, in the competitive environment, in the physical environment in which the intangible asset is commercialized, or in the amount of capital, labor, or coordination dedicated to the intangible asset?

4. How will the intangible asset be damaged—or its value reduced—as a result of a contract, or the breach of a contract, or an infringement, or a disclosure, or a lack of disclosure, or fair or unfair competition, or undercapitalization, or mismanagement, and so on?

5. How will the value of the intangible asset be expected to change over time? Will it increase or decrease? Will it change at a slow and predictable pattern or will it change suddenly, based upon a particular event? What events will cause a change in the value of the intangible asset? What is the expected life of the intangible asset? How is that life measured? What are the consequences of a longer or shorter remaining useful life of the intangible asset?

6. How does the intangible asset affect the worth of other assets, properties, or business entities? How does the intangible affect the value of other intangible assets? Of other tangible assets? Of the overall business enterprise in which the intangible asset is employed? Will the intangible asset affect the value of one business with which it is associated in a different way than it would affect another business with which it could become associated? If so, why?

7. Should the intangible asset be analyzed as an individual, or discrete, economic entity? Should it be analyzed as an integral part of a larger economic entity—for example, as part of an overall going-concern business enterprise? How—and why—will the value of the intangible asset change between these two analytical scenarios? Which analytical scenario is more appropriate?

8. What is the highest and best use of the intangible asset? How is that highest and best use defined? How is it identified? How can the intangible asset owner or licensee achieve the highest and best use? What amounts of labor, capital, and coordination are required? Will there be an adequate economic return (or payback) on the required investments in labor, capital, and coordination?

9. What is a reasonable license fee, royalty rate, lease payment, or other transfer price for the lease of a partial ownership interest—for example, a license to use—in the intangible asset? Is the reasonable fee or rate the same to the licensor and to the licensee? Will the reasonable fee or rate be different for different potential licensees? Will it be different for different potential uses of the intangible?
10. What is the best way to structure the license or lease transaction? How will specific terms—such as duration, geography, use limitations, industry limitations, licensor commitments, and so forth—affect the fee or rate associated with the agreement? Is a proposed license or lease structure fair to both parties—or to either party?

Analysts encounter these and many other questions in the normal commercial study of intangible assets.

Who Is the Appropriate Analyst?

The question as to what type of professional is best qualified to analyze intangible assets has some similarities to the art versus science question discussed earlier. Both questions are frequently asked and forcefully debated. However, the answer to either question, to the extent that there is an answer, will not meaningfully further the discipline of intangible asset analysis.

Accountants, appraisers, economists, engineers, financial analysts, license intermediaries, and other professionals have all made claim that their skills are most relevant to the valuation and analysis of intangible assets. The truth is that all their skills are relevant to this discipline. No one profession has a monopoly on logical thinking and analytical reasoning. The analysis of intangible assets may be considered a multidisciplinary activity. No one set of professional qualifications or academic training grants an individual a monopoly license to practice intangible asset valuation.

Clearly, the qualified analyst will have an understanding of, and grounding in, many academic disciplines, including accounting, appraisal, economics, finance, and so on. While qualitative judgment is essential, intangible asset valuation is fundamentally a quantitative analysis. Therefore, the qualified analyst will need well-defined mathematical skills.

In fact, intangible asset appraisal may require higher-level math skills than either real estate appraisal or business appraisal. In addition to algebra, the intangible asset analyst will need to be proficient in calculus and in intermediate statistics. If necessary, practitioners from other professions should bolster their quantitative skills before performing an intangible asset valuation.

Finally, analysts of every academic background should understand that their role is to interpret, explain, and quantify the actual marketplace for intangible asset transactions. It is not the function of the analyst to second-guess the market. Rather, it is the function of the analyst to emulate the market—to estimate how the appropriate market would actually respond to the subject intangible asset if the subject intangible were actually exposed to the market.

With respect to intangible asset valuation, analysts do not determine the value of intangibles. Analysts do not make the market (although they may study and form opinions on the market). Actual market participants—buyer, sellers, licensors, and licensees—make the market for intangible assets.

The analyst can predict the most likely response of the market to the subject intangible asset. In other words, the market determines value. The analyst estimates value.
Valuing Intangible Assets