

Bankruptcy Valuation Insights

VALUATION OF DEBTOR CORPORATION INTELLECTUAL PROPERTY DURING A DISTRESSED ECONOMY

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Debtor corporations operating in bankruptcy protection own and operate intellectual property. Financially troubled companies not operating in bankruptcy may also own and operate intellectual property. In the current recessionary economy, debtor corporation intellectual property may be worth less (than in an expansionary economy). However, even in a recession, the debtor corporation intellectual property is not worthless. This discussion focuses on the procedures that the valuation analyst may use to identify and value debtor corporation intellectual property in a distressed economic environment. And, this discussion illustrates how the valuation analyst can adapt the generally accepted valuation approaches in order to produce a credible debtor corporation intellectual property value conclusion—even in a recessionary economy.

INTRODUCTION

In 2008, intangible asset values accounted for over 80 percent of the total market value of the S&P 500 index companies. In 1975, intangible asset values only accounted for approximately 15 percent of the total market value of the S&P 500 index companies. Intangible assets also account for a significant portion of the typical company that is operating in bankruptcy protection. This statement is also true for the typical financially distressed company that is operating outside of bankruptcy protection.

Intellectual property is one of the four categories of intangible assets. And, even debtor-in-possession (DIP) companies continue to own and operate patents, copyrights, trademarks, and trade secrets.

Of course, intellectual property intangible assets may be worth less to a financially troubled company than to an otherwise comparable financially strong company. But, while the financially distressed owner/operator intellectual property may be worth less, it is not worthless.

And, the intellectual property that is owned/operated by any industrial or commercial business may be worth less during the current period of a national recessionary economy. This conclusion is true for both financially troubled companies and financially sound companies.

First, this discussion summarizes the procedures related to the identification of intellectual property. Second, this discussion summarizes the procedures related to the valuation of intellectual property to both DIP companies and other companies. Third, this discussion summarizes the factors that affect the valuation of an intellectual property in a distressed economy. And fourth, this discussion presents several illustrative examples of the valuation of intellectual property within the context of a distressed economic environment.

This discussion should be relevant to corporate managements, investors, legal counsel, accountants and auditors, commercial and investment bankers, taxation authorities and government regulators, and intellectual property licensors and

licensees. And, this discussion should be particularly relevant to parties involved in a bankruptcy proceeding, including DIP management, DIP equityholders, secured and unsecured creditors, legal counsel, financial advisers, and the bankruptcy court.

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BUSINESS ENTERPRISE ASSETS

From a valuation perspective, an asset is anything that (1) can be owned and (2) has value. If the business owner/operator cannot own an economic phenomenon, then it

is not an asset. If the economic phenomenon exists and can be owned—but it has no value, then it is not an asset. For an intangible asset to meet this first threshold test of existence (i.e., in order for an intangible to be an asset), it should:

1. be subject to private ownership and
2. have value.

For accounting, taxation, bankruptcy, and other reasons, valuation analysts often group all business enterprise assets into four asset categories:

1. tangible real estate
2. intangible real property
3. tangible personal property
4. intangible personal property

One way to identify any type of business enterprise asset (tangible or intangible) is to locate that asset in one of the four boxes in Figure 1.

Figure 1
The Four Categories of Business Enterprise Assets

	Realty Assets	Personalty Assets
Tangible Assets	Tangible Real Estate	Tangible Personal Property
Intangible Assets	Intangible Real Property	Intangible Personal Property

This discussion focuses on the intangible personal property category of business assets. In particular, this discussion focuses on the intellectual property category of intangible personal property.

INTANGIBLE PERSONAL PROPERTY ASSETS

Most valuation analysts are familiar with intangible personal property. Less experienced observers automatically think of the intangible personal property category as being synonymous with the term “intangible assets.”

The definition of intangible asset as intangible personal property only is incomplete. This is because that definition excludes the intangible real property category of intangible

assets. However, it does not invalidate our discussion of intellectual property to limit the discussion to intangible personal property.

The value of intangible personal property comes from the legal rights, the intellectual property content, and the expected economic benefits that are associated with the intangible asset. Like all assets (both tangible and intangible), intangible personal property (1) can be owned and (2) has value.

“The value of intangible personal property comes from the legal rights, the intellectual property content, and the expected economic benefits that are associated with the intangible asset.”

Business Enterprise Intangible Assets

Valuation analysts often group all intangible personal property into four categories. Sometimes, this intangible personal property categorization process may have accounting, taxation, regulatory, or legal significance. This is because the four different categories of intangible personal property assets (although fundamentally similar) have different economic attributes.

The four categories of intangible personal property are as follows:

1. financial assets
2. general intangible assets
3. intellectual property
4. intangible value in the nature of goodwill

Financial Assets

All valuation analysts are familiar with the financial assets category. Common examples of financial assets include: cash, accounts and notes receivable, stocks and bonds, and other negotiable investment securities. When the financial assets owner is a business enterprise, these intangible assets are recorded as “current assets” for financial statement purposes.

General Intangible Assets

The second category of intangible personal property includes most other intangible assets. Because this category is quite broad, most intangible personal property assets are classified as general intangible assets.

Intellectual Property

The third category of intangible personal property is intellectual property. Intellectual property intangible assets

**Figure 2
The Four Categories of
Business Enterprise Assets
With Illustrative Examples**

	Realty Assets	Personalty Assets
Tangible Assets	land building components building structures	machinery and equipment trucks and autos computers office equipment
Intangible Assets	leaseholds easements and rights of way mining and mineral rights	financial assets general intangible assets intellectual property goodwill intangible value

are distinguished by their special legal recognition and, therefore, their specific legal rights. There are four types of intellectual property:

1. trademarks and trade names
2. patents
3. copyrights
4. trade secrets

Intangible Value in the Nature of Goodwill

The fourth category of intangible personal property includes intangible value in the nature of goodwill. Valuation analysts typically consider intangible value in the nature of goodwill to be a separate (or fourth) category of intangible assets for various accounting, taxation, and other purposes.

Intangible value in the nature of goodwill is often considered to be a residual intangible asset. That is, for valuation purposes, goodwill is often quantified as the intangible value component of a business enterprise (of whatever legal form) that cannot be specifically assigned to (or identified with) any of the other three types of intangible assets. Nonetheless, like each of the other three categories of intangible personal property, goodwill (1) can be owned and (2) can have value.

Each of these four categories of business enterprise assets can be further divided into subcategories. Figure 2 expands the listing of the four categories of the business enterprise assets that was presented in Figure 1.

REASONS TO ANALYZE INTELLECTUAL PROPERTY

Regardless of the state of the general economic environment, there are numerous reasons why valuation analysts are asked to value intellectual property. These reasons may be grouped in the following categories:

1. transaction pricing and structuring
2. intercompany use and ownership transfers
3. financial accounting and reporting
4. state and local ad valorem property taxation planning and compliance
5. financing collateralization and securitization
6. litigation claims and dispute resolution
7. management information and strategic planning
8. corporate governance and regulatory/contractual compliance
9. bankruptcy, restructuring, and reorganization analysis
10. license, joint venture, and other development or commercialization opportunities

When conducting an intellectual property analysis for bankruptcy or other purposes, the valuation analyst may consider one or more of the following related (but subtly different) quantitative objectives:

1. to estimate a defined value associated with the specified ownership interest in the intellectual property

“... there are numerous reasons why valuation analysts are asked to value intellectual property.”

2. to measure the appropriate royalty rate or intercompany transfer price associated with the use of the intellectual property
3. to quantify the expected remaining useful life (RUL) of the ownership or operation (or the associated rate of change in the value of) the intellectual property
4. to determine the amount of lost profits or other economic damages associated with a damages event suffered by the intellectual property

Parties to a bankruptcy proceeding are usually most interested in the first type of intellectual property analysis—that is, to estimate a defined value for the subject intellectual property. Nonetheless, there are numerous similarities in the generally accepted approaches, methods, and procedures that the valuation analyst may use in all four categories of intellectual property analyses.

“An intellectual property is an intangible asset that enjoys special legal recognition and protection.”

INTELLECTUAL PROPERTY

An intellectual property is an intangible asset that enjoys special legal recognition and protection. This intellectual property special legal status is usually the result of specific statutory authority, either federal or state. General commercial intangible assets are typically created in the normal course of business operations.

Common examples of general commercial intangible assets include: customer contracts and relationships, supplier contracts and relationships, employee relations (as represented by a trained and assembled workforce), licenses and permits, operating systems and procedures, company books and records, and so forth.

Such general commercial intangible assets are typically created over time in almost every going concern business. Business owner/operators do not have to make a special effort to create such general commercial intangible assets. Such general intangible assets naturally develop as the business management manages the day-to-day operations of the business enterprise.

On the other hand, an intellectual property is typically created by the specific and conscious intellectual activity of the developer. The creativity involved in developing an intellectual property can typically be identified and attributed to a specific individual. When created, an intellectual property is a new and unique invention that can be either:

1. artistic, like a book or photographic image, or
2. technological, like a chemical process or computer software code.

Each of the four intellectual property types is summarized below.

Patents grant the subject patent holder the right to exclude others from making, using, or selling the patented invention or product for a specified duration of time. For example, a company that manufactures pharmaceutical drugs will register a patent on each new drug compound formula that it discovers. While the subject patent is in effect, no other company can manufacture a drug product using that particular chemical compound formula. Once the subject patent expires, other pharmaceutical manufacturers can produce identical drug products, generally in the form of generic brands.

A trademark identifies goods as coming from a particular manufacturer. A trademark can be a product brand name, like Versace or Nikon. A trademark could also be a logo, like the red target logo for Target stores. Related to trademarks, service marks identify services as coming from a particular service provider. The “golden arches” of McDonald’s is an example of a well-known and recognizable service mark. A trademark also grants the subject intellectual property owner the ability to prevent anyone else from using the trademark.

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A copyright is an exclusive right to reproduce, publish, or sell an original work of authorship. As with a patent, the legal protection related to a copyright lasts for a limited period of time. An author of any original work of authorship owns a copyright on that original work the moment it is completed. However, in order to have assurance regarding the intellectual property legal protection, the author will typically register the copyright. Copyright law covers many forms of an author’s expression, including books, movies, paintings, and songs.

A trade secret can be any commercial information that has value due to the fact that it is kept confidential and is not known to the public. In order to qualify as a trade secret, the commercial information must meet two criteria:

1. It must be kept secret from the public.
2. It must provide a commercial advantage to the trade secret owner/operator.

A trade secret is frequently a secret process, method, or formula for producing a product or service, such as the “secret formula” for the Coca-Cola soft drink syrup.

PATENTS

A patent grants the inventor of an invention the right to exclude others from making, using, or selling the patented invention for a statutorily determined period of time. A patent represents a property interest for the patent holder.

There are three kinds of patents:

1. utility patents
2. design patents
3. plant patents

A utility patent may be issued with regard to an invention that has some type of usefulness or utility. An example of a patentable invention that has usefulness would be a new pharmaceutical product to control high blood pressure.

A design patent may be issued for “any new, original, and ornamental design for an article of manufacture.” A design does not need to meet the usefulness standard in order to qualify for a design patent. In order to qualify for a design patent (instead of for a utility patent), the design must be purely ornamental and not functional. However, two patents may be issued for the same device:

1. a design patent for the product design and
2. a utility patent for the product useful characteristics.

A plant patent may be issued for an asexually reproduced “distinct and new variety of plant.” A plant also does not need to meet a usefulness standard in order to qualify for a plant patent.

In order to qualify for a patent, an invention must meet certain specific requirements. For example, an invention must have “utility” and “novelty.” Utility refers to usefulness, and this criterion is only required for utility patents. Novelty, required for all three types of patents, means the invention, design, or plant must be unique from all prior inventions, designs, or plants. An idea, however, can not be patented.

There are many types of inventions that qualify for patent protection. However, not all inventions qualify for patent protection. Many creative works that are protected

by copyright laws are not patentable. For example, movies, books, artwork, and songs cannot obtain patent protection.

However, the design and functional elements of the camera used to film movies, the printer used to print a book, or the device used to record songs may receive patent protection. In addition, formulas (e.g., chemical, cosmetic, or food) and computer software may receive patent protection.

TRADEMARKS

A trademark is used to identify a brand or a company. A trademark lets a consumer know that a good is produced by a specific producer. A service mark is a closely related intangible asset to the trademark intellectual property. A service mark lets the consumer know that a service is coming from a specific service provider.

A company that has developed a branded product and invested in the production of a quality product wants consumers to identify the product trademark with quality. The trademark associated with the subject product allows the intellectual property owner to achieve that objective.

A trademark can be licensed. Restaurant franchises often function using the license of the franchisor’s trademark. For example, restaurant franchisor Burger King licenses out its name and logo to individual franchisees. These franchisees independently operate their own Burger King restaurants. When a consumer sees the restaurant with the Burger King name and logo, the consumer has established expectations as to what food products will be on the menu and how those food products will taste.

Burger King has built a reputation as being a certain kind of restaurant with a specific menu. It is important to Burger King that, if a franchisee uses its trademark, the franchisee must meet specific presentation requirements. If any part of the Burger King experience is subpar to the consumer, the Burger King trademark may lose some of its value.

A trade name is a different intangible asset from a trademark intellectual property. A trade name is the name of a business entity. A trademark identifies products and a service mark identifies services that are produced by that entity.

Trade dress refers to the way a product or service is displayed and promoted. For a product, the trade dress could be represented by the product packaging. For a service, the

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trade dress may be the décor that the service is provided in.

There are restrictions on what names or logos qualify for protection under trademark law. Trademarks are only protected if they are continually used. A mark that is too generic will also not be protected by trademark law. For example, a company could not trademark the brand name “Cola.” This is because the name cola is a generic term that describes an entire class of beverages. A company could, however, have a brand name that combines a trademark and a generic term, such as Pepsi Cola.

COPYRIGHTS

Copyright law protects “original works of authorship.” To qualify for copyright protection, an original work must display at least some creativity and must be fixed in a tangible medium of expression.

There are several types of “original works of authorship” that may qualify for copyright protection:

1. literary works
2. musical works, including any accompanying words
3. dramatic works, including any accompanying music
4. pantomimes and choreographic works
5. pictorial, graphic, and sculptural works
6. motion pictures and other audiovisual works
7. sound recordings
8. architectural works

An author is (1) the person who created the work, (2) a business that pays someone to create the work in an employment context, or (3) a business that commissions the work under contract. The author is the owner of the copyright except in two cases:

1. the author assigns away the rights before completing the work or
2. the author is an employee who made the work as part of the author’s employment.

TRADE SECRETS

A trade secret is any information that has (1) economic value and (2) is not generally known by the public. The owner of a trade secret can ensure that the information is generally unknown to the public by taking reasonable

measures to maintain the confidentiality of the information. An example of such reasonable measures would be to have a nondisclosure agreement signed by all company employees, consultants, and visitors with access to the secret business information.

The term “trade secret” covers a wide spectrum of information. The type of business information that is typically considered to be a trade secret includes the following:

1. information about customers, such as customer order and credit characteristics, customer lists and mailing lists
2. information about personnel, suppliers, or distributors, such as sources of supply
3. information on the costs and pricing of goods, as well as books and records of the business
4. information concerning new business opportunities and current methods of doing business
5. some databases and know-how

“Unlike patents, trademarks, and copyrights, trade secrets cannot be registered with any governmental agency.”

Unlike patents, trademarks, and copyrights, trade secrets cannot be registered with any governmental agency. For copyrights, patents, and trademarks, the registration process involves producing documentation of the invention or work that registration is sought for. If the trade secret owner had to register that intellectual property with a government agency, the “secret” would immediately be lost.

Since trade secrets are not registered, they do not have a statutory legal protection life. That is, a trade secret can exist so long as it remains unknown to the general public. This is the second reason that trade secrets are not registered. Patents and copyrights have a limited legally protected life. Once either a patent or a copyright expires, competitors are free to use the inventions and works that were formerly protected.

Even though a trade secret is not registered with a government agency, it still enjoys many elements of legal protection. If someone obtains a trade secret in an improper way, a court will usually grant the trade secret owner:

1. economic damages and
2. an injunction to prevent further dissemination of the trade secret material.

There are limits as to what information can be considered a trade secret. Clearly, generally known information cannot be a trade secret. In addition, information that others could easily acquire or duplicate will most likely not qualify as a trade secret.

INTELLECTUAL PROPERTY INTANGIBLE ASSETS

The main difference between intellectual property and general commercial intangible assets is that intellectual property is consciously and creatively produced. General commercial intangible assets tend to develop naturally in the regular course of business.

For example, an intellectual property may be a logo designed for a company. That company logo would qualify as a trademark. That same company may also own general commercial intangible assets, such as supplier relationships and supplier contracts related to purchased goods and services.

Customer relationships, customer contracts, and general goodwill are examples of commercial intangible assets that do not qualify as intellectual property. No specific design or artistic creativity went into creating such general commercial intangible assets.

On the other hand, a patent on a production process, a trademark on a new product, a copyright on a design, and secret knowledge of the formula recipe for a food product are all examples of intellectual property.

"These three valuation approaches are based on fundamental economic principles."

GENERALLY ACCEPTED INTELLECTUAL PROPERTY APPROACHES AND METHODS

There are many methods and procedures that are appropriate for the valuation of intellectual property. Because these methods and procedures have fundamental similarities, they are typically categorized into three generally accepted valuation approaches. These three valuation approaches are based on fundamental economic principles. The three generally accepted intellectual property valuation approaches are:

1. the cost approach,
2. the market approach, and
3. the income approach.

These intellectual property valuation approaches encompass a broad spectrum of microeconomic principles and property investment dynamics. Each of the three generally accepted valuation approaches has the same objective: to arrive at a credible indication of a defined value for the intellectual property. Accordingly, analytical methods and procedures based on the same economic principles are grouped into the same valuation approach.

The valuation analyst typically attempts to value an intellectual property using all three generally accepted valuation approaches so that a multi-dimensional value perspective is obtained. However, individual methods and procedures associated with one of the three valuation approaches may or may not be applicable to any particular intellectual property valuation.

Consequently, the selection of the intellectual property valuation methods and procedures will depend on:

1. the unique characteristics of the subject intellectual property,
2. the quantity and quality of available data,
3. the purpose and objective of the analysis, and
4. the experience and judgment of the valuation analyst.

The objective of using more than one valuation approach is to develop mutually supporting evidence for the value conclusion. The value conclusion is typically based on a synthesis

of the value indications derived from each applicable valuation approach and method.

Market Approach Valuation Methods

The market approach is based on the economics principles of competition and equilibrium. These economics principles indicate that, in a free and unrestricted market, supply and demand factors will drive the price of an intellectual property to a point of equilibrium.

The principle of substitution also influences the market approach. This is because the identification and analysis of equilibrium prices for substitute intellectual property will provide pricing evidence with regard to the subject intellectual property value.

"The price of an intellectual property is not necessarily equal to its value."

Market Approach Valuation Principles

The market approach is not always appropriate for the valuation of certain intellectual property. This is particularly the case if the condition of the subject intellectual property is not sufficiently similar to the intellectual properties that are transacting in the marketplace. In that case, the transactional prices may not indicate the subject intellectual property value.

The price of an intellectual property is not necessarily equal to its value. Value is often defined as an expected price. That is, value is the price that an intellectual

property would expect to fetch in its appropriate marketplace. In contrast, price represents what one particular buyer paid to one particular seller for one particular intellectual property.

In any particular intellectual property sale/license transaction, either participant may have been influenced by nonmarket, participant-specific influences. If such influences did occur, and if such influences are not general to the marketplace, then a particular intellectual property transactional price may not be indicative of the expected price of the subject intellectual property.

Even if the subject intellectual property was itself bought or licensed, that subject transactional price should not be naively relied on to indicate an expected future price. This is because this transactional price may have been influenced by nonmarket, participant-specific influences.

The Market Approach Valuation Process

There is a systematic process to the application of market approach valuation methods. The principal procedures of this systematic process are summarized as follows:

1. Research the appropriate exchange market to obtain information about sale or license transactions, involving “guideline” (i.e., generally similar) or “comparable” (i.e., almost identical) intellectual property that may be compared to the subject intellectual property—in terms of intellectual property type, intellectual property use, industry in which the intellectual property operates, date of sale/license, etc.
2. Verify the sale/license information by confirming (a) that the data obtained are factually accurate and (b) that the sale/license exchange transactions reflect arm’s-length market considerations. If the guideline sale/license transaction was not at arm’s-length market conditions, then adjustments to the transactional data may be necessary. This verification procedure may also elicit additional information about the current market conditions for the sale/license of the subject intellectual property.
3. Select relevant units of comparison (e.g., income multipliers or dollars per unit—units such as “per drawing,” “per customer,” “per line of code”) and develop a comparative analysis for each selected unit of comparison.
4. Compare “guideline” intellectual property sale/license transactions with the subject intellectual property using

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“Utility is an economics concept that means the ability of the intellectual property to provide an equivalent amount of satisfaction.”

the selected elements of comparison; and, appropriately adjust the sale/license price of each guideline transaction to the intellectual property. If such adjustments cannot be measured, then eliminate the sale or license transaction as a guideline for future valuation analysis consideration.

5. Reconcile the various value indications produced from the analysis of the guideline sale/license transactions into a value indication.

Cost Approach Valuation Methods

The cost approach is based on the economics principles of substitution and price equilibrium. These economics principles indicate that a willing buyer will pay no more for a fungible intellectual property than the cost to obtain (i.e., either to purchase or to construct) an intellectual property of equal utility.

Utility can be measured in many ways, including functionality, desirability, and so on. Accordingly, an efficient market will adjust the price of all properties in equilibrium so that the price the market will pay is a function of the comparative utility of each property.

Definition of Intellectual Property Cost

There are several generally accepted cost approach valuation methods. Each of these valuation methods uses a particular definition of cost.

Two common definitions of intellectual property cost are:

1. reproduction cost new, and
2. replacement cost new.

Reproduction cost new is the total cost, at current prices, to construct an exact duplicate or replica of the subject intellectual property. This duplicate would be created using the same materials, standards, design, layout, and quality of workmanship used to create the original intellectual property.

Replacement cost new is the total cost to create, at current prices, an asset having equal functionality or utility of the subject intellectual property. Functionality is an engineering concept that means the ability of the intellectual property to perform the task for which it was designed. Utility is an economics concept that means the ability of the intellectual property to provide an equivalent amount of satisfaction. The replacement intellectual property would be:

1. created with modern methods and
2. constructed according to current standards, state-of-the-art design and layout, and the highest available quality of workmanship.

While the replacement intellectual property performs the same task as the subject intellectual property, the replacement asset is often “better” (in some way) than the subject intellectual property. The replacement intellectual property may yield more satisfaction than the subject intellectual property. If this is the case, the valuation analyst should adjust for this factor in the obsolescence estimation of the cost analysis.

Intellectual Property Cost Components

The intellectual property cost measurement (whether replacement cost, reproduction cost, or some other measure of cost) should include direct costs (e.g., materials) and indirect costs (e.g., engineering and design labor). The intellectual property cost measurement should also consider the developer’s profit (on the direct cost and indirect cost investment) and an opportunity cost/entrepreneurial incentive (to economically motivate the intellectual property development process).

The developer’s profit is sometimes overlooked in the cost approach analysis. First, the intellectual property developer expects a return of all of the material, labor, and overhead costs related to the development process. And, second, the developer expects a return on all of the material, labor, and overhead costs related to the development process.

For example, a building contractor expects to earn a reasonable profit on the construction of any residential, commercial, or industrial building. Likewise, an intellectual property developer expects to earn a reasonable profit on the intellectual property development.

The developer’s profit can be estimated using several procedures. It can be estimated as a percentage return on the developer’s investment in material, labor, and overhead. It can be estimated as a percentage markup—or as a fixed dollar markup—to the amount of time involved in the development process. It can also be estimated as a fixed dollar amount.

Some valuation analysts include construction period interest in the developer’s profit cost category. And, some valuation analysts include such interest in the overhead cost category. Usually, a higher rate of return is assigned to the cost amount financed by the intellectual property owner directly, as compared to the cost amount financed by external financing sources.

Opportunity cost is another cost component that is sometimes overlooked in the cost approach valuation analysis. Nonetheless, opportunity cost should be considered in each cost approach analysis. Opportunity cost is the amount of economic benefit required to motivate the intellectual property owner to enter into the development process.

This opportunity cost concept is easier to understand with regard to a real estate developer. From the time the real estate developer first begins to construct the shopping mall until the time all of the retail stores are leased and occupied, the developer is likely to experience negative cash flow. Let’s assume that this time period is two years.

A real estate developer who purchased an already leased shopping mall two years earlier would likely experience positive cash flow during that same two-year period. The foregone cash flow during the two-year development period is one indication of the opportunity cost required to motivate the real estate developer to build a new shopping mall (instead of buying an existing shopping mall).

The same type of opportunity cost is necessary to motivate the intellectual property developer to produce a new patent, trademark, computer program, chemical formulation, food recipe, or other intellectual property.

“Opportunity cost is another cost component that is sometimes overlooked in the cost approach valuation analysis.”

Obsolescence Adjustments

The intellectual property cost (however measured) should be adjusted for any losses in value due to:

1. functional obsolescence,
2. technological obsolescence (a form of functional obsolescence), and
3. economic obsolescence (a form of external obsolescence).

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

Technological obsolescence occurs when, due to improvements in design or engineering technology, a replacement intellectual property produces a greater standardized measure of utility production than the actual intellectual property.

Technological obsolescence is typically considered to be a specific form of functional obsolescence. Accordingly, valuation analysts may capture all of the value influences

due to both design flaws and changing technology in one category—and call that functional obsolescence.

Economic obsolescence (i.e., a specific form of external obsolescence) is a reduction in the value of an intellectual property from the effects, events, or conditions that are external to—and not controlled by—the intellectual property current use or condition. The impact of economic obsolescence is typically beyond the control of the owner/operator. For that reason, economic obsolescence is typically considered incurable.

In the cost approach, the typical formula for quantifying intellectual property value is:

$$\begin{aligned} & \text{Reproduction cost new} \\ - & \text{Curable functional and technological obsolescence} \\ = & \text{Replacement cost new} \\ - & \text{Economic obsolescence} \\ - & \text{Incurable functional and technological obsolescence} \\ = & \text{Value} \end{aligned}$$

Income Approach Valuation Methods

The income approach is based on the economics principle of anticipation (also called the principle of expectation). In this approach, the intellectual property value is the present value of the expected economic income to be earned from the intellectual property ownership/operation. This expectation of prospective economic income is converted to a present worth—that is, the indicated intellectual property value.

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

Measures of Intellectual Property Income

There are numerous economic income measures that may be relevant to an intellectual property valuation. If properly applied, many different measures of economic income can be used in the income approach to provide a credible value indication.

Some alternative measures of economic income include the following:

1. gross or net revenues
2. gross income (or gross profit)

3. net operating income
4. net income before tax
5. net income after tax
6. operating cash flow
7. net cash flow
8. several other types of income (such as incremental income)

Since different economic income measures can be used in this valuation approach, the valuation analyst should ensure that the discount rate or the direct capitalization rate used is derived on a basis consistent with the economic income measure.

Types of Income Approach Valuation Methods

All income approach valuation methods can be classified as either: (1) direct capitalization methods or (2) yield capitalization methods. Most of these methods can be grouped into these five categories of valuation methods:

1. Valuation methods that quantify the incremental level of intellectual property economic income—that is, the owner/operator will expect a greater level of economic income (however measured) by owning/operating the intellectual property as compared to not owning/operating the intellectual property.
2. Valuation methods that quantify a decremental level of intellectual property economic costs—that is, the owner/operator will expect a lower level of economic costs—such as other required levels of capital costs or operating costs—by owning/operating the intellectual property as compared to not owning/operating the intellectual property.
3. Valuation methods that estimate a relief from a hypothetical royalty payment—that is, the amount of a royalty payment that a hypothetical third-party intangible asset license would be willing to pay to a hypothetical third-party intellectual property licensor in order to obtain the use of—and the rights to—the intellectual property.
4. Valuation methods that quantify the difference in the value of the business enterprise—or similar economic unit—as a result of owning the intellectual property (and using it in the business enterprise)—as compared to not owning the intellectual property (and not using it in the business enterprise).
5. Valuation methods that estimate the value of the intellectual property as a residual from the value of the

“The income approach is based on the economics principle of anticipation (also called the principle of expectation).”

business enterprise (or of a similar economic unit), or as a residual from the value of a total intangible value of the business enterprise (or of a similar economic unit).

Direct Capitalization Methods

In a direct capitalization analysis, the valuation analyst (1) estimates a normalized measure of economic income for one period (i.e., one period future to the valuation date) and (2) divides that measure by an appropriate investment rate of return.

The appropriate investment rate of return is called the direct capitalization rate. The direct capitalization rate may be derived for a perpetuity period of time, or the direct capitalization rate may be derived for a specified finite period of time. This decision will depend on the duration of the economic income stream.

“The present value discount rate is the investor’s required rate of return—or yield capitalization rate—over the expected term of the economic income projection.”

Yield Capitalization Methods

In a yield capitalization analysis, the valuation analyst projects the appropriate measure of economic income for several discrete time periods into the future. This projection of prospective economic income is converted into a present value by the use of a present value discount rate. The present value discount rate is the investor’s required rate of return—or yield capitalization rate—over the expected term of the economic income projection.

The duration of the discrete projection period—and whether or not a residual or terminal value should be considered—will depend on the duration of the economic income stream.

“. . . the state of the general economy will affect the valuation variables that the analyst selects in each of the three generally accepted valuation approaches.”

INTELLECTUAL PROPERTY VALUATION IN A DISTRESSED ECONOMIC ENVIRONMENT

The valuation analyst should consider the state of the national and regional economy during the intellectual property valuation process. Likewise, the valuation analyst should consider the competitive structure of the industry that the intellectual property owner/operator operates in. In particular, the state of the general economy will affect the valuation variables that the analyst selects in each of the three generally accepted valuation approaches.

Cost Approach Valuation Variables

In the cost approach, both the reproduction cost new and the replacement cost new may be lower in a recessionary

economy than in an expansionary economy. The intellectual property reproduction cost new may be lower because the inflation-based trend factors that are applied to the historical cost components would be lower than in an expansionary economy.

Likewise, the market-derived replacement cost indicators may be lower in a recessionary economy. This is because the market-derived influences of decreased demand and increased supply have driven down the current replacement costs for the intellectual property cost components.

In fact, all of the following intellectual property cost components typically would be lower in a recessionary economy than in an expansionary economy:

1. Direct costs—due to the market influences on direct materials prices.
2. Indirect costs—due to the market influences on labor costs of developer employees and of outside contract employees.
3. Overhead costs—due to the market influences on the costs of development supervisory and support personnel and to the fact that many owner/operator organizations cut back on employee bonuses, benefits, pension contributions, etc.
4. Developer’s profit—the market may indicate that independent intellectual property development companies typically add a much lower (if any) profit margin to their development costs in a distressed economy.
5. Entrepreneurial incentive—empirical data may indicate that interest rates and the corresponding time value of money is lower in a recessionary economy. In addition, the developer’s opportunity cost may be much lower in a distressed economy due to the reduced operating profit of the intellectual property owner/operator.

In addition to influences on the development cost factors, that state of the economy will influence the cost approach obsolescence factors as follows:

1. Functional obsolescence—this factor may be influenced by changes (increases or decreases) in the (a) excess operating costs and (b) excess capital costs related to ownership/operation of the subject intellectual property (compared to the replacement intellectual property).

2. Technological obsolescence—competitors may introduce intellectual property more quickly in a depressed economy, in order to stay competitive in the marketplace; likewise, competitors may also introduce intellectual property less quickly in a depressed economy, due to their reductions in R&D and other intellectual property development expenditures.
3. Economic obsolescence—this form of obsolescence will typically increase in a recessionary economy. This is because it is more likely that the owner/operator will experience an income shortfall. For cost approach valuation purposes, and income shortfall occurs when the owner/operator cannot earn a fair rate of return (typically measured as a cost of capital) on the intellectual property replacement or reproduction cost new (less other forms of obsolescence).

Accordingly, the market will typically adjust the cost approach valuation variables to produce a lower intellectual property value indication in a recessionary economy than in an expansionary economy.

“In a valuation performed in a recessionary economy, the valuation analyst should be careful to select timely guideline sale/license transactions.”

Market Approach Valuation Variables

The market will also adjust the intellectual property market approach valuation variables in a recessionary economy. For example, current guideline intellectual property sale/license transactions may indicate:

1. lower sale pricing metrics, and
2. lower license agreement royalty rates.

In a valuation performed in a recessionary economy, the valuation analyst should be careful to select timely guideline sale/license transactions. To the extent that the only available transactional data are stale (i.e., pre-recessionary economy), then the analyst will have to make what are called market adjustments (or training adjustments) to the transactional data. The objective of the market adjustments is to adjust the stale transactional pricing metrics to what the corresponding license metrics would be in the current recessionary economy.

In a recessionary economy, the valuation analyst will typically rely more on guideline license transactional data than guideline sale transactional data. As summarized below, there are several reasons for this increased reliance

on the guideline license transactional data—and the use of the market approach relief from royalty valuation method.

First, there are typically more intellectual property license transactions than sale transactions in the commercial marketplace. Therefore, the available guideline transactional license data may be more timely than the available guideline transactional sale data.

Second, in the relief from royalty (RFR) method, the market-derived license royalty rate is multiplied by the owner/operator operating revenue. The product of that multiplication is the intellectual property license fee that the owner/operator is “relieved” from having to pay (because the owner/operator, in fact, owns the subject intellectual property).

In a depressed economy, the intellectual property-related operating revenue will be less than in an expansionary economy. Therefore, the market approach value indication will also be less than in a robust economy.

Third, in the RFR method, the “relieved” intellectual property license fee is capitalized by the difference of (1) the present value discount rate minus (2) the expected long-term growth rate. In the typical recessionary economy, the present value discount rate is lower than it would be otherwise. This increased present value discount rate is due to the increased risk associated with the increased owner/operator business risk in a distressed economy.

Also, in the typical recessionary economy, the expected long-term growth rate (in the owner/operator projected revenue) is lower than it would be in an expansionary economy. An increase in the present value discount rate and a decrease in the expected long-term growth rate will cause the intellectual property market approach value indication to be lower than it would be in a robust economy.

“An increase in the present value discount rate and a decrease in the expected long-term growth rate will cause the intellectual property market approach value indication to be lower than it would be in a robust economy.”

Income Approach Valuation Variables

Virtually all of the valuation variables in the intellectual property income approach analysis will be affected by the state of the economy. Accordingly, in a depressed economy, the income approach value indication should automatically reflect a lower value for the intellectual property. This conclusion is correct regardless of whether the yield capitalization method or the direct capitalization method is used in the income approach valuation analysis.

The income approach should conclude a lower intellectual property value indication regardless of which of the following measures of economic income is considered:

1. owner/operator residual income
2. owner/operator excess income
3. owner/operator differential income
4. owner/operator incremental income
5. owner/operator profit split income

The reasons the depressed economy will cause the income approach to reflect a decreased value indication are severalfold.

First, the owner/operator revenue will typically be reduced in a recessionary economy. And, all intellectual property income approach valuation methods typically start with a revenue projection.

Second, the owner/operator selling expense, R&D expense, and other expense will typically be increased in a recessionary economy. This is because the owner/operator is attempting to increase (or maintain) sales in an increasingly competitive environment.

Third, the owner/operator investment in capital expenditures and net working capital may increase in a recessionary economy. Again, this is because the owner/operator is attempting to remain competitive in a decreased overall market.

Fourth, all of these factors contribute to a projection of decreased economic income (however defined) for the intellectual property owner/operator.

Accordingly, whatever method is used to allocate a portion of the owner/operator income to the intellectual property, that allocated income will typically be lower in a recessionary economy than in an expansionary economy. Therefore, the intellectual property income approach value indication will typically be lower in a depressed economy than in a robust economy. And, that value affect is only magnified if the intellectual property RUL is reduced due to the increased industry competition that occurs in a depressed economy.

VALUATION SYNTHESIS AND CONCLUSION

As explained above, the intellectual property values indicated by all three generally accepted valuation approaches should be lower in a recessionary economy than in an expansionary economy. This is due to the fact that the

valuation variables used in each valuation approach should automatically adjust to reflect the current conditions of the depressed economy.

The following discussion presents three simplified illustrative examples with regard to intellectual property valuation. Each simplified example illustrates one accepted valuation approach. First, each example will illustrate the valuation of the indicated intellectual property in an expansionary economy. Second, each example will change to reflect the valuation variables appropriate to the same intellectual property in a recessionary economy.

The difference between the analysis scenarios (and the value indications) should reflect how the valuation approach automatically adapts to changing economic conditions. And, the difference between the analysis scenarios (and the value indications) should reflect how the use of the appropriate valuation variables should result in a credible intellectual property value—even in a depressed economy.

“. . . the difference between the analysis scenarios (and the value indications) should reflect how the use of the appropriate valuation variables should result in a credible intellectual property value—even in a depressed economy.”

ILLUSTRATIVE EXAMPLE OF THE APPLICATION OF THE COST APPROACH AND THE INCOME APPROACH

Exhibits 1 through 5 present a simplified illustrative example of the valuation of a trade secret intellectual property. This illustrative intellectual property relates to the manufacture of compressed meal replacement bar (MRB) products by the hypothetical Healthy Morning, Inc. (“Healthy Morning”).

For the last year or so, Healthy Morning has produced a popular MRB product that has a good taste, crunchy texture, high protein, and nutritional balance. The subject intellectual property includes the trade secret proprietary process by which this MRB product is manufactured.

The subject trade secret is the compress and form manufacturing process of the MRB product recipe and formulation. This trade secret is documented in a set of engineering drawings and in a process flow chart notebook. Healthy Morning management has elected not to patent this proprietary process for competitive reasons. Both the company process engineers and intellectual property legal counsel believe that the manufacturing process would be patentable.

Nonetheless, if the trade secret became public knowledge through the patent procedure, management is concerned that the company’s competitors could reverse engineer an equally effective manufacturing process that would not violate the patent.

Management treats this proprietary technology as a trade secret. All of the engineering and other documenta-

tion related to this manufacturing process is protected in a locked cabinet in the process engineering department. Only a select number of Healthy Morning engineering and production managers have access to that information. And, all of those Healthy Morning employees have signed nondisclosure agreements.

Healthy Morning management also believes that this proprietary process gives the company's MRB product a distinct competitive advantage. Healthy Morning marketing personnel stress this product differentiation feature in all of the company marketing materials and presentations.

In summary, the subject intellectual property is the trade secret (including the technical documentation) related to the "compress and form" manufacturing proprietary process (hereinafter referred to as "the MRB trade secret").

For illustrative purposes only, first, the valuation analyst will value the MRB trade secret assuming an expansionary economy. Second, the valuation analyst will value the MRB trade secret assuming a depressed economy. In both economic environment scenarios, the valuation analyst will use the income approach and the cost approach to value the subject intellectual property.

Illustrative Example Fact Set and Analysis Assumptions

The objective of this valuation is to estimate the fair market value of the MRB trade secret intellectual property as of December 31, 2009. The purpose of this valuation is for management information, strategic planning, and corporate governance.

The MRB trade secret is used in the manufacture of a health food product line that is projected to generate \$147 million in net revenue next year.

The Healthy Morning process engineers have developed a unique modification to the standard compression process. The trade secret produces an MRB product that has a crunchy texture and a "snappy" break. In addition, the final product maintains a good taste and a high nutritional value. Also, a lower moisture content of the final product increases the retail shelf life of the MRB product.

The company's trade secret produces a product with much greater consumer appeal than competitive products. And, the Healthy Morning product can be produced at the same cost of sales than the lower quality competitor products.

Selection of Valuation Approaches and Methods

In this analysis, the selected standard of value is fair market value. In this analysis, the selected premise of value is value in continued use. This premise of value is consistent with:

1. the valuation analyst's assignment and
2. the valuation analyst's assessment of the highest and best use of the intellectual property.

Based on (1) the quality and quantity of available data and (2) the purpose and objective of the subject analysis, the valuation analyst decided to use two valuation approaches. The valuation analyst will use:

1. the cost approach, and specifically the reproduction cost new less depreciation (RCNLD) method, and
2. the income approach, and specifically the differential income method.

Cost Approach Analysis

The valuation analyst decided to use the RCNLD method to value the trade secret. In this case, the valuation analyst had access to the actual historical development costs related to the trade secret. This type of historical cost information is not always available to a valuation analyst.

However, because this trade secret was so important to the company, management tracked the original cost of its proprietary process development efforts.

Therefore, the valuation analyst was able to restate the historical development costs of the trade secret in current (i.e., valuation date) dollars. This trended historical cost analysis provides the valuation analyst with an estimate of the cost that would be incurred by a hypothetical willing buyer to reproduce the trade secret.

Cost Approach Valuation Variables—Expansionary Economy Environment

Management provided the valuation analyst with the historical accounting information regarding the number of hours spent by the company food engineers and scientists on the various aspects of the trade secret development. In applying the RCNLD method, the valuation analyst estimated a full absorption cost related to the employees who developed the trade secret. This full absorption cost included all employee salaries, employee benefits, employment-related taxes, and related company overhead.

This full absorption cost also included a component for development period interest related to the direct costs.

The valuation analyst calculated each of these full absorption cost components as of the valuation date. Accordingly, the full absorption cost represents the reproduction cost for the subject intellectual property. The valuation analyst concluded the current cost per person-hour

"The valuation analyst decided to use the RCNLD method to value the trade secret."

for all of the company employee hours actually spent on the development, testing, and implementation of the trade secret.

The product of (1) the total number of person-hours actually spent to develop the trade secret and (2) the estimated full absorption cost per person-hour results in an estimate of the reproduction cost new (RCN). The valuation analyst considered adjustments to the RCN estimate for losses in value due to functional, technological, and economic obsolescence.

The valuation analyst considered:

1. the age and expected RUL of this trade secret,
2. the intellectual property position within its technology life cycle, and
3. the owner/operator's return on investment related to the use of the trade secret.

Exhibit 1 summarizes the RCNLD analysis. The total RCN includes (1) direct costs, (2) indirect costs, (3) developer's profit, and (4) entrepreneurial incentive. The direct costs include the direct salary costs of the intellectual property development team. The indirect costs include the related employee benefit costs, employment taxes, overhead allocation, and development period interest expense. The developer's profit includes an estimate of the profit margin that an independent engineering firm would charge to Healthy Morning if that engineering firm was retained to develop the trade secret. And, the entrepreneurial incentive is the opportunity cost related to the intellectual property development process.

The valuation analyst quantified this opportunity cost as the difference in the amount of cash flow that Healthy Morning would earn with the trade secret versus without the trade secret. The valuation analyst estimated that incremental cash flow during the period of elapsed time required to develop (i.e., reproduce) the trade secret. The company engineers estimated that the trade secret development period would be 24 months.

As indicated in Exhibit 1, RCN for the trade secret is \$10,975,000. Based on the current age (i.e., one year) and RUL (i.e., five years) of the trade secret, the valuation analyst concluded that a 15 percent functional obsolescence allowance was appropriate for this particular intellectual property. That 15 percent functional obsolescence allowance results in \$1,646,000 of "depreciation."

The indicated RCNLD estimate is \$9,329,000. And, this RCNLD estimate is rounded to a fair market value indication for the MRB trade secret in an expansionary economy of \$9,300,000.

Income Approach Analysis

Using the differential income method, the valuation analyst first projected the prospective cash flow associated with the use of the trade secret in the company current operations. Second, the valuation analyst projected the prospective cash flow that would be generated without the use of the trade secret.

The trade secret value indication is based on the difference between the present value indications from the two different operating scenarios—that is, (1) with the trade secret in current operations and (2) without the trade secret in current operations.

Valuation Variables—Expansionary Economy

Environment

Marketing management provided the valuation analyst with projections of the product unit selling price, unit volume, and market share for the five years after the valuation date. Management also projected the cost of goods sold and the capital expenditure data related to the production of the MRB food product.

In addition, management prepared a five-year projection of the selling, general, and administrative expenses related to the MRB food product line. After a due diligence review of the financial projections, the valuation analyst concluded that these product line financial projections were reasonable.

This valuation method measures the difference in the Healthy Morning income potential both with and without the operation of the trade secret. The income potential represents the amount of income that is available to the business after consideration of a required level of reinvestment for continued operations and for expected growth. The valuation analyst selected net cash flow as the appropriate measure of income.

For purposes of this analysis, the valuation analyst defined net cash flow as follows:

	Net sales
Less:	Cost of sales
Less:	Operating expenses
Equals:	Net income before taxes
Less:	Income taxes
Plus:	Depreciation and amortization expense
Less:	Capital expenditures
Less:	Additions to net working capital
Less:	Capital charge on contributory assets
Equals:	Net cash flow

"The total RCN includes (1) direct costs, (2) indirect costs, (3) developer's profit, and (4) entrepreneurial incentive."

In this analysis, the product line net cash flow is projected over the expected RUL of the trade secret. The net cash flow projection is discounted at an appropriate discount rate in order to conclude a present value.

Based on industry experience, management expects that it will develop a replacement trade secret in about five years. Both Healthy Mornings and all of its competitors continuously develop improved MRB products. The process engineering staff is already working on the development of a new and improved compression process.

Management expects that the new and improved process will be developed, tested, and implemented within five years. At that time, the current trade secret will be obsolete.

This five-year expected RUL is consistent with the company's historical experience regarding its trade secret technology life cycle. And, this five-year expected RUL is consistent with the industry's historical experience regarding a trade secret technology life cycle. Therefore, the valuation analyst selected five years as the appropriate measure of the trade secret RUL.

The valuation analyst selected the following valuation variables with respect to the expansionary economy valuation analysis:

Scenario I: With the MRB trade secret in place.

- Net sales growth rate: 10 percent per year
- Gross margin percentage: 26 percent of net sales
- Other operating expenses: 11 percent of net sales
- Effective income tax rate: 36 percent of pretax income
- Depreciation expense: 1 percent of net sales
- Net capital expenditures: equal to depreciation expense
- Capital charge on all contributory assets: \$2.2 million per year
- Incremental net working capital: 5 percent of net sales
- Present value discount rate: 15 percent
- Remaining useful life estimate: 5 years

Scenario II: Without the MRB trade secret in operation.

- Expected sales decrement: -10 percent per year
- Other operating expenses: 11.5 percent of net sales
- Incremental net working capital: 7 percent of net sales
- Present value discount rate: 16 percent (increased 1 percent due to increased competition risk without trade secret)
- All other valuation variables remain unchanged from Scenario I

The capital charge is included to account for the fair return of the investment of all the contributory assets that are used with the trade secret. The contributory assets include net working capital, tangible operating assets, and the company trade name.

The projected decrease in product line sales without the trade secret in operation is based on valuation analyst discussions with management. This projected sales decrease indicates management's estimate of the consumer response to the decrease in taste, crunchiness, and retail shelf life of the MRB product without the trade secret. The negative sales growth rate reflects management's projection of the combined effects of (1) decreased unit selling price and (2) decreased unit volume sales.

Without the product differentiation provided by the trade secret, management estimates that it will have to increase its marketing expense. This marketing expense increase accounts for the one-half of one percent projected increase in other operating expenses.

In addition, management projects that it will have to liberalize its customer credit policy in order to stimulate sales of the less desirable MRB product. Management estimates that it will have to give 60-day credit terms instead of 30-day credit terms. This change in credit policy will affect the company's accounts receivable balances. This change in credit policy will result in an

expected change in the company's net working capital investment.

The 15 percent present value "with trade secret" discount rate is based on the valuation analyst's estimate of the weighted average cost of capital (WACC). The 16 percent "without trade secret" discount rate is based on the 15 percent WACC, adjusted 1 percent for the additional competition risk associated with not having a superior MRB product.

Income Approach Valuation Analysis in an Expansionary Economy

As presented in Exhibit 2, the sum of the product line discounted cash flow with the trade secret in operation is \$49,500,000. As presented in Exhibit 3, the sum of the product line discounted cash flow without the trade secret in operation is \$39,900,000.

The difference of these two income projections indicates a value differential related to the trade secret of \$9,600,000. Therefore, the income approach indicates a fair market value of the trade secret, in an expansionary economy, of \$9,600,000.

"The capital charge is included to account for the fair return of the investment of all the contributory assets that are used with the trade secret."

Value Conclusion—Expansionary Economy Environment

The valuation analyst decided to assign equal weight to the value indications provided by the two valuation approaches. Based on the analyses presented in Exhibits 1 through 3, the fair market value of the Healthy Morning trade secret, assuming an expansionary economic environment, is \$9.5 million (rounded).

Exhibit 4 presents the valuation synthesis and conclusion for this illustrative valuation—assuming an expansionary economic environment.

Cost Approach Valuation Variables—Recessionary Economy Environment

Let's assume that the valuation analyst performs the same cost approach valuation analysis of the trade secret, but during a depressed economic environment. In this continuing example, the historical costs of the research and development expenditures required to develop the trade secret are still restated at current (i.e., valuation date) costs. This trended historical cost analysis is used to estimate an RCN. The valuation analyst will also make adjustments to the RCN estimate to account for any losses in value due functional, technological, and economic obsolescence.

Again, Healthy Morning management provided the valuation analyst with accounting information regarding the number of hours spent by Healthy Morning food engineers and scientists on the various aspects of the trade secret development. The valuation analyst estimated a full absorption cost related to the employees who developed the subject proprietary process.

This full absorption cost included all employee salaries, employee benefits, employment-related taxes, and related company overhead. This full absorption cost also included a component for development period interest. This full absorption cost reflects the costs and overhead experienced by Healthy Morning in a depressed economy.

The full absorption cost represents the RCN for the subject intellectual property, assuming depressed economic conditions. Based on this full absorption cost analysis, the valuation analyst concluded the current cost per person-hour for all of the company employee hours actually spent on the development, testing, and implementation of the trade secret.

The product of (1) the total number of person-hours actually spent to develop the trade secret and (2) the estimated full absorption cost per person-hour results in the trade secret reproduction cost new. The valuation analyst again considered adjustments to the RCN estimate for losses in value due to functional, technological, and economic obsolescence.

In particular, the valuation analyst considered: (1) the trade secret age and expected RUL, (2) the trade secret position within its technology life cycle, and (3) the owner/operator's return on investment related to the trade secret.

Exhibit 5 summarizes the RCNLD analysis, assuming depressed economic conditions. The total RCN includes (1) direct costs, (2) indirect costs, (3) developer's profit, and (4) entrepreneurial incentive.

The direct costs include the direct salary costs of the trade secret development team. The indirect costs include the related employee benefit costs, employment taxes, overhead allocation, and development period interest expense. The developer's profit includes the valuation analyst's estimate of the profit margin that an independent engineering firm would charge to Healthy Morning assuming depressed economic conditions. And, the entrepreneurial incentive is the opportunity cost related to the trade secret development process.

In this analysis, the valuation analyst quantified this opportunity cost as the difference in the amount of cash flow that the company would earn with versus without the trade secret. The valuation analyst estimated that incremental cash flow during the period of elapsed time required to reproduce the trade secret in a recessionary economy. Healthy Morning engineers estimated that the trade secret development period would be 24 months.

As indicated in Exhibit 5, the total RCN for the trade secret is \$9,632,000. The valuation analyst concluded a 15

percent functional obsolescence allowance. That 15 percent functional obsolescence allowance results in \$1,445,000 of "depreciation."

Accordingly, the indicated RCNLD for this trade secret is \$8,187,000. And, based on valuation variables appropriate to a depressed economy, this RCNLD estimate is rounded to a fair market value indication for the intellectual property of \$8,200,000.

Income Approach Valuation Variables—Recessionary Economy Environment

Marketing management provided the valuation analyst with depressed economy financial projections of the product unit selling price, unit volume, and market share for the five years after the valuation date. Management also projected the cost of goods sold and the capital expenditure data within a recessionary environment.

Management prepared a five-year projection of the selling, general, and administrative expenses related to the MRB food product line. After a due diligence review of the

"This trended historical cost analysis is used to estimate an RCN."

financial projections, the valuation analyst concluded that these product line financial projections were reasonable within the context of a depressed economy.

This income approach valuation method measures the difference in the company income potential both with and without the operation of the trade secret. The income potential represents the amount of income that is available to the business after consideration of a required level of reinvestment for continued operations and for expected growth. Based on the prospective financial data available, the valuation analyst selected net cash flow as the appropriate measure of income.

The product line net cash flow is projected over the expected RUL of the trade secret. The net cash flow projection is discounted at an appropriate discount rate in order to conclude a present value. The difference between (1) the present value of the product line net cash flow with the trade secret in operation and (2) the present value of the product line net cash flow without the trade secret in operation equals (3) the indicated value of the intellectual proprietary.

Management expects that it will develop a replacement trade secret in about five years. The process engineering staff is already working on the development of a new trade secret. Management expects that the new and improved process will be developed, tested, and implemented within five years. At that time, the current trade secret will be obsolete. Therefore, the valuation analyst selected five years as the appropriate measure of the trade secret RUL for purposes of this recessionary economy valuation analysis.

The valuation analyst selected the following valuation variables with respect to this depressed economy valuation analysis:

Scenario I: With the MRB trade secret in place.

- Net sales growth rate: 10 percent per year
- Gross margin percentage: 26 percent of net sales
- Other operating expenses: 12 percent of net sales
- Effective income tax rate: 36 percent of pretax income
- Depreciation expense: 1 percent of net sales
- Net capital expenditures: equal to depreciation expense
- Capital charge on all contributory assets: \$2.2 million per year
- Incremental net working capital: 10 percent of net sales
- Present value discount rate: 16 percent
- Remaining useful life estimate: 5 years

“Based on the prospective financial data available, the valuation analyst selected net cash flow as the appropriate measure of income.”

Scenario II: Without the MRB trade secret in operation

- Expected sales decrement: -10 percent per year
- Other operating expenses: 13 percent of net sales
- Incremental net working capital: 10 percent of net sales
- Present value discount rate: 17 percent
- All other valuation variables remain unchanged from Scenario I

The capital charge is included to account for the fair return of the investment of all the contributory assets that are used or used up in the production of the income associated with the trade secret. The contributory assets include net working capital, tangible operating assets, and the company trade name.

The projected decrease in product line sales without the trade secret in operation is based on valuation analyst discussions with management. This projected sales decrease indicates management’s estimate of the consumer response to the decrease in taste, crunchiness, and retail shelf life of the company’s product without the trade secret. The negative sales growth rate reflects management’s projection of the combined effects of (1) decreased unit selling price and (2) decreased unit volume sales.

Without the product differentiation provided by the trade secret, management estimates that it will have to increase its marketing expense. This marketing expense increase accounts for the one percent projected increase in other operating expenses.

In addition, management projects that it will have to liberalize its customer credit policy in order to stimulate sales of the less desirable MRB product. Management estimates that it will have to give 60-day credit terms instead of 30-day credit terms. This expected change in credit policy will affect the company’s accounts receivable balances. And, this change in credit policy will result in an expected change in the company’s net working capital investment.

The 16 percent present “with trade secret” value discount rate is based on the valuation analyst’s estimate of the company’s WACC. This WACC is increased as compared to the expansionary economy scenario, due to the effects of the recessionary economy.

The 17 percent “without trade secret” discount rate is based on the company’s WACC, adjusted by an incremental 1 percent. This 1 percent risk premium is due to the incremental risk of competition associated with the fact that Healthy Morning does not have a superior MRB product in this “without trade secret” scenario.

Income Approach Valuation Analysis—in a Recessionary Economy

As presented in Exhibit 6, the sum of the product line discounted cash flow with the trade secret in operation is \$41,500,000. As presented in Exhibit 7, the sum of the product line discounted cash flow without the trade secret in operation is \$32,500,000.

As indicated in Exhibit 7, the difference of these two limited life income projections indicates a discounted cash flow differential related to the trade secret of \$9,000,000. Therefore, the income approach indicates a fair market value of the trade secret, assuming a recessionary economy, of \$9,000,000.

Value Conclusion—Recessionary Economy Environment

The valuation analyst again decided to assign equal weight to the value indications provided by the two valuation approaches. Based on the analyses presented in Exhibits 5 through 7, the fair market value of the Health Morning trade secret, assuming a recessionary economic environment, is \$8.6 million (rounded).

Summary

This simplified illustrative example indicates how the cost approach and the income approach automatically adjust to reflect the intellectual property value decrease in a recessionary economy. This Healthy Morning trade secret valuation analysis concludes a higher value for the subject intellectual property in an expansionary economy than in a depressed economy.

ILLUSTRATIVE EXAMPLE OF THE APPLICATION OF THE MARKET APPROACH

Let's also consider a simplified illustrative application of the market approach to an intellectual property valuation. Let's assume that Philanthropic Pharmaceutical Products (PPP) is a pharmaceutical products company.

PPP management has developed a new pharmaceutical drug compound. Management expects that the new drug product will enjoy considerable commercial success. Management has decided to donate the patent rights for the new drug compound to a medical school and to claim a charitable contribution deduction for federal income tax purposes.

Let's assume that management retains the valuation analyst to perform a charitable contribution valuation of

its donated intellectual property. Let's assume that the valuation date for this charitable contribution valuation is January 1, 2009 (the date of the donation).

Let's assume that the valuation analyst decides to use the market approach and the relief from royalty (RFR) valuation method to value the donated drug compound patent related to one specific PPP drug product—a product commonly called Vigor. The Vigor drug product treats the medical condition called erectile dysfunction (or “ED”).

Illustrative Example Fact Set and Analysis Assumptions

The Vigor drug compound was patented, passed its clinical trials, and received all FDA approvals. In fact, Vigor has just been introduced on the market. Management expects that Vigor will generate about \$400 million in first year (i.e., 2008) product revenue for PPP.

Let's assume that the valuation analyst concludes a 9 year economic RUL for the Vigor patented drug product. This valuation analyst intellectual property RUL conclusion is based on the following:

“Let's assume that management retains the valuation analyst to perform a charitable contribution valuation of its donated intellectual property.”

1. the consensus of PPP management
2. the life cycle of the previous generations of ED drugs
3. the current research stage of potential replacement drugs
4. the expected impact of generic pharmaceutical products
5. published product life estimates from taxpayer industry analysts
6. management plans for developing its own replacement (i.e., more effective) pharmaceutical compound

Market Approach Valuation Variables—Expansionary Economy Environment

The valuation analyst concludes the following Vigor product expected revenue growth rates, assuming a robust economic environment:

1. 10 percent expected product revenue increase for the first 3 years
2. 0 percent expected product revenue increase for the next 3 years
3. 12 percent expected product revenue decrease for the last 3 years

The valuation analyst concluded that there will be no residual revenue from the Vigor product after the 9-year

RUL. That is, management indicated to the valuation analyst that it will discontinue the manufacture of Vigor and, instead, manufacture a replacement drug product after year 9.

Based on discussions with management, the valuation analyst learned that PPP management expects to incur an expense of approximately \$10,000,000 a year related to the legal defense, marketing, and administration of the Vigor patented drug product. Management projects that this level of expense will increase at the rate of 3 percent per year, regardless of the level of the Vigor product sales revenue.

Management believes that any owner of the Vigor drug compound patent would incur such an annual expense. Management also informed the valuation analyst that PPP would continue to incur this type of expense if it was the licensee of the patent (and another company was the licensor of the patent).

The valuation analyst also concluded that a 20 percent pretax present value discount rate is appropriate for this patent valuation analysis, given the risk of the Vigor drug product.

Guideline Intellectual Property License Search Procedures

The valuation analyst researched the following online intellectual property license royalty rate data sources:

1. Financial Valuation Group intellectual property transactions database
2. Recombinant Capital rDNA biotech intellectual property transactions database
3. AUS Consultants Royalty Source intellectual property transactions database
4. RoyaltyStat intellectual property transactions database

The valuation analyst searched each database for (1) the pharmaceutical industry SIC code and (2) pharmaceutical compound or product patent license agreements. The valuation analyst searched for pharmaceutical compound patent licenses entered into within three years of the subject valuation date.

The valuation analyst searched for patent licenses where the royalty payment was expressed primarily as a percent of revenue. And, the valuation analyst scanned all of the identified patent license agreement descriptions for a similar disease (i.e., vascular) and a similar therapy (i.e., a pill type drug) to the subject Vigor drug product.

Guideline Patent License Agreement Royalty Rates

Based on the above-described patent license search criteria, the valuation analyst selected comparable uncontrolled

transactions—or CUTs. These hypothetical CUT drug patent license agreements are presented in Exhibit 9.

Illustrative Example of a Royalty Rate Adjustment Grid

Based on the comparability factors considered to be the most relevant to the subject analysis, the valuation analyst adjusted the hypothetical guideline intellectual property license transactional data as presented in Exhibit 10.

Market Approach Valuation Analysis—in an Expansionary Economy

Based on the uneven expected revenue growth rate and the RUL analyses summarized above, the valuation analyst decided to use a yield capitalization method model (instead of a simple direct capitalization model). This RFR method yield capitalization model is simply an expanded format of the RFR method direct capitalization formula. The Vigor drug patent yield capitalization analysis is presented in Exhibit 11.

In this simplified illustrative example, and based on the application of the RFR valuation method, the valuation analyst concluded that the fair market value of the Vigor pharmaceutical compound patent is \$90 million, as of the January 1, 2009, valuation date. This \$90 million market approach value conclusion is appropriate, assuming an expansionary economic environment.

Market Approach Valuation Variables—Recessionary Economic Environment

The assumption of a recessionary economy does not affect the valuation analyst's conclusion with regard to the Vigor patent RUL. However, the valuation analyst concludes the following Vigor product expected revenue growth rates, assuming a depressed economic environment:

1. 0 percent expected product revenue increase for the first 3 years
2. 2 percent expected product revenue decrease for the next 3 years
3. 4 percent expected product revenue decrease for the last 3 years

The valuation analyst also concluded that there will be no residual revenue from the Vigor product after the 9-year RUL under the recessionary economy assumption.

Based on discussions with management related to the recessionary economy scenario, the valuation analyst learned that PPP management expects to incur an expense of approximately \$9,000,000 a year related to the legal

defense, marketing, and administration of the Vigor patented drug product. Management projects that this recessionary economy level of expense will increase at the rate of 2 percent per year, regardless of the level of the Vigor product sales revenue.

The valuation analyst concludes that a 20 percent pre-tax discount rate is still appropriate for this patent valuation, even in a recessionary economy.

Guideline Patent License Agreement Royalty Rates

The valuation analyst used the same guideline intellectual property license search procedures that were summarized above. Based on the above-described patent license search criteria, the valuation analyst selected as CUTs the same drug compound patent license agreements presented in Exhibit 9. Based on the comparability factors considered most relevant, the valuation analyst again adjusted the hypothetical guideline intellectual property license transactional data as previously presented in Exhibit 10.

Market Approach Valuation Analysis in a Recessionary Economy

Based on the uneven expected revenue growth rate and the RUL analyses summarized above, the valuation analyst decided to use a yield capitalization method model in the depressed economy valuation analysis. The recessionary economy Vigor drug patent yield capitalization analysis is presented in Exhibit 12.

Assuming a recessionary economic environment, and based on the application of the RFR valuation method, the valuation analyst concluded that the fair market value of the Vigor pharmaceutical compound patent is \$70 million, as of the January 1, 2009, valuation date.

Summary

This simplified illustrative example indicates how the market approach valuation variables can automatically adjust to reflect an intellectual property value decrease in a recessionary economy. This PPP patent valuation analysis concludes a higher value for the subject intellectual property in an expansionary economy and a lower value for the subject intellectual property in a recessionary economy.

SUMMARY AND CONCLUSION

This discussion summarized the procedures related to the identification and valuation of intellectual property in a DIP company or in any financially troubled company.

First, this discussion summarized the procedures a valuation analyst may use (and the factors a valuation ana-

lyst may consider) to identify the existence of intellectual property. Second, this discussion summarized the generally accepted valuation approaches, methods, and procedures to estimate the value of an intellectual property, particularly for a company operating in a depressed economic environment.

There are numerous economic and legal attributes that a valuation analyst should consider in the identification of intellectual property. There are three generally accepted intellectual property valuation approaches—the cost approach, the market approach, and the income approach.

Each of these approaches has the same objective: to arrive at a credible value indication for the intellectual property. Within each of the valuation approaches, there are several generally accepted methods and procedures that may be appropriate for any particularly intellectual property valuation.

The selection of the appropriate valuation methods and procedures is based on (1) the characteristics of the subject intellectual property, (2) the quantity and quality of available data, (3) the purpose and objective of the analysis and (4) the experience and judgment of the valuation analyst.

The intellectual property value conclusion is typically based on a synthesis of the value indications derived from each applicable valuation approach and method.

These valuation approaches and methods are relevant whether (1) the economic environment is robust or (2) the economic environment is depressed. And, these valuation approaches are relevant to a company operating in bankruptcy protection and to any financially distressed company. This is because the selected valuation variables should adjust to the economic conditions in which the intellectual property owner/operator functions.

When the appropriate economy-dependent valuation variables are used in the appropriate valuation methods, these methods will provide a credible value indication, given: (1) the current state of the economy or (2) the current financial state of the owner/operator.

Finally, this discussion presented simplified illustrative applications of the cost approach, the income approach, and the market approach to value intellectual property. Each simplified example illustrated (1) valuation variables related to a robust economy and (2) valuation variables related to a depressed economy.

The illustrative examples indicate that each generally accepted valuation approach can provide a credible intellectual property value indication based on both (1) expansionary economic environment assumptions and (2) recessionary economic environment assumptions.

Robert Reilly is a managing director of our firm and is resident in our Chicago office. He can be reached at (773) 399-4318 or rfreilly@willamette.com.

Exhibit 1
Healthy Morning, Inc.
MRB Trade Secret
Cost Approach
Reproduction Cost New Less Depreciation Method
Assuming an Expansive Economy
As of December 31, 2009

Intellectual Property Development Procedures: Type of Laboratory Research & Testing	Total Person-Hours to Reproduce the Development Procedures	Average Base Cost per Person-Hour (\$)	Employee Benefits and Overhead Cost Allocation Factor	Full Absorption Cost per Person-Hour (\$)	Reproduction Cost New (\$)
Compression Process Analysis	15,000	75	1.85	139	2,085,000
Food Ingredient Mixtures	8,000	75	1.85	139	1,112,000
Manufacturing Process Testing	10,000	85	1.85	157	1,570,000
Manufacturing Process Drawings and Documentation	8,500	90	1.85	167	1,420,000
			Total Direct and Indirect Costs [a]		6,187,000
			Plus: Developer's Profit at 15% [b]		928,000
			Plus: Entrepreneurial Incentive [c]		3,860,000
			Indicated Reproduction Cost New (RCN) (rounded) [d]		10,975,000
			Less: Functional Obsolescence (at 15% of RCN) [e]		1,646,000
			Equals: Reproduction Cost New Less Depreciation		9,329,000
			Indicated Trade Secret Fair Market Value (rounded)		9,300,000

Footnotes:

[a] The full absorption cost allocation factor includes a component for development period interest.

[b] The developer's profit represents a fair profit margin that an independent food engineering company would charge to a client to develop a manufacturing process like the MRB trade secret.

[c] The entrepreneurial incentive indicates the incremental amount of net cash flow that the owner/operator of the MRB trade secret will earn during the 24-month process development period--compared to the amount of net cash flow the same owner/operator would earn from using an alternative trade secret. See exhibits 2 and 3 for the present values of Healthy Morning net cash flow for years 1 and 2.

[d] This reproduction cost new (RCN) estimate includes all related direct costs, indirect costs, developer's profits, and entrepreneurial incentive.

[e] The valuation analyst concluded that a 15 percent functional obsolescence allowance was appropriate. Management expects to develop and implement an improved compression process in a few years. The current trade secret has been in use for approximately one year. Therefore, the total expected life of this trade secret is approximately 6 years (i.e., one year age plus five years RUL). Therefore, this intellectual property is approximately 15% (i.e., one year divided by 6 years) from an age/life perspective. Since this intellectual property is earning a fair return on investment, the valuation analyst concluded that no allowance for economic obsolescence is needed.

Exhibit 2
Healthy Morning, Inc.
MRB Trade Secret
Income Approach
Differential Income Method
Assuming an Expansive Economy
Scenario I: With the Subject Trade Secret in Operation

MRB Product Line Projection Variables (\$ in 000s):	Year 1	Year 2	Year 3	Year 4	Year 5
Net sales	\$ 146,912	\$ 161,603	\$ 177,764	\$ 195,540	\$ 215,094
Gross margin	38,197	42,017	46,219	50,840	55,924
Operating expenses	(16,160)	(17,776)	(19,554)	(21,509)	(23,660)
Earnings before interest and taxes	22,037	24,240	26,665	29,331	32,264
Income tax expense	(7,933)	(8,727)	(9,599)	(10,559)	(11,615)
Operating income	14,104	15,514	17,065	18,772	20,649
Depreciation expense	1,469	1,616	1,778	1,955	2,151
Capital expenditures	(1,469)	(1,616)	(1,778)	(1,955)	(2,151)
Capital charge on contributory assets	(2,200)	(2,200)	(2,200)	(2,200)	(2,200)
Incremental net working capital investment	(696)	(735)	(808)	(889)	(978)
Net cash flow	11,208	12,579	14,057	15,683	17,471
Present value discount factor [a]	0.9325	0.8109	0.7051	0.6131	0.5332
Discounted net cash flow	10,451	10,200	9,912	9,616	9,315
Sum of MRB product line discounted net cash flow with the subject trade secret (rounded)	49,500				
Footnote:					
[a] Assumes a mid-year discounting convention					

Exhibit 3
Healthy Morning, Inc.
MRB Trade Secret
Income Approach
Differential Income Method
Assuming an Expansive Economy
Scenario II: Without the Subject Trade Secret in Operation

MRB Product Line Projection Variables (\$ in 000s):	Year 1	Year 2	Year 3	Year 4	Year 5
Net sales	\$ 146,912	\$ 161,603	\$ 177,764	\$ 195,540	\$ 215,094
Expected sales decrement without MRB process	(14,691)	(16,160)	(17,776)	(19,554)	(21,509)
Net sales without proprietary process in operation	\$ 132,221	\$ 145,443	\$ 159,987	\$ 175,986	\$ 193,584
Gross margin	34,377	37,815	41,597	45,756	50,332
Operating expenses	(15,205)	(16,726)	(18,399)	(20,238)	(22,262)
Earnings before interest and taxes	19,172	21,089	23,198	25,518	28,070
Income tax expense	(6,902)	(7,592)	(8,351)	(9,186)	(10,105)
Operating income	12,270	13,497	14,847	16,331	17,965
Depreciation expense	1,322	1,454	1,600	1,760	1,936
Capital expenditures	(1,322)	(1,454)	(1,600)	(1,760)	(1,936)
Capital charge on contributory assets	(2,200)	(2,200)	(2,200)	(2,200)	(2,200)
Incremental net working capital investment	(876)	(926)	(1,018)	(1,120)	(1,232)
Net cash flow	9,194	10,372	11,629	13,012	14,533
Present value discount factor [a]	0.9259	0.7982	0.6881	0.5932	0.5114
Discounted net cash flow	8,512	8,279	8,002	7,718	7,432
Sum of MRB product line discounted net cash flow without the subject trade secret (rounded)	39,900				
Compared to: Sum of MRB product line discounted net cash flow with the subject trade secret (rounded) (from Exhibit 2)	49,500				
= Indicated trade secret fair market value	<u>9,600</u>				

Footnote:

[a] Assumes a mid-year discounting convention

Exhibit 4
Healthy Morning, Inc.
MRB Trade Secret
Valuation Synthesis and Conclusion
Assuming an Expansive Economy Environment
As of December 31, 2009

Valuation Approach:	Valuation Method:	Value Indication (\$ in 000s)	Value Indication Emphasis	Value Conclusion (\$ in 000s)
Cost Approach	Reproduction Cost New Less Depreciation Method	9,300	50%	4,650
Income Approach	Differential Income Method	9,600	50%	4,800
Fair Market Value of the Trade Secret (rounded)				<u>9,500</u>

Exhibit 5
Healthy Morning, Inc.
MRB Trade Secret
Cost Approach
Reproduction Cost New Less Depreciation Method
Assuming a Recessionary Economy
As of December 31, 2009

Intellectual Property Development Procedures: Type of Laboratory Research & Testing	Total Person-Hours to Reproduce the Development Procedures	Average Base Cost per Person-Hour (\$)	Employee Benefits and Overhead Cost Allocation Factor	Full Absorption Cost per Person-Hour (\$)	Reproduction Cost New (\$)
Compression Process Analysis	15,000	70	1.70	119	1,785,000
Food Ingredient Mixtures	8,000	70	1.70	119	952,000
Manufacturing Process Testing	10,000	80	1.70	136	1,360,000
Manufacturing Process Drawings and Documentation	8,500	85	1.70	145	1,233,000
					<u>5,330,000</u>
					533,000
					<u>3,769,000</u>
					9,632,000
					<u>1,445,000</u>
					<u>8,187,000</u>
					<u>8,200,000</u>

Total Direct and Indirect Costs [a]
Plus: Developer's Profit at 10% [b]
Plus: Entrepreneurial Incentive [c]
Indicated Reproduction Cost New (RCN) (rounded) [d]
Less: Functional Obsolescence (at 15% of RCN) [e]
Equals: Reproduction Cost New Less Depreciation
Indicated Trade Secret Fair Market Value (rounded)

Footnotes:

[a] The full absorption cost allocation factor includes a component for development period interest.

[b] The developer's profit represents a fair profit margin that an independent food engineering company would charge to a client to develop a manufacturing process like the MRB trade secret.

[c] The entrepreneurial incentive indicates the incremental amount of net cash flow that the owner/operator of the MRB trade secret will earn during the 24-month process development period--compared to the amount of net cash flow the same owner/operator would earn from using an alternative trade secret. See exhibits 6 and 7 for the present values of Healthy Morning net cash flow for years 1 and 2.

[d] This reproduction cost new (RCN) estimate includes all related direct costs, indirect costs, developer's profits, and entrepreneurial incentive.

[e] The valuation analyst concluded that a 15 percent functional obsolescence allowance was appropriate. Management expects to develop and implement an improved compression process in a few years. The current trade secret has been in use for approximately one year. Therefore, the total expected life of this trade secret is approximately 6 years (i.e., one year age plus five years RUL). Therefore, this intellectual property is approximately 15% (i.e., one year divided by 6 years) from an age/life perspective. Since this intellectual property is earning a fair return on investment, the valuation analyst concluded that no allowance for economic obsolescence is needed.

Exhibit 6
Healthy Morning, Inc.
MRB Trade Secret
Income Approach
Differential Income Method
Assuming a Recessionary Economy
Scenario I: With the Subject Trade Secret in Operation

MRB Product Line Projection Variables (\$ in 000s):	Year 1	Year 2	Year 3	Year 4	Year 5
Net sales	\$ 146,912	\$ 161,603	\$ 177,764	\$ 195,540	\$ 215,094
Gross margin	38,197	42,017	46,219	50,840	55,924
Operating expenses	<u>(17,629)</u>	<u>(19,392)</u>	<u>(21,332)</u>	<u>(23,465)</u>	<u>(25,811)</u>
Earnings before interest and taxes	20,568	22,625	24,887	27,375	30,113
Income tax expense	<u>(7,405)</u>	<u>(8,145)</u>	<u>(8,959)</u>	<u>(9,855)</u>	<u>(10,841)</u>
Operating income	13,164	14,480	15,927	17,520	19,273
Depreciation expense	1,469	1,616	1,778	1,955	2,151
Capital expenditures	<u>(1,469)</u>	<u>(1,616)</u>	<u>(1,778)</u>	<u>(1,955)</u>	<u>(2,151)</u>
Capital charge on contributory assets	<u>(2,200)</u>	<u>(2,200)</u>	<u>(2,200)</u>	<u>(2,200)</u>	<u>(2,200)</u>
Incremental net working capital investment	<u>(1,469)</u>	<u>(1,469)</u>	<u>(1,616)</u>	<u>(1,778)</u>	<u>(1,955)</u>
Net cash flow	9,495	10,811	12,111	13,542	15,118
Present value discount factor [a]	<u>0.9259</u>	<u>0.7982</u>	<u>0.6881</u>	<u>0.5932</u>	<u>0.5114</u>
Discounted net cash flow	8,791	8,629	8,334	8,033	7,731
Sum of MRB product line discounted net cash flow with the subject trade secret (rounded)	41,500				
Footnote:					
[a] Assumes a mid-year discounting convention					

Exhibit 7
Healthy Morning, Inc.
MRB Trade Secret
Income Approach
Differential Income Method
Assuming a Recessionary Economy
Scenario II: Without the Subject Trade Secret in Operation

MRB Product Line Projection Variables (\$ in 000s):	Year 1	Year 2	Year 3	Year 4	Year 5
Net sales	\$ 146,912	\$ 161,603	\$ 177,764	\$ 195,540	\$ 215,094
Expected sales decrement without MRB process	(14,691)	(16,160)	(17,776)	(19,554)	(21,509)
Net sales without proprietary process in operation	\$ 132,221	\$ 145,443	\$ 159,987	\$ 175,986	\$ 193,584
Gross margin	34,377	37,815	41,597	45,756	50,332
Operating expenses	(17,189)	(18,908)	(20,798)	(22,878)	(25,166)
Earnings before interest and taxes	17,188	18,907	20,799	22,878	25,166
Income tax expense	(6,188)	(6,807)	(7,488)	(8,236)	(8,808)
Operating income	11,001	12,101	13,311	14,642	16,358
Depreciation expense	1,322	1,454	1,600	1,760	1,936
Capital expenditures	(1,322)	(1,454)	(1,600)	(1,760)	(1,936)
Capital charge on contributory assets	(2,200)	(2,200)	(2,200)	(2,200)	(2,200)
Incremental net working capital investment	(1,322)	(1,322)	(1,454)	(1,600)	(1,710)
Net cash flow	7,479	8,579	9,657	10,842	12,448
Present value discount factor [a]	0.9217	0.7877	0.6733	0.5755	0.4918
Discounted net cash flow	6,893	6,757	6,502	6,240	6,122
Sum of MRB product line discounted net cash flow without the subject trade secret (rounded)	32,500				
Compared to: Sum of MRB product line discounted net cash flow with the subject trade secret (rounded) (from Exhibit 6)	41,500				
= Indicated trade secret fair market value	<u>9,000</u>				
Footnote:					
[a] Assumes a mid-year discounting convention					

Exhibit 8
Healthy Morning, Inc.
MRB Trade Secret
Valuation Synthesis and Conclusion
Assuming a Recessionary Economy Environment
As of December 31, 2009

Valuation Approach:	Valuation Method:	Value Indication (\$ in 000s)	Value Indication Emphasis	Value Conclusion (\$ in 000s)
Cost Approach	Reproduction Cost New Less Depreciation Method	8,200	50%	4,100
Income Approach	Differential Income Method	9,000	50%	4,500
	Fair Market Value of the Trade Secret (rounded)			<u>8,600</u>

Exhibit 9
Philanthropic Pharmaceutical Products
Vigor Pharmaceutical Drug Compound Patent Valuation
Hypothetical Guideline Intellectual Property License Agreements
As of January 1, 2009

Guideline Drug Patent License	Guideline Drug Patent Licensee	Guideline Drug Patent Licensor	Guideline License		Guideline License Start Date	Guideline License Term Years	Guideline License Royalty Rate %	Other Consideration Paid to the Licensor	Type of Licensed Drug Product
			Guideline License	Guideline License					
1	Pfizer, Inc.	Columbia U.	2008	15	2008	15	6	\$4m [a]	ED
2	Glaxo Smith Kline	Autogen	2005	10	2005	10	5	\$10m [b]	cardiovascular
3	Johnson & Johnson	Nobel N.V.	2006	12	2006	12	10	[c]	anti-obesity
4	Merck & Co.	All Saints Hospital	2006	10	2006	10	4.5	[d]	vascular
5	Pharmacia & Upjohn	MIT	2007	15	2007	15	5.5	[e]	pulmonary hypertension
6	Wyeth-Ayerst	MD, LP	2007	20	2007	20	8-10 [f]	[f]	botanical ED

Footnotes:

- [a] Represents an upfront (i.e., development financing) license payment.
 [b] Represents a milestone payment after the 5th year of the license.
 [c] The license agreement also settles a pending \$50 million litigation between the various license parties.
 [d] The physician owners/employees also receive research grants from Merck.
 [e] There are also numerous other relationships between the licensor/licensee parties.
 [f] The license royalty rate range is based on the level of the drug product annual sales volume.

Exhibit 10
Philanthropic Pharmaceutical Products
Vigor Pharmaceutical Drug Compound Patent Valuation
Guideline Royalty Rate Adjustment Grid and Selected Subject-Specific Royalty Rate
As of January 1, 2009

Guideline Drug Patent License	Guideline Patent Royalty Rate %	Guideline Patent Comparable to the Subject Patent [a]	Size of the Guideline Product Market [b]	Growth Rate of Guideline Product Market [b]	Guideline Product Market Share Relative to the Subject Product [b]	Effect of Other Consideration Paid to the Licensor	Adjusted Guideline Patent Royalty Rate
1	6	3	0	0	--	+5% [c]	6%
2	5	2	++	++	0	+1% [c]	7%
3	10	2	+	0	0	-2% [c]	8%
4	4.5	3	+	0	-	- [c]	4%
5	5.5	2	+	+	0	- [c]	6%
6	8-10	3	++	-	-	-2% [d]	7%
License Royalty Rate Mean							6.3%
License Royalty Rate Trimmed Mean							6.5%
License Royalty Rate Median							6.5%
License Royalty Rate Mode							<u>6.5%</u>
Selected Subject Patent Royalty Rate Conclusion							<u>6.5%</u>

Footnotes:

- [a] Based on a scale of 0 to 3; where 0 means that the guideline patent is less comparable to the subject patent; and 3 means that the guideline patent is more comparable to the subject patent.
- [b] Based on a scale of --, -, 0, +, ++, where -- is the smallest in size relative to the subject patented product; and ++ is the largest in size relative to the subject patented product.
- [c] Valuation analyst adjustment, based on an assessment of other factors (1) in the guideline intellectual property license agreement or (2) between the guideline intellectual property licensor and the licensee.
- [d] Valuation analyst adjustment, due to the different nature of a botanical drug product versus a pharmaceutical drug product.

