

Chapter 7: Asset Valuation

(Intangible Assets)

Intangible assets are the most difficult items to quantify and qualify. Typically, most business sellers want a large payout for “blue sky” (goodwill). Quantifying intangible assets is critical for a purchase price allocation or when selling or buying a business. Although difficult to value, this class of asset is becoming more of an issue in today’s technology driven market. In some instances the intangible assets will account for the majority of the value of a firm.

Tangible vs. Intangible Assets

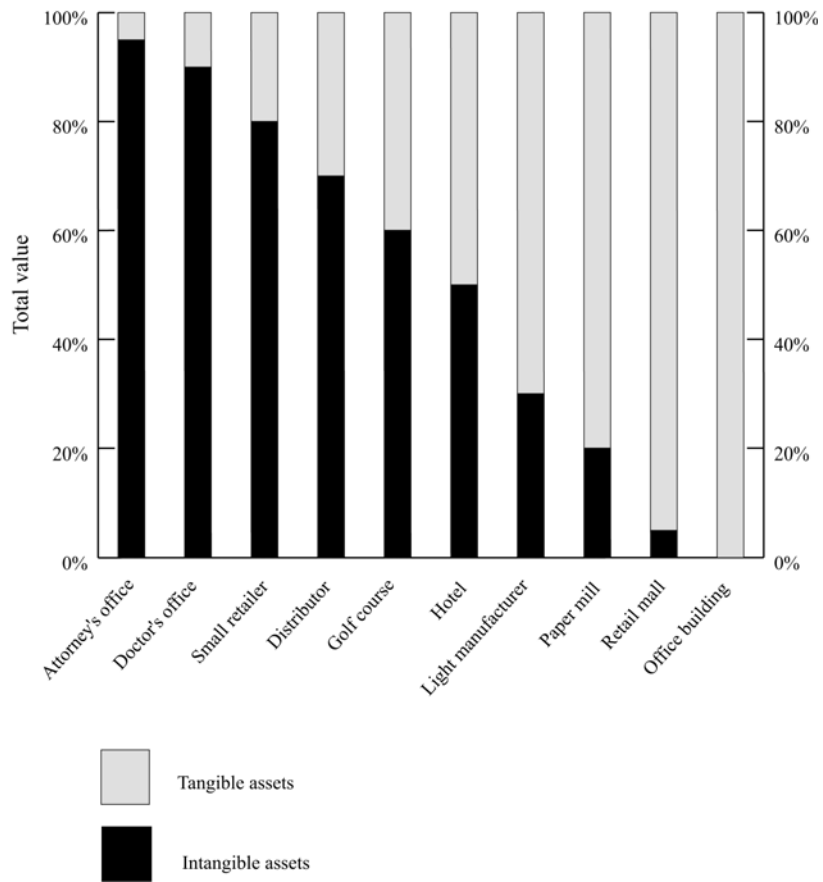
Both tangible and intangible assets represent an opportunity for future economic benefits. Tangible assets are generally defined as those physical assets which are used for the purpose of producing and distributing goods, and sometimes services. Tangible assets are usually fixed and have a physical existence (real estate, equipment, cash, accounts receivable). Many times the value of a specific tangible asset will be measured by its cost.

Intangible assets typically have a recognizable description, have the ability of being destroyed or terminated, and derive most of their value from expected future benefits. These assets have no physical existence (for the most part). Intangible assets can be measured by consideration of their costs but are generally valued based on the expected economic income to be generated by the asset over a period of time.

Usually businesses with a *low* percentage of tangible assets (such as service companies and professional practices) have a *large* percentage of intangible net worth. On the opposite side of the spectrum are asset intensive businesses whose value is principally from its fixed and current assets, and less so from intangible assets. Figure 7-1 on page 134 can more accurately show these differences for various types of businesses.

Assuming that two companies have identical cash flows: (a) Company A has 20% of its value in intangible assets, with 80% in tangible assets; and, (b) Company B has 80% of its value in intangible assets, with 20% in tangible assets. Company A will probably have more debt, need more of a reserve for the replacement of short lived assets, and is possibly a high commodity business, relative to Company B. These differences are important to understand when valuing a business or the intangible asset components.

Figure 7-1: Differences in Fixed versus Intangible Assets for Various Businesses



Reasons for valuation of Intangible assets

Table 7-1 lists the most typical reasons for the request of an intangible valuation.

Table 7-1: Reasons for Intangible Asset Valuations

Category	Reason
Purchase Price Allocation	Statements of Financial Accounting Standards (SFAS) 141 & 142, IRC 1060, IRC 197
Pre-acquisition Assessment	Discerning what is tangible vs. intangible
Purchase of Selected Assets	Licensing or purchase
Financing Purposes	Financing
Bankruptcy	Solvency, Collateral, taxation issues
Royalty Rate Negotiation	Negotiations
Intercompany Transfer Pricing	IRC 482
Tax Planning	Evaluating gains/losses
Ad Valorem Taxes	Tax reduction
Litigation	Damages

Of the intangibles shown in Table 7-1, Section 197 assets are the most commonly valued intangibles. Section 197 intangible assets are assets categorized by the Internal Revenue Service for amortization over 15 years. Section 197 assets include:

- (1) goodwill and going concern value, and covenants not to compete as they relate to the sale of a business;
- (2) workforce in place;
- (3) information base;
- (4) know how;
- (5) any franchise, trademark, or trade name;
- (6) any permit, license, or other right granted by a government agency;
- (7) any customer based intangible;
- (8) any supplier based intangible.

Identifiable/Unidentifiable Intangibles

Table 7-2 shows a general list of intangibles which are usually encountered in a business. Note that assets which are not easily identifiable are usually referred to as *goodwill*.

Table 7-2: General List of Intangible Assets*

Formulas	Loan and Mortgage Portfolio	Files and Records
Know How	Copyrights	Film and Record Libraries
Personnel	Core Bank Depositors	Film Rights
Trademarks and Names	Covenants Not To Compete	Franchise Agreements
Packaging	Customer Lists & Goodwill	Unpatented Technology
Indirect Construction Costs	Designs, Drawings, and Models	Backlog
Run-In Costs	Distribution Networks	Contracts
Systems	Easement Rights	Leasehold Interests
Microfiche	Favorable Debts	License Agreement
Rights	Mineral Water Rights	Location Value
Going Concern	Patents	Software
Assembled Plant	Patent Applications	Trade Secrets
Work Force	Performance Rights	Product Line

* this is not a comprehensive list

Both identifiable and unidentifiable intangibles may have unlimited useful lives. Depending upon the type of asset, the useful life may be limited to factors such as legal, contractual, or regulatory provisions, competition, life expectancies of employees, and economic factors.

Valuations are mostly requested for:

- patents
- trademarks and names
- covenants not to compete
- goodwill
- copyrights and trade secrets

Most intangible assets are valued based upon a cost, or an income approach. Unfortunately, most values rely upon proforma (future) projections. A discussion of the different approaches to valuing intangibles is presented first, followed by an overview of these four most requested valuations.

Cost Approach

The cost approach is the total of all expenses incurred to create the intangible asset. Two important components of the cost approach are useful life and obsolescence. The most common techniques of establishing the useful life are:

- The remaining legal life (e.g., for a patent, trademark, license, copyright or contract)
- Remaining physical life
- Remaining functional life (certain chemical formulas, in say lubricants or cleaners, become obsolete if they are not continually updated)
- Remaining technological life (e.g. with computers, 486 technology gives way to pentium technology, and so forth)
- Economic Life
- Actuarial Life (e.g. cable subscribers, or telephone advertising customers)

Obsolescence

Obsolescence (when something has a diminished value versus its original cost) is an important concept. While it is usually discussed in a cost approach, it is most pertinent to an income approach. Obsolescence of a product, a trade-name, or mark related to the product, depends upon the industry in which the company operates, and whether goodwill is typical in the industry. In some industries, obsolescence can occur within 3-6 months (e.g., computers/software), while in other industries, obsolescence can occur after decades or longer. Table 7-3 shows the differences in various industry products with respect to obsolescence.

So why does obsolescence matter? Well, one should not capitalize an income stream or attribute a value to an intangible asset which is continually losing value. This problem can be circumvented by making the discount rate a function of the rate of obsolescence [i.e. 20% discount rate - (-25% growth rate) = 45% discount rate]. The 25% would represent an erosion of 25% of the existing income/year.

Another method which can be used is to utilize a capitalization or discount rate which incorporates a steady erosion of earnings for a finite period of time. This concept is similar to a sinking fund factor.¹

Table 7-3: Economic Obsolescence of Different Industry Products

Industry	Age Life
Computer Hardware	1-36 months
Computer Software	1-36 months
Chemicals	1-10 years
Pharmaceuticals	1-15 years
Steel	1-20 years
Plastics	1-15 years

Let's assume that a product has a life expectancy of 4 years, and at the end of the 4 years the product will be obsolete (have no value). Assuming that today's safe rate is 5.5%, a speculative rate of 30% over and above the safe rate, and today's net income from the intangible asset is \$175,000, then the value of the asset would be calculated in Table 7-4 to be \$330,064.

Example (1) of Sinking Fund and Obsolescence

Table 7-4: Sinking Fund Calculation for Obsolete Intangible Asset

Variable	Calculation
Sinking fund factor for 4 years @ 5.5%	$\frac{0.055}{(1 + 0.055)^4 - 1} = 23.02\%$
Plus: speculative rate	30%
Total capitalization rate	53.02%
Value	$\frac{\$175,000}{0.5302} = \$330,064$

Similarly, let's assume that the discount rate for an intangible asset is 35%, assuming no growth or erosion of income and assuming in the previous example (Table 7-4) that the value of the asset will lose 75% of its value in 4 years. Today's present value can be calculated below:

Example (2) of Sinking Fund and Obsolescence

$$\text{Present Value} = \frac{\$175,000}{0.35 - (-0.75) \left[\frac{0.35}{((1.35)^4 - 1)} \right]} \quad (\text{EQ 7-1})$$

$$\text{Present Value} = \frac{\$175,000}{0.4631}$$

1. a fund in which periodic deposits of equal amounts of money are accumulated to pay a debt or replace assets.

Present Value = \$377,910

Patent Cost Itemization

Three examples of the use of the cost approach can be seen below. The first example is simply a patent cost itemization for a pharmaceutical drug, which can be seen in Table 7-5.

Table 7-5: Cost Itemizations for a Drug Patent

Item	20X1	20X2	Total
Research & Development	\$1,820,000	\$5,200,000	\$7,020,000
Research Salaries	\$5,800,000	\$6,400,000	\$12,200,000
Legal Fees	\$2,010,000	\$2,910,000	\$4,920,000
Total	\$9,630,000	\$14,510,000	\$24,140,000

Trained Work Force

Second, the existence of an assembled work force provides a potential buyer with an asset that saves him from having to hire workers, train them, and make them productive. If a trained work force were not assembled, then a purchaser would have to incur these costs in developing these replacement employees.

In valuing a trained work force, consideration is given to costs and expenses that would be incurred to assemble that group of employees. These costs may include the following: costs for advertising and searching for employees, screening and interviewing, relocation expenses, administrative, and orientation and training.

Table 7-6: The Value of an Assembled Work Force

Item	Assumption	Value
# Employees	46	
Average Salary	\$41,000	
Total Base Salary		\$1,886,000
Attrition (loss) Rate	5% per year	(94,300)
Adjusted Base Salary		\$1,791,700
Cost of Recruiting	5%	\$89,585
Cost of Training	10%	179,170
Total Replacement Cost		\$268,755
Tax Rate	40%	(107,502)
Value of Assembled Work Force		\$161,523

Assuming that a company has an average number of 46 employees, and there is a typical loss of 5% per year, the average salary is \$41,000, and the average cost to recruit a new employee takes 5% of the base salary for recruit-

ing, and 10% for training, then the value of the work force could be calculated similar to that seen in Table 7-6.

Therefore, in the example in Table 7-6 the benefit of an assembled work force to a potential buyer would be \$161,523.

Finally, as to the example in Table 7-5, let's assume that while the drug has a patent, it has been superseded by an improved formula produced by the competition one year later. Assuming that the value of the patent, based upon the income approach is \$500,000 (assuming selling to the third world, and obsolescence being \$23,640,000 in this example). Table 7-7 further shows why the discount rates are so high for intangible assets.

**Patent Protected
Technology Superseded by
New Technology**

Table 7-7: Affect of Obsolescence

Year	Total
Research and Development	\$7,020,000
Engineering Salaries	12,200,000
Legal Fees	4,920,000
Total Base Cost	24,140,000
Less: Obsolescence	(23,640,000)
Value	\$500,000

Market Approach

The method used for the market approach is to find direct intangible assets which have been purchased. It is difficult if not impossible to find published material which discloses the sale of intangible assets and their respective sale prices and terms of sale. As a result, most people usually utilize some form of a royalty method in the income approach.

Income Approach

The income approach is the most relied upon technique for quantifying an intangible asset. The most common approaches to quantifying value by this approach are the following methods:

- Discounted Cash Flow
- Relief From Royalty
- Capitalized Excess Earnings

Before utilizing any cash flow or income approach, a discount rate for the intangible asset or assets must be calculated. The discount rate analysis and technique can be seen in Table 7-8 on page 141.

Discount Rate Calculations for Intangible Assets

Discount Rate Analysis

The discount rate is a function of the duration (time) of the intangible asset, as well as the loss (attrition) rate of the typical customer or obsolescence of a product. In some industries the attrition rate or rate of obsolescence can be a 5% loss per year, while in other industries it can be as high as 100% or more per year. As a result, intangible capitalization or discount rates can vary from between 20% to 400%. Most importantly, intangible assets cannot usually be financed. As a result, they command a very high return on investment because of the inability to leverage them.

There are a number of ways for calculating the discount rate for an intangible asset. We have already discussed the calculation of discount rates in Chapter 6. Another is the discount rate from a combination of the balance sheet and the tax adjusted weighted average cost of capital.

Three steps are taken to obtain a discount rate for an intangible asset:

- (1) Use a discount rate by providing a buildup to the Capital Asset Pricing Model (CAPM), in conjunction with a Weighted Average Cost of Capital (WACC);
- (2) Obtain a discount rate for the intangible asset based upon solving for the required rate of return, after utilizing a weighted average cost of capital as applied to the total assets; and,
- (3) “Plugging” or backing into the discount rate for the intangible asset.

Intangible Asset Discount Rate derived from the WACC and Balance Sheet

The WACC discount rate can be utilized in conjunction with an operating balance sheet with different assets to back into an appropriate discount rate to be used for the valuation of any intangible asset.

Just as the WACC can be used to analyze the bottom of the balance sheet (debt and equity), it can also be used for the top of the balance sheet to analyze the assets of the company. Therefore, the use of the WACC can be applied to the total assets of the company (after being marked to market), less any working capital of current assets less current liabilities. This methodology can be seen in the equations below:

$$CA + FA + OA = CL + D + Eq \quad \text{(EQ 7-2)}$$

$$(CA - CL) + FA + OA = D + Eq \quad \text{(EQ 7-3)}$$

where

CA = Current assets

FA = Fixed assets

OA = Other assets

CL = Current liabilities

D = Debt

Eq = Equity

Table 7-8: Intangible Asset Discount Rate Analysis via Balance Sheet Plug

	Book Value (\$000's)	Adjustments (\$000's)	Adjusted Book Value (\$000's)	Required Return on Asset/Liability (%)	WACC Return (\$000's)
ASSETS					
Current Assets					
Cash & Equivalents	\$7,373.11	0	\$7,373.11		
Trade Accounts Receivable	30,015.96	0	30,015.96		
Inventories	10,733.79	(580.00)	10,153.79		
Short Term Investments	0	0	0		
Other Current Assets	214.87	0	214.87		
Total Current Assets	48,337.73	(580.00)	47,757.73	7.0%	\$3,343
Plant, Property, Equipment					
Land	289.63	(289.63)	0		
Buildings/Improvements	4,629.36	4,630.64	9,260.00		
Machinery & Equipment	16,204.43	(7,204.63)	8,999.80		
Other	0	0	0		
Total Gross Fixed Assets	21,123.42	(2,863.62)	18,259.80	10%	\$1,826
Less: Accumulated Depreciation	(11,371.48)	11,371.48	0		
Net Fixed Assets	9,751.94	8,507.86	18,259.80		
Other Assets					
Deferred Income Taxes	0	0	0		
Other Assets	0	0	0		
Intangible Assets	0	12,562.32	12,562.32	53.7%	\$6,744
Total Other Assets	0	12,562.32	12,562.32		
Total Assets	58,089.67	20,490.18	78,579.85		
LIABILITIES AND STOCKHOLDERS' EQUITY					
Current Liabilities					
Trade Account Payable	15,760.00	0	15,760.00		
Accrued Expenses	3,622.37	0	3,622.37		
Federal & State Taxes Payable	2,046.97	0	2,046.97		
Other Current Liabilities	819.36	0	819.36		
Deferred Revenue	1,533.67	0	1,533.67		
Borrowings Under Line of Credit	1,360.04	0	1,360.04		
Total Current Liabilities	25,142.41	0	25,142.41	(7.0%)	\$(1,760)
Net Assets Less Working Capital			\$53,437	19.0%	\$10,153
Long Term Debt	8,437.44	0	8,437.44		
Total Liabilities	33,579.85	0	33,579.85		
Stockholders' Equity	24,509.82	20,490.18	45,000.00		
Total Liabilities and Equity	\$58,089.67	\$20,490.18	\$78,579.85		

Utilizing a WACC as applied to the total assets (after accounting for the working capital), the assets can each be ascribed a return on investment. Whatever the difference between the return to the assets, and that of the total assets is the return to the intangible assets. In summary, it is the return to the intangible assets which we are looking for in order to use as the discount rate for the intangibles.

With respect to the company shown in Table 7-8 on page 141, we have utilized the WACC rate of 19%. Next, we have marked to market all of the assets and liabilities. Only total shareholders' equity has been adjusted to its market value of \$45,000,000 for the total equity outstanding.

Having adjusted the balance sheet, the next step is to estimate the required rate of return for each category of assets. In the balance sheet each item is attributed its relative percentage make up of the entire amount. We have ascribed a return of 7% to the current assets and current liabilities, with the fixed assets having a 10% return. Based upon the above and the WACC of 19%, we have imputed a rate of 53.7%, or 54% (rounded) for the intangible assets.

In Table 7-8 you should notice that we have valued the business at \$45,000,000 (adjusted book value), based upon an income approach (not shown here). In addition, we have adjusted the inventories and fixed assets to their market values. Notice that the land value is now part of the building and improvement value of \$9,260,000.

The weighted average cost of capital has been calculated similar to our approach used in any income approach (see Table 6-9 on page 122). We have concluded at 19%. Based upon our net asset, less working capital amount of \$53,437 (\$78,579.85-25,142.41), a 19% weighted average cost of capital equates to a return of \$10,153.

We have ascribed a 7% return to the current assets and a -7% return for the current liabilities. The fixed assets received a 10% return. Calculating these returns equates to a 7% or \$3,343 return on the current assets, 10% or \$1,826 return on fixed assets, a (7%) or \$(1,760) return on current liabilities, and a 53.7% or \$6,744 return on the intangible assets. Notice that the \$12,562.32 is a plug, based upon our adjustments made to the current and fixed assets, and our estimate of the business value of \$45,000. Therefore, based upon our imputed value of \$12,562.32, the discount rate would be 53.7% ($\$6,744 / \$12,562$).

Discounted Cash Flow

This method is similar to that seen in the income approach in Chapter 6. When utilizing this method of establishing value all variables and growth rates must be projected. In addition, one needs to calculate the duration of the income stream and discount this cash flow stream at the intangible asset discount rate (see Table 7-8 on page 141).

Relief From Royalty

This method utilizes a royalty rate which the licensee would pay to a licensor in order to use the licensor's intangible asset or intellectual property. The value of the intangible is the present value of the cash flow streams over the time period in which a royalty rate is paid. This approach utilizes the use of market derived royalty rates and the discounting of the cash flows.

Sources of royalty rates can be obtained from 10-K and 10-Q reports [annual (K) and quarterly (Q) reports filed with the Securities and Exchange Commission], as well as from press releases and old court cases. The correct royalty rate must be obtained. This is a simple yet time-consuming process. Typically, when deciding on a royalty rate, it should be determined whether the licensee can even afford the royalty. For example, if the margins of the business are not high enough to pay for the royalty, then the assumed royalty rate used is wrong.

After selecting the royalty rates, certain adjustments should be considered for: different time periods, slight differences in technology, geographic restrictions, and so on. For example, if royalty rates ranged from 5-8% of net sales, but these were for global and domestic licensing and the license was only for the United States market, then the royalty range may be below this range, all things being equal.

A capitalization of the annual royalty can be seen in the formula below:

$$\frac{\text{Fixed annual royalty}}{(i - g)} \quad \text{(EQ 7-4)}$$

where: i= discount rate

g= growth rate

When there is a finite period for use of the patent, then a discounted cash flow should be used. Most intangible assets have finite lives.

The relief from royalty method is predicated on the theory that a company would be willing to pay a royalty in order to use another company's intangible asset, if the rights were not owned by the company. The methodology requires:

- (1) an annual projection of revenues for the duration of the license.
- (2) an application of the appropriate royalty rate in the industry to the company's revenues.
- (3) a calculation of the present value of the net pretax royalty savings.
- (4) an assessment of the tax benefits attributable to the amortization of the intangible asset.

Let's assume that a company will have proprietary technology for the next 8 years. If the company were to license the technology, then the market royalty payment in the industry is 10% of sales. The pretax present value is \$1,755,000. Assuming a discount rate of 45%, and a tax rate of 40%, a calculation of the present value (\$1,177,095) of this intangible asset can be seen in Table 7-9.

Example of Relief from Royalty

Table 7-9: Tax Effect Formula

$\frac{N \times W \times L}{L + (N \times a) - y}$		
V	=	After-tax present value of amortizable intangible assets (\$1,177,095).
N	=	Net income rate=complement of combined federal, state, and local income tax rates = (1-0.4)=60%.
W	=	Pretax present value of amortizable intangible assets=\$1,755,000.
L	=	Economic remaining life of asset = 8 years for noncompete absolute.
a	=	Sum of present value factors at selected discount rate for life "L" less income = 45%, (2.1085).
y	=	Sum of present value factors at selected discount rate for life "L"-amortization=45% (2.1085).

The 2.1085 of the "a" variable seen in Table 7-9 is calculated as

$$a = \frac{1}{(1+0.45)^1} + \frac{1}{(1+0.45)^2} + \frac{1}{(1+0.45)^3} + \frac{1}{(1+0.45)^4} + \frac{1}{(1+0.45)^5} + \frac{1}{(1+0.45)^6} + \frac{1}{(1+0.45)^7} + \frac{1}{(1+0.45)^8}$$

$$a = 0.6897 + 0.4756 + 0.328 + 0.2262 + 0.156 + 0.1076 + 0.0742 + 0.0512$$

$$a = 2.1085$$

Once the present value of the projected pretax income stream has been established, the benefit of amortization (as a wasting asset) becomes more certain. Thus, a lower discount rate is sometimes appropriate for consideration of the amortization component of value.

Patents

When valuing a patent the patent must be read to determine how broad or narrow are the claims, and whether there is an indication of any value at all.

Before discussing patents, the reader is warned that there is a major misconception regarding the ownership of patents. The vast majority of individuals believe that ownership is synonymous with wealth or riches. However, many of the patents issued are worthless. It generally takes working capital and sales to make value. This simple fact is usually overlooked by novices. Even if an individual owns a patent and is supposed to be obtaining residual royalty payments

from licensees, enforcing these payments through litigation may be cost prohibitive.

Market value estimates for patents are derived from the application of the income or cost approaches to value. The income approach relies upon a royalty-savings methodology, which is based on the fact that the owner of intellectual property (such as a patent) is relieved from paying fees or royalties to license it. The present value of the estimated royalty savings over the life of the asset then becomes a measure of the market value of the patent. Alternatively, the cost approach is based on historical costs to develop a patent.

A patent is the legal process whereby technology is turned into controllable property with defined rights associated with its ownership. A domestic patent is granted by the U.S. Government to the inventor (or his or her heirs and assigns), by action of the Patent and Trademark Office. There are generally four different categories of patents: (1) utility patents, (2) plant patents, (3) design patents, and, (4) animal patents.

Types of Patents

First, utility patents are those with new and useful processes, machinery, manufacture, or composition of matter, or any new and useful improvement. Second, plant patents have to do with distinct new varieties of plants, including cultivated spores, mutants, hybrids, and newly found seedlings. Third, design patents deal with ornamental design for an article of manufacture. Fourth, animal patents are issued for genetically engineered animals.

As of June 8, 1995, the term of the patent changed from 17 years to 20 years after the date of issuance. The date of the filing is different from the date which a patent is issued.

A patent is an asset and may be sold, mortgaged, licensed, or bequeathed in a will. Since patents must be applied for by individuals, many are assigned, after granting, to a business enterprise. Assignments are generally recorded in the Patent and Trademark Office. Most corporations whose employees are involved in research that might lead to patentable inventions require that those employees sign an agreement to assign such inventions to the corporation as a condition of employment.

The 20-year term of a patent, of a composition of matter, or a process for using such composition can be extended if the composition or process has been subjected to a regulatory review by the Federal Food and Drug Administration (FDA). This extension compensates the patent owner for the delays incurred during the FDA examination before a product can be commercially marketed. However, the extension is only up to a maximum of 5 years.

When a patent application has been received by the Patent and Trademark Office, the applicant may identify products covered by the invention with the words, "Patent Pending," or "Patent Applied For." This action does not provide any protection against infringement, either intentional or unintentional, because until the patent issues, its scope of the claims and validity is not known. It may,

Pending Patents

however, discourage copying since, if and when a patent is issued, protection will ensue from the date of issuance and the copying will change from an annoyance to legal infringement.

Foreign Patents

To obtain protection, an inventor must apply for a patent in each country. The laws under which a patent may be granted differ considerably, as might be expected. Maintenance fees may be required, licensing may be compulsory to anyone who applies, and a patent may become void if manufacturing in the country does not occur.

Other Types of Patents

There are other types of very important patents that are used in industry and commerce. These types of patents generally fall into the category of being electrical and electronic patents, including in some measure computer oriented methods, compounds and compositions of matter, design patents, and plant patents.

When considering the various forms of patents, the respective types can have (except for plant patents) a method patent connected with the apparatus or components. For instance, in a manufacturing process there might be a particular apparatus or product for manufacturing a particular type of good and attendant therewith there would be a process. In like manner, a composition of matter such as a chemical composition, formulation or other type might have a specific chemical formula and certain parameters can be made by a particular process.

Both the apparatus and processes for making the product and the product itself are often times covered by separate claims of a patent.

When considering the valuation of a patent for a particular apparatus, electronic circuit, or compound, it is desirable to equate it to the particular business with which it is associated.

There have been long standing tests as to various industrial characterizations or commercial use of the patents and given royalty rates. For instance, IBM during the 1980's and 1990's licensed many patents in a broad range of technology at the rate of anywhere from three percent to five percent for a package of patents. It should be noted that IBM was somewhat motivated because of possible connotations that they would be a monopoly and come under scrutiny again by the Government which was a possible motivation for such licensing efforts. Nevertheless, it should never be forgotten that patents like anything else are property and assets for commercialization. Without the commercialization, the patents hardly constitute any value. In effect, until commercialized, they can merely be considered as having some prospective value but with little ability to equate them to a particular value.

When considering patents connected to an industrial process or commercialization of some type, it has been generally thought that if patents are to be properly valued they should have a particular hierarchy. In particular, when a patent is merely a new patent and in an early state of development, and there are no earnings attached to the products which relate to the patents, there is much

speculation that can go on as to the prospective value. To this extent, both the IRS and other parties sometimes look to see whether a patent is truly a “seasoned patent.”

A seasoned patent constitutes a patent which has possibly been litigated over, and which the industry accepts and has substantially withstood the test of a U.S. District Court and a U.S. Court of Appeals Ruling. A seasoned patent can also be established by the industry taking licenses over an extended period of time such as three years. Thus, the patent has received acceptance as being an *industry standard*.

As to the term *industry*, it should also be understood that oftentimes the term for patents as well as trademarks in other countries is the term *industrial property*. Although, the term intellectual property has come into vogue in the United States in the last twenty years, the term industrial property is the old line well recognized usage for such property on an international basis while the term intellectual property is slowly taking hold in the international arena.

In summary, for a patent to be valuable and placed in reference to some meaningful dollar figure, the patent should be associated with either a commercial or industrial utilization of some type. In effect, the patent should be accepted or tied to a particular product and accepted either as being attendant with the manufacture or commercialization of the product or in the alternative have been accepted through a seasoned recognition by the industry or through the courts.

When considering the purchase or licensing of a patent, determinations have to be made as to ownership, scope, validity, and the nature of the patent with regard to a product or process it is tied to. In doing this, an assignment search to determine the ownership of the patent should be undertaken. Patents like other property can be assigned and transferred as to ownership. These assignments and transfers are generally recorded in the Patent and Trademark Office in order to cut off future bona fide transfers for value. An immediate assignment search should be undertaken to determine the ownership of the patent and whether or not it truly resides with the prospective seller.

Legal Considerations of Patents

Although patents can be reviewed under a standard providing a legal opinion as to its economic validity and scope, the cost of such opinions as to each patent can be enormously expensive and possibly exceed the value of the collective patents that are being assigned. To this extent, oftentimes if the patent has been associated with the product for awhile the empirical thoughts of certain purchasing parties and sellers is that it has received acceptance and so as a consequence an opinion is not necessary. However, in order to assure that this patent has at least a limited degree of value from the standpoint of scope, the claims should be reviewed.

All patents have claims that set forth the scope of the coverage. For instance, if a household item such as a knife sharpener were to be covered in a patent, the sharpener would have a claim that would describe in broad terms the

sharpening elements, the means for holding the sharpening elements, and if the method were covered, the method of placing the knife in the sharpener. This is an over simplification. A lawyer should read the scope of the claim and give at least a guiding statement.

As in all legal and property transfer matters, patents are subject to the polemics of litigation. When a patent has been asserted, the prospective defendant will generally claim invalidity and non-infringement. This assertion is then withstood by the patentee or plaintiffs lawyer. These arguments are sometimes well based, and in other cases continue through a discovery stage until a trial. In many cases, upwards of 85% to 95% of patent litigation is settled before trial. As a consequence, an effort should be made to avoid buying, purchasing, or licensing a patent which leads to a polemical exercise to litigate.

Example Valuation of a Drug Patent

InterCare is a developmental stage biopharmaceutical company engaged in the discovery and development of novel therapeutic drugs intended to treat neurodegenerative diseases. The company's drugs are for Alzheimers. These drugs have small molecules which can pass through the blood-brain barrier, which can be administered orally or through injection into the bloodstream. The small-molecule approach taken by the Company could lead to the development of compounds which can either mimic the actions of the larger molecule neurotrophic factors or stimulate the production of such factors within the brain, through administration either orally or through injection.

The Company does not intend to market its own products directly. When, and if, its products are approved by the FDA, InterCare intends to license or enter into strategic alliances for marketing them with established pharmaceutical companies that already have distribution channels in both the U.S. and other countries. The company's drugs are currently in Phase I with the FDA.

InterCare Patents

The first patent covers a series of compounds, and is for the treatment of neuroimmunologic disorders. The second patent covers the treatment of neurological and neurodegenerative diseases through modification of certain biochemical processes in cells. Both patents are 7 years old. The patents are in phase I of FDA approval, and have been under clinical study for two years, with two years left for phases II and III. Therefore, the patents have a total life left of 17 years (20 year total life - 7 years of age +2 years of FDA time recapture +2 years of a projected additional time recapture). The total maximum time would be 5 years of recapture due to FDA study.

In summary, of the net income which would accrue to InterCare from the licensee, a maximum of 7% will go to Dr. Kane and Duke University. In other words, of the total income which would be paid to InterCare as a royalty, 93%

would go to InterCare, and 7% would go to Dr. Kane and Duke University. If the product is accepted by the FDA, then the term of the patent shall be extended for a maximum of five years, as a result of the encumbrance of the regulation of approval, based upon 35 U.S.C. 155-156, as well as other sections of the United States Patent Procedures.

Patents will have a life of 20 years from the filing date, based upon the term extensions indicated by Title 37 1.701, based upon the Code of Federal Regulation of Patents. A maximum term of an additional 5 years is available in order to account for the FDA regulation and testing of these patents.

Table 7-10: InterCare Balance Sheet

ASSETS	
Current Assets	
Cash and cash equivalents	\$9,995,062
Marketable securities	5,702,114
Other receivables	163,988
Prepaid expenses	239,171
Total Current Assets	16,100,335
Total Property and Equipment	132,509
Other Assets	1,746,432
Total Assets	\$17,979,276
LIABILITIES	
Total Current Liabilities	\$1,357,196
Long Term Liabilities	0
Stockholders' Equity (Deficit)	
Common Stock	23,125,763
Deficit Accumulation during R&D	(6,503,683)
Total Stockholder's Equity	\$17,979,276

Financial Performance

InterCare recently had an initial public offering (IPO) two years ago and raised \$30,000,000. The most recent balance sheet can be seen in Table 7-10. The most recent income statement can be seen in Table 7-11.

Table 7-11: InterCare Income Statement

Revenues, from Grants	\$0
Operating Expenses	
Research and Development	(615,485)
General and Administrative	(659,895)
Loss from Operations	(1,275,380)
Other Income/Expense	
Interest income	268,231
Interest expense	(51,769)
Other income	20,043
Total Other income/Expense	236,505
Net Loss	\$(1,038,875)

As can be seen in Table 7-11 the Company is a speculative start up business which will need an additional 3-5 years of working capital in order to test its drugs.

Cost Approach

Based upon the most recent prospectus, the Company has expended \$6,503,683 in research and development costs since its formation.

Income Approach

Based on the Company's lack of operating history, as well as the questionable probability of passing FDA approval, future revenues must be forecast.

Probability of FDA approval

Out of 20 drugs entering clinical testing, the FDA has estimated that an average of 13 to 14 will successfully complete Phase I. Of those, about nine will finish phase II, but only one or two are likely to survive the rigorous Phase III trials. Thus, only one of the original 20 will ultimately be approved for marketing. Therefore a 5% probability factor of passing all three stages and obtaining commercial approval is appropriate.

Foreign Approval

Once U.S. FDA approval is completed, then the probability of approval is between 80-90% abroad. Only Japan and the United States require clinical trials. Therefore, the probability of approval is 80% for all geographical areas except for Japan. Japan was ascribed a 5% probability due to the need for clinical trials which are similar to the United States trials.

Market Analysis

Total world market for pharmaceuticals that treat Alzheimers and other related neurodegenerative diseases would be \$20-30 billion, of which approximately 50%, or \$10-15 billion, would represent the United States. The United States represents 50% of the world market. Therefore, the potential total United States market would be \$10 billion. Of this \$10 billion, there would be a 5% probability of FDA approval, as mentioned above.

Therefore, the potential United States market would be \$500,000,000. These calculations can be seen in Table 7-12.

Table 7-12: Domestic Market Potential/Projections

Market Potential	\$20,000,000,000
United States% of Global Market	0.50
Potential Gross United States Market Revenue	10,000,000,000
Times: Projected Potential Gross Revenue, with a 5% Probability of FDA approval	x 0.05
Potential United States Market	\$500,000,000

Therefore, the gross United States revenue projection would be \$500,000,000 in potential annual income, today. This \$500,000,000 represents the market gross potential, after accounting for the probability of FDA approval.

With respect to the international non U.S. market, world income would range from between 5% in Africa to 40% in Europe, or 50% of the total demand.

Table 7-13: Foreign Market Potential/Projections

Market Potential	\$20,000,000,000
Foreign% of Global Market	0.50
Potential Gross Foreign Market Revenue	10,000,000,000
Potential Gross Revenue (Assuming FDA Approval)	5,750,000,000
Times: Projected Potential Gross Revenue, with a 5% Probability of FDA approval	x 0.05
Potential Foreign Market	\$287,500,000

From this \$500,000,000 domestic and \$287,500,000 foreign potential market share, the licensee would eventually be able to obtain a 10% market penetration, and the licensor (InterCare) would receive a royalty, based upon the 10% market penetration. A discussion of the potential royalty rate is discussed after the presentation of the discount rate analysis.

Discount Rate

Based upon the above and the WACC (weighted average cost of capital) of 22%, a rate of 35.99% or 36% (rounded) has been imputed for the intangible assets, similar to the technique shown in “Discount Rate Calculations for Intangible Assets” on page 140, and in Table 7-8 on page 141.

Under the income approach, the relief from royalty approach is applied by attempting to measure the level of royalty payments that would be required to use a particular patent if that patent were not owned by the subject company, then discounting the cash flows.

Revenue Forecast/Time Horizon

As of the valuation date, the projected estimated average annual revenue growth of the market is 5% per year over 17 years. (20 year total life - 7 years of age + 2 years of FDA time recapture + 2 years of a projected additional time recapture).

FDA approval time ranges from 2-6 years. However, with the fast track program at the FDA, some testing can be completed in 6 months if the drug is a high visibility drug. Conversations with management suggest that 1-3 years would be a reasonable time, so we have used 2 years for approval in our analysis. After projecting revenues and operating income associated with InterCare, the appropriate royalty rate must be selected.

Royalty Rate Analysis

Some existing royalty payments in the industry can be seen in Table 7-14. Typical royalty rates for drugs in the industry are between 6-12% of sales, assuming that a drug is approved by the FDA. We have concluded at 8%. It must be noted that this 8% represents the gross amount to the company. However, Dr. Kane and Duke University receive a total outflow of 7% of the 8%, therefore there is a net of 7.44% to the shareholders $[0.08 - (1-0.07)]$.

Domestic (United States) Royalty Savings

Using a 36% discount rate (the imputed rate discussed above), we discounted the domestic projected royalty earnings from the use of these patents to estimate their value. The sum of the present value of these payments is \$3,368,656. Having arrived at our present value, we next applied a 40% tax rate

to the pretax value, based upon our previous tax effect formula, with a time horizon of 17 years, as seen in Table 7-16.

Table 7-14: Sample of Industry Royalty Rates

Company	Agreement With	Royalty%	Drug
Company A	American Home Products	11.5% of net sales	Redux
Company B	Pasteur Merieux-Connaught (a division of Rhone Poulenc S.A)	6-12% of sales	HIV vaccine
Company C	Calbiochem-Novabiochem International	10% of sales	cdk 1
Company D	Abbott Laboratories	5% of net sales	Thrombus Precursor Protein
Company E	Glaxo Wellcome plc	6% of gross revenue	anti-influenza drug

Table 7-15: Domestic Value of Patent (Assuming Domestic Licensing)

Year	U.S. Potential Mkt	Licensee Market Capture		InterCare Gross Royalty @ 8%	Less Inventor/ Duke University 7% Payment	Intercare (Licensor) Net Royalty Income	Present Value Factor	InterCare (Licensor) Pre-tax Present Value
		%	\$					
1	\$500,000,000	0%	\$0	\$0	\$0	\$0	0.7353	\$0
2	525,000,000	0	0	0	0	0	0.5407	0
3	551,250,000	0	0	0	0	0	0.3975	0
4	578,812,500	2	11,576,250	926,100	(64,827)	861,273	0.2923	251,759
5	607,753,125	4	24,310,125	1,944,810	(136,137)	1,808,673	0.2149	388,746
6	638,140,781	6	38,288,447	3,063,076	(214,415)	2,848,660	0.1580	450,202
7	670,047,820	8	53,603,826	4,288,306	(300,181)	3,988,125	0.1162	463,443
8	703,550,211	10	70,355,021	5,628,402	(393,988)	5,234,414	0.0854	447,257
9	738,727,722	10	73,872,772	5,909,822	(413,688)	5,496,134	0.0628	345,308
10	775,664,108	10	77,566,411	6,205,313	(434,372)	5,770,941	0.0462	266,598
11	814,447,313	10	81,444,731	6,515,579	(456,090)	6,059,488	0.034	205,830
12	855,169,679	10	85,516,968	6,841,357	(478,895)	6,362,462	0.025	158,913
13	897,928,163	10	89,792,816	7,183,425	(502,840)	6,680,586	0.0184	122,690
14	942,824,571	10	94,282,457	7,542,597	(527,982)	7,014,615	0.0135	94,724
15	989,965,800	10	98,996,580	7,919,726	(554,381)	7,365,346	0.0099	73,132
16	1,039,464,090	10	103,946,409	8,315,713	(582,100)	7,733,613	0.0073	56,462
17	\$1,091,437,294	10%	\$109,143,729	\$8,731,498	\$(611,205)	\$8,120,293	0.0054	\$43,592

2.7575 \$3,368,656

Applying this amount of \$3,368,656 to the an intangible asset formula provides an after-tax value of the royalty savings of \$2,161,432 (see Table 7-16 on page 154).

Table 7-16: Tax Effect Formula for Domestic Patent Rights

$$\frac{N \times W \times L}{L + (N \times a) - y} = V$$

$$\frac{0.6 \times \$3,368,656 \times 17}{17 + (0.6 \times 2.757497) - 2.757497} = \$2,161,432$$

Where	V	=	After-tax present value of amortizable intangible assets (\$2,161,432)
	N	=	Net income rate = complement of combined federal, state, and local income tax rates = (1 - 0.4) = 60%.
	W	=	Pretax present value of amortizable intangible assets = \$3,368,656
	L	=	Economic remaining life of asset = 17 years for noncompete absolute
	a	=	Sum of present value factors at selected discount rate for life "L" - income = 36% (2.757497)
	y	=	Sum of present value factors at selected discount rate for life "L" - amortization = 36% (2.757497)

Foreign (Non-United States) Royalty Savings

Using the same 36% discount rate, we discounted the foreign projected royalty earnings from the use of these patents to estimate their value. The sum of the present value of these payments is \$1,936,977. Having arrived at our present value, we next tax affected the pretax value at 40%, based upon our previous tax effect formula, with a time horizon of 17 years. Applying this amount to the following intangible asset formula provides an after-tax value of the royalty savings of \$1,242,824 versus \$2,161,432 in our domestic tax effect calculations shown in Table 7-16.

Summary

As mentioned earlier, we have assumed that the total world market is \$20 billion, of which 50%, or \$10 billion represents the United States market. Of this \$10 billion, there is a 5% probability of FDA approval, which nets a potential of \$500,000,000 (domestic). InterCare’s licensee should eventually be able to obtain a 10% market penetration.

Therefore, looking at our model in table Table 7-15, in year 1, the market would be \$500,000,000. Since there is no FDA approval, the licensee market capture is 0%. The present value factor of 0.7353 represents the first year’s cash flow, discounted at 36%, [1/1.36]=0.7353.

Table 7-17: Foreign Value of Patent (Assuming Offshore Licensing)

Year	Offshore Potential Mkt	Licensee Market Capture		InterCare Gross Royalty @ 8%	Less Inventor/ Duke University 7% Payment	Intercare (Licensor) Net Royalty Income	Present Value Factor	InterCare (Licensor) Pre-tax Present Value
		%	\$					
1	\$287,500,000	0%	\$0	\$0	\$0	\$0	0.7353	\$0
2	301,875,000	0	0	0	0	0	0.5407	0
3	316,968,750	0	0	0	0	0	0.3975	0
4	332,817,188	2	6,656,344	532,508	(37,276)	495,232	0.2923	144,761
5	349,458,047	4	13,978,322	1,118,266	(78,279)	1,039,987	0.2149	223,529
6	366,930,949	6	22,015,857	1,761,269	(123,289)	1,637,980	0.1580	258,866
7	385,277,497	8	30,822,200	2,465,776	(172,604)	2,293,172	0.1162	266,480
8	404,541,372	10	40,454,137	3,236,331	(226,543)	3,009,788	0.0854	257,173
9	424,768,440	10	42,476,844	3,398,148	(237,870)	3,160,277	0.0628	198,552
10	446,006,862	10	44,600,686	3,568,055	(249,764)	3,318,291	0.0462	153,294
11	468,307,205	10	46,830,721	3,746,458	(262,252)	3,484,206	0.034	118,352
12	491,722,565	10	49,172,257	3,933,781	(275,365)	3,658,416	0.025	91,375
13	516,308,694	10	51,630,869	4,130,470	(289,133)	3,841,337	0.0184	70,547
14	542,124,128	10	54,212,413	4,336,993	(303,590)	4,033,404	0.0135	54,466
15	569,230,335	10	56,923,033	4,553,843	(318,769)	4,235,074	0.0099	42,051
16	597,691,852	10	59,769,185	4,781,535	(334,707)	4,446,827	0.0073	32,466
17	\$627,576,444	10%	\$62,757,644	\$5,020,612	\$(351,443)	\$4,669,169	0.0054	\$25,066
							2.7575	\$1,936,977

Since there would be no approval for the next three years, the first cash flow in Table 7-15 would be in year 4. In this case, the United States potential market has compounded at 5% per year from \$500,000,000 to \$578,812,500, based upon the potential probability of FDA approval. In year 4, a licensee would obtain a first year penetration of 2% of the \$578,812,500, or \$11,576,250. Of this amount, 8% in the way of a royalty rate would be paid to InterCare (licensor). 7% of this net payment would go to Dr. Kane and Duke University, thereby netting \$861,273 to InterCare’s sales. This amount would be discounted at the cost of capital for the tangible asset, discounted over four years at 36%, $[1/(1.36)^4]=0.2923$. Therefore, in present value terms, the \$861,273 is worth only \$251,759 today.

Market penetration would grow by 2% per year until it reaches a maximum of 10%. This 10% would be reached in year 8. The United States potential gross market revenue would be \$703,550,211, having grown at a compound rate of

5% per year. Of this amount, 10% or \$70,355,021 would be gross revenue which the licensee could obtain. Of this amount, 8% in the way of a royalty rate would be paid to InterCare (licensor). 7% of this net payment would go to Dr. Kane and Duke University, thereby netting \$5,234,414 to InterCare's sales. This amount would be discounted at the cost of capital for the tangible asset, discounted over eight years at 36%, $[1/(1.36)^8]=0.0854$. Therefore, in present value terms, the \$5,234,414 is worth only \$447,257 today.

We have concluded at \$3,368,656 on a pretax basis, and \$2,161,432 on an after-tax basis, or \$2,160,000 (rounded) for the domestic rights as seen in table Table 7-16.

For the foreign rights, we have made the same assumptions. The difference is the geographic breakdown and the additional probability of acceptance calculation, assuming FDA approval. For the foreign rights, we have concluded at \$1,936,977 (pretax), and \$1,242,824 (after-tax), or \$1,240,000 (rounded), as seen in table Table 7-18.

The gross value of the domestic and international rights would be \$3,400,000 (\$1,242,824 + \$2,161,432).

The market value was \$6,503,683, based upon the costs expensed to date, and \$3,400,000 based upon the income approach.

Due to the most probable buyer being a drug company, this company would project a return on investment analysis, and would not base its purchase price on the historical capital outlay of the asset. In fact, many drugs which are developed are sold for a fraction of their development costs. Drug development is similar to the track record of venture capital. Only 2% of the drugs give a 10 times return on investment (1,000%), and 8% of the drugs give a 5-10 times return on investment (500-1,000%), with the rest being complete losses, regardless of the costs incurred. Compound these odds with the difficulty of obtaining FDA approval, and foreign approval, and the percentages fall further.

Covenants Not to Compete

A "covenant not to compete" is a fixed agreement by the seller to the buyer not to enter into competition with the buyer either indefinitely or for a fixed time period. However, the duration and territory varies from state to state, as established by statute or common law. There are two reasons for obtaining these covenants:

- (1) to obtain legal recourse if the seller should renege on his or her agreement not to compete; and more importantly,
- (2) for tax reasons.

The tax reasons are more fully discussed later in the book (see "Covenant Not to Compete/Consulting Agreements" on page 347).

With respect to the analysis, a covenant not to compete is calculated as the difference between what the business is worth *without* the seller competing with the new buyer, and what the business is worth *with* the seller competing with the buyer. This is usually difficult to estimate, however, it can have some degree of quantification if the buyer projects how much lost revenue there is if the seller competes with the buyer.

The IRS is more frequently challenging purchase price allocations of covenants not to compete. The IRS's position is that the seller will bow to the buyer's demand for an overly aggressive allocation of the purchase price to the covenant, so that the buyer will avoid taxes based upon higher amortization expenses in the future.

Based upon court decisions, there are four tests which must be met in order to amortize these covenants for income tax purposes. These tests are:

- (1) Is the covenant economically real and meaningful?
- (2) Is the compensation paid for the covenant severable from the price paid for the acquired goodwill?
- (3) Is there proof that a portion of the sale price of a business was assigned to the covenant when the sale agreement was signed?
- (4) Is either part of the contract attempting to repudiate an amount knowingly fixed by both the buyer and seller as allocable to the covenant?

Four Tests to be Met to Amortize Non Compete Agreements for Tax Purposes

There are a number of steps which need to be taken when calculating a covenant not to compete:

- (1) What is the estimated decrease in sales in the future?
- (2) What is the increase in operating expenses as a result of a loss of key personnel and higher overhead by having to retrain new employees?
- (3) What is the increase in capital investment in accounts receivable, inventory and plant and equipment needed in order to satisfy the higher demands of customers so as not to lose them?
- (4) What is the residual value, or the difference in value between the business with a non compete agreement in place and the value without the agreement?
- (5) What is the appropriate discount rate?
- (6) How does the difference in values affect the amortization of this intangible?

Six Steps to Calculate Covenant

An example of this calculation can be seen below.

XYZ (seller) has decided to divest a portion of the marine coatings interests of its subsidiary, STU, together with certain parallel marine and offshore activities currently conducted from the United States, and sell a portion of their interests to ABC (buyer).

Example of Covenant not to Compete

XYZ intends to retain the on-shore industrial maintenance (IM) activities of STU in North America, together with the right to exploit the STU brands and technology for on-shore IM elsewhere in the world, subject to any restrictions imposed under license agreements currently in force with STU licensees.

STU operates in both the marine and on-shore heavy duty maintenance sectors. Since XYZ also operates across the spectrum of industrial maintenance coatings in most regions of the world, XYZ is in the process of separating these two activities, integrating the on-shore heavy duty maintenance activity with its existing IM activities.

With respect to the marine market, XYZ believes STU to have a 27% share of the U.S. heavy marine market, and, together with the use of STU technology by licensees, a 3% share of the global market outside the United States.

Licensees

STU has eleven licensees world-wide. Licenses generally cover both marine and industrial maintenance, provide exclusive manufacturing rights in the licensed territory, and non-exclusive sales rights.

It is anticipated that these licensees, together with the right to future royalty flows, would pass to a buyer of the marine business. XYZ would seek an arrangement by which, on any renewal of each license, the buyer would modify the manufacturing clauses to non-exclusive in respect to industrial maintenance and offshore production.

Valuation of NonCompete Agreement

XYZ (seller) and ABC (buyer) are contemplating entering into a noncompete agreement which prohibits XYZ from engaging in any sales of marine chemicals of the type now sold or furnished by STU (subsidiary). The term of the noncompete agreement is 5 years (absolute).

A summary of the provisions of the noncompete agreement restricting XYZ from using the brand names can be seen in Table 7-18.

Table 7-18: Summary of Non Compete Agreement

Clause	Marine	Offshore	Industrial Maintenance
Technology Ownership	ABC Co.	ABC Co.	ABC Co.
License back to XYZ	None	Exclusive in Asia Pacific	Exclusive worldwide except ABC can use in Europe/Middle East
Trademarks/names (Main/Sub-brands)	5 yrs	5 yrs except Asia Pacific	5 yrs in Europe, Middle East, Soviet Union, Asia
Noncompete technology	Perpetual	Perpetual except in Asia Pacific	3 yrs in Europe/Middle East
Noncompete trademark/ names	5 yrs	10 yrs except in Asia Pacific	7 yrs in Europe, 9 years in the Middle East*
Noncompete Absolute	5 yrs	5 yrs except in Asia Pacific	None

*or 2 years after ABC stops using any specific trademarks

Based upon discussions with the management of ABC, without a noncompete agreement, XYZ (Parent Company to STU) could somewhat compete with ABC. XYZ has knowledge of the trade secrets, the customer information, the technical know-how, and other proprietary and confidential information of the proposed buyer, ABC. However, after the sale of STU's assets, XYZ's lack of distribution channels and brand name recognition would hinder XYZ's ability to compete with ABC.

Management estimated that XYZ could be able to attract 1% of revenues away from the buyer immediately based on XYZ's retained distribution network. According to management, XYZ would likely attract 5% in the first year, 10% in the second and third year, 15% in the fourth and fifth year, and 20% thereafter.

The difference in value between having a covenant not to compete and not having one in place is a \$19,788,000 business value without competition, and a \$18,256,000 business value with competition. Therefore, the pretax value of the noncompete agreement is \$1,532,000.

Assuming that the discount rate is 30%, based upon an analysis similar to that shown in Table 7-8 on page 141, then we can now calculate the value of the noncompete agreement. Applying the pretax value of the noncompete agreement to the Tax Effect Formula, seen below, provides the after-tax value of the noncompete agreement.

$$V = \text{Intangible Value} = \frac{N \times W \times L}{L + (N \times a) - y} \quad (\text{EQ 7-5})$$

where:

- V= after tax present value of amortizable intangible assets (\$1,140,000).
- N= net income rate = complement of combined federal, state, and local income tax rates = (1-0.4) = 60%.
- W= pretax present value of amortizable intangible assets = \$1,532,000.
- L= economic remaining life of asset= 5 years for noncompete absolute.
- a= sum of present value factors at selected discount rate for life "L" income = 30% (2.4356).
- y= sum of present value factors at selected discount rate for life "L" amortization = 30% (2.456).

The application of the Intangible Asset Formula results in an after-tax value conclusion of \$1,140,000 (rounded). This is the value of the Noncompete Agreement between ABC and XYZ.

Trademarks/Tradenames

A trademark (including service mark) can be of considerable value to an enterprise, as it can potentially convey the desirability and source of origin of the commodity or service with which the mark appears. Once this occurs, the trademark can be said to have value. As defined in the Trademark Act of 1946, a trademark “includes any word, name, symbol, or device or any combination thereof adopted and used by a manufacturer or merchant to identify his goods and distinguish them from those manufactured by others.” Exclusive rights to trademarks are obtained by continued use and, when that use includes trade regulated by the federal government, the domestic trademark may be registered by the United States Patent and Trademark Office. Under certain foreign jurisdictions, mere registration without its use can constitute complete control and rights to the mark.

Trademarks are an indicia of origin of particular goods or services. In order to have value, they should also be associated with the goods or services. In many countries, including the United States, a transfer of the trademark cannot take place without the transfer of the goodwill of the business. In other words, the trademark standing by itself cannot represent anything unless it is attached to the goodwill of the business. To this extent, all assignments should be checked by an attorney to make sure that they comply with proper transfers.

In like manner as to patents, trademarks should also be searched as to any assignments or title that has shifted from one party to another. It is common now for many banks to insist on an assignment of trademarks as well as patents to the bank for collateral related to loans. Therefore, although an assignment might show the bank as the owner, the underlying asset would probably belong to the user of the mark.

Trademarks by themselves do not have any significant value because they are merely coined expressions. In effect, if a word is merely to be used as a trademark under an intent-to-use situation, it can only come into full force and effect once a statement of use or amendment to allege use in the Patent and Trademark Office has been filed. This being the case, trademarks have limited value until used, but extremely great value for a going concern. It has been often stated by certain well respected CEOs of major corporations that they could take the trademark and turn over the other assets to a purchaser and use the trademark in the future to build the business at a greater rate and more effectively than the owner of the other assets, (e.g., brick and mortar) of the purchaser. This is because of the fact that the world has come to recognize the goodwill and the product established by the particular trademark as to the nature of the goods and services.

Trademarks like many other industrial and intellectual property are also subject to quibbles and polemical differences between counsel for a trademark infringer and the owner of a trademark. To this extent, a trademark should be somewhat free of contentious litigation to be of value. For instance, the McDonald’s mark is most certainly of value and has been licensed consistently

over the years in the form of the name and logo (the golden arches) to the extent where it is one of the most well recognized marks in the world and has significant value in the same way that Coca Cola, in its fanciful script and wordmark, itself has value.

Domestic registration under the new law remains in force for 10 years and may be renewed for additional 10-year periods as long as the trademark or name is in use in commerce. Continued improper use of a trademark can result in its being found to be generic, and its protection can be lost. Technically, trademarks are used to identify goods, while “service marks” identify services. Otherwise the two are identical, and in common usage both are referred to as trademarks or marks. A “trade name” is the name of a business, association, or other organization used to identify it, but can also be a trademark as well.

Trademark or tradename value is built either by sales of very successful products or services and/or by extensive advertising/public relations campaigns which establishes goodwill. A valuable trademark or name possesses the following traits: recognizability, profitability, versatility, and an identification with positive attributes. In essence, the value of a trademark lies in its ability to attract future business based on the association between the trademark/name and the product’s past performance.

The valuation of a trademark/name can generally be accomplished via a cost approach or an income approach. Under the cost approach, an estimate is made of the costs involved in registering and maintaining the company’s trademarks. Essentially, maintenance in this case refers to advertising and marketing expenditures required to achieve the current level of trademark recognition.

Under the income approach, two types of approaches are widely used. The relief from royalty (e.g., license or franchise fees) approach is applied by attempting to measure the level of royalty payments that would be required to use a particular trademark if that trademark were not owned by the subject company. Conversely, when a company receives royalty payment for the use of its trademarks, a discounted cash flow approach can be employed.

As part of the proposed transaction discussed in the covenant not to compete example above, ABC (buyer) will retain the ownership and usage of a number of trademarks and trade names, but only for 5 years.

Trademark/Name Example

In the valuation of the trademarks and trade names of STU (company to be acquired), we employed a relief from royalty approach under the income approach to value. Due to the difficulty associated with estimating the true cost to replicate the acceptance level of the trademark in the marketplace, we do not believe that the cost approach would yield a meaningful indication of value. Therefore, in our valuation of the trademarks of STU, we have not utilized the cost approach in our analysis.

According to ABC, ABC's most recent royalty income can be seen in Table 7-19.

Table 7-19: Existing Royalty Agreements with ABC

Agreement with	Country	Royalty%
Distributor A	South East Asia covering Siam, and Vietnam	5%
Distributor B	Indonesia	5%
Distributor C	Singapore	5%
Distributor D	Australia	\$125,000/yr (flat-no %)
Distributor E	New Zealand	5%
Distributor F	India	5%
Distributor G	Korea	4%
Distributor H	Taiwan	5%
Distributor I	Japan	4%
Distributor J	Philippines	3%
Distributor K	Canada	5%
Distributor L	Mexico	1.4% technology 0.5% trademark
Distributor M	Venezuela	5%
Distributor N	Peru	3% technology 1% trademark

XYZ (parent of company to be acquired) also receives royalty income with respect to the licensing of the STU tradename and technology to eleven (11) licensees. Ten of these licensees can be seen in Table 7-20.

The proposed STU transaction allows for the transfer of the technology and distribution channels to ABC, while the tradename is being licensed for a short term or finite period. As a result, the royalty rate would be less than a typical licensing of both the technology and the tradename since they will not be used together.

The royalty rates seen in Table 7-19 and Table 7-20 indicate a range of between 3-5%, with 4% being a median rate.

Although the above percentage is a good starting point, the royalty rate should be adjusted for the shorter time horizon. Therefore, we have made a

downward adjustment to the comparable royalty rates for the shorter duration (5 years vs. 10 years for comparables). Overall, we have concluded at 3%.

Table 7-20: Existing Royalty Agreements with Licensees from STU

Agreement with	Country	Term	Royalty%
Distributor #1	Korea	10 yr	3.5%
Distributor #2	Saudi Arabia	10 yr	3.5%
Distributor #3	Philippines	10 yr	5%
Distributor #4	Mexico	10 yr	5%
Distributor #5	Japan	10 yr	5-3%
Distributor #6	Singapore	10 yr	(Sub-license)
Distributor #7	France	10 yr	5-3.5%
Distributor #8	Trinidad	120 day notice	3%
Distributor #9	Indonesia	10 yr	\$200,000 down; 3-5%
Distributor #10	Australia & New Zealand	10 yr	\$70,000 down; 5%

The estimate of the royalty as a percentage of the total income generated from the trademarks is the best way to determine the value of the trademarked product sales. The discounted royalty income used can be seen in Table 7-21.

Table 7-21: Trademark Value Calculation (\$000s)

	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
Revenues	\$45,900	\$47,277	\$49,168	\$51,135	\$53,180
Growth Rate		3%	4%	4%	4%
Royalty Payment	\$1,377	\$1,418	\$1,475	\$1,534	\$1,595
Royalty%	3.0%	3.0%	3.0%	3.0%	3.0%
Discount Rate @ 30%					
Present Value Factor	0.77	0.59	0.46	0.35	0.27
Present Value of Cash Flows	\$1,059	\$839	\$671	\$537	\$430
Total Value					<u>\$3,537</u>

Using a 30% discount rate, we discounted the projected royalty earnings from the trademarks to estimate value. The sum of the present value of these payments is \$3,537,000. ABC's tax rate is 40%. Having arrived at our present value, we next tax affected the pretax value at 40%, based upon our previous tax effect formula (see Equation 7-5 on page 159), with a time horizon of five years.

Therefore, based on our analysis, the estimated market value of the trademarks and tradenames of STU, as of the appraisal date, was \$2,635,775 or \$2,600,000 (rounded).

Copyrights

Copyrights are such where they cover the artistic works of authors as well as the various other artistic items including statues, paintings, lithographs, and have been expanded to encompass computer programs.

As in the case of other valuable industrial property, a title search should be performed for any valuable copyrights to assure that they are in the hands of the seller, assignor or licensor. This can be done through the United States Copyright Office.

Copyrighted material is such wherein it protects the author or proprietor against copying. Although, ideas per se cannot be copyrighted, the method or mode of expression can be copyrighted and this is the subject matter of copyrighting. As a consequence, while a copyright of say a book may possibly have value from the standpoint of potential screen rights, derivative rights, plays, and other expressions it cannot entitle the copyright owner to spread the copyright to mere conceptual ideas.

Copyrights, although used in industrial situations and commercial situations for such items as instructions, manuals, software, and computer programs generally do not have a broad range of value except for a particular industry. As a consequence, when buying a commercial establishment or an industrial organization, a copyright will probably not have as much impact as a patent and trademark unless the very substance of the industry relies on the nature of the copyright such as a publisher, movie studio, photographer, or other company for which the assets pertaining to a copyright are directly linked to the business.

Goodwill

Goodwill is the continued patronage of a business' customers. Goodwill can be defined as the benefits which accrue to a business as a result of its location, reputation for dependability, skill or quality, and any other circumstances resulting in probable retention of old or acquisition of new patronage. Goodwill is usually a sizable asset (assuming the business is a non commodity reliant business) and is best verified at a value through the sale of a business to a third party buyer. In essence, goodwill is the additional earnings, over and above the typical firm in the industry, which a buyer can earn (excess earnings).

Goodwill is also represented to be a service mark or trademark. Assignments of trademarks and service marks require a transfer of the goodwill of the

business to make them valid. Thus the indicia or origin that a mark represents is fundamentally an indication of the goodwill.

Three methods are generally used to value goodwill: (1) the excess earnings method; (2) the residual value method; and, (3) the actual purchase of a business.

First, the excess earnings method was first developed by the U.S. Treasury Department in 1920 in Appeals and Review Memorandum 34 (ARM 34). The current version is found in Revenue Ruling 68-609. There are generally eight steps for establishing the appropriate value for any excess earnings:

Excess Earnings

Table 7-22: Steps Needed for Calculation of Excess Earnings

Step	Procedure
1	Normalize earnings.
2	Determine the value of all assets on the balance sheet (see Chapter 4).
3	Ascribe a reasonable rate of return to each asset.
4	Multiply the reasonable rate of return of each asset to arrive at a dollar value.
5	Subtract the total gross return of the assets from the normalized earnings. This is your excess earnings.
6	Determine an appropriate capitalization rate to be applied to the excess earnings.
7	Capitalize these excess earnings.
8	Add the excess earnings to the total adjusted net asset value of the company.

The adjustments to calculate the value of the excess earnings can be seen in Table 7-23. As can be seen, the intangible assets contribute \$475,000 to the total value as goodwill.

Table 7-23: Calculation of Goodwill Using Excess Earnings

Step	Procedure	Assumptions	Calculations
1	Normalized earnings	\$350,000	\$350,000
2	Net Asset Value, after adjusting assets for market value of assets	1,000,000	
3	Times: Return on Assets	16.0%	(160,000)
4	Excess earnings		190,000
5	Divided by: Intangible capitalization rate	40.0%	40.0%
6	Goodwill Value		475,000
7	Plus: Market value of tangible assets (from balance sheet)		1,000,000
8	Total Operating Value		\$1,475,000

However, the use of the excess earnings method is problematic due to the difficulties of adjusting for owner's salaries, using realistic normalized earnings, potentially using the wrong market values and the wrong discount rate.

Residual Value Method

A second method, shown in Table 7-24, shows the residual value method which can be used to calculate the perpetual stream of annual earnings. The current sustainable earning power of a company is assumed to grow at a constant rate.

Table 7-24: Calculation of Goodwill Using Residual Value Method

Item	Assumption	Calculation
Normalized Earnings (sustainable)		\$350,000
Expected long term annual growth rate	4.0%	
Expected rate of return on equity	21.0%	
Value of Equity	25.0%	1,400,000
Less: Market Value of Tangible Assets (from balance sheet)		(1,000,000)
Goodwill		\$400,000

The value of the goodwill through the residual method is \$400,000, relative to the \$475,000 value calculated in the excess earnings method, shown in Table 7-23. Unfortunately this \$400,000 possibly includes other assets, such as an assembled work force, know how, and so on.

Sales Price of Business

Finally, the best method of establishing the goodwill is the difference between the assets in a transaction, and the purchase price. Therefore, if the purchase price of the business is \$1,310,000, and the tangible assets and non-goodwill intangible assets have a value of \$1,110,000, then the goodwill is booked at \$200,000.

Real Estate with Intangible Components (Goodwill)

Valuing or purchasing a business with a large real estate component is a major challenge. An example of the types of businesses which are valued with a large percentage of overall value being attributable to real estate components are summarized in Table 7-25.

Table 7-25: Businesses With Large Real Estate Components

Truck wash	Cemetery/funeral home
Truck stop/truck terminal	Amusement park
Nursing home	Miniature golf
Landfill/trash transfer station	Golf courses
Winery	Golf driving ranges
Marina	Service station/mini mart
Car wash	Dairy
Parking lot	Automotive/truck dealerships
Theatre	Boat dealerships
Gym/health spa	Nurseries
Skating rink	Bowling alley/arcade center
Hotels/motels	Hospitals/hospice facilities

One problem with valuing goodwill is that real estate appraisers typically value the real estate (sticks and bricks) and generally forget about the intangible asset component, and machinery and equipment. Furthermore, real estate appraisers forget that every business has a ceiling on what it can pay in rent. Business operating margins dictate the maximum amount that any business can pay for overhead.

Table 7-26: Average Rent as a Percentage of Gross Sales

Business	Western States	Eastern States	Central States
Manufacturing	5.5	4.8	4.9
Retail	8.9	6.5	6.0
Wholesale/Distribution	5.0	4.1	3.3
Service/Office	10.0	8.5	7.2
Food Service	10.1	9.0	9.9
Auto Repair	8.2	12.7	6.9
Bakeries	13.2	10.1	8.1
Convenience Store	5.4	5.7	4.2
Day Care Center	11.2	12.9	10.8
Gas Station	7.3	2.8	4.5
Gas Station/MiniMart	5.2	4.1	6.3
Lube/Tune-up	12.5	N/A	8.0
Restaurant with Cocktails	11.3	6.7	8.2
Restaurant (family)	7.2	7.7	8.8

Source: BizComps

BizComps¹ gives a good example of the average amount of rent that a typical business can pay. A sample of these amounts can be seen in Table 7-26.

For example, if a manufacturing plant is located in Los Angeles and has gross sales of \$7,300,000, occupies 100,000 sq. ft., then the maximum amount that this business can pay is \$0.3346/sq.ft./month [$(\$7,300,000 \times 0.055) / 100,000 \text{ sq.ft.} / 12 \text{ months}$]. If a business is being purchased and the rent is \$0.50/sq.ft., then an adjustment to the cash flow needs to be made. If the business were a restaurant business with \$1,200,000 in gross sales per year and occupying 5,300 sq.ft., then based upon Table 7-26, the most that could be paid for rent (including taxes, insurance, common area maintenance, or any other reimbursement) would be 10.1% of gross sales, or \$1.90/sq.ft./month [$(\$1,200,000 \times 0.101) / 5,300 \text{ sq.ft.} / 12 \text{ months}$].

Another problem with valuing goodwill in real estate is that business valuation people typically value the business without considering the condition of the facility, the obsolescence, as well as the quality and condition of the equipment which is generating the cash flow.

Real estate and businesses are valued differently. These differences can be summarized in Table 7-27.

For location *independent* businesses, such as wholesalers or manufacturers, the separation of business value from real estate is straight forward. For location *dependent* businesses, the disaggregation of business value from real estate is not so easy. Location independent businesses may be easily transferred from one area to another. While relocation may be costly, it can still be accomplished. Location dependent businesses cannot usually relocate due to regulatory, legal, or other types of constraints. These types of businesses usually have site specific licenses, permits and certificates. In essence, these businesses may have a monopoly as compared to other businesses as a result of the high barriers to entry.

There are a number of different methods of breaking out the differences between the real and intangible assets, but three methods or combinations of these are most practical. These methods are summarized in Table 7-28.

1. BizComps can be reached by calling (858) 457 0366 in San Diego.

Table 7-27: Differences Between Business and Real Estate Valuation

Methodology/Variables	Real Estate	Businesses
Cost Approach to Value	Cost less depreciation.	Adjusted balance sheet, reflecting market values.
Market Approach to Value	More transactions, but usually difficult to separate market value of individual property from portfolio purchase, or separate the real estate from the business purchased. Multiple of \$/Sq.Ft., Net operating income (NOI) per Unit, etc. (e.g., 4.0 x gross income, or 10 x NOI).	Fewer transactions than with real estate. Multiple of EBITDA, pretax income, owner's discretionary cash flow, etc. (e.g., 4 x EBITDA, 2.5 x pretax income).
Income Approach to Value	Capitalize or discount net operating income (NOI). Capitalization rate usually ranges between 7-13%.	Capitalize or discount free cash flow. Capitalization rate is significantly higher than for real estate.
Management	Usually 1-4% of effective gross income; non complex.	Usually between 5-50% of gross income; can be highly complex.
Marketability	3-9 months	4-18 months
Ownership Interests	Fee simple, leased fee, leasehold, fractional interests.	Control, minority interests.
Replacement of capital asset or replacement of obsolescence	Reserves, ranging from 1-2% of effective income, 2% of NOI, etc.	Capital expenditures depending upon equipment and wish list of company.

Table 7-28: Various Methods of Extracting Intangible Value from Real Estate Intensive Businesses

Cost Approach	Business Value Less: Depreciated Cost of Real Estate Less: Depreciated Cost of Equipment = Intangible Value
Market Approach	Business Value Less: Market Value of Real Estate Less: Orderly Liquidation Value of Machinery & Equipment = Intangible Value
Income Approach	Business Value Less: Capitalized market rental rate for real property Less: Capitalized market lease rate for machinery & equipment = Intangible Value

The calculations described in Table 7-28 can be seen in an example shown in Table 7-29. As can be seen, the first method is to establish the business value of \$18,500,000. The second method is to establish the market value of the land, building improvements, and machinery & equipment, as well as the replacement cost. In this case the land value is \$6,000,000. The building replacement cost (today) is \$18,000,000, while the replacement cost of the machinery is \$12,000,000. The market value of the building and machinery is \$3,600,000 and \$4,500,000, respectively. The rental rate for the building is \$780,000, while the lease rate for the equipment is \$523,200 per year. Capitalizing these values yields overall values from the income approach of \$8,666,667 and \$4,838,182 for the building and equipment, respectively. Therefore, the total value of both the equipment and building/land, via the income approach is \$13,504,849.

The cost approach indicates a total value of \$36,000,000 (new). The physical depreciation is \$12,000,000. Therefore, the depreciated value is \$24,000,000, before accounting for differences in obsolescence. The difference in the return on investment (ROI) of the industry versus the company is a negative 25% [(4%)/16%]. Multiplying the \$24,000,000 by (25%) yields \$(6,000,000). In addition, there is functional obsolescence calculated to be \$(3,000,000).

Table 7-29: Intangible Values for Businesses with Significant Real Estate

Item		Cost	Market	Income
Current land value		\$6,000,000	\$6,000,000	
Building Replacement cost (new)		18,000,000	3,600,000	
Machinery value (new)		12,000,000	4,500,000	
Annual lease rate for building				\$780,000
Annual lease rate for equipment				\$523,200
Capitalization rate				9% 11%
Value				8,666,667 4,838,182
Total replacement cost		\$36,000,000		
Market value			\$14,100,000	\$13,504,849
Physical depreciation of building	30%	(5,400,000)		
Physical depreciation of machinery	55%	(6,600,000)		
Total physical depreciation		(12,000,000)		
Depreciated replacement cost (new)		24,000,000		
Industry ROI	16%			
Company ROI	12%			
Difference	(4%)			
Industry ROI	16%			
% Difference in Obsolescence	(25)%	(6,000,000)		
Functional Obsolescence		(3,000,000)		
Depreciated replacement cost of real estate and equipment		15,000,000		
Business value		\$18,500,000	\$18,500,000	\$18,500,000
Less: Total Asset Value		(15,000,000)	(14,100,000)	(13,504,849)
Difference: Intangible Value		\$3,500,000	\$4,400,000	\$4,995,151

Therefore, the depreciated replacement cost of the fixed assets of real estate and equipment is \$15,000,000. This compares with the market value of \$14,100,000 for the market approach, and \$13,504,849 for the income approach. Subtracting these values from the business value indicates an intangible value of \$3,500,000, \$4,400,000, and \$4,995,151 for the cost, market, and income approach, respectively.

