

**Valuation of Intellectual
Property Assets:**

**The Foundation for Risk
Management and Financing**

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Valuation of Intellectual Property Assets
The Foundation for Risk Management and Financing¹

Zareer Pavri, Vice President, PricewaterhouseCoopers

My purpose is to outline a methodology for establishing the fair market value (defined later) of intellectual property that may be associated with a going-concern business enterprise. I emphasize "outline", since a detailed presentation of this topic could be the subject of yet another textbook. It is, however, still possible to achieve my objective in this format by identifying the elements of intellectual property and providing the basic concepts for valuing them.

Within this context, I intend to:

- identify the nature of some of the more common or well-known forms of intellectual property;
- discuss the normal relationship of these forms of intellectual property to the monetary and tangible assets of a business enterprise from an investor's perspective; and then
- discuss the methodology for valuing them.

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Nature of intellectual property

Intellectual property acquires its essential characteristics, from which value emanates, from the legal system. By this, I mean that the law gives rights to people who create things that embody new ideas or ways of expressing ideas, and to those who use certain marks to distinguish their product or service. It is this unique characteristic of intellectual property (i.e. legal protection) that causes it to be a subset of intangible assets of a business enterprise. The property may have resulted from arduous and costly research or simply by fortuitous discovery. Nevertheless, intellectual property may contribute significantly to the **earning** power of an enterprise of which they are a part. Intellectual property often requires huge capital outlay to create. Once established, however, many elements of intellectual property of a business are unique, commanding and a driving force, yet fragile.

The following listing provides examples of those intangible assets that are created by the business and those that exist under the protection of law:

Created by business	Exist under legal protection*
<ul style="list-style-type: none">• an assembled trained workforce• advertising programs• distributor networks• training materials• customer loyalty• supplier contacts• management depth and experience• subscriber base• goodwill	<ul style="list-style-type: none">• patents (20 years)• trademarks (15 years + renewals)• copyrights (50 years)• industrial designs (5 years + 1 renewal)• trade-secrets and know-how; collectively "proprietary technology" (contract period)

* Years in parenthesis indicate legal protection period.

The list is not meant to be all inclusive and certain industries may have other valuable intangible assets. To the extent that computer software can be subject to patent or copyright protection (the latter being more easily obtainable), it can also be included as intellectual property.

A brief discussion of the components of intellectual property is provided below:

Patents -

Patents protect function: the way the parts of a machine or product functionally interact or the functional steps of a method. A patent gives to the inventor of a new and useful product or method, the exclusive right to make and sell product, or to use that process in Canada for a period of 20 years (old Act, 17 years). The 20-year period begins from the date the patent application is filed. The monopoly is not enforceable until the patent is granted, usually a couple of years later.

Trademarks -

A trademark is a word(s), logo, design, number(s) that is used to distinguish a person's product or service from those of others. It can be the brand name of the product or service, but it cannot be a generic name of the product or service itself. A trademark registration in Canada is granted by the federal government only after an application for registration has been filed. A trademark registration gives the owner the right to use the trademark in association with the wares and services specified in the registration. Trademarks protect only the device or symbol attached to the goods or services, not the goods or services themselves; the latter are open to the world. The trademark's owner is entitled only to prevent it from being used to make purchasers believe they are buying his or her goods when, in fact, they are buying those of a rival. The

registration provides such protection for a period of 15 years, with repeated renewals on payment of a fee so long as the use of the trademark continues.

Prior to 1993, all a trademark owner had to do to preserve his/her mark was to register the licensees in the Trademarks Office. In 1993, the Trademarks Act was amended to require all licensees to be licensed by or with the authority of the owner; and under the license, the owner must have direct or indirect control over the "character or quality" of a licensee's wares or services.

A "trade name" (or trading style) is quite different from a trademark. A trade name is the name under which any business is carried on, be it a corporation, partnership or individual. A trade name is attached to a business. It cannot exist "in vacuo"; that is, independent of the business enterprise which bears the trade name. A trademark differs from a trade name in that the former is used in association with vendible commodities or services, while the latter is more properly linked to an enterprise's residual value, also referred to as goodwill.

A company's success in establishing a recognized trademark depends to a large degree, of course, on its reputation for quality products or services. In most cases, however, trademarks are developed and maintained primarily through extensive and costly advertising.

Copyrights -

Copyright protects the form of expression of an idea, but not the idea itself. Copyright protects works of art or sculpture as well as literary and musical works. Copyright arises automatically when an "original work" is created; no registration is necessary. The copyright owner has the exclusive right during the author's or composer's lifetime, and in most cases for 50 years after his or her death, to grant permission to copy or perform the work. Copyright and Industrial Designs (see below) are mutually exclusive, that is to say, a design capable of being registered as an Industrial Design cannot be protected by copyright.

In 1988, the Copyright Act was amended to include computer programs within the definition of literary works. In addition, data bases are generally protected by copyright as compilations and through common law as proprietary information.

Industrial Designs -

An Industrial Design protects the form of industrial products such as their ornamental aspects and shape, not their functional aspects. An Industrial Design lasts for 5 years and is renewable for another 5-year term.

Trade Secrets and "know-how" -

Trade secrets and confidential information are data that are collected or created by an entity for its own use. They may for some reason be disclosed to another who is not obliged to disclose it to any one else. The obligation is evidenced by a contract between the two parties. The parties agree to do something (exchange information, yet retain its confidentiality to the outside world) or not do something (not to use information unless specifically authorized to do so).

Interrelationship of intellectual property to assets of a business enterprise

A business enterprise has three basic components: working capital as represented by current assets less current liabilities, plant assets, and intangible assets. These components are funded by a combination of debt and equity. Shown below is a balance sheet as it would appear to an investor or someone concerned with the value of a business.

WORKING CAPITAL
PROPERTY, PLANT & EQUIPMENT
OTHER ASSETS (if any)
IDENTIFIABLE <u>INTANGIBLE</u> ASSETS

UNIDENTIFIABLE INTANGIBLE ASSETS

In a valuation context, the term "working capital" means the average or typical working capital requirement of the business and is not necessarily represented by the actual excess of current assets over current liabilities at any specific date. 'Property, plant and equipment' would represent the current market value of those assets as well as of "other assets", if any.

Intangible assets represent all the elements of a business enterprise that exist after monetary (working capital) and tangible (plant, etc.) assets are identified. They are the elements, after working capital and fixed assets that make the enterprise 'tick' and contribute to the enterprise's earning power. Their existence, and particularly their value, is dependent on the presence, or expectation, of earnings. They appear last in the development of a business and disappear first on its demise.

Identifiable intangible assets - typically patents, trademarks or brand names, copyrights, etc. - are elements generally classified as intellectual property. Any residual value that may be left after accounting for the identifiable tangible and identifiable intangible assets is attributed to unidentifiable intangibles of which goodwill is the most common. It would not be unusual to find that a company may be successful and continuing but not possess goodwill as a separate intangible asset. Continued patronage (a common definition of goodwill) can sometimes be completely attributed to identifiable intangible assets such as trademark recognizability or patented product attributes. Allocation of the

remaining amount of the enterprise value is then not complicated by allocating an amount to goodwill. In situations where goodwill may still be considered to exist, it may indeed be very difficult if not impossible to precisely segregate intellectual property value from goodwill.

What do Banks and Insurance companies look for in an IP valuation?

From the Canadian banks' and insurance companies' perspectives, this whole area of IP valuation is relatively new and continually evolving. Consequently, there is no general agreement within their respective circles as to an accepted valuation methodology. Having said that, the following observations highlight how Canadian banks (from a lending perspective) and insurance companies (from a first party liability perspective) view intellectual property assets and their value:

Banks -

- Faced with the rise of the knowledge-based economy, Canadian banks have re-calibrated their lending criteria and their relationships with knowledge-based firms.
- Today, all the major Canadian banks have setup and operate specialized groups with innovative knowledge-based industry strategies. Information networks and alliances with non-banking professionals are helping these specialized groups to become more effective at the early stage of development of emerging companies.

- Banks typically do not lend money to finance development stage companies or emerging technology. They get involved when there is market acceptance of the technology-based product that eventually translates into inventory and accounts receivable which assets then form the basis of granting traditional operating lines of credit.
- With respect to established consumer brands, the banks have begun to move away from a purely balance-sheet analysis into looking at the cash flow generating capability of the business. [Here, cash flow is generally defined as operating income after adding back non-cash items such as depreciation and amortization, less sustaining capital expenditures and working capital changes, if business growth is rapid. Some even factor in sustaining 'R&D' if it is segregable from developmental 'R&D'].
- Increasingly, established brands are viewed as being important factors in assessing overall credit. Strong brands reduce cash flow volatility; lower volatility commands higher multiples (all other factors remaining unchanged), which in turn results in higher lending values.
- Canadian banks recognize established brands as valuable assets, but they are not comfortable at quantifying brand values, per se; nor do they need to, according to at least one banker. The overall lending objective is whether there is adequate, stable cash flow from the business (owning the brand) to service and repay the loan within the stipulated time period. Perceptions

of brand values are therefore reduced to a "floor" value that will provide the lender enough cushion to justify the corporate lending risk.

- Valuable brands are seen by banks as adding to the quality of the lending opportunity. Banks try to "control" valuable brands during the tenure of the loan by various methods such as incorporating negative pledges (whereby the borrower pledges not to sell, hypothecate, or otherwise diminish the value of the brand) in loan agreements and the inclusion of established brands in GSA's (general security agreements).
- Gradually, and where circumstances justify, Canadian banks have begun to include identifiable intangible assets (trademarks, patents, brands) recorded on a company's balance sheet as part of "net tangible worth" when stipulating debt: equity covenants in loan agreements.
- In contrast, lending in the U.S. and U.K. using brands as collateral is not uncommon (e.g. the RJR Nabsico LBO, Sara Lee financial engineering and Border Cos.' special purpose vehicle-related financing). Moreover, in the case of companies like UK-based Ranks Hovis McDougall, brand valuation is built into borrowing covenants such that it is considered an asset for borrowing purposes.

There are at least three reasons, I believe, for the differences in the level of lending activity in this rather specialized field and these are:

- (i) given the thinness of the Canadian market and paucity of world-class brand names, there does not appear to be the appetite amongst Canadian banks to undertake such financing;
- (ii) the overall conservatism of Canadian banks coupled with a reluctance (at least at the present time) to accept generally used IP valuation methodologies as standard; and
- (iii) issues regarding title to brands or rights to brand usage, given the preponderance of foreign subsidiaries in Canada.

In what was envisioned two years ago as a new market for so-called asset-backed bonds - bonds backed by music royalties, or royalty bonds - the banking community watched gleefully as investors scrambled to subscribe to a US \$55 million bond issue backed by the future earnings of David Bowie's (one of the world's top pop artists) recordings made prior to 1990. At the time, Prudential Insurance Company snapped up all the bonds providing it with a 7.9% return on its investment over ten years, and allowing David Bowie to collect the US \$55 million up front.

Yet two years later, the development of the market for securitizing music royalties has been significantly lower than expected. One explanation is the impact of the changing economic climate on the financial markets and general investment trends. Investors have

become warier of experimenting with new types of investments and have also shown a marked preference for liquid assets. Royalty bonds are illiquid because there is no secondary trading on them.

Another explanation for the less than stellar development of music royalty bonds is that only a handful of recording artists actually own their own master tapes (the rights to the original recordings) as David Bowie does. Most others, like Rod Stewart, ceded control of their mastertapes to their record companies in their recording contracts and receive royalties simply on the income generated by them.

Insurance Companies -

- Protecting a product's brand name is a major concern for food, beverage, pharmaceutical, cosmetic and tobacco companies. Ingestible or topical products are susceptible to contamination both accidentally and maliciously. Infections from improperly heated or sealed canned goods or cooked foods, mislabeled drugs, error in mixing cosmetic ingredients as well as intentional contaminations can all have a devastating impact on the consumer confidence in the affected product. The tampering of Sudafed and the Tylenol poisonings caused major financial loss to the companies involved in these incidents. Even "bogus" tamperings such as the Diet Pepsi/Syringe "scare" in 1993 can affect consumer confidence in a product's safety. As a matter of interest, Pepsi reportedly went to great lengths and expense to prove that a syringe could not possibly be inserted into a Diet Pepsi can by going live and demonstrating that it could not be done.

- Another disturbing trend is afoot: the use of the World Wide Web by social activists, pranksters and the just plain disgruntled to alter and damage a company's trademarked image with negative publicity. Whatever form the negative publicity takes, it is almost instantly available to the growing millions of people, more of whom are consumer-oriented, who log on to the Internet.

- Recognizing the catastrophic impact that incidents of this type can have on a business, there is now a handful of insurance companies (as far as I have been able to determine) which offer a level of financial protection against product contamination. Among these, AIG, an off-shore insurance group, has been a pioneer in offering coverage against accidental product contamination, and since 1983/84, has offered an insurance product to cover malicious product contamination. Contaminated Product Insurance or CPI is a first party liability coverage aimed at two perils:
 - malicious product tampering which involves deliberate tampering of a product making it unfit for consumption resulting in damage to the brand name, if any, loss of profits, drop in stock price etc.

 - accidental contamination which generally occurs in the manufacturing process with the product going to market, not performing well or selling at all, thereby again resulting in damage to the brand name, loss of profits, etc.

- Product tampering appears to be a phenomenon of the developed countries. Potential for the CPI product exists primarily in the U.S., U.K., France, Germany and Australia. If at all there is a market in Canada, it is relatively insignificant at the present time.
- On a worldwide basis, the CPI market is considered quite small - estimated annual premiums of US\$100 million plus.
- There is no scientific valuation methodology used by insurers in setting brand values for CPI coverage purposes.

Several factors are, however, considered among which are:

- brand product(s) description and profile (the higher the profile, the greater the risk)
- sales volume and revenue (historical and projected) and its geographical dispersion
- reliance on one brand or several (dependence on several brands diffuses risk of loss)
- manufacturing and packaging processes (easy to tamper?)
- the effect that ingredients used or end product could have on special interest groups
- disgruntled employees, if any
- geographical dispersement of operations and market (U.S. considered more litigious than most other countries)

- internal security

According to AIG, brand value coverage is formulated, initially, from a base value for brands in a similar industry premised upon the insurer's cumulative experience. Subjective adjustments to such base value are then made upon a review of the aforementioned specific factors.

- CPI risk is controlled by the insurer placing an insurable limit. In the case of malicious product contamination, AIG places a US\$70 million limit for each brand name product, with a deductible of 1% of the policy limit and annual premiums that are quite "reasonable", according to a senior official. Because of the broad coverage (of products and events that may cause contamination) relating to accidental product contamination, insurable limits are much lower (around US\$10 million), co-insurance (generally 25%) is a pre-requisite and premiums are accordingly relatively high in relation to the insurable limit.
- Limiting the liability is, however, of little use to owners of high value brands (those valued in the hundreds of millions or even billions); the only alternative being self-insurance in such cases.

Valuation methodology

Given that value is generally defined as the present value of future benefits to be derived by the owner of property, a valuation needs to quantify the future benefits and then calculate present value.

In this paper references to value are to fair market value which is generally defined as the highest price expressed in terms of money or money's worth that would prevail in an open and unrestricted market between a willing and informed buyer and a willing and informed seller, each acting at arm's length and under no compulsion to transact.

Some basic valuation approaches should be understood before any attempt is made to address the rather specialized field of intellectual property valuation. Because these assets can be and are often transferred independently of the business enterprise that owns them, I will introduce one or more of the more commonly used techniques of valuing intellectual property per se, as distinct from the valuation of the business enterprise as a whole.

Having said that, the three accepted valuation approaches used to value a business enterprise are also those used to value intellectual property, with varying degrees of applicability. The three approaches are: cost, income and market.

The cost approach seeks to measure the future benefits of ownership by quantifying the amount of money that would be required to replace the future service capability of the subject intellectual property. This is known as the cost of replacement. The

underlying assumption is that the cost of new property is commensurate with the economic value of the usage that the property can provide during its life. Absent market aberrations, the cost of a brand new property is its fair market value. Since one is seldom called upon to value a brand new property, the application of the cost approach always brings with it the complexity of quantifying the reduction from (brand new) value due to depreciation. In value terms, depreciation can result from physical use, functional obsolescence and economic obsolescence and a proper reflection of all these three forms of depreciation are required in order to arrive at value using the cost approach. The cost approach does not directly consider the amount of economic benefits that can be achieved nor the time period over which they might continue. Economic benefits are simply assumed to exist in sufficient quantity and duration to justify developmental expenditures. Critics of this approach also point out that the cost for a successful venture must reflect the cost of failures.

This is particularly true in the pharmaceutical industry where research and development costs for failures may run more than five times the cost of research and development successes. As such the cost approach has limited application in valuing those forms of intellectual property that are capable of being transferred independently of the business of which they are a part.

The income approach, in contrast with the cost approach, focuses on the consideration of the income-producing capability of the intellectual property. The underlying assumption here is that value is measured by the present value of the net economic benefit

(cash receipts less cash outlays) over the life of the asset. Where conditions are not conducive to deriving economic benefit (or profit), it is difficult to ascribe any value (taken to mean fair market value defined above) to intellectual property regardless of the indications of the cost approach. The income approach is best suited for the valuation of intellectual property such as patents, trademarks and copyrights.

The market approach is generally the most direct and most easily understood valuation approach. It reflects the value obtained as a result of a consensus of what others in the market place have judged it to be. For this to occur, there must be an active public market and an exchange of comparable properties. Where the optimal market does not exist, application of this method becomes more judgmental to the point that it becomes a less reliable measure of value. This method is seldom used in the valuation of intellectual property primarily because there is rarely an active market in which public information (as to price and inherent comparability characteristics) is readily available.

The following table summarizes the various suggested methodologies by type of intellectual property. The methodologies are denoted (1) for primary method and (2) for secondary method or 'sanity' check to be used when relevant information is available.

Intellectual Property	Methodology
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	Type	Priority
Patents		
- active	income	(1)
	cost	(2)
- inactive (but potential for future use)	cost	
Trademarks	income	(1)
	cost	(2)
Copyrights	income	
Secret processes, 'Know-how', engineering specs, etc.	cost	
Computer software		
- patent or copyright	income	
- proprietary/dedicated for 'in-house' use	cost	

As a general observation, the cost approach is used as a primary method (i)when it is not feasible to project earnings for the intellectual property, (ii) it is not the type of asset that can readily be transferred to a third party separate from the organization within which it resides, or (iii) where the intellectual property (e.g. computer software) is developed for "in-house" or proprietary use and not for resale. While a detailed discussion of the various cost estimation methods to value intellectual property such as computer software could be a separate topic for a paper in itself, suffice it to say that several cost estimation methods exist: expert judgement, estimation by analogy, Parkinson estimation, etc. However, of the alternative software cost estimation methods, the various algorithmic models, of which

the constructive cost model ("COCOMO") is one, are considered to be the more reliable and supportable models.

I will now expand a bit on the more commonly used **income approach**. Within the income approach, there are various methods I shall be discussing or referring to such as:

- residual method
- excess income
- **relief from royalty method**
- capitalization of profit margin differential

References to "introductory and maintenance brand spending differential" and "carry over benefits of past advertising costs" methods, both of which are cost-based rather than income approaches, are mentioned here to provide a more complete picture of available methods.

It should be noted at the outset that this discussion concerns forms of intellectual property (i.e. patents, trademarks, etc.) that are part of a business enterprise. They are therefore capable of producing income for that enterprise and their worth is predicated on that capability. Therefore, whatever the intellectual property may be, we must look toward some product or service with which it is associated. It is that product or service, converted into money in the marketplace, that is the source of economic benefits by which value can be measured. It is therefore necessary to link the intellectual property being valued with a product or service either existing, or contemplated.

Without this linkage, the asset can have no value and no economic life (see comments below). In order to properly assess the economic life remaining at the point in time when a valuation is being done, the valuator has to determine where in the life cycle is the product with which the intellectual property is associated.

The three essential ingredients of the income approach are:

- (a) The amount of the income stream that can be generated by the product or service with which the intellectual property is associated.
- (b) An estimation as to the duration of the income stream, i.e. the economic life of the product or service with which the intellectual property is associated.
- (c) An assumption as to the risk associated with the realization of the forecasted income. Risk reflects all the business, economic and regulatory conditions associated with employing the property and achieving the prospective earnings.

Attention to forecasting is important in the valuation of intellectual property because value is solely predicated on the anticipation of future economic benefits. When forecasting revenues and expenses, several factors come into play such as economic and macroeconomic variables, political risks, raw materials availability, labour availability, capacity, population

trends and demographics etc. There are many methods of forecasting: time series forecasting, exponential forecasting, the use of historical and current data to project into the future. Judgmental methods (relying heavily upon the informed opinion of leading experts) are used to forecast prospects for new products for which historical data do not exist. A full discussion of the forecasting methods is beyond the scope of this paper. Suffice it to say that forecasting is a key element in intellectual property valuation.

Value and economic life have a very close relationship. Economic life could be described as the period during which it is profitable to use an asset. Economic life ends when (1) it is no longer profitable to use an asset, or (2) when it is more profitable to use another asset. This is quite different from the "service life" of a tangible asset which is the period from its installation to the date of its retirement or from "legal life" in the case of intellectual property which ends on the expiry of legal protection, **irrespective** of the earnings capability during the period of the product or service with which the intellectual property is associated.

In general, the process of estimating economic life of an intellectual property is one of identifying all of the factors that bear on economic life in a given situation and then making a judgement as to which of them indicates the shortest life. Other than in exceptional circumstances economic life of an intellectual property cannot extend beyond its legal life.

Outlined below are some of the factors one would consider in estimating economic life of the following intellectual property:
Patents -

- loss of supply or price escalation in raw material that could render process uneconomic
- increase in energy costs that would render process uneconomic
- legislation relative to environmental concerns affecting the process or product
- the probability of a competitor designing around the protected process
- development of a superior process that would replace the existing one
- challenges of patent validity brought about by competitors

Most difficult is the estimation of economic life of embryonic technology or unproven product. In such cases, an "educated guess" is often the only solution, recognizing that the margin for error may be significant.

Trademarks -

One school of thought supports the notion that trademark rights have unlimited economic lives, since they exist as long as they are used and maintained. Another school of thought offers for consideration the idea that because trademarks are and, in fact, can be maintained in "100 percent condition" or even improved with continual advertising etc., a trademark is, at any specific moment, the product of investments of the past. If future investments to maintain it (in both labour and monetary terms) were to cease, it is clear that a mark would die. While this may be an extreme assumption, it is submitted that future investments can replace those made in the past, and therefore the value of a trademark at a specific point in time will diminish, its place then being taken up by the new investment.

For practical purposes, corporate trademark valuations cover a period of 20 years for present value discounting purposes. Product trademarks or product brand names typically have shorter economic lives with factors similar to those for patents determining their economic lives.

Copyrights -

Copyrights enjoy a long legal life; in economic terms, however, their lives are much shorter and most often their benefits are not evenly accrued over that shorter life. There is such a variety of copyrighted work that it would be impossible to make statements across the board as to what their economic life might typically be. Economic life in this case would depend on the type of work and the manner in which it can be exploited. Some of the factors that merit attention in estimating the economic life of copyrights include:

- (a) the breadth of exploitation. Cartoon characters are a good example. It is common for such characters appearing in books to be exploited in a variety of media as well as ancillary products such as T-shirts;
- (b) versatility. The more versatile the copyright the greater the opportunities for exploitation;
- (c) timelessness. For example, a motion picture on the Middle East War would have had its run by now, while Disney motion pictures made decades ago, are playing to a new generation of children. It should be noted that Disney preserves the "timelessness" of its movies by intentionally withdrawing certain movies and all direct and indirect rights to those movies

(e.g. "The Little Mermaid") for 12 to 15 years, awaiting a new generation of audience.

Trade secrets and "know how" -

Most of the considerations used to estimate economic lives of patents apply here as well, with the exception that there is no statutory limit to trade secrets protection. Some additional unique considerations include:

- (a) transferability of the trade secrets. By this is meant the extent to which such information is reduced to writing or other transferable form. Certain skills ("know-how") such as those of a writer, musician or surgeon can be extremely valuable know-how, but largely non-transferable and therefore of no commercial value;
- (b) care with which the confidentiality of information is preserved or protected;
- (c) versatility of the know-how can enhance its economic life; in other words, can it be re-deployed if there is a change in the market? If it can, then economic life will be enhanced.

Valuation text books refer to two commonly used income methods to value intangibles: (1) the residual technique and (2) the excess

income method. Their application in valuing a particular identifiable intangible asset per se, such as a patent or a brand is questionable, in my view.

For instance, the residual method, if at all it results in a reasonably precise value of a patent, does so in an indirect way. The value so arrived at is dependent first on the value of the enterprise as a whole, secondly, on the allocation of value to the tangible assets thus leaving a block of value allocable to intangible assets and finally, on the allocation of this block to the various forms of intangible assets that may exist in an enterprise. It is the third step which is most subjective and one that can often test the realm of reasoned judgement. Any value left over is then attributed to the subject intellectual property. Any error in a previous allocation will directly impact the value of the subject property. To be fair, however, this method in certain circumstances (refer to case study later in this paper), does provide an indication of a market-driven royalty rate for a bundle of intellectual property.

The excess income method employs a technique known as the dual capitalization method where one rate of return is applied to tangible assets and another (normally higher) rate to intangible assets in order to reflect the inherently higher risk of such assets. This method does not in and of itself enable a valuator to segregate value between identifiable and unidentifiable intangibles.

Segregation of value as between identifiable and unidentifiable intangible assets is required because intellectual property (an

identifiable intangible) particularly if valuable is seldom sold to but is often licensed for use by third parties in return for a royalty fee. As I have explained later, value and the royalty fee that such an asset can command are closely inter-linked. Moreover, in the purchase of assets (as opposed to shares) of a company, where the buyer is required to allocate the purchase price to tangible, identifiable intangible and unidentifiable intangible assets, it is not only desirable but also a requirement to determine the fair market value of those intellectual properties such as patents, licenses, franchises, copyrights, etc. that fall into a specified CCA class for tax purposes.

Given the limitations of the two aforementioned income-based methods, one of the more generally accepted methods, and one that I have used, to value a patent (and for that matter a trademark or product brand name) per se is the "relief from royalty" method. The concept here is that, by owning a patent, a company is relieved of the necessity of having to pay royalties for exclusive/non-exclusive patent rights. It follows, therefore, that anyone wanting to obtain the right to the patent or trademark would have to enter into a business arrangement with the original owner. Such arrangements akin to licensing agreements, usually entail a royalty payment, typically expressed as a percentage of net product sales.

A central issue in adopting the "relief from royalty" method is the determination of an appropriate royalty rate. The simple solution would be to locate an exact comparable licensing transaction between unrelated parties. Unfortunately, like fingerprints, no two license agreements are exactly the same. In the absence of an

exact comparable, justification for an appropriate royalty rate often defaults to similar transactions or "inexact" comparables (also referred to as comparable adjustable transactions) or to the broader standard of "prevailing rates" in the industry.

Royalty rates, however, cannot be evaluated in a vacuum. Arm's length licensors and licensees negotiate royalties within a dynamic matrix of strategic, economic and legal considerations. Each term and condition in a license agreement may shift risk from one party to the other and, therefore, should be considered in determining the appropriate royalty rate or range thereof.

It follows that one of the first steps in adopting this method is to carry out a functional analysis. This includes identification of the relevant intellectual property which is the subject of royalty rate finding, determination of economic "value added", comparing the economically significant activities undertaken or to be undertaken by the licensor and licensee and determination of the nature of the intangible (i.e. "routine" or "non routine") from the licensee's perspective. As the term suggests, a "non-routine" intangible property, such as a patent for a unique chemical compound, is central to the conduct of a business and without which the business activity could not be conducted. Its uniqueness is of significant value to a licensee and hence would command a much higher royalty than a routine or substitutable intangible. The functional analysis would also address many functions performed by a licensor and a licensee - a "who does what" list in terms of R & D; product design and engineering; manufacturing and process engineering; product fabrication; marketing, advertising and

distribution; transporting and warehousing etc. In short, a functional analysis is designed to establish the facts on which the subsequent determination of an appropriate royalty rate is based.

There are several factors that affect royalty rates and these factors may have varying degrees of importance depending on whether they are viewed from a licensor's perspective or a licensee's perspective. A recent U.S. survey of licensing out (licensor perspective) and licensing-in (licensee perspective) agreements ranked the importance of these factors as shown below:

	Factors		
	Moderately Important	Important	Very Important
Licensor	<ul style="list-style-type: none"> • Enforcement burden • Foreign vs domestic partner • Convoyed sales opportunities 	<ul style="list-style-type: none"> • Utility/ advantages • Commercial success • Refinement • Competition • License duration • Minimum royalties • Support/ training • Licensor commitment 	<ul style="list-style-type: none"> • Protection • Exclusivity
Licensee	<ul style="list-style-type: none"> • Competition • Licensor commitment • Enforcement burden 	<ul style="list-style-type: none"> • Commercial success • Refinement • License duration 	<ul style="list-style-type: none"> • Protection • Exclusivity • Utility/ advantages

	<ul style="list-style-type: none">• Foreign vs. domestic partner• Convoyed sales opportunities	<ul style="list-style-type: none">• Minimum Royalties• Support/ Training	
--	-----------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------	--

The survey confirms that intellectual property protection and exclusivity are very important factors in setting royalty rates in licensing agreements. A 20% to 50% premium has been discussed as a reasonable average for exclusivity of license. As much as 300% premium for exclusivity has been reported in the pharmaceutical field.

The process of developing and bringing a product to market can have a direct bearing on royalty rate determination. A good example of this would be the pharmaceutical industry where bringing a product to market often consumes considerable time and capital resources in obtaining regulatory approval, without which these products could not be sold. In contrast, in the automotive and computer industry, there is less government regulation and generally a short time period required to bring a product to market. Therefore, a company that wishes to license a government-approved pharmaceutical product most likely will be willing to pay more for technology than if it wished to license an automotive product, even if revenue and profit expectations were similar for the two technologies.

Royalty rates can also vary depending on the state of 'market readiness' of technology. For instance, in the pharmaceutical industry one may find that licensees are willing to pay up to 2% royalties for process, formulation, or software technology, 2% to

5% for pre-clinical compounds, 5% to 10% for early stage clinical compounds, and 10% to 15% for late stage clinical compounds.

Also worth noting is that, I have seldom, if ever, come across an "untainted" or pure royalty rate, that is, an arm's length rate devoid of peripheral attributes such as pre-determined time period, graduating/declining scales (royalty rate percentages and/or sales levels), lump-sum/up-front payments, milestone payments, minimum or guaranteed royalty payments, outright stock purchases of or options to purchase stock in the licensee or licensor, etc.; all of which have varying degrees of impact in establishing the royalty rate stipulated in a license agreement.

There are various sources which may guide a valuator in selecting a benchmark royalty rate:

- license agreement covering a similar patent or trademark granted by the licensor owning the subject property to a third party, or failing that to its foreign affiliates;
- industry associations some of whom track rates in licensing agreements;
- trademark and patent lawyers who frequently draw up licensing agreements;
- licensing agreements filed as part of documents in a legal dispute that has gone before a competent authority;

- BNA (Bureau of National Affairs Inc.) a U.S. publication house puts out Special Reports on transfer pricing issues which sometimes contain information relevant to this subject;
- news articles and magazines such as Financial World which provides an annual survey of some top-value brand names; and
- one's own experience as a valuator.

To assist in identifying market-comparable royalty rates, PricewaterhouseCoopers Canada is in the continual process of developing and maintaining a royalty rate database that at the present time comprises just under 330 transactions. The information in this database is primarily from U.S. licensing economic journals, Canadian IPO's and prospectuses and various other public sources.

In order to provide you with a profile of this database, the following chart provides an incidence of occurrence of royalty rates by range and by selected industry categories. It would be imprudent to place too much emphasis on the information in the chart without independently evaluating the economics of each licensing opportunity.

Industry	Royalty Rates							
	0%- <5%	5%- <10%	10%- <15%	15%- <20%	20%- <25%	25%- <30%	30% & over	Average %
Apparel	60%	40%						4.00%
Automotive/parts	83%	17%						1.92%
Biotechnology	50%	17%	25%	4%				6.96%
Communications	44%	11%	11%	11%	22%			8.18%
Computers	50%		25%					10.75%
Computer Software	18%	27%	18%	9%	9%		18%	12.00%
Consumer Products	63%	25%	13%					4.34%
Copyrights and Trademarks		40%	40%					10.60%
Distribution	40%	60%						5.15%
Drugs	13%	88%						6.84%
Electronics	30%	50%	10%	10%				6.60%
Entertainment	18%	9%	14%	27%	18%			15.50%
Food	45%	45%	9%					5.47%
Hospitality/Leisure	29%	71%						4.43%
Industrial Products	40%	42%	13%	2%			2%	6.43%
Medical/Medical Products	32%	33%	19%	8%	3%	2%	4%	8.33%
Services	50%	17%	33%					5.79%
Toys & Games		25%	25%	25%	25%			13.13%

Some comments and observations on the database:

- A total of 329 transactions have been included in the database to date. Out of these, 33 transactions (or, 10%) did not disclose royalty rates and 41 transactions (or, about 12.5%) had royalty rates expressed as dollars per unit rather than percentage of sales. The above chart therefore comprises 255 transactions.
- The most frequently occurring royalty rate percentage in this database is 10% with 37 appearances; the second place to 5% with 34 appearances and the third to 3% with 22 appearances. The incidence of occurrence of royalty rates in this database could change over time as the population of transactions reviewed increases or the industry mix changes.
- In the biotechnology sector, an amendment to a license agreement to remove exclusivity reduced the royalty rate by 27%.
- While the greatest incidence of royalty rate percentages in the biotechnology sector was in the broad band of 0% to <10%, perhaps on the low side by conventional wisdom, most of the transactions involved up-front license fees, acquisitions of or options to acquire stock in licensee companies and embryonic stage of technology, all of which tend to lower the royalty rate that would otherwise be applicable.

- Initial payments and royalty rates are tending to increase in the drug industry mainly because of the paucity of new drug discoveries, and the time and funds required to bring new drugs to market.
- In computer software, educational/virtual realty-related software commands higher royalty rates than industry norms of 1% to 7%.

A 1998 U.S. appeals court case (Nestle Holdings Inc. et al. vs Commissioner No. 96-4158) challenged the use of the relief-from-royalty method in valuing trademarks in the context of a sale. The court found that this method "necessarily undervalues trademarks". It went on to say that while the relief-from-royalty method is appropriate to estimate damages from the misuse of a patent or trademark, the value of a trademark to its owner (or for that matter, an acquiror who would then own it) is greater than the relief the owner receives from simply not having to pay for the use of the trademark as a licensee (i.e. the principal concept underlying this method). Ownership of a trademark, the court continued, was more valuable than a license because ownership carries with it the power and incentive both to put the mark to its most valued use and to increase its value. A licensee cannot put the mark to uses beyond the temporal or other limitations of a license and has no reason to take steps to increase the value of the trademark where the increased value will be realized by the owner. No alternative method of determining the value of a trademark in a sale context was suggested by the appeals court.

A Canadian case involving Tele-Direct's "Yellow Page Mart" also recognized the value of ownership of a trademark as distinct from a license.

In a way, these cases highlight the difference between the value of a trademark or patent for licensing - out purposes (i.e. from an owner/licensor's perspective) and value for licensing-in purposes (i.e. from a licensee's perspective). I am of the view that the relief-from-royalty method is valid in valuing the trademark for licensing-in purposes, but recognition for ownership should be factored in a valuation of a trademark in a sale context under appropriate circumstances.

These circumstances may include, for instance, a conscious plan by the owner to grant few and only exclusive licenses, as opposed to one whose primary business is to license-out non-exclusive licenses. Even so, there may still be some value for control in the latter case, although it may not be very significant.

Where circumstances do warrant an upward adjustment for control, this could be done in any one of the following ways:

- (i) increasing the cash flows to take into account additional rights, line or brand extension to other products and/or industries, etc.;
- (ii) increasing the royalty rate from that ordinarily applicable in a purely licensing-out arrangement; or

- (iii) adding a control premium to the present value of the trademark otherwise determined under a licensing-out arrangement using the royalty relief method.

The quantum of this control premium is a matter of judgement and particular fact situation. Generally speaking, in a corporate takeover the premium for control (over the trading stock price) is thought to be in the range of 10% to 15% for a stand-alone company, absent any special purchaser premium. This percentage range, with exceptions falling on either side, could be a useful proxy for an upward adjustment when valuing a trademark or patent in a sale context.

Two income-based methods in arriving at a reasonable royalty rate are: (1) the Analytical Method and (2) the 25% "Rate-of-Thumb" method.

Briefly, the analytical method compares the profits of a brand name or patented product to the profits of a generic product. For example, consider that Black & Decker's "Snakelight" flashlight, a brand name product, has sales of \$250,000,000 and an operating profit (typically, before corporate head office expenses, interest and income taxes) of \$55 million (22%). I determine that it requires the employment of 60 cents worth of capital (that is, net property, plant and equipment and net working capital) to produce each dollar of sales; therefore, employed capital in Snakelight's case comes to \$150,000,000. If I then assume that a 7.5% operating profit after inflation on employed capital could be expected from a non-branded flashlight, I deduct this generic product's operating

profit of \$11,250,000 (7.5% of \$150 million) in order to arrive at the profit attributable to the "Snakelight" brand name, i.e. \$43,750,000. The implied royalty rate is therefore 17.5% ($\$43.75 \text{ million} \div \250 million). In order to determine what a potential licensee may be willing to pay by way of a royalty rate, I determine the brand's strength score. The strength score (a maximum of 100 points) is a subjective analysis of 20 factors such as margins, market share growth, consumer recognition, line extension potential, transferability of brand name to other products etc. In this example, if the brand strength score is determined to be 80, an arm's length royalty rate for Snakelight would be 14% (17.5% times 0.80). While this method has the advantage of a disciplined analytical approach to royalty rate setting, an obvious problem with its application is that more often than not one may encounter difficulty in obtaining a comparable generic product and relevant information with respect to it.

The 25% rule basically argues that the target royalty rate should result in a licensor receiving approximately 25% of the profit from a brand name or patented product. Since substantial effort and risk is involved in final product development, manufacturing and marketing the product, the licensee should be entitled to the bulk of the profit. In my view this method on the surface has intuitive attractiveness because of simplicity; but it arbitrary and often difficult to apply because of several and inter-dependent assumptions.

In concluding this section on royalty rate determination, the benchmark royalty rate should be refined based on an assessment of

the aforementioned factors affecting royalty rates and the facts obtained from the functional analysis. The overriding consideration in estimating a fair and appropriate royalty rate is to review the pre-tax profit earned by the patented product. There must be adequate profits available to a potential licensee to allow payment of the royalty and still earn a reasonable profit.

The process of determining an appropriate royalty rate and that which determines the value of intellectual property are closely interlinked. Provided sales from the patented process or of the trademark product are identifiable and can be reasonably estimated, one can determine the investment cost (i.e. value) if the royalty rate is known; or conversely, the royalty rate if the lump-sum amount paid for (i.e. investment cost of) the patent or trademark is known. This is expressed by the following Financial Model which uses present value concepts to determine the appropriate royalty rate or price to be paid for the purchase of the patent or trademark.

$$\text{PV (Royalty Rate x Sales)} = \text{PV of Royalty Income} = \text{Value} \\ \text{(of patent, trademark, brand, etc.)}$$

It follows from the above that under the "relief from royalty" method, valuation computations generally include consideration of the present value of the annual after-tax stream of royalty revenue - the result of not having to pay royalties - and of the present value of future income tax savings resulting from claiming capital cost allowances (i.e. the tax shield) on the whole or specified

portion of the cost of the intellectual property as the case may be.

To determine the present value of this after-tax stream of future royalty revenue, one requires annual estimates of revenues of the patented or trademark product estimation of the remaining economic life, the royalty rate, the company's tax rate and a reasonable rate of return, normally based on the risk involved in realizing the projected revenue adequate to warrant the stipulated royalty rate over the remaining economic life. The risk associated with the amortization of the intellectual property (i.e. in present valuing the tax shield) is equivalent to the likelihood that the company's operations will earn just sufficient profit to claim the amortization expense for tax purposes. The latter risk is generally lower, that is, a lower discount rate is justified, than the risk associated with generating after-tax returns to the equity holder(s).

Although relief from royalty is generally the method used to value licensable intellectual property, it is not the only one. Another method could be capitalization of the profit margin differential between say, a brand name product and a generic product (revenue enhancement), or a patented process and an older method of production (cost savings). The underlying assumption here is that the subject business owning the trademark product or patented process has financial results comparable to others in the industry, so that the profit differential is wholly attributable to the trademark or patent. This is seldom the case in reality because variances in financial results do exist and may arise due to

differences in management quality, differences in distribution systems, differences in cost of capital, degree of business experience and maturity (e.g. a mature company may have different results than start-ups), etc. However, this method can and probably should still be used as support for one's ultimate value conclusion.

Economic contributions of intellectual property - a market perspective

Corporate investments must typically pass threshold rates in order to be considered viable opportunities. Since debt and equity funds are used to finance these investments, the return that is provided must be adequate to satisfy the interest cost on debt and provide a fair rate of return on the equity funds. The threshold rate is the weighted average cost of capital ("WACC") in order to earn a fair rate of return on invested capital.

Invested capital is the sum of the fair market value of equity funds and debt obligations. The cost to the company of the invested capital equals the rate of return that the investors expect to receive less any tax benefits that the company enjoys, such as the deductibility for income tax purposes of interest expense on debt.

The total fair market value of debt obligations (bonds, notes, subordinated debentures) and the various equity components (preferred shares, common shares, warrants etc.) represent the total invested capital of the business enterprise. These are the

funds used to obtain the complementary assets of a business including land, buildings and plant, net working capital and intellectual property.

In the case of a public company it is possible to ascertain a royalty rate implied by the stock market for a bundle of intellectual property assets. This is because the stock market provides the critical starting input to this exercise by establishing the market capitalization of the company's common stock (i.e. market price per share multiplied by the common shares outstanding).

Let us take The Gillette Company ("Gillette") as an example and see what is the market's perspective of the economic contributions to Gillette's intellectual property viewed as a bundle and the royalty rate implied therein.

This illustrative case study is based on Gillette's 1998 (Dec. 31 year-end) results reported at or around the middle of March, 1999. Its recent stock price of US\$62-1/16 per share was at the high end of the 52-week price range of US\$35-5/16 to US\$62-21/32. For purposes of this case study, I have used the mid-point price of US\$49 in order to smooth out any short-term volatility in its stock market price. Gillette recorded another year of good progress in 1998. It launched several new products, including the phenomenally successful MACH 3 shaving system, and reorganized itself for the next decade. A variety of external events combined to hold sales and profits at essentially 1997 levels. Gillette, however, expects earnings per share to return to the company's typical 15% to 20%

growth rate in the second half of 1999, as its international business (particularly, in Asia, Russia and Latin America) bottoms out.

Gillette manufactures male and female grooming products, writing instruments and correction products, tooth brushes and oral care appliances, and alkaline batteries. The Company's products include blades, razors, shaving preparations, and hair epilation devices, among others. The majority of its products are sold under internationally recognized brand names such as BRAUN, PARKER PEN, WATERMAN, LIQUID PAPER, ORAL B, DURACEL and, of course, its flagship brand - GILLETTE. In 1998, Gillette-branded products accounted for 42% of sales and 52% of total profit from operations before corporate expenses. During that year, the Company spent US\$1,778 million (or 17.7% of sales) on advertising and sales promotion in support of the continued customer recognition of Gillette's brand name portfolio. In 1997 and 1996, advertising and promotion expenses were 16.9% and 17.4% of respective year's sales.

Technology is not ignored at Gillette either. Innovative technology has been the centre piece of Gillette's strategy and this technological superiority enables the Company to charge a premium price, some 10% to 20% above the competition, in turn creating higher margins. Gillette introduced the revolutionary SENSOR line of razors in early 1990 which reportedly required US\$300 million in R&D. In keeping with Gillette's strategy of upgrading the type of shavers people use, in order to widen its profit margin Gillette introduced the SENSOREXCEL shaving system in late 1993, and in November 1995, launched its breakthrough

SENSOREXCEL For WOMEN refillable shaving system, "the most advanced wet shaving system available to women". Gillette again strengthened its clear global leadership in blades and razors, its principal line of business, when in mid-1998 it launched the MACH 3 shaving system in North America, with plans for a roll-out of the product to all major markets in 1999. Developed and marketed at a cost of US\$1 billion, the MACH 3 system has been a phenomenal success, and helped lift Gillette's share of the blade market to its highest level in 40 years.

Gillette obviously has nurtured and supported world-class trademarks. In 1998, for instance, 47% of Gillette's sales came from products launched in the past five years. What follows next is an attempt to show how the trademarks pay off by isolating the economic returns that are contributed to the enterprise.

The Intellectual Property of Gillette:

Based on a market price of US\$49 per share, Gillette had a total value of invested capital of about US\$58.53 billion comprising US\$54.44 billion of equity and US\$4.09 billion of debt and long-term obligations (both equity and debt valued at market). The Company's various asset categories which must equal the value of total invested capital are shown below:

Gillette Company Asset Values (US\$ millions)		
	Value	Total
Working Capital	\$ 2,850	4.9%
Fixed/other assets	5,131	8.8%
Intangible assets	5,854	10.0%
Intellectual property	44,700	76.3%
Total invested capital	\$58,535	100.0%

The source of values for the Gillette asset categories is presented below:

Source of Value	
Asset Category	Source of Value
Working Capital	Book value reported in the company's accounts.
Fixed assets	In the absence of independent appraisals, the average of the gross and net amounts shown in the financial statements. [Net book value alone may not be reflective of current market value.]
Intangible assets	Estimated at 10% ⁽¹⁾ of total invested capital.
Intellectual property	Residual amount of invested capital.

⁽¹⁾ Comprises trained work force, established distribution network, management information software, corporate practices and procedures and organizational goodwill. The % is estimated based on experience from several years of consulting in M&A.

The economic contribution from the Gillette intellectual property requires an allocation of the total debt-free net income ("DFNI") of the enterprise. Based on the value of the different assets used in the business and the relative investment risk associated with each, the intellectual property contribution can be isolated.

The weighted average cost of capital ("WACC") for Gillette is the key input. The WACC is based upon the market value of equity and the value of long-term debt. WACC represents the minimum amount of investment return that is considered acceptable from operating the business. When the cost of these capital components are weighted by their percentage of the total invested capital, a WACC of 10.6% for Gillette is the result (based on 1998 financial information).

The WACC requirement can be allocated among the assets that are employed within the business enterprise. The allocation is conducted with respect to the amount of investment risk that each component represents to the business enterprise.

Appropriate Return on Monetary Assets:

Monetary assets of a business are its net working capital. Working capital is considered the most liquid asset of a business. Given the relative liquidity of working capital, the amount of investment risk is inherently low in comparison to that of the other asset categories. An appropriate rate of return to associate with the working capital component is typically lower than the overall WACC. A surrogate rate of return can be used: that which is available from investment in short-term securities of low risk levels. The rate available on say 90-day U.S. certificates of deposits, currently 4.72%, can serve as a benchmark, concluding at 5.0% for purposes of this illustration.

Appropriate Return on Tangible Assets:

Tangible assets or fixed assets comprise production machinery, equipment, transportation fleet, office buildings, land etc. While these assets are not as liquid as working capital, they still possess some elements of marketability. They can often be sold to other companies or used for alternate business purposes. This marketability allows a partial return for the investment in fixed assets of the business should the business fail.

An indication of the rate of return that is contributed by these assets can be pegged at about the interest rate at which commercial banks make loans using fixed assets as collateral, 7.75% for purposes of this illustration. This rate reflects the higher risk undertaken by equity owners than by lenders.

Appropriate Return on Intellectual Property:

Intangible assets and intellectual property are considered the most risky asset components of the overall business enterprise. Trademarks can fall out of favour with the attitudes of society, and patents can become obsolete by advancing technology of competitors. This increases their risk. A higher rate of return on these assets is therefore required. Since the overall return of the enterprise is established as the weighted average cost of capital, and since reasonable returns for the monetary and tangible assets can be estimated, one is then in a position to derive an appropriate rate of return earned by intangible assets and intellectual property.

For Gillette, the overall minimum acceptable return was determined to be 10.6%. Based upon the relative risk discussion presented earlier, the following table assigns different levels of required return to the different asset categories.

Allocation of Required Rate of Return to Different Asset Categories (US\$MM's)						
Asset Category	Asset Value	% of Total	Required Return (%)	Weighted Return (%)	% of Weighted Return	Allocation Of DFNI
Working Capital	\$ 2,850	4.9	5.00	0.25	2.36	\$ 26.9
Fixed assets	5,131	8.8	7.75	0.68	6.41	73.1
Intangibles	5,854	10.0	11.21	1.12	10.57	120.5
Intellectual property	44,700	76.3	11.21	8.55	80.66	\$919.5
	\$58,535	100%		10.60%	100%	\$1,140.0

As a result of these investment rate of return requirements, Gillette's intellectual property accounts for just over 80% of the total debt-free net income ("DFNI") of the company. Of the total DFNI of US\$1,140 million generated by Gillette in 1998, US\$919.5 million is attributed to the intellectual property. Without it, the company would have earned only US\$220.5 million. Therefore, the employment of intellectual property enabled Gillette to earn excess returns.

As a percent of total 1998 sales of U.S.\$10,956 million, the excess return of US\$919.5 million represents about 9.1%. This is on an after-tax basis. Since royalties are expressed in pre-tax terms, the pre-tax indication of royalties on Gillette's intellectual

property viewed as a bundle is 14% [$91 \div (1 - 0.35) = 14.0\%$] as indicated by the marketplace.

One could go through a similar exercise for various public companies within selected industries, and obtain a reasonably good approximation of the market's perception of current royalty rates in that industry.

Conclusion

If the saying "valuation is an art and not a science" is a truism, it is never more so than in the case of intellectual property. This is because of the nature of the asset itself. Not only is the valuator faced with the initial task of establishing the very existence of intellectual property, he must next determine whether it is valuable (that is, is it contributing to the earning power of the business) and commercially transferable, and finally, quantify such value.

In this paper, I have discussed the relief from royalty method of valuing intellectual property and shown how the market's perspective of economic contributions among complementary assets of a public company can guide one to determine a reasonable royalty rate on its bundle of intellectual property.

When valuing intellectual property, no one method can be sufficiently all conclusive -- the key is to use several methods to support one's initial findings. Finally, while knowledge (of the various techniques and concepts) is critical, one cannot

overemphasize the importance of a disciplined, logical approach and a good dose of common sense and reasoned judgement in arriving at reasonable royalty rates and hence, a supportable valuation.

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