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CRITICAL ANALYSIS OF INCOME APPROACH IN THE LIGHT OF RISK FACTOR PERSPECTIVE

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CHAPTER I

INTRODUCTION

Intellectual property valuation techniques develop, particularly as access to data becomes easier and quicker. For just the last few decades, the exercise of valuing IP has been there with the passage of hour its use itself has increased & perfected.

Assessment is required in particular circumstances such as:

- Sale, merger, joint venture or similar business transaction;
- Divorce (whether personal or business-related);
- Bankruptcy
- Estate planning
- Licensing IP &
- Litigation Proceedings

Assessment analysts and IP professionals concur that there are majorly 4 customary IP valuation approaches:

1. **Cost Approach:** Sometimes the former cost of developing an IP property is utilised to estimate its price/cost. A cost of developing an IP asset, nevertheless, is seldom representative of its ultimate value. Cost approach is not beneficial when it comes to IP utilised along with products that reach the market & generate revenue. Broadly speaking, the cost approach is

most appropriate for examining IP & products that have not industrially established or that might be re-produced rapidly, as it takes into account cost that a company can circumvent by buying a similar development effort instead of duplicating it.

2. **Income Approach:** The income approach estimates the current value primarily related to the intellectual property asset of future income streams. This method uses predicted financial results based on factors like contemporary financial performance, industry patterns and competitive environment.¹
3. **Market Approach:** It assesses IP only by equating the subject property with comparable IP property generally present agreements including comparable assets/property with comparable one. It thus gives an intimation of value if there is a relevant market with sufficient information about terms and conditions that could provide illustrations of present day arm-length transactions.
4. **Relief from Royalty Approach:** In the relief from the royalty approach, a fictional condition is generated to calculate what a company has to give its very own IP assets in an arm-length purchase to license. The value of the avoided fictional royalty charges is then determined as the present value.

This project deals in detail about income approach valuation of IP assets in detail. At first instance, the technique of the revenue approach appears very easy to understand since it is premised on the assessment of future revenue channels that may or may arise from the assessment of IP/intangible assets. Income approach is an extensively utilized technique of IP assessment; though, it can be complex, and one has to determine how to calculate the asset's "income."

"A brief example illustrates this: an unsophisticated analyst may see that a branded product earns a profit margin 30% higher than its unbranded counterparts, and the expert is tempted to attribute the entire 30% to the brand. In fact, only a portion of that 30% can be attributable to actual intellectual property, as the balance of the increased profit can be due to cheaper ingredients or more efficient branded product manufacturing."

With this in mind, the three fundamental parameters of the income approach are:

¹Anson Weston, Introduction, Alternate approaches to valuation of IP₂ (2015) (April 6, 2019, 1:00 AM), <http://www.ipwatchdog.com/2015/02/11/alternate-approaches-to-the-valuation-of-intellectual-property/id=54651/>."

- a. Future income stream
- b. Income stream duration
- c. Income stream risk or discount rate.

The technicalities are used to verify substitute techniques of income revenue which may be utilized in this type of survey. These may contain: “*net income, gross revenue, gross profit, operating income, pre-tax revenue, operating cash flow, EBITDA, net cash flow, anticipated incremental revenue, etc*”.²

CHAPTER II

WHAT IS THE NEED OF VALUING IP

Valuing early-stage intellectual property (IP) is demanding-largely due to the difficulty in incorporating the effects of risk and uncertainty into the valuation.

Introduction:

IP property such as patents, trade-marks/copyrights are becoming chief of many organizations & agreements increasingly. IP rights licensing and assignments are prevalent in market & utilization of these asset as security for loans have grown. This reality has given rise to the increasing importance of intangible property assessment. It takes into account its value to trade an asset. For purposes of valuing these assets, several methodologies are commonly used in the market. In fact in this topic the different methodologies will be explained and examples of scenarios of possible use of these methodologies would be given. Public organizations have created various tools to assist valuation companies. In this document, these free tools will also be presented to help you save time and money.

What are the factors that influence IP Valuation?

a. Standard of value:

Fair market value and fair price value are the most widely used value standards. It is crucial when an IP valuation exercise is undertaken. Current market value (market value) can be defined as the amount of passing an asset or service from a willing seller to a willing buyer. It is assumed that buyer and seller are logical and have a reasonable understanding of relevant facts. Good value (fair price) is considered suitable for use in purchase price allocation after transaction. It is

² IP Valuation: Income approach, profile available (2017) <http://www.consor.com/ip-valuation-the-income-approach>,” last assessed (April 6, 2019, 1:00 AM)

found that the suppositions being used by market participants when pricing the asset. While fair market value appears to be more appropriate when used in exchange for the premise of value, fair value is often based on the premise of in-use value. As mentioned earlier, IP valuation is a process for assessing the fair market value of an IP asset in a common situation.

b. Purpose of valuation:

To ascertain the concept for value calculation, the objective behind valuation must be understood. For example, valuation from a market value and investment point of view would be entirely different. Market value is the right premise in commercial situations. International Value Standards define market value as the approximated amount to be exchanged by a property on the appraisal date between the willing buyer and the willing seller in an arm-length transaction after proper marketing in which each party acted prudently, wisely & without compulsion.

c. Valuation method:

The methodology used and the assumptions made during the application of a particular method of valuation affect the value of IP assets. Market method is the valuation's cost-effective form. Companies usually refrain from using the cost method as it ignores the novel feature of IP. This method is useful for the cost of R&D.

d. Nature and strength of IP asset:

An IP asset's competitive strength determines its comparative valuation on the market. Factors like customer responsiveness and a product's market distribution or service availability determine its IP value. The threat of new entries and replacements affects the IP asset value.

How to determine the value of your Intellectual Property?

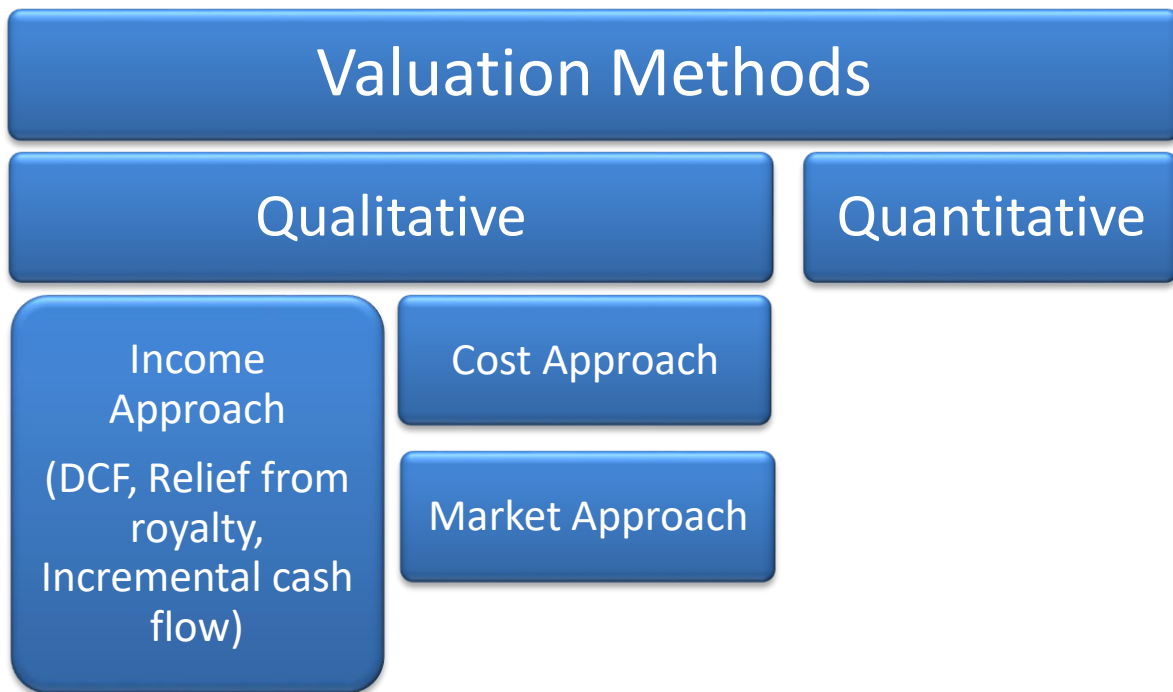
IP assessment can be a complex and difficult process. Perhaps the most appropriate method for IP assets relies on the premise of purpose to be derived from the result, valuable assets, and the relevant section for which the valuation is prepared.

CHAPTER III

APPROACHES OF IP VALUATION

How is valuation performed?

Organizations use distinct approaches for valuing intellectual property. These approaches are bifurcated into two categories: quantitative and qualitative assessment.



I. The qualitative approach:

By examining its properties, characteristics or states, it incorporates an accurate analysis of present day utilization of the IP. Usually these outcomes are not monetary, evaluated by the qualitative approach. The qualitative approach provides an evaluation guide through the ranking and rebounding of the IP asset.³As presumed, the methods of qualitative evaluation are widely used as the quantitative methods. For IP management and business strategy purposes, qualitative methods are mostly used. Perhaps they just are utilized to compare the company's IP, classify and rank it. The scoring is influenced by different factors and functions as IP evaluation measures. Qualitative data is mostly general, making it possible to compare it with the IP of competitors. The disadvantage is that the information provided is very dependent on it.

II. Quantitative approaches to IP valuation:

With respect to the valuation methods used by expert values, there is a blend of 3 methods used in compliance with international IP valuation standards: approaches based on cost, market & income. In a particular context & at a particular time, quantitative approaches determine IP value

³ Drews D., The cost approach to IP valuation: Its uses and limitations, IP Metrics intellectual property (2001).

in money. There are many different approaches developed for specific contexts within each of these approaches. The outcomes of these methods, expressed in monetary terms, will be an IP value range.

1. Income based methods:

The income approach aims to compute the current value throughout its economic life of the anticipated future income flow resulting from the subject IP. Particular attention is given while using the income approach to 5 key parameters that ascertain value:

- a. Revenue or revenue related to IP use;
- b. Expected revenue or income growth characteristics;
- c. Expected revenue or income duration;
- d. risk associated with income or income estimates; &
- e. The percentage of income or income attributable to the IP subject.

The income approach utilizes IP's ability to create cash flow. The Income Approach usually covers most situations and intangible assets.

This approach is founded on the idea of subsidized working capital & defines the value of the subject property as the present value of the net economic benefits expected to be achieved over the entire service life of the property. When using the Income Approach to value intellectual property, dividend earnings are estimated to be related to the under consideration industry, company segment or product line. To determine the current value of the operation, the forecast profitability is then discounted through current value calculations. At this point, the part of this value attributable to intellectual property must be determined.⁴

These dimensions are based on market observations, containing “size, growth trends, dynamics of market share participants, and attributes of overall market risk.” It is also important to have a thorough knowledge of the characteristics of the specific intangibles, along with the development stage, unique features such as bankruptcy or market leadership, and relevant product-related pricing information.

⁴ Sharma Deepak, [Income approach](http://www.intelproplaw.com/Articles/files/Income%20Approach.pdf), IP Valuation- Income Approach, (March 4, 2019 10:00 PM), available @: <http://www.intelproplaw.com/Articles/files/Income%20Approach.pdf>

There are several income-based techniques of valuation, each with multiple variations depending on the valuation reason and industry type. The discounted cash flow (DCF), incremental cash flow, MMEE and royalty relief are some examples.

As per Anson et al.⁵ The key income method criteria are:

- a. the future cash flow,
- b. the duration of the cash flow and,
- c. the risk involved with generating the cash flow.

The working capital is classified by its size & the probability of occurrence. Delivery of fees for national and international applications, annuity charges and office-related expenses action are important costs in the valuation process. The rate of discount depends on the industry that works on the IP and the IP situation expected.

A. Discounted Cash Flow (DCF):

Discounted Cash Flow-DCF-Net Present Value Method allows estimated flow to be converted into actual value by discounting future income estimates flow with a suitably selected discount rate.⁶ One of the most difficult challenges in this approach is how to set the discount rate. The discounted cash flow approach (or DCF) describes an approach to value a project or a whole company. By discounting it using the proper capital costs, DCF methods determine the current value of future cash flows. This is essential since cash flows in various time periods cannot be compared directly as most people would prefer income sooner rather than later. Opportunity costs and risk in the course of time are responsible.⁷ This process includes three issues:

- a. Future cash flow projections,
- b. The incorporation of taxes (company income and personal income taxes),
- c. the establishment of the relevant capital cost.

A method of valuation is used to estimate an investment opportunity's attractiveness. DCF scrutiny uses future free cash flow forecasts and reduces them to a current value which assesses the potential for investment (most often using the weighted average capital cost). The

⁵ W. Anson & Noble D Anson, IP Valuation: What methods are used to value IP and Intangible assets? Lic. J vol 34, 1-7 (2014).

⁶ Bader Martin & Ruether Frauke, Patent valuation, still a long way to value based patent valuation, 12 (2007) https://www.wipo.int/edocs/mdocs/sme/en/wipo_inme_smes_ge_10/wipo_insme_smes_ge_10_ref_theme06_01.pdf.

⁷ Id.

opportunity may be a good one if the value achieved by means of DCF analyses is higher than current investment costs.⁸

Formula:

$$DCF = \frac{CF_1}{(1+r)^1} + \frac{CF_2}{(1+r)^2} + \dots + \frac{CF_n}{(1+r)^n}$$

CF= Cash flow

R= discount rate

Factors affecting the rate of Discount:

(i). Inflation: Inflation can decrease the purchasing power of the achievement of future economic benefits. In order to compensate for this loss of purchasing power, the rate of discount used has to include presumptions about inflation. This is required to compensate for the negative effects on the expected cash flow's purchasing power.

(ii). Liquidity⁹: The another risk is liquidity that needs to be taken into account. Liquidity is the relative difficulty in quickly converting an investment into cash. A lot of financial assets could be traded for money at every time on effective public exchanges. This strong feature of investment liquidity does not possess by IP investments, particularly those from early development (living at its earliest stages of development). “Additional return to the investor is warranted and should be reflected in the discount rate when liquidity is lacking.”

(iii). Real interest: Real interest is the return on investment component associated with sacrificing the use of the funds invested. It is the reward in favor of investing in deferring consumption. Typically higher rates paid through investments reflect compensation for the risk elements introduced through inflation, illiquidity, and risk premiums.

(iv). Risk premium: Risk premium is perhaps the extra sum of return which investors request for risk assumption exceeding real interest in a risk-free investment when there is potential for loss and/or unexpected earnings variability. The level of risk premium differs by property type and the industry. A risk element is the likelihood of competitive technologies that might obsolete the property owned. The best example of IP is computer software products that quickly lose out

⁸ Pandey Akshat, Valuation of IP Assets, Eastern Law house (2010).

⁹ Id.

in very short periods for enhanced and much more influential items. For this risk compensation requires a premium.

B. Relief from Royalty:

In “relief from the royalty method” the notion is that if the property was licensed from another owner, the income due to the ownership of the IP can be calculated on the basis of the saved license fees that would have been paid. The technique involves that licensing agreements could be identified and transmitted for similar assets.

Relief from royalty is depend on the notion of deprivation value and examines the amount of income which a company will be "deprived" of if it did not own the intellectual property in question but instead had to rent it from a third party. The royalty represents the rental charge which, if this hypothetical arrangement were in place, would be paid to the licensor. Depending on the particular circumstances, the ability to assess an suitable royalty rate necessitates the verification of appropriate equivalent transactions and rates involving third parties. Moreover, acquiring a royalty rate is just a first move and also involves a credible sales prediction to measure the income which flows directly from IP.¹⁰ Like all other income approaches, it is required to determine a suitable cost of capital. This approach is helpful since usually available information is the “market size and expected market share.” Moreover, the process is indeed functional because a property's value is established as a rental charge which other companies will pay for using it. Consequently this method is more or less a mixture of the “income and market methods.” The substantial disadvantage of the royalty relief method is that a rental charge could always be presumed where it can never eventuate in reality.¹¹ Another drawback is that in many situations it tends to be oversimplified and applied inappropriately.

C. The incremental cash flow:

This process aims at valuing the IP's benefit by linking the unit's income with that of the property to a situation.. The key distinction between the cash flows in the two circumstances for each time shows the extra cash circulation that can be directly linked to the valued asset. This is normally used for brand valuation and the similarity is between a branded product and a similar non-branded product. The IP value is the distinction between the “branded product and the unbranded.”

¹⁰ Greenhalgh Christine & Roger Mark, The value of IPR to firms and societies, vol. 23, 541 (2007). https://www.jstor.org/stable/23606746?seq=1#metadata_info_tab_contents

¹¹ Id.

D. The MEEM (multiperiod excess earnings method):

It attempts to insulate the flow of cash generated by the IP by subtracting fictitious fees from the whole unit's cash flow for all other assets. The fees can be regarded as charges for rent or rental for the use of the assets. Because the IP regularly generates cash flows with other assets only, financial planning for these paired units is usually done. As a result, the MEEM uses the royalty relief method in the opposite way. While this method computes fictitious IP fees, and for all other assets MEEM calculates fictitious charges.

E. Real Options Method:

The Real Options Method (ROM) acknowledges the intrinsic value of the patent based on its projected cash flows reduced by the capital cost opportunities for the patent owner. In addition, the ROM incorporates the value of the uncertainty inherent in a company and the active decision making essential for the achievement of a patented strategy. The ROM uses the option pricing model for these items. The main advantage of the ROM lies in the value linked to cash flow uncertainty and the ability to manage patent investments.¹²

Just like the methods for DCF or Venture Capital, the ROM value cash flows, but it also represents the knowledge acquired. This process offers a much more total assessment of cash flow and static fixed costs, than that of the DCF and Venture Capital. The main problem with ROM is that the "underlying option pricing theory" and the "real option application" are frequently inaccurately mapped. No party ensures that the company can obtain the fixed costs foreseen at the ROM exercise price. The "breakthrough" aspect of the BlackScholes model was that the inputs into the model were observable and reliable.

The efficiency of the inputs depends on the appropriate presumptions of the market, that are the basis of the options, bonds and stock markets. Real investments are usually rarely traded and thus market prices are not reliable. As such, the accuracy of the economic values projected under the ROM is questionable by these limitations. The other inconveniences about using the ROM for evaluating patents are the fact which patents withstand negative rights, instead of affirmative rights which corroborate the notion "having an options." Further, as observed above, by filing a third party and by contending a assertion the optional value of a patent may be lowered or eradicated.

¹² Cockburn Lan, Assessing the value of a patent: things to bear in mind. (April 07 2019, 12:05 PM) https://www.wipo.int/sme/en/documents/valuing_patents_fulltext.html

F. Venture Capital Method:

The valuation technique for Venture Capital method also emanates a patent value from the cash flows which occur over the life of the asset. This is different to the DCF method because a fixed rate of discount on the non-market basis is used, usually at 50% (40-60% range), and the probability of success is not explicitly adjusted. The patent specific risk factors are not well taken into consideration by this method. Just like the DCF, it is assumed that cash flows are static and independent risk factors. This clarity is the biggest disadvantage in the evaluation of intellectual property.

When are they used?

Income approaches to IP value are precise only when the following factors are accessible or correctly calculated: a product or IP licence revenue stream, an estimate of useful life of the IP, an understanding of IP specific risk factors for the valuation and a valid discount rate.¹³

Advantages of Income Approach:

- a. Value on the basis of the conditions created is relatively easy to evaluate.
- b. .It may be possible to determine and predicted specific cash flows with the commonly accessibility of several of the required inputs from financial statements and market information.
- c. No need for market transaction: it captures anticipate future income without the requirement for equivalent transactions on the market.
- d. d. The income approach estimates the current value of the IP asset cash flow depending on the discount rate which requires the systemic risk into account.
- e. It shows the connection between the return on security investment and the return on the total product portfolio of the market.
- f. The income approach reflects the systemic risk component. The systematic risk measurement is shown byB (Beta).

Disadvantages of Income Approach:

- a. It needs the allocation of subjective cash flow.
- b. The practical transposition of theory requires assumptions which are limited in nature.

¹³John Start, Income Approach, valuation of IP Module 4 (April 06, 2019, 12 AM)
<http://www.ipcentar.uns.ac.rs/pdf/IP.pdf>

- c. The techniques are ontologically rigorous but it can be difficult to execute in situations in which high uncertainties are involved.
- d. appropriate information from internal reporting systems is not always readily accessible.
- e. Cash flow and the discount rate which are both uncertain have to be estimated. For example, the estimation of market opportunities and consequently cash flow from early stage IP developments rarely provides an experience base.

CHAPTER IV

RISK ANALYSIS AND CONCLUSION

Risk Analysis:

In addition to the challenges mentioned above, the most difficult problem in valuing IP assets is the considerable risk of many of these assets. In a very common situation when IP assets are assessed before commercial success is particularly difficult to account for risk. Beyond the above reasons, there are number of other risk associated with income approach and other assets for a number of reasons.

Initially, IP assets are risky for a range of reasons, including:

- a. It is not guaranteed the successful achievement of in process technology.
- b. Research and development costs, product integration, and production scale may be considerably higher than expected.
- c. It could not be possible or cost prohibitive to implement subject technology into product/ services.
- d. Regulatory approvals that are anticipated can be deferred or denied.
- e. There may be unforeseen safety and efficiency problems occur.
- f. Until late in the product development process, market success cannot be tested.
- g. If challenged, patents can prove null and void.
- h. It is difficult to anticipate non-infringing competitive alternatives or design around technologies.
- i. Innovation can move quickly and lead to a short or unknown economy.

A number of income approach approaches can address the risk and uncertainty associated with early stage IP assets, including:

- a. Important due diligence to identify risk and uncertainty areas.

- b. Adapting the upward adjustment of the discount rate to reflect additional risk.
- c. Adapting the upward adjustment of the discount rate to reflect additional risk c. Carry out sensitivity analysis and scenario analysis to understand the effects of risk variable values on the effect of the risk variables.

Conclusion:

It is extremely difficult to estimate the value of the IP portfolios because the IP's contextual characteristics depend heavily on the nature, the business model and the strategic synergies with the organization. A helpful approach can be taken however to determine the IP assessment, taking into account the prospective royalties that the portfolio might collect. Then a method of income can model this future value. The Discounted Cash Flow (DCF) method, the major income method, is established for many years and is widely employed in several areas of finance, along with capital analysis and project funding.

Sensitivity analysis can be carried out using the income method in particular, since major input parameters can be modified to provide a total IP range. Sensitivity analysis includes the development of a number of possible scenarios, thereby providing a mechanism to capture and evaluate risk. If stakeholders are pretty skeptical of putting a credible value on intellectual property, the income method may reflect this risk by varying the discount rate, for example, or by weighing the likelihood of cash flows. However, it is often suitable to mix up two or more methods in assessing a valuable IP assessment. The ability to combine IP valuation approaches to strengthen a range of assessments can be crucial for success in negotiation.

The most common error in applying this approach is the expert's lack of differentiation between the income generated by the total business enterprise, or the business enterprise value, and the value of the income generated by the intellectual property within that business. When valuing intellectual property, in order to use the income approach, it is critical to be able to separate the stream of income that the intellectual property is generating from the value of the business as a whole, and then apply an appropriate discount rate and life span.

In summary, when using the income approach, the intellectual property or intangible asset values calculated represent the worth or present value of the future economic benefit/income that will accrued to its owner. This requires projection of future income, an estimate of the duration of the income stream and/or useful life, and an estimate of the risk associated with generating the income stream, also known as the discount rate. Although at first glance it may seem less precise

than the cost approach, due to the inclusion of multiple estimates, often the information needed to make these estimates can be accurately developed and verified based on market conditions and market data.