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An Analytical Study of Valuation Models of Intangible Assets

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Abstract

The paper considered highlighted three popular models related with valuation of Intangible Assets out of the eight valuation models developed recently in the first decade of 21st Century. In all eight models viz., (i) Armis Petersons (2003), (ii) Matsuura H. Jeffrey (2004), (iii) Sylvain Roy (2004), (iv) MC. Graw Hill (2004), (v) Charies River Associates (2004), (vi) Kelvin King (2006), (vii) Paul Flignor and David Orozio (2006), and (viii) Anastasia Vardavaki, John Mylonakis (2007). The Matsuura H. Jeffrey (2004) model is a comprehensive model which provides valuation of Intangible Assets as a whole, but not a specific Intangible Assets. The model has four sub-part as developed as (i) cost based, (ii) market based, (iii) income based, and (iv) option based. The Sylvain Roy (2004) model also developed for valuation of Intangible Assets having three sub-part (i) Market Based Models, (ii) Cost Based Models, and (iii) Based on estimate of past and future Economic Benefits. The Matsuura H. Jeffrey model and The Sylvain Roy more less similar regarding cost and market basis but they have followed slidely different approaches while developing cash flow basis models, such as income base model of Matsuura H. Jeffrey model and past and future economic benefits model of Sylvain Roy, however and additional option based model developed by Matsuura H. Jeffrey. The paper also taken into account, Kelvin King (2006). More less Kelvin King developed his model based on Matsuura H. Jeffrey model following in slidely different approaches. While developing his three sub-models (i) market based, (ii) cost based, and (iii) based on estimate of past and future economic benefits. The paper also highlighted concepts, nature and scope of intangible assets. Considering the opinion of the express by scholars, accountant, and investors. A rich survey of literature also recorded in the paper considering study organise by a number of scholars such as Arkbland, C. Dragontti, Cazavan Jeny Anne, Guthrie, Kelvin King, Matsura H. Jeffrey, Sylvain Roy etc. Paper highlighted for Goodwill categories into three part (i) Internally Generated Goodwill, (ii) Purchase Goodwill, and (iii) Business combination and Goodwill. Besides, methods of valuation of Goodwill including (i) Average Profit Method, (ii) Super Profit Method, (iii) Capitalisation Method, and (iv) Annuity Method also taken into account. Similarly patents also discuss with the concept of accounting

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and valuations considering the remound persons of accounting, (a) Cost Based Method, (b) Market Based Method, (c) Income Based Method, (d) DCF Based Method, (e) DTA Based Method, and (f) Option Pricing. The models developed by the authorities are being also applied in India but along with accounting policy set by the concern in the questions. A new look on the models related with intensiveness will surve better treatment of intangible assets. Although a number of intangible assets are there yet a few models are developed specifically for intangible assets.

Introduction

The present age is age of knowledge based economy and technical know-how and the most of the Intangible Assets (IAs) are created on the basis of knowledge and technical ideas. Therefore, it is better to highlight on the philosophy and concepts of intangible assets before making an attempt to do a scientific study of valuation models related with intangible assets. Generally, on intangible asset is an asset which has emense value for the business but without having physical existence. The term intangible Assets (IAs) defined in the Dictionary of Accounting by Warshawe D. Cooper (2005) as items such as goodwill, intellectual property including copyright, patents and trademarks. According to the Accounting Standard - 26 the term Intangible Assets is an identifiable not monetary assets, without physical substance, held for use in the production of supply of goods or services, rental administrative purpose. The Australian intangibles exposure draft; AARF ED (1989) stated IAs as non-monetary assets without physical substance includes brand names, copyright, franchises, intellectual property, licenses, patents, and trademark. Hendriksen (1982) rightly observed that the lack of physical substance may not be considered as the main difference between tangible and intangible assets and suggested that the most important single attribute of intangibles is the high degree of uncertainty associated to the future benefits

expected from them.

The Intangibles Research Center of the Stern School of the New York University (1990) expressed as non physical sources of future economic benefits to an entity or alternatively all the elements of a business enterprise that exist in addition to monetary and tangible assets. Alternatively intangibles as non physical sources of probable future economic benefits to an entity that have been acquired in an exchange or developed internally from identifiable costs, have a finite life, have market value apart from the entity, and are owned or controlled by the entity. In opinion of Egginton (1990) which entail legal rights in relation to specific person (real or corporate) as well as assets with a physical existence and defined intangible assets as those which either entail legal right in relation to persons at large (such as patents as trade names usually referred to as separable intangible assets), or entail expectations of economics benefits which carry no legal right (goodwill). C.P. Gupta (2006) A legal claim to some future benefits, typically a claim to future cash, goodwill, intellectual property, patents, copyright and trademarks are examples of intangible assets. Ph. Collin, Adrian Joliffe (1996) Intangible fixed assets or intangible assets, such as copyright, patent, goodwill etc., which exists and have a value but cannot be seen. Arthur Andersen (1992) defined as resources controlled by the enterprise

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which are non physical in nature, capable of producing future economic not benefits and protected legally or through de facto right. Stickney and Weil (1994) opined as which can provide future benefits without having physical form such as investment in research and development, patent, advertising and goodwill. Vosselman (1998) proposed as comprising the current capital expenditure for intangible products that became available in the period under review and that remain in use for more than one year. Notwithstanding, he acknowledges that the distinction between investment and operating costs is difficult for intangible, as they are usually related to services. Jeffrey H. Matsuwera (2004) defined that the intellectual property includes all material that can be protected and managed under traditional legal principles of patents, copyrights, and trademarks. Intangible assets are those intangible materials that have commercial value, but are not in a form eligible for traditional intellectual property law protection. Sylvain Roy (2004) suggested that the value of an assets is best determine by the market, in the form of a transaction between two unrelated entities dealing at arm's length, unfortunately, intangible assets and IP that will eventually support products seldom benefit from open market conditions, either due to novelty or secrecy factors. Kelvin King (2006) Intellectual capital is recognized as the most important asset of many of the world's largest and most powerful companies, it is the foundation for the market dominance and continuing profitability of leading corporations. It is often the key objective in mergers and acquisitions and knowledgeable companies are increasingly using licensing routes to transfer these to law tase jurisdictions.

Classification of IAs: As per observation made as above, there are a number of intangible assets such as goodwill, copyright, trademarks, Intellectual Property Right (IPR), patent right, brand names, scientific and technical know-how, design, advertisement, innovation of new process of product layout, license, market knowledge, legal claim on future benefits, franchises, prepayment, advances, financial assets, (shares, debenture, bonds and other hybrid securities including preference shares), investment in Research & Development, and Quotas-Rights. These different IAs are classified by the different scholars which may be reproduced as given below:

C.P. Gupta (2001) classified as (i) intangible fixed assets and non monetary fixed assets (without physical substance), (ii) purchased and non purchased, and (iii) identifiable and non identifiable eg. Goodwill can only be capitalized if purchased (for purchased consideration), but other intangible assets also be capitalized if created by the company itself as per Companies Act, 1956. Mortensen, Eustance and Lannoo (1997) classified into four categories viz., (i) Innovation capital (R & D), (ii) Structural capital (intellectual capital and knowledge assets, organizational coherence and flexibility, and workforce skills and loyalty), (iii) Executory contracts (operating licenses and franchises, media and other broadcast licenses, agricultural and other production quotas in regulated industries, maintenance, servicing and environmental contracts, and risk hedging financial instruments, derivatives, etc.), (iv) Market capital (brands, trademarks and mastheads) and goodwill. Similarly, Guilding and Pike (1990) classified into four categories viz., (i) Value creator (advertising, product development

and other marketing support), (ii) Marketing assets (trademarks, brands, entry barriers and information systems), (iii) Value manifestation (image, reputations and premium price), and (iv) Competitive value advantage. Brooking (1997) first defined that Intellectual capital is the difference between the book value of the company and the amount of money someone is prepared to pay for it, then after distinguished into four categories of intellectual capital viz., (i) Assets which give the company power in the market place, (ii) Those representing property of the mind, (iii) Those which give the organization internal strength, and (iv) Those derived from the people who work in the organization.

Research Methodology

Research Lead - What should be exact treatment and valuation of Intangible Assets. A still in dollrob. Therefore a search of valuation models which can provide appropriate base in order to the following accounting process related to Intangible Assets. In simple word which model is suitable for valuation of particular Intangible Assets and how should be recorded and disclosure in the books of accounts. These thinks remains a matter of search out the fact therefore the paper and entitled An Analytical Study of Valuation Models of Intangible Assets organised. While reading Acccounting Standard 26 regarding Intangible Assets as issued by the ICAI questions arised whether standard having consistency with the models developed by the thinkers.

Objectives - The paper aimed to reach on certain conclusions with the following objectives - (i) To study the nature, scope, types, and classification of the Intangible Assets. (ii) To search out appropriate model for the particular Intangible Assets or a group of Intangible Assets. (iii) To access the consistency regarding the valuation and Accounting Standard are suggested models of Intangible Assets. and (iv) To developed individual or comprehensive model of Intangible Assets.

Hypothesis - (i) A single model is not applicable to all of the Intangible Assets. (ii) Accounting procedure of Intangible Assets are not based on the models developed by the scholars. and (iii) There is not consistency between set models and Accounting Standard 26.

Study Period - By the way the development of the Accounting of Intangible Assets, it continuous started the study of valuation process and the scholars of accounting to present their views in the disclosures of valuation of Intangible Assets and also present the different valuation models and disclosures. But the present research paper is concentrate in the 21st century developed models.

Collection of Data & Material - The present study will use primary and secondary data besides informations, figures and facts related in the valuation models of Intangible Assets. Main sources will be internet, journals magazines and news papers, libraries etc. The collected data, information, other figures and facts will be analysed using certain statistical, accounting and financial techniques.

Survey of Literature - From the very beginning, intangible assets remained a subject of enquiry by the researchers, academicians and scholars in the field of

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Accounting and Finance. Simultaneously, the valuation of intangible assets also remained in the center focus for the researchers, authors and learned persons. A number of the studies organized on IAs taking one another aspect of goodwill, patent, copyright, trade marks, brand names, scientific and technical know how, intellectual property etc. but here a few studies are being referred as given below keeping in the views that the present study will cover a detail survey of literature: Arkblad, Carolina, Liselotth and Milberg (2006) in their paper entitled "Accounting for Intangible Assets - Relevance Lost? cleared that intangible assets are getting more and more importance to companies and their owners as the economy has changed from being industrial to knowledge based. It is no longer the industrial value chain that creates value, it is innovation and constantly seeking new ways of meeting market demands, companies can no longer differentitive advantages without intangible assets. However, uncertainty connected with intangible assets, accounting cannot capture their increasingly important value. Bryce J. David, Knott Marie Anne and Posen T. Hart (2003) in their paper entitled "On the Strategic Accumulation of Intangible Assets" cleared that firms can earn supernormal returns if and only if they have superior resources protected by isolating mechanism that has been proposed for intangible assets is their accumulation process with a hypothesis that intangible assets are inherently inimitable because would be imitators need to replicate the entire accumulation path to achieve the same resources position. C. Dragonetti, Nicola, Jacolsen Kristine, Nick Bontis and Roos Goran (1999) in their paper entitled "A Review of tools available to measure and manage intangible resources" felt need for review of the most important tools available to

managers and highlighted four measurement systems viz; (i) human resource accounting (ii) the balanced score card, and (iii) intellectual capital. Cazavan Jeny Anne and Herve Stolowy (2001) in their paper entitled "International accounting disharmony: the case of intangibles" explained that application of all international standard is necessary in order to comply officially with International Accounting Standard. This appears to be a key statement for the move towards accounting harmonization. The feasibility of this kind of harmonization could be jeopardized if even one standard is "rejected" by companies. Guthrie, James and Petty Richard (2006) in their paper entitled "Intellectual Capital Literature Review : Measurement, reporting and management" observed that the rise of the new economy one principally driven by information and knowledge is attributed to the increased prominence of intellectual capital as a business and research topic intellectual capital is implicated in recent economic, managerial, technological and sociological developments in a manner previously unknown and largely unforeseen. Whether these developments are viewed through the filter of information society, the knowledge based economy, the network society, or innovation, there is much to support the assertion that IC is instrumental in the determination of enterprise valued and national economic performance. Hussi, Tomi (2004) in his paper entitled "Combining intellectual capital, intangible assets and knowledge creation" observed that intellectual capital, intangible assets and knowledge creation are all concepts that are strongly linked to the phenomenon of knowledge management. Matsura H. Jeffrey (2004) in his paper entitled "An Overview of Intellectual Property and Intangible Assets Valuation Models" stated that the economic models

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applied to estimate the value of intellectual property and other forms of intangible assets. He highlighted key strengths and weakness of these models. Powell Stephen (2003) in his paper entitled "Accounting for intangible assets: Current requirement key players and future directions" explained current requirement for intangible assets, identified the key trend setters and considers potential future directions in the area of accounting for intangible assets. He felt that accounting for intangible assets is one of the least developed areas of accounting theory and regulation. This article makeup part of the special forum devoted to furthering debate on accounting for intangible assets. Villalonga Belen (2003) in his paper entitled "Intangible resources, Tobin's Q, and sustainability of performance difference" cleared that the greater the intangibility of a firm's resources, the greater the sustainability of its competitive advantage. He opined that resources intangibility may be measured by: (i) Tobin's Q and (ii) the predicted value from a hedonic regression of Q on several accounting measures of intangibles while sustainability is measured by the persistence of firm specific profits. Wyatt Anne (2001) in his paper entitled "Accounting for intangibles: The great divide between obscurity in innovation activity: analysed that descriptive data from a discretionary accounting setting and several generic properties of intangible assets are grossly under - recognized in company balance sheet. He generated the debate surrounding recognized demonstrating how economic attributes of intangible assets arise from generic features of innovation activities, match between accounting principles and the economic attributes of intangible assets.

Scope for Future Research - The present paper focused on the central issue of valuation models regarding Intangible Assets. Inspect of the fact open a number of avenues ness to organised different studies considering any of the aspects of Intangible Assets and related models. A study organised on a disclosures parties and Intangible Assets models. Similarly a comparatively study of Indian V/s International Intangible Assets Models. A comparative study of accounting standard of Intangible Assets and models may also be organised.

The IAs Models

I. **Matsuura H. Jeffrey (2004)** in his paper entitled "An Overview of Intellectual Property and Intangible Assets Valuation Models" He explained four models, for valuation of intellectual property and other intangible assets, viz; (i) Cost Based Models, (ii) Market Based Models, (iii) Income Based Models, and (iv) Option Based Models and highlighted that how these models value the intellectual property right (IPR) and other intangible assets differently. (i) cost based models estimates the value of the assets that is tied to the cost to create or acquire the asset but does not address the potential future benefits. The model is backward looking and often included some form of adjustments for depreciation of the assets over time. Different companies choose to incorporate different costs into their models. The models are not provides a true estimate of the value of intangible assets. Instead, applied in response to specific regulatory requirement needed for accounting and tax purposes. The model is simple and accepted by regulators for tax or audit purpose. The utility of cost based models is limited, as the

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models do not present a complete picture of the potential application for the assets. For example, revenues derived from licensing and value created through direct use of the asset are not effectively captured or recognized in most cost based valuation models. Cost based models do not capture the full impact for legal costs associated with obtaining and maintaining intellectual property rights (costs of patent protections and maintenance; for example), they do not reflect the impact of other legal activities on the value of the assets. For example, cost based valuation models do not evaluate, in any way, the future enforceability of patent or other intellectual property rights. (ii) market based models estimate the value of intellectual property assets by looking to the market place. Assets that are comparable to those in question are identified, and the licensing revenue actually derived from those comparable assets in the market place is used as an estimate of the value of the new assets. A significant problem associated with market based valuation models is appropriate choice of comparable intangible assets. It is often difficult to identify an appropriate, truly comparable, and assets. The models fail to account for the full range of legal activities that affect intangible assets value. To the extent that the comparable assets that form the basis for the valuation model have legal characteristics comparable to those of the company applying the model, the legal attributes includes in the model are more likely to be valid. (iii) income based models make use of forecast future revenues to develop a current estimate of assets value. Under this valuation model, an intellectual asset's value is primarily established by the royalty revenue it can

generate in a licensing structure. These models adopt a forward looking perspective, estimating future earnings that can be derived from commercial use of intangible assets. Different companies apply different definitions and projections regarding revenue forecasting. As a consequence of this diversity, the income based valuation model differs, in practice, from company to company. The models can be expanded assets based on estimates of future cash flow estimates associated with a particular asset. These models project future earnings and expenditures attached to the asset. The net present value of the future cash flows is calculated so that the estimated potential value of the asset can be compared with similar estimates for other potential projects, and current resource allocation decisions can be made based on comparative future value of different projects. The models function best when there is accurate information to support the future income and cash flow projections in the commercial or established market. Income based models are less effective when market information is sketchy or speculative. The models do not fully account for the impact of legal rights on intangible asset value. Those models can effectively capture the costs associated with obtaining and maintaining intellectual property rights. However, they do not assess the costs associated with enforcement of the legal rights that are tied to the assets. (iv) option models an option is a choice that can be exercised at a specific time, but need not be exercised. Owners of intellectual property have a variety of choices about the development and commercial use of their property. Those options include: what form

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of intellectual property rights to invoke, whether to license the asset how to price the asset, and when to apply legal means to enforce rights associated with an asset. Option models attempts to estimate economic value for each of those choices. The estimated economic values of the different option can be combined and compared, thus providing an analytical framework for selecting a commercialization strategy. Companies define and identify option differently, which may be quite varied in structure and result. Option models are most effective when the various options can be readily identified and valued and when the values for the options are stable, and not subject to dramatic shift in value. Options models also perform more effectively when the options have set terms and cannot be exercised before they mature.

II. **Kelvin King (2006)** in his paper "The value of Intellectual Property, Intangible Assets and Goodwill", classified valuation models into three major limps viz; (i) Market based, (ii) Cost based, and (iii) Base on estimates of past and future economic benefits, which determine the value of IPR, Trade Mark, and Brands. (i) market based methods In valuing an item of intellectual property, the search for a comparable market transaction becomes almost futile due to lack of compatibility, as intellectual property is generally not developed to be sold and many sales are usually only a small part of a larger transaction and details are kept extremely confidential. There are other impediments that limit the usefulness of this method, namely, special purchasers, differently negotiating skills, and the distorting effects of the peaks and

through of economic cycles. (ii) cost based method such as the "Cost to create" or the "Cost to replace" a given asset, assume that there is some relationship between cost and value and the approach has very little to commend itself other than ease to use. The method ignore changes in the time value of money and ignore maintenance. (iii) based on estimate of past and future economic benefits also referred to as the income method which can be broken down in to four limbs (a.) Capitalization of historic profits, (b.) Gross profit differential method, (c.) Excess profit methods, and (d.) The relief from royalty method.

(a.) Capitalization of historic profits arrives at the value of IPRs by multiplying the maintainable historic profitability of the asset by a multiple that has been assessed after scoring the relative strength of the IPR. A multiple is arrives at after assessing a brand in the light of factors such as leadership, stability, market share, internationality, trend of profitability, marketing and advertising support and protection. While this capitalization process recognizes some of the factors which should be considered, it has major shortenings mostly associated with historic earning capability. The method pays little regard to the future.

(b.) Gross profit differential methods are often associated with trade mark and brand valuation. These methods look at the differences in sale prices, adjusted for differences in marketing costs. That the difference between the margin of the branded and/or patented product and an unbranded or generic product. This formula is used to drive out

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cashflows and calculate value. Finding generic equivalents for a patent and identifiable price differences is far more difficult than for a retail brand.

(c.) The excess profit method looks at the current value of the net tangible assets employed as the benchmark for an estimated rate of return. This is used to calculate the profits that are required in order to induce investors to invest into those net tangible assets. Any return over and above those profits required in order to induce investment is considered to be the excess return attributable to the IPRs. While theoretically relying upon future economic benefits from the use of the asset, the method has difficulty in adjusting to alternative used of the asset.

(d.) Relief from royalty considers what the purchases could afford, or would be willing to pay, for a finance of similar IPR. The royalty stream is then capitalized reflecting the risk and return relationship of investing in the asset.

III Sylvain Roy (2004) in his paper entitled "Intellectual Property Valuation" explained three approaches for intellectual property and other intangible assets viz; (i) Cost Approach, (ii) Market Approach, and (iii) Income Approach and determine the approaches how value estimate the intellectual property and Intangible Assets differently. (i) cost approach that is the cost to create or recreate the asset, based on several economic principles such as the principle of substitution, the principle of externality, the principle of functional, technological and economical obsolescence and finally the principle of shift in supply and demand. (ii) market approach that is the sales of comparable intellectual property, where a "Somewhat" similar deal could be used for the purposes of comparison. In the absence of a buyer - seller or a licensor - licensee relationship, the valuation process using the market approach seeks to reproduce the context in which a transaction would normally take place in an open market. Because transaction on comparable IP can be structured in different ways, the research and development of comparables and metrics, particularly for royalty rates, remains complex and time consuming. (iii) income approach which is based on the future economic benefits produced by the intellectual property. The various income valuation methods may be grouped into two analytical categories: (i) Direct Capitalization, and (ii) Discounted Future Economic Benefits. In a direct capitalization analysis, the appropriate measure of economic income for one period is defined and divided by an appropriate investment rate of return, which may be derived from the expected useful market life for the IP. In discounted future economic benefits analysis, the appropriate measure of economic income is projected for several time periods in the future. This projection of prospective economic income is converted into a present value by the use of a present value discount rate. This discount rate is consistent with the rate of return that would be required by an investor over the expected term of the economic income projection.

Accounting of Intangibles Assets

Accounting of intangibles assets follows some of the general principles used for tangible assets. They are both initially recorded at cost. Some intangibles are amortized and other are not amortized, but instead are reviewed for impairment. Those that are amortized are reported on a company's balance sheet at the book value, which is the cost less the accumulated amortization. The specific issues related to whether or not a company amortizes an intangible assets and the measurement of any amortization expense on its income statement in the sections. The other accounting principles of intangibles assets also applying. Thus the principle used for the determination of acquisition cost, capital and operating expenditures, impairment and disposal apply to both tangibles and intangible assets.

Cost of Intangibles

Intangibles may be classified by a company according to whether they are purchased from other (externally acquired) or internally developed. In addition they may be classified according to whether they are identifiable or unidentifiable. Identifiable intangible assets include such items as patents, franchises, and trademarks, whereas the primary unidentifiable intangible assets are goodwill. These classifications lead to the four alternatives and the proper method of accounting for each. (i) Purchased identifiable intangibles:- A company may purchased an intangibles assets, such as a patent, from another company. The initial accounting for acquisition of purchased intangibles presents no special issues and is handled in the same manner. (ii) Purchased Unidentifiable Intangibles:- A company capitalizes the cost of a purchased unidentifiable intangibles assets. The principle example of an unidentifiable intangible is goodwill which can be acquired only through the

purchase of another company or segment of a company. (iii) Internally Developed Identifiable Intangibles:- When a company internally develops an intangibles asset, such as a patent, it can capitalize only certain costs. The costs of a patent include the legal and related costs of establishing the right associated but not the cost of developing the product or process that. A company includes those latter costs in research and development cost and must expense them as uncurred. Thus, the expensing of research and development costs represents general rule of capitalization of internally developed identifiable intangible. (iv) Internally Developed Unidentifiable Intangibles:- A company expenses the costs of internally developed unidentifiable intangibles. Such as employee training and design of quality products, as incurred even though they may be expected to have benefits extending beyond the current period, the measurement of the costs incurred or the determination of the expected life of the benefits is difficult to measure reliably. (v) Amortization or Impairment:- Intangible assets are separated into two categories to determine whether or not they are amortized, and how they are review for impairment. (a.) Intangible Assets with a finite life are Amortized:- An identifiable intangible assets such as a patent that has a finite life is amortized over its useful life. That is the useful life is the period over which the assets is expected to contribute directly or indirectly to the future cash flow of the company, a company should consider in estimating the useful life of an intangible assets include (i) the expected life of the assets, (ii) the expected useful life of another assets that is related to the life of the intangible assets, (iii) any legal, regulatory, or contractual provision, (iv) the effects of obsolescence, demand, competition, and other economic

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factors, and (v) the level of maintenance costs required to obtain the expected future cash flows from the assets. The calculation of the amortization of intangible assets follows the same principle as the depreciation of tangible assets. The amount of an intangible asset to be amortized is the cost less the residual value, if any. As with depreciation, a company selects the amortization method based on the expected pattern of benefits the intangible asset will produce. If the company cannot reliably determine the pattern then it must use the straight line method. (b.) Intangible Assets with an Indefinite Life are Reviewed for Impairment:- Some identifiable intangible assets, such as trademarks and trade names, have a potentially indent finite life. An intangible asset with an indefinite life is not amortized, but is reviewed for impairment. A company tests an intangible asset for impairment by first estimating the fair value of the asset. The fair value of an intangible asset is the amount at which the assets could be bought or sold in a current transaction between willing parties. However, quoted market price is often unavailable for an intangible assets, a company may estimate the value by using the value of similar assets, or by using present value techniques. An intangible asset is impaired when its fair value is less than its carrying value. The loss is recorded by debiting an impairment loss account and crediting the intangible asset account.

Accounting for Goodwill

Goodwill is a difference between the purchase price and the book value while acquired. Goodwill arises either/or in two different ways such as internally generated or acquired through acquisition of another business of company. Goodwill is valued following two different approaches viz; (i) the residuum approach,

and (ii) the excess profits approach. According to the first approach goodwill is difference between the purchase price and fair market value. The excess profits approach considered goodwill as the difference between the combined company's profits over normal determined profit but future earning have no certainty. Goodwill may be categorised as: (i) internally generated, (ii) purchased, and (iii) business combination and goodwill. (i) Internally Generated Goodwill recognizes the economic value of a business. Internally generated goodwill is purchased such as name, developed market, managerial talent, labour force, government relations, ability to finance operations easily, etc. Such non-purchased goodwill have not been capitalized. The primary reason for not accounting for goodwill developed in this manner is the absence of generally accepted objective of measurement. (ii) Purchased Goodwill arising on the acquisition of one business by another being excess of the purchase price of the acquired business over the fair value of its net tangible and identifiable assets. The pronouncements on accounting for goodwill in the United States and Canada apply equally to goodwill arising upon; (a.) Acquisition of the net assets of a business, (b.) Preparation of consolidated financial statements when the purchase method of accounting is followed for investing in companies consolidated, and (c.) Accounting for investments by the equity method. (iii) Business Combination and Goodwill are events or transactions in which two or more business enterprise or their net assets, are brought under common control as a single accounting entity. The term "Mergers and acquisitions" are also referred to as business combination.

Accounting Methods for Goodwill

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The three qualitative characteristics most directly concerned with goodwill are reliability prudence and consistency. Although much has been written on the problem of accounting for goodwill during the past century a solution remains elusive. The treatment of goodwill has changed over the years. The four different methods of accounting for goodwill are following (i) Write-off goodwill is immediately written off against an account in the stockholder's equity section, generally retained earnings. Another rational for this method is that overpayment for the assets of the company represents the expectations of superior future earnings. Since these earning eventually end up in the stockholders equity, they can be offset against the excess acquisition payment. Writing off goodwill immediately can bad to distorted results when tangible assets are undervalued allowing goodwill to be overstated. (ii) Capitalization This approach's proponents argue that if goodwill is an important as assets as many believe, it belongs on the balance sheet. (iii) Non Amortization Capitalization of goodwill without amortization allows the most advantageous financial reporting figures. A company gets to record an asset instead of a decrease in stockholders equity and net income is not periodically reduced. However, it probably would result in more abuse than any other method. The rationale for non-amortization is premised on the notion that goodwill does not decrease in value. High managerial ability, good name and reputation, and excellent staff generally do not decrease in value but they increase in value. (iv) Amortization enables companies to match the cost of intangible assets over the period deemed to benefit from their acquisition. Main arguments for amortization are the abuse of non-amortization and the unreliability of earnings without

some attempt to recognize the impact, when amortization became required, the period for write-off became the focus. If the life of the asset is non determinable, which is normally the case with goodwill, amortization over a maximum of forty years should be used. This lengthy period was set to allow a minimum impact to the net income.

Valuation Models of Goodwill

There are following models of valuation of goodwill (i) Average Profit Method is valued on the basis of average profits of past few years. Value of goodwill is certain number of years purchase price of average profit. Average profit generally profits of previous four of five years are considered. Past profits may require some following adjustments. (a.) Any non recurring or casual income will be deducted from profit. (b.) Any abnormal loss or non-recurring expense will be added back to profit. (c.) Profits will be corrected for any mistakes detected at the time of valuation. (d.) Average profit of past years will be increased for any expected income in future. (e.) Similarly average profit will be reduced for any expected expense in future. Normally simple average of past profits will be calculated, but in case past profits shown a constant increasing or decreasing trend, it is better to calculate weighted average.

Formula

Goodwill = Average Profit x Number of year purchase.

(ii) Super Profit Method is calculated on the basis of annual super profit. The formula for calculation of goodwill is a under. G/W = Annual super profit x Number of years. What is the Normal Profit: It is the profit which is expected by the proprietor from

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the business proprietor expects that a reasonable interest should be earned on the capital invested by him. The two rates (interest rate and risk rate) may be given separately in the question or a consolidated rate may be given. If these two rates are given separately, total of these two rates will be treated as normal rate.(iii) Capitalisation Method is valued on the basis of capitalized value of business means the value which a buyer of business will be ready to pay for a particular business.

Formula:

(i) Capitalisation of Average

$$G/W = \frac{\text{Average profit x 100}}{\text{Normal Rate}}$$

(ii) Capitalisation of Super Profit

$$G/W = \frac{\text{Annual Super Profit x 100}}{\text{Normal Rate}}$$

(iv) Annuity Method time value of money is also considered. This method is an improvement over super profit method. Under super profit method annual super profit is multiplied by the number of years during which super profit are expected to be earned. Under annuity method, interest factor is also taken into consideration. The value of goodwill under this method is the present value of future annual super profit.

Formula

G/W = Annual Super Profit x PVR

PVR = (Present Value of Rupee one)

Valuation of Patents

Patents provide exclusive right to produce or sell new inventions. When a patent is purchased from another company, the cost of the patent is the purchase price. It a company invents a new product and receives a patent for it, the cost includes only registration, documentation, and legal fees associated with acquiring the patent and defending it against unlawful use by other companies.

Valuation of patent or patent application, whether explicitly or implicitly involves making judgements about the future in much the same way that stock market prices have embedded in them judgements of investors about the future performance of a company. In valuing a patent from any underlying invention, the fundamental issue as outlined above, first determine is by how much the returns from all possible modes of exploitation of the patented invention are greater than those that would be obtained in the absence of the patent. Making such a distinction is difficult even when the returns from the patented invention are well defined. However are well defined. However in the early life of the patent or application many other types of uncertainty are also involved. A patent viewed as a financial project running from filing the application to expiry of the granted patent possible twenty years later is thus a far from straight forward one. All shorts of outcomes are possible and there are many stages in the application process when it may be abandoned or after grant, when annual renewal fees become payable, when the resulting patent may be allowed to lapse. Additionally, at the end of the first year from the initial application the applicant may decide to file corresponding applications abroad thus considerably expanding the "application" in the

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broader sense. Any decision free describing it is thus going to be very complex and more of a decision forecast.

Valuation Models of Patents

Russell & Parr (1994) divide all possible type of valuation of individual patents into Cost, Market and Income Based Methods, the latter of which includes simple CDF methods. Arthur Anderson (1992) in a report on valuing intangible assets divide valuation methods into Cost, Market Value and Economic Value methods. However for the purpose of this decision it is perhaps better to classify valuation method for individual patents by the extra features they account for over and above less sophisticated method. These can be summarized in increasing order of sophistication as: (i) Cost based methods:- Accounting for Historical costs knowledge of at least the future costs of creating IPRs is needed as part of almost all valuation methods. However, valuation methods based on the histroic costs of acquisition perhaps less any allowances for depreciation or obsolescence are worth only the very briefest of comment. Their most serious failing is that they make no allowance for the future benefits which might accure from the patent. They are of no help other than in historical cost based accounting systems or where taxation methods dictate their used and useless for making rational decisions. (ii) Market based methods - Accounting for market conditions:- The aim of market based methods is to value assets by studying the prices of comparable assets which have been traded between parties at arm's length in a active market. The cost of an IPR is a possibly useful guide to its value is when the cost concerned is the price paid for the same IPR in a very recent comparable commercial transaction.

In other case, comparability with other patents whose value is known from market transaction is the main problem. There is a risk that the comparisons made way not be justified and be no more than convenient measures of value. Market based valuation methods may also be based on comparable royalty rates. Royalty rates selected on an industry average rate can also have problems. Royalty rates set using returns to R & D costs or return on sales figures for the company or industry for example run the risk of valuing costs or other factors rather than value. However, whilst such a methods may be a vaild way of discovering the implicit market valuation of a "patented product", one cannot be sure that it provides an objective valuation. A more fundamental problem is that one is using a stock market valuation of the company as a basis for estimating the value of its IP and IPRs. One is thus making an assumption that the market is perfectly informed about the IPRs of the company and can calculate their value. It that is the case though, there is no reason why those who wish to calculate the value of the IPRs should not do the same calculations or have the same insights. (iii) Income based methods - Accounting for future value:- Improvements on cost based methods of valuation include at least some forecast of future income from a patent and thus some appreciation of the value of the patent as opposed to just its estimated market price or its cost. This will inevitably also involve some element of forecasting the future cash flows. However it is only with the additions of trying to account for the elements of time and uncertainty in future cash flows as is the case with conventional discounted cash flows (DCF) method that one begins to get valuation methods using projections of future cash flows to value patents without taking account of time & risk but such methods

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can be ignored. A further and very common method based on industry averae royalty rates assumes that the income due to a patent peruse is the royalty which would have to be paid by a license. (iv) DCF based methods - Accounting for time & uncertainty:- Discounted Cash flow (DCF) methods of valuation are now used for al manner of applications. The two key factors they account for are the time value of money and to some extent the riskiness of the forecast cash flows. These two problem can be solved in two ways. Either by using a risk adjusted discount rate to discount the forecast cash flows, thus accounting for both factor at once or using certainty equivalent cash flows, in which forecast cash flows are adjusted to account for their riskiness and changing riskiness overtime. These are then discounted at the risk free rate to account for the time value of money. The latter matter separate the two issues of risk and time and can help avoid problems when the risk adjustment varies over time as it will with patents. (v) DTA based method - Accounting for flexibility:- In addition to the problems of selecting discount rates appropriate to risk associated with the various stages in a patent's life and those of calculating the possible cash flows which might occur there is a third problem with simple DCF methods. This is that no account is taken of the various possibilities open to managers of a project or in the case of this discussion a patent. To a certain extent simulations such as those described above can be used to try and account for the possible outcomes of management decisions though the same caveats outlines above apply. Where the number of such possibilities is limited though and the possibilities for management choice only occur at defined times they may be accounted for the use of some form of Decision Tree Analysis. This ought to be based on a

underlying DCF analysis of each branch, starting with the final ones and working backwards in time to give a present value. The big advantage of the DTA method over simple DCF analysis is that it builds in the value of flexibility encounted in a project on patent. (vi) Option Pricing Theory (OPT) Method - Accounting for Changing Risk:- The theory behind option pricing was primarily developed for use in pricing financial options and financial option markets have perhaps funded the research into an certainly provided the testing grounds for some of the underlying theories. An option can be defined generally as a right but not an obligation at or before some specified time, to purchase or sell underlying assets whose price is subject to some form of random variation. Options have in common with situations subject to DTA analysis the possibility of different over time. DTA method should use a discount rate appropriate to the risk involved in that stage and that the risk and thus discount rate may well very over time due to the differing nature of the payoffs and thus decisions at each stages. The certainty equivalent approach mentioned earlier in the context of basic DCF analysis is one possible approach however another and more powerful method is to use contingent claims analysis the underlying idea of which is used in both (i) discrete time period type analysis, and (ii) continuous time option valuation models.

(i) **Discrete time -** Binomial Model (B-M) based methods - contingent claim analysis begins to solve the problem of changing discount rate which conventional DCF/DTA methods cannot solve easily. It uses the basic assumption that the return to a call option on a share are equivalent to those of portfolio or "synthetic option" consisting of

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borrowing some money and buying some of the underlying shares a number of situations in which non-financial "Real options occur and in which a contingent claim analysis (CCA) valuation method can be used involving a portfolio of borrowing and shares being setup to replicate the returns of the project involving an option. For simple decision tree involving flexibility CCA is thus preferable to conventional DCF/DTA methods. (ii) Continuous Time - Black Scholes (B-S) option pricing models - DTA methods can become inordinately complex resulting in what Trigeories calls "Decision Bush Analysis". A further problem with DTA analysis methods is that whilst choices between course of action with a few discrete outcomes may occur in most cases a range of value is possible. Unlike DCF based DTA analysis using a single risk adjusted discounted rate OPT methods accounting for continuous time such as the equation derived a solution to these problems.   (a.) Financial options - The valuation of options on financial assets according to Black and Scholes the opening of Chicago Board Options Exchange and a great expansion in the trading of such options on common stock. As with discrete time CCA discribed above, their equation was based on the assumption that the returns to a call options on a share are equivalent to those of a portfolio or 'synthetic option' consisting of borrowing some money and buying some of the underlying shares. The Black and Scholes equation can in fact be derived from a discrete time based CCA analysis by letting the length of period studied for each stage in the tree tend to Zero for the case of continuous time though, if one assumes that there are no arbitrage opportunities the price 'C' of a

European call option on a underlying share is

$$C = SN \frac{(In(S/E) + (r + ½ \text{?}2)t)}{\text{?}t}$$

$$-Ee^{-rt} N \frac{(In(S/E) + (r+½)t}{\text{?}t} -\text{?}t$$

S = Current underlying share price

? = Volatility of the share price

E = Exercise price if the option

r - risk free interest rate

t = time to expiry

N ( ) = cumulative standard normal distribution function

The equation that Black and Scholes provided was based on several key assumptions (i) interest rates are constant over time, (ii) share prices follows a random walk where the distribution of price at the end of a given time period is log normal with the variance assumed constant over time, (iii) only European option are considered, (iv) markets are friction free with no transaction costs, and (v) Dividend payments on the underlying share are exluded. Table can be made to calculate the value of put of or calls give $S/(eS-rt)$ and $\text{??}t$ so valuing a simple call options need not be a particular complicated operation.

(b.) Real option - The basic definition of an option can be applied to a number of other situations other than directly financial assets. Such non-financial option have become known as "Real options" and a substantial literature has built up around the application of OPT methods to their valuation. The

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field of real options developed principally from the realisation that as outlined above conventional valuation methods do not or cannot cope very well with managerial flexibility. There is thus an equivalence between the inputs required to volve financial options and those involved in valuing real options.

Financial option on share	Real option
S = current price of the underlying share	Present value of project cash flows
E = Exercise price of the option	Investment cost of project
t = Time to expiry	Time left to invest in
? = Standard deviation of underlying share returns	Standard deviation of the project value
r = Risk Free interest rate	Risk free interest rate

Conclusion

The intangible assets always remained interesting and impressive assets. Generally persons are very like tangible assets but in the business intangible assets play their alternative infect business is always about towards creations of intangibles. Intangible assets also remain is central point of decision among the scholars, thinkers and investors. Dealing with business resulted in the right way only if intangible assets are considered form otherwise both side are very dangerous and misleading. The paper highlighted concepts, nature and scope of intangible assets. Considering the opinion of the express by scholars, accountant, and investors. A rich survey of literature also recorded in the paper considering study organise by a number of scholars such as Arkbland, C. Dragontti, Cazavan Jeny Anne, Guthrie, Kelvin King, Matsura H. Jeffrey, Sylvain Roy etc. Paper highlighted for Goodwill categories into three part (i) Internally Generated Goodwill, (ii) Purchase Goodwill, and (iii) Business combination and Goodwill. Besides, methods of valuation of Goodwill including (i) Average Profit Method, (ii) Super Profit Method, (iii) Capitalisation Method, and (iv) Annuity Method also taken into account. Similarly patents also discuss with the concept of accounting and valuations considering the remound persons of accounting, (a) Cost Based Method, (b) Market Based Method, (c) Income Based Method, (d) DCF Based Method, (e) DTA Based Method, and (f) Option Pricing. The models developed by the authorities are being also applied in India but along with accounting policy set by the concern in the questions. A new look on the models related with intensiveness will surve better treatment of intangible assets. Although a number of intangible assets are there yet a few models are developed specifically for intangible assets.

Appendix - 1
The Recent Valuation Models

Research is the continuous fenamina and scope of lecture is unlimited. Undoubtly the first decade of the 25th century may could as a decade of Intangible Valuation Models in which a number of valuations models developed by the different scholars as list enclose.

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A list of Valuation Models

Scholar's Name	Models Name
1. Armis Petersons (2003)	(i) The Cost Approach
	(ii) The Income Approach
	(iii) The Market Approach
2. Matsuura H. Jeffrey (2004)	(i) Cost Based Models
	(ii) Market Based Models
	(iii) Income Based Models
	(iv) Option Based Models
3. Sylvain Roy (2004)	(i) Market Based Models
	(ii) Cost Based Models
	(iii) Based on estimate of past and future Economic Benefits.
4. MC. Graw Hill (2004)	(i) Cost Approach
	(ii) Market Approach
	(iii) Income Approach
5. Charies River Associates (2004)	(i) Discounted Cash Flow Analysis
	(ii) Analysis of Comparable Alternative
	(iii) Sensitivity Analysis of Value Drivers
	(iv) Analysis of Economic Alternative
	(v) Probability Tree Analysis
	(vi) Decision tree analysis
	(vii) Real Option Analysis
	(viii) Monte Carlo Analysis
	(ix) Flexible Models for License Negotiations.
6. Kelvin King (2006)	(i) Market Based Models
	(ii) Cost Based Models
	(iii) Based on Estimate of Past and Future Economic Benefits.
7. Paul Flignor and David Orozio (2006)	(i) Transactional Models
	(ii) Cost Models
	(iii) Income Models
	(iv) Binomial/Option Models
8. Anastasia Vardavaki, John Mylonakis (2007)	(i) Asset Based Models
	(ii) Discounted Valuation Models
	(iii) Discounted Residual Income Models

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