

Methods of valuating intangible assets with the emphasis on the valuation of know-how

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Abstract

The paper focuses on the valuation of the know-how of engineering companies. The main objective is to create a detailed literature review of research focused on defining, identifying, analyzing and evaluating component know-how and the subsequent pricing models, know-how, their comparison with standard valuation models and the use of valuation practice.

Key words: know-how, valuating methods, valuating models

1. Introduction

In the 90's of the last century a need of business valuation arose as a result of economic transformation and the associated transformation of property relations. Thus there is a need to know the next book value of company's assets and market value, especially in the context of privatization. The market value has become interesting for investors, owners (usually shareholders), investors and creditors (mostly banks).

Business valuation issues as a set of tangible and intangible assets and liabilities is engaged in a number of Czech and foreign authors.

This critical research provides a list and description of the state of literature on the topic of business valuation, with an emphasis on the valuation of intangible assets, in particular know-how in business practice on the example of the Czech Republic.

2. Business valuation

Enterprise can be defined from different perspectives. In terms of enterprise valuation of interest definition of enterprise under the Business Code, which defines the company as follows: "The Company is a set of tangible, personal and intangible components of business. The business objects, rights and other property values owned by an entrepreneur and used to operate a business or due to their nature they serve this purpose. The Company is a collective thing."¹

In the Czech environment prof. Marik (Marik, 2011) and prof. Kislingerová (Kislingerová, 2001) are focused on the general valuation issues. Marik at the beginning of the report defines the basic concepts related to the definition of the enterprise (see above), the level of enterprise value etc. Another section discusses the theoretical and the factors of time and risk as the basic building blocks of the award. The following section provides the procedure for valuation of the company. The next four chapters describe

the various valuation methods. Theoretical explanation is interlaced practical example. From the perspective of the theme of the dissertation I see as the biggest benefit of just a list of general methods for the valuation, since the aim of the dissertation is not a proposal for a new valuation method, but the identification and analysis of alternative information base.

Kislingerová today is a fairly outdated publication. Major emphasis is placed on the model discounted cash flow that provide the greatest practical utility. Standalone attention to issues of author analyzes the financial situation. There is the issue of inclusion of value criteria for measuring business performance. The publication also includes practical case study that demonstrates the applicability of income methods.

The general theme of business valuation is very widely and deeply processed not only in Czech and foreign literature (Breally, Myers, 1992) (Bühner 1991) (Damodaran, 1994), of which Czech authors frequently come. This issue provides a very rough theoretical basis for addressing specific topics dissertation.

3. Valuation of intangible assets

Meaning valuation of intangible assets is growing in connection with an increasing proportion of intangible assets in the balance sums of businesses. The difference between the market price of the company and its book value is often several times higher than the book value of the company. This difference represents goodwill, which consists of accounting-registered items, eg. human capital, know-how etc. The growing influence of intangible assets on an enterprise value is mainly due to the increasing importance of research and development focused on product and process innovation, which is crucial for increasing competitiveness.

Valuation of assets as a whole, and even those intangibles are important areas of modern finance. Valuation of assets is not made only to buyers if you are interested in buying

¹ § 5 paragraph 1-2 law number 513/1991 Sb., Business code.

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the assets, but eg. in the context of mergers and acquisitions, entry on the stock exchange, litigation etc.

Intangible assets can be classified as intellectual property, which fall into inventions, utility models, industrial designs, trademarks and know-how. Valuation of intangible assets is carried out after certain methods, such as multipliers method, reproduction costs, revenue, license analogy, profit sharing, bonuses. A common assumption of these methods is that they often are based on databases of industrial property rights - patents, utility models and industrial designs, royalties. Information concerning industrial property rights are generally subject to commercial confidentiality, which strongly limits the possibilities for the valuation of intangible assets. Originality of the solution of the problem lies primarily in the not too far explored identification and analysis of alternative information base for the valuation of intangible assets. Under the original can also be considered a draft methodology for examining the contribution of corporate know-how to the creation of value engineering company.

3.1 Definition and classification of intangible assets

Generally applicable formulation concept of an intangible asset provides (Bouteiller, 2001):

"Intangible assets created as a result of past events, which are distinguished by three characteristics: (i) are not material in nature, (ii) are capable of generating future net income, (iii) legally or otherwise protected."

To zoom classification utilize one of Cada's concept classification (see Tab. No. 1). At this point it is worth noting that the categories of know-how belong to unregistered property rights.

Table 1. Classification of intangible assets for valuation purposes (Cada, 2000)

Kind of asset		Technical character	Business character
Other intangible assets		Drawing documentation	Goodwill
		Software	Business information databasis
		Expert knowledge	
		Technical information databank	
		Projects	
Property rights	Unregistered	Business secret (technical character)	Business secret (business character)
		Know-how	
	Registered	Patents	Trademarks
		Utility models	Business name
		Designes	Designation of origin
		Topography	Geographical indication

3.2 Reasons for valuation of intangible assets

With the growing importance of intangible assets, there is a need for their independent valuation. Suggestions for the valuation of intangible assets can be either "global" or "specific" character.

With regard to global needs, in particular the attempts to quantify the importance of intangible assets and share the values of the whole company. In this context, we use the most general term "intellectual capital" and is used to measure it so. Global valuation methods, eg. Pointer P-BV, respectively. called. Tobin Q5 (Bouteiller, 2001). These global needs can also arrange publicly published valuation for marketing purposes prominent trademark global reach (regularly publishes a magazine Businessweek). When these global needs not usually distinguish between sub-components of intangible assets of the companies, such awards are therefore limited, rather demonstrative (scientific, marketing) meaning.

Specific suggestions for awards stem from situations where intangible assets disposed of somehow, whether in a business transaction or otherwise. Such suggestion are as follows for valuation:

- transaction (purchase, sale, acquisition, licensing)
- contribution to society (incl. Establishment of joint ventures)
- business combination (the revaluation of property items "purchased" enterprise)
- Financial Reporting (display in balance)
- violations.
- liquidation and bankruptcy firm
- tax incentives (inheritance, donation)
- pledge of receivables,
- management needs (investments in the creation of intangible assets).

When specific incentives for the award should be based on a more detailed breakdown of intangible assets, rather than from the general definition of "intellectual capital". When these specific complaints valuation focuses on the intangible assets, which are separable from the company and where it is possible to define certain "separate rights", and thus at least assume a hypothetical transaction. For this reason, the subject of separate valuation of intangible assets become especially protected by law, industrial and intellectual property, in the business sector in particular, then objects of industrial rights. In terms of valuation can be considered especially important patented inventions, utility models and industrial designs and trademarks. My work deals with valuation expertise, so I deal with these further sub intangible assets.

In the Czech literature, the issue of the valuation of intangible assets is processed mainly in the literature (Cada, 2007) and (Svacina, 2010). Svacina presents a comprehensive work dealing with this issue. The definition and classification of intangible assets at the beginning of the publication often refers to Cada, see Table 1. The publication deals with searches of industrial property rights, bases of valuation of intangible assets and in the last sixth chapter approaches and methods of valuing intangible assets:

- method of multipliers
- methods of reproduction and replacement costs
- yield method
- license analogy method
- method of profit sharing
- method bonuses
- the present value method
- method excessive profits and the purchase price allocation process

From the perspective of solved dissertation this publication is especially beneficial in the definition of know-how, which the author says that the category of trade secrets can be considered a category which also includes the category of know-how and refers to (Horacek, Cada, Hain, 2005, p. 253). From the viewpoint of synthesis of legal and accounting definition of a trade secret deals with the issue of identifiability of intangible assets. With this condition accounts related to the scope of protection of trade secrets. From the perspective of the legal definition of this states:

actually having a real or at least potential material or immaterial value, not in the relevant business circles widely available

they will be kept secret and entrepreneurs entrepreneur adequately ensure its confidentiality
relate to now

It also offers a list and description of methods of valuation of intangible assets. But it does not describe in detail the valuation process know-how with regard to the collection of input data.

Other less broader publication is already mentioned (Cada, 2007). This publication provides a definition of objects of intangible assets, valuation grounds, and general approaches to the valuation of intangible assets and valuation methods. As most beneficial in terms of solved dissertation award is an example of know-how, whose solutions, however, comes from the license fee, which is applied yield method. There is very beneficial illustrates how the resulting valuation susceptible to precision due to the subjective assessment of the factors party valuator.

In foreign literature, the general theme of valuing intangible assets is dealt with (Reilly, Schweihs, 1998), (Smith, Parr, 2000) or (Goldschreider, 2000). Publication (Smith, Parr, 2000) is designed to simplify the process of attaching dollar amounts to intangible assets, whether in terms of licensing, mergers and acquisitions, securing the loan or investment purposes. In plain English, the authors answer key questions such as "What is intellectual property? How can I identify it?" They also provide examples of how to use it and the method of determining the economic life of the rest. Explain commonly used strategy to determine the value of intellectual property, as well as the methods used to determine the interest rate based on the investment rate of return.

The book is divided into three sections: the nature of intellectual property, valuation and exceptional circumstances. It contains the latest information about the market and

book value, capitalization, licensing and royalties domain name valuation, embryonic technology awards and university technology transfers. Also deals with tax strategy, the contribution of income, cash flow discounts, litigation, infringement and bankruptcy and its impact on the valuation of intellectual property and intangible assets. Additions include the level of investment required, the use and abuse of Iowa curves, sample registration of patents, "Sample Copyright" registration and "Sample Copyright" authorization. The book is very broad and general. It contains a methodology for valuation of supplier relations and labor collective.

4. Valuation of know-how of an engineering enterprise

The research (Arora, 1995) on the economic returns from new technologies stressed the importance of the so-called tacit knowledge or know-how. The article shows that the contract (ARMS LENGTH CONTRACT) can overcome problems in contracting know-how by combining additional inputs to the know-how in a technology package and thus obtain a superior legal enforceability.

In the empirical part of this work the relationship between tying and transferring of know-how is analyzed by using data obtained from research in India. The results show that the effectiveness of contracts involving the transfer of know-how can be increased by tied inputs.

It is likely that problems related to moral hazard, asymmetric information and opportunistic behavior will arise in the case of imperfect technology market.

Most often these problems occur in connection with the transfer of tacit knowledge or know-how.

This article provides a simple model that shows how know-how can be transferred by customary trade contracts with the provision of additional inputs. The results show that sales of devices are connected only with the training of personnel, while patents are associated with more technologically sophisticated know-how.

CONSOR is a company that specializes in the valuation of intangible assets and intellectual property. Intellectual property such as patents, trademarks or copyrights, are usually tied to other intangible assets. CONSOR regularly compiles a sort of bundle of intangible assets around the core of the intellectual property.

In the introduction the authors (ANSON, NOBLE, Samal, 2014) of the paper focus on the definition of tangible and intangible assets, which mentions that intellectual property is currently a subject to legal protection, particularly in the US. The first step for setting the value of intangible assets is the precise determination of what an intangible asset is. The second step is the actual valuation of the intangible asset. According to the type of information available to authors then choose one of the methods for the appropriate valuation. Selected methods then value the intangible asset as tangible asset, using estimated information. For the valuation of the corporate know-how from the perspective of SMEs in the Czech Republic is this practice inappropriate mainly because of the large number of estimated data and information.

The article provides an overview of the existing and newly announced US, UK and IASC accounting standards related to intangible assets. The emphasis is placed on inconsistencies in the measurement and reporting of intangible assets in accordance with US generally accepted accounting principles (GAAP). It has been shown that the recognition of intangible assets in accordance with current the accounting principles, especially with the newly promulgated accounting standards for a business combination of goodwill and other intangible assets. The goal of the comparison of the UK and IASC is to demonstrate that it will improve the measurement and reporting of intangible (intellectual) capital and to facilitate harmonization. The improvement of global financial reporting infrastructure will ultimately lead to a high-quality and reliable reporting of those gains.

In his article "The recognition and measurement of intangible assets: Then and Now" Eckstein (2004) provides an overview of long established and newly introduced accounting standards relating to the intangible assets. The author also describes irregularities in the valuation and subsequent reporting of intangible assets in accordance with the US generally accepted standards. The author can then compare the methods and standards used in the US, British and IASC standards. In the conclusion, the author proposes to improve and unify financial reporting on intangible assets. The unification principles that were used are applicable for very narrow valuation of intangible assets and know-how. However in the article the author defines intangible assets only in general terms. No suitable method or approach for the valuation of know-how were given.

In his article the author (Tomohiro Yamaguchi, 2014) describes the design of the model for the valuation of intangible assets, using the so-called panel data. The author also deals with empirical investigation of the validity of the proposed model. This approach where the author proposes a model using panel data as a suitable method for the valuation of intangible assets, uses the effects based on a specific analysis of the panel. The first model suggests the production function analysis using the panel and then the cost function, which uses the principle of duality. The author then uses discounting of the value added and the costs arising from intangible assets through direct sales.

The analysis that uses the proposed model compares the estimated values of parameters with the nonlinear gain function, which consists of the production function and the cost function with the parameters of only of the actual production function, which becomes linear after the logarithm, and indicates that both parameters are generally similar. The author also explains that the market value of equity is closely related to the carrying value of equity and the value of intangible assets, more than just a single value of equity. The findings published by the author then support the validity of the proposed model for the valuation of intangible assets. According to the author's information this model is easily applicable in the practice.

In the mentioned article the author defines the method for valuation of intangible assets only in general. For the valuation he suggests using a model based on panel data analysis through production and cost functions. His model

mentioned is hardly applicable to the valuation of corporate know-how. The model is more suitable for the valuation of patents and utility models, which already have competitive solutions and any clear benefits arising from the intangible asset.

In relation of the above mentioned it can be argued that the available public databases do not address the uncharted and undocumented data required for the valuation of know-how, detection and prediction of these data.

The process of identification and detection of data should be followed by an analysis and drafting of a model for the valuation of selected components know-how. Process methodology for the dissertation topic with the aim of quantifying the know-how could be summed up in the following sequence of steps: identification of intangible assets, data collection, analysis and design of the valuation model.

5. Final information

This critical research maps the current state of research and knowledge in the area of business valuation, with an emphasis on the intangible assets, in particular know-how. It is structured so that analyzes the literature on business valuation, the definition and classification of intangible assets. The main part of the paper is the analysis of the literature on the valuation of know-how with the emphasis on the input data and the method used.

The valuation of the tangible assets is abundantly described and mapped in scientific databases. Different approaches and different methods are proposed for the valuation of all types of goods.

In the area of intangible assets authors primarily define the methods and models for the valuation of registered intangible assets (patent utility model etc.) In the valuation of know-how of businesses in the scientific databases and publicly available information articles I have found that this type of intangible assets is valued only by yield method. This method is highly sensitive to the input data - license etc.

In the literature no solution is described that would allow the valuation of the know-how on the basis of currently available information. In regards of the method of valuation there is no general procedure for the valuation of know-how. Another drawback is certainly the fact that the current methods are sensitive to the existence of similar solutions - inputs of the Industrial Property Office. Based on the existing literature, I have not found the information on how are this kind of intangible assets valued in the absence of the input data.

This critical research on the topic of the valuation of the know-how of an engineering company should help the author in solving the dissertation topic, since the aim of the thesis is to determine the methodology for the identification of the components of intangible assets, the design data structure for valuing intangible assets of an engineering company, a proposal for the analysis of data base for pricing intangible assets, in particular know-how and a proposal for the transformation of qualitative data into quantitative.

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