

USE OF OBJECTIVIZED VALUE IN BUSINESS VALUATION

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Abstract: The aim of our paper was to create a methodology for determining the value of small tangible fixed assets. For this, a flat-rate valuation method is used. The compilation of the instrument for determining the value of small tangible fixed assets is based on observation of the Czech market in this type of goods. The method is applied to the model association XYZ, which was in the research before its transformation into a limited liability company. The results presented in the form of an amortization scale can be applied to other types of valued assets, provided all requirements are met.

Keywords: Small tangible fixed assets, lump sum method, amortization scale, association, limited liability company, property valuation, property classification

1 Introduction

Recently, business valuation is an increasingly scientific discipline that affects not only business owners and managers, but also employees, state administration bodies, courts, tax authorities, experts and academics, etc. Individual transformations of a business (merger, division) impose the obligation of business valuation or share of the law, in fact. Furthermore, it is necessary to determine the value of a business when it is sold or transformed into joint ownership. The subject of evaluation may be even the individual parts of a business or certain shares in case of a public limited company.

Business valuation may be considered from several viewpoints. The determination of so-called objectivized market value is one of the essential strategies in case of the sale of a business. In connection with this, it is possible to use one of the return methods of market valuation or property (substitution) valuation (Vrbka et al., 2019). In valuation practice, in case of any of the above mentioned processes (sales, mergers, etc.), the valuator attempts to simulate a sales situation for a third independent rational thinker.

The business valuation process itself should take certain steps that are necessary to correctly determine the value, including the collection and analysis of business data, the preparation of its financial plan and the subsequent selection and application of the valuation method (Mařík et al., 2018).

The aim of the paper is to apply the theory of objective value which is viewed from the perspective of the third independent rationally thinking person and to demonstrate it on a specific example of business valuation.

2 Literary research

The concept of a 'value' is to be defined first. Krabec (2009) states that one of the prominent authors of value theory was Adam Smith in the second half of the 18th century, who argued that exchange and utility value did not depend on each other. Smith's theory that the only value-giving factor of manufactured goods is their intrinsic value (determined by the amount of labour spent on their production) was refuted by the Marginalist Revolution.

In modern history, many authors have dealt with the definition of the concept of value. Gummerus (2013) divides the resulting value of the good into the sum of the value of the creation processes and the value of the resulting goods. He proposes to create a model which determines a part of its value on the basis of the value for the end consumer when the value of a particular good is set.

Higgins and Scholer (2009) maintain that customer attitude to a particular product can have a positive or negative impact on its value. It is an approach to the product from the point of view of consumer psychology, where the value created in this way is a motivating force of purchase or resistance to a specific product. It is therefore a relationship where the rising demand for a product increases its price and vice versa.

A very interesting insight into the theory of value creation was provided by Kim et al. (2011), who determined the value of digital objects for the customer as well as factors influencing the attractiveness of these objects. The sale of digital items is very specific and nowadays it is increasingly on offer by the merchants and can significantly raise the revenues from their business activities. From the customer's point of view, the value of these digital objects is mainly set by their emotional and social level. The real paper of the digital object to the owner is a secondary value-creating factor for the customer. Anderson and Kilduff (2009) describe this behavior, i.e. the buyer's determining the value of an item, in relation to his or her social status in society.

The following part of the text will deal with the selected principles of business valuation. Majerčák and Majerčáková (2013) state that, over time, there have been developed four basic principles of business valuation. These are market value, subjective value, objectivized value and the so-called Cologne school.

According to International Valuation Standards (IVS) (2017), the market value is the estimated amount for which assets should be exchanged at the valuation date between a voluntary buyer and a voluntary seller in an independent transaction after appropriate marketing, when each party acts informed, reasonably, and without pressure.

Mařík (2004) explains the individual ideas of this definition. The estimated amount in this case is the sum expressed in money that has been received in an independent payment transaction for the same asset. A voluntary buyer and seller is a person who is internally motivated to purchase and to sell. An independent transaction between the parties assumes that there is no other factor between the parties that would affect the entire course of the transaction or the amount of financial consideration. The idea that both parties are informed and rational assumes that they are fully aware of the state of the subject of the transaction and make an effort to sensibly achieve the best but still reasonable prices for them. Moreover, it is important that the parties are informed about the value of the subject of the transaction at the date of the establishment of the transaction.

The further part of the theoretical introduction clarifies the concept of 'objectivized value'. According to IDW Standard S1 (2008), the objectivized value is a standardized and revisable return value determined from the perspective of a citizen owner (or group of owners), subject to unlimited taxation. The value is set on condition that the business maintains an unchanged concept, using realistic expectations within market opportunities, risks and other influences affecting business value.

According to Krabec (2009), the objectivized value is an abstract concept derived from the parties, i.e. offer and demand, in relation to the valued asset in the market. The objectivized value is not an estimate of the probable, ex post observable or equilibrium market price. The objectivized value is not and should not be an estimate of the likely equilibrium price, but a standardized variable based on the reviewability criteria.

According to Mařík and Maříková (2011), only generally accepted facts are taken into account when determining the objectivized value of a business at first. After that there are considered the facts that have an impact on valuation and are

generally known, even though they concern the future. Finally, the subjective aspects are also included into the valuation. Miakčová and Gavřáková (2013) deal with the valuation of companies using the Yield-Basis Method. They argue that the company's return on value is a key indicator for investors, owners and creditors. Determining the value of a business also contributes to further decisions on how to manage it, shape it and further increase its value.

The discounted cash flow model (DCF) can be used as a method of business valuation. Since this method is employed in the methodological part of the paper, this model is described in more detail. According to this method the calculation of business value is based on expected future cash flows (cash flow to equity – FCFE, cash flow to the company – FCFF). The continuing business value can be estimated using the Gordon formula for a simple extrapolation of free cash flow at the end of the forecast period, or a perpetual or parametric value driver formula (Jennergren, 2008). According to Mařík and Maříková (2006), Gordon's model for forecasting is also applicable in the Czech Republic.

Kumar (2016) states that there are three basic valuation models for the DCF model, i.e. dividend discount model (DDM), FCFE and FCFF. It is also possible to use its single-phase, two-phase or three-phase variant. In the two-stage variant, it is assumed that there is a stabilization period for the business, followed by a period of stable growth rate. The three-phase version of the model assumes the first phase of high growth rate followed by a transition to a slower growth rate and, finally, a stable sustainable growth rate at last.

There are other authors who have published their conclusions with regard to the appropriateness of the use of DCF model in comparison with other methods. Honková (2017) deals with the valuation of return on businesses using the DCF model and subsequently she reviews the suitability of using this method in practice. The values of the business are calculated according to the DCF model and subsequently compared with the original value of equity. The differences between these values are verified using selected statistical methods. It is concluded that the value of the business calculated using the DCF model is higher than the value of its equity. She finds the advantage of the DCF model in its ability to simulate the development of value in case of a company with high initial debt which is currently making a profit. The main advantage of the DCF model is its ability to take into account the influence of time in the company's life cycle.

Demirakos et al. (2010) examines the accuracy of the value prediction and compares the DCF model with PE models in terms of equity values. According to his results, the DCF model is able to predict more accurately the resulting real value of shares than PE models in the long run.

Stancu et al. (2017) compares the ability to predict the development of business value using several methods (adjusted net asset method, relative valuation model, market value added and residual income model) including DCF. He concludes that the hypotheses at the core of each of these methods are consistent except for the adjusted net asset method.

Sayed (2015) calculates the accuracy of the prediction of the value development using the DCF model to be approx. 70% compared to the actual future. By contrast, the accuracy of the prediction based on book value is only 51.1%. Therefore, the DCF model is more effective in this respect. He also concludes that this method is used less frequently in businesses, paradoxically.

Hašková (2018) compares the DCF model with the probabilistic approach and fuzzy approach to use the economic efficiency of long-term project estimation.

However, the DCF model can be applied to business valuation. After the financial and strategic analysis, it can be concluded that

the business fulfils the 'going concern' condition and will thus be viable during the prediction period (Amin et al., 2014). Since business valuation using the DCF model is based on certain simplifying assumptions, these assumptions must be respected. According to Kislinger (2001), these assumptions are as such: effective capital markets, the capital structure of a business is made up of equity and debt only, there is only income tax, and the company must invest permanently in depreciation in terms of the principle of 'going concern'.

When using the DCF model one of the first steps is the correct determination of 1st phase of the prognosis. Mařík et al. (2018) states that the standard length of the first phase is set in the Czech Republic between three and six years (most often five years). This length of the first phase usually amounts to about 20% of the total business value in the calculation. According to Copeland et al. (2002), however, it is possible to determine the length of the first phase as a period of ten years. In this case, the first phase of the calculation is around 40% of the total value of the business. In the course of fifteen years each of both phases has an equal share of the final business value, i.e. 50:50.

In order to use the DCF model, it is necessary to prepare as perfectly accurate financial plan of the awarded company as possible. Vochozka (2016) states a financial plan can be drawn up by using a variety of methods. The financial plan may be drawn up by using an intuitive method, a statistical method, a causal method or a combination of the three methods. However, he advocates a method of creating a financial plan by the use of artificial neural networks (ANS). According to his concept, the neural networks designed for drawing up financial plans should be able to make a financial plan with approx. 90% accuracy compared to the reality in the future.

In the past it was the intuitive method that was the most frequently used, but nowadays it is the casual method. At present, ANS is also coming to the forefront to make financial planning due to its increasing popularity (Vochozka, 2016).

3 Methods and materials

For the purpose of this paper, a business referred to as XYZ, which operates in the construction market and deals with plumbing, heating and gas supply infrastructure, has provided a list of all its assets together with its historical financial statements. First, it is necessary to carry out a financial and strategic analysis of XYZ in order to select the business valuation method and to confirm or deny the principle of 'going concern'. Subsequently it is necessary to divide the whole assets into operationally necessary and non-operationally necessary. After all these steps the financial plan of XYZ will be developed. Subsequently, the valuation of XYZ itself will be carried out using the selected valuation method.

The financial and strategic analysis of XYZ will be carried out with regard to the concept of the business and its conditions in the 2014-2016 period. There is no official methodology for the financial analysis, but the Ministry of Industry and Trade (MIT) is trying to introduce certain methodological elements that should be included in the financial analysis in each specific sector. Financial analysis includes several techniques which may be used. These techniques include quantitative testing methods that are based on the data processing in financial statements, which are used to derive the individual financial health indicators of the business. They include the absolute method which regards the items in the financial statement as the absolute indicators and ignores the other phenomena. It is possible to divide the indicators in the financial statements into stock and flow. Another such method is the relative method, which is based on the measuring of data from the financial statements. It means that one figure is viewed in the way that it bears influence on another figure (Vochozka, 2016).

Horizontal and vertical analysis belongs to absolute indicators. These methods are used to identify the developing trends in the society. Horizontal analysis is used to monitor the development

of the company over time and vertical analysis determines the structure of the financial statement related to some meaningful quantity.

The technique of ratio indicators has been selected for this paper. This is a technique in which one financial indicator or a group of them is divided by another financial indicator or a group of them, provided that there is a certain link between these individual indicators. These indicators include profitability, activity and liquidity and debt ratios (for example, Vrbka, Rowland, 2019).

The further step is to carry out the strategic analysis of the business. Strategic analysis is one of the steps in the process of business valuation, by means of which it is possible to define the overall revenue potential of the valued business. Strategic and financial analysis is processed with the aim of confirming or refuting the principle of 'going concern', in terms of XYZ business, which is meant to serve as one of the grounds for the subsequent selection of the evaluation method.

Since the company owner was not paid for his work reflecting the performance component of his activity in the XYZ company, but was only paid the financial remuneration that he received as a result of his property rights, it is necessary to calculate the wage simulation cost to the owner of the XYZ company from the point of view of a third rational person. The wage costs are considered for such a person who would probably have to be employed by an independent investor in order to make a financial plan that will result in the FCFEs that are needed to value the XYZ company using to the selected method.

The two-stage DCF model will be used for business valuation of the XYZ company. The length of phase 1 will be set for the period of four and a half years (August 2016 – 2020). The year 2021 will be the first year of phase 2. Formula 1 is a calculation of business value of the XYZ company using the two-stage DCF model of future development:

$$H = \sum_{t=1}^T \frac{FCFE_t}{(1 + n_{VK(z)i})^t} + \frac{FCFE_{T+1}}{n_{VK(z)T+i} - g} * \frac{1}{(1 + n_{VK(z)i})^T} \quad (1)$$

Where: H – business value,
FCFE_t – Free cash flow to equity in year t,
N_{VK(z)i} – equity costs at particular debt in year i,
T – number of years in phase 1,
g – pace of growth in phase 2.

One of the key parameters of DCF revenue method is a discount rate. The alternative costs of equity are the discount rate when using DCF equity valuation method.

It is possible to use the modular method to determine the costs of equity (r_e), which is used in the discounting of cash flows FCFE – formula 2 (Vochozka and Rousek, 2011).

$$r_e = r_f + r_{pod} + r_{finstab} + r_{LA} \quad (2)$$

Where: r_e – costs of equity,
 r_f – risk-free return,
 r_{pod} – risk premium for business risk,
 $r_{finstab}$ – risk premium for financial stability,
 r_{LA} – risk premium for the size of business.

The input values for the modular method to determine the alternative costs of equity are the data published by MTI and the Czech National Bank (CNB).

Subsequently, it is necessary to determine the growth constant g. The growth constant is applied in the second phase of the selected DCF model to determine the continuing value. The growth constant is a response to the question of the long-term

growth of the business. The historical data of the business, the data about the market and the sector of the business are respected upon its determination. In the long term, in order to maintain the 'going concern' principle, the lower limit of the rate of growth is the CNB's target inflation level, as it can be assumed that as the price of the XYZ company's inputs increases, XYZ must reflect the price increase in the production prices (Vimpari, Junnila, 2014; Speranda, 2012). The CNB and MTI data are the base for the determination of the growth constant as well.

4 Determination of simulated returns

The comparison of the XYZ company's ROA and the ROA of the whole sector showed that the XYZ company's ROA is lower than the ROA of the whole sector. Therefore, the analysis of the efficiency of the use of the XYZ company's assets was carried out. A more detailed analysis of the assets showed that a certain return potential, in addition to its current use, is offered in the form of a more effective use of the training centre building situated in the premises of the XYZ company. From the perspective of a third independent rational person, it can be assumed that such a person would make an effort to use this asset in the most effective way by selling or renting it.

According to the definition of the "highest and best use", referring to the use of free land or real estate, which is physically possible, legal, financially feasible, and results in the highest value, in order to comply with this principle, the rate of return on the training centre building using the method of simulated returns at a fully effective use. According to the findings, the XYZ company uses this building for its purpose only partially during the year. By renting its premises for the remaining period of year, it is possible to achieve the maximum revenue potential of the building.

The price for renting this type of premises is usually determined based on the hourly rate for their use. In order to determine a potential return on this building using the method mentioned above, relevant information on prices for renting premises of a similar type will be sought. The information will be obtained from real estate advertising servers.

The data obtained will then be converted into the unit price for the rental from the offered premises. The calculation of median of the required prices will eliminate the extreme values on both sides of the scale.

As in the training centre building, there are a total of three classrooms and one conference room, which can also be used for the purposes of training, the floor space in all four rooms will be summed up and subsequently, the total amount of the hourly rent of all these premises will be calculated.

To determine the amount of the simulated return on these premises, the building occupancy considered will be 100 days by 8 hours a day. Subsequently, the estimated increased operating costs associated with the more effective use for the XYZ Company will be deducted. Based on this consideration, the amount of simulated return on this building for the XYZ Company will be determined.

To achieve the most accurate valuation of the whole XYZ Company using the method selected, its financial plan will be increased by a simulated return on this training centre building.

5 Results

Based on the analysis of all XYZ company's assets, it was concluded that reported assets of the company are necessary for its operation. For the purposes of its valuation, it was necessary to take into consideration the return potential of the training centre building and the related increased operating costs. Since it has been found that the owner of the company was performing work for the company but there was no wage for these services, from the perspective of a third independent rational person, it is necessary to replace the person who performed this work with

another person who would receive a financial reward in the form of a wage for this work. Therefore, the newly created financial plan included the wage costs for the person performing this work. In order to value the XYZ company, the wage was determined using the method of simulated wage.

Based on the analysis of all the revenue possibilities of the training centre building (sale, long-term lease, short-term lease) and with regard to its location, equipment, and the principle of the “highest and best use”, it was decided to determine its return potential by means of short-term lease of the individual training rooms at the hourly rate. In the case of a short-term lease, higher administrative demands on the owner of the centre can be expected; however, those are often compensated by higher income. The return potential on the training centre was determined using the method of simulated returns.

In order to use the method of simulated returns on the training centre building, it was necessary to determine a unit price for renting premises of this type. The price was determined based on the prices of similar premises rentals found on real estate advertising servers. Table 1 shows an overview of the offers found including the hourly rentals, area, and conversion of the rental into a unit price.

Tab. 1: Hourly rentals found on advertising servers with calculated unit price

Number of offer	Price per hour	Area (m ²)	Unit price (CZK/m ²)
1	300 CZK	38	7.9
2	380 CZK	110	3.45
3	325 CZK	55	5.9
4	945 CZK	92	10.3
5	430 CZK	65	6.6
6	160 CZK	43	3.7
7	360 CZK	39	9.2
Median			6.6

Source: Authors

The determined median will be considered a usual rental from the premises in the training centre building owned by the XYZ company. The median was determined to 6.60 CZK/m².

Furthermore, the total acreage of all training premises in the building were summed up. By calculating the product of the total acreage of the training premises and the usual unit price for hourly rental, it was possible to determine all premises hourly rental. The overview of all the premises and their area as well as the hourly rental is shown in Table 2.

Tab. 2: Overview of training premises in training centre building with the areas and determined hourly rental rates

Premises	Area (m ²)	Hourly rate
Classroom 1	37.1	245 CZK
Classroom 2	72.6	479 CZK
Classroom 3	54.4	359 CZK
Conference room	96.6	638 CZK
In total	260.7	1 721 CZK

Source: Authors

The collected annual rental from classrooms, with considered occupancy of 100 days · a 8 h per year would be CZK 1,377,000 after rounding. To determine the final amount of the simulated returns on this training centre, it is necessary to deduct the estimated increased operating costs incurred by the XYZ company due to the more effective use. The estimated increased operating costs can be seen in Table 3.

Tab. 3: Estimated increased operating costs of training centre

Type of costs	Amount
Personnel costs	500,000 CZK
Maintenance + reserve for investment	300,000 CZK
Insurance	30,000 CZK

Other operating costs	100,000 CZK
Overall operating costs	930,000 CZK

Source: Authors

After deducting the increased operating costs of the training centre from its annual return potential, the value of simulated returns is CZK 447,000. This value will be taken into account in drawing up the financial plan.

Furthermore, in order to preserve the perspective of a third independent rational person, the amount of simulated wage for a person employed to perform the work in the XYZ company was determined based on the data released by the Ministry of Labour and Social Affairs of the Czech Republic (MPSV CR) through the Average Earnings Information System (ISPV). Given the subject of business, the medians of gross wage were found for the position of Craftsmen, skilled workers on construction sites (except electricians), which best correspond to the nature of the work performed in the XYZ company and would thus be remunerated in a similar amount. Table 4 shows the medians of the wages according to the Ministry of Labour and Social Affairs of the Czech Republic (ISPV) for the reference period (2016-2019).

Tab. 4: Development of gross wage for the position of Craftsmen, skilled workers on construction sites (except electricians) based on data of Ministry of Labour and Social Affairs of Czech Republic

Year	Gross wage – median
2016	19,392 CZK
2017	21,091 CZK
2018	23,687 CZK
2019	25,641 CZK

Source: ISPV, 2019

The wage must be further increased by further costs of the employee, that is for social and health insurance, which is given in proportion to the gross wage of the employee. In sum, these two payments account for 34% of monthly gross wage (social insurance – 25%, health insurance – 9%).

Given that the subsequently drawn financial plan of the company is based on the data of a concrete sample company, the input data were adapted for anonymization purposes and the aforementioned simulated values (simulated return on rental, simulated wage costs) were integrated into the newly created financial plan.

Based on the data, the financial plan for the XYZ company was drawn up. The financial plan of a XYZ company is shown in Table 5.

Tab. 5: Business financial plan (in thousands CZK)

Year	Operating economic result	Financial result	Wage – employee	Return on training centre	Adjusted operating economic result before tax	Tax	Adjusted economic result after taxation	Depreciation	Investments	Loans payments	Drawdown of loans	FCFE
2016	838	-91	196	182	733	139	593	241	120	0	0	714
2017	750	-122	339	447	736	140	596	482	241	0	0	837
2018	772	-126	381	456	722	137	585	496	248	0	0	833
2019	795	-129	412	465	719	137	582	511	255	0	0	838
2020	819	-133	421	474	740	141	599	526	263	0	0	862
2021	844	-137	429	484	762	145	617	542	271	0	0	888

Source: Authors

For the calculation of alternative costs of equity for the XYZ company, build-up model was used based on the data released

by the Ministry of Trade and Industry. Given the subject of the XYZ company business, there were used specific data (risk margin for business risk – r_{pod} , risk margin for financial stability – $r_{finstab}$, risk margin for the size of enterprise – r_{LA}) for the classification of economic activities CZ NACE 43 – Specialized construction activities, which also includes the business activity 43220 – Plumbing, water, waste, gas, heat and air-conditioning installation in the first half of 2016 (MTI, 2017). Furthermore, for the calculation of alternative costs of equity, it is necessary to know the value of risk-free return (r_f). It is based on a 10-year bond yield, which, according to CNB, was 0.37% at the end of July 2016 (CNB, 2019). The alternative costs of equity can be calculated using the following formula 2.

$$r_e = 0.37\% + 6.90\% + 2.30\% + 1.94\% = 11.51\% \quad (3)$$

The same value of the discount rate calculated using the formula above will be used for all future periods. For the valuation of the XYZ company, the discount rate of 11.5% will be used.

The last step preceding the valuation of business using the selected method is to determine the value of the growth constant g . According to the Macroeconomic Forecast of the Ministry of Finance of the Czech Republic from July 2016, the estimated GDP growth for the years 2016-2019 was 2.3-2.6% (Ministry of Finance of the Czech Republic, 2016). Similar GDP growth was expected also from the side of CNB, whose estimated growth for 2017 was 2.3% with subsequent pick-up to 3% (CNB, 2016).

Strategic analysis of the XYZ company revealed that the company did not show a significant growth potential. In the long run, its objective was a stagnation or a slight increase based on knowledge and strengthening of the competitiveness. For this reason, the estimated growth constant is slightly above the CNB targeted inflation rate applied since January 2010, which is 3%. At this stage, there have been obtained all documents necessary for the valuation of the XYZ company using the two-stage DCF model from the perspective of a third independent rational person. The valuation of the company was carried out according to the formula given below.

$$H = \frac{714,000}{(1 + 11.5\%)^1} + \frac{837,000}{(1 + 11.51\%)^2} + \frac{833,000}{(1 + 11.51\%)^3} + \frac{838,000}{(1 + 11.51\%)^4} + \frac{862,000}{(1 + 11.51\%)^5} + \frac{888,000}{(1 + 11.51\%)^6} + \frac{1}{(1 + 11.51\%)^6} \quad (4)$$

$$H = 8,382,000 \text{ CZK}$$

Using the two-stage DCF model, the value of the XYZ company was determined to CZK 2,955,000 in the first stage. In the second stage, the value was determined to CZK 5,427,000. By summing up the first and the second stage of the two-stage DCF model, the value of the business was determined to CZK 8,382,000.

6 Conclusion

The objective of the paper was to determine the objectivized value of a business from the perspective of a third rational person on the example of a specific company.

From this perspective, financial and strategic analysis of the XYZ company were carried out first. On their basis, a financial plan was drawn up. Before the valuation of the business was carried out, the operating result in the plan was increased by the return on the training centre building rental and by the performance component of the wage for the person employed to perform the work in the XYZ company.

The resulting value of the company calculated using the two-stage DCF model was determined to CZK 8,382,000. The objective of the paper was thus achieved.

In the paper, the term “objectivized value” was defined together with the process of its determination. In this context, it is necessary to validate the achieved economic results and, if necessary, to correct them from the perspective of a third independent person. In the example of valuation of a particular company, there were mentioned two items that have to be corrected for the valuation purposes. Specifically, it was an increase in the simulated profit from inefficient use of the company assets, and other modifications in terms of wages.

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