

Financial Statement according to National or International Financial Reporting Standards? A Decision Analysis Case Study from the Czech Republic at Industrial Companies

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Financial statements bring information about financial position, performance and changes in financial performance. These statements could be prepared in accordance with national accounting standards or in accordance with International Financial Reporting Standards. The scientific problem is to assess whether it is more beneficial to prepare financial statements according to national, transnational or both national and transnational accounting standards. Results show that it is more convenient to prepare financial statements only according to the legislation of national accounting standards. The advantage of this option is lower costs. However, the second best option, based on preparing financial statements according to International Financial Reporting standards, leads to higher quality, credibility and comparison of these statements. Options based on the gradual convergence of transnational and national accounting standards also do not represent an ideal situation. The utility of options is influenced by many criteria. The most important criterion according to the questionnaire survey is costs. The questionnaire survey was carried out in the year 2018 among 28 industrial companies in the selected region of the Czech Republic. The methods of description, analysis, synthesis, comparison and selected methods of multi-criteria decision-making are used in the article.

Keywords: *Accounting; Czech Republic; IFRS; Financial Statement; Multi-Criteria Decision Making.*

Introduction

Accounting provides information about the economic phenomenon of the company. Significant informational potential is primarily found in the financial statements. Reports of financial statements provide information about the financial position and performance of the entity, therefore, it is necessary to pay increased attention to this process. Accounting information is intended both for managers and for different external users. The existence of the European Single Market, the development of foreign trade, and the growth of interconnection and dependence of economies not only on a cross-country but also intercontinental basis has meant that accounting and reporting only according to national accounting standards is not always sufficient. Differences in national accounting legislation are nowadays so crucial that they restrict the comparability of information obtained from accounting reports and are a barrier to further development. Accounting and reporting in accordance with the national accounting regulations limits the comparability of the information obtained from the accounting statements, since the particular accounting statements are often not comparable in an international perspective. Accounting based only on the national legislation does not currently provide sufficient amount of information for all users. One of the ways how to ensure the comparability is to respect the accounting and reporting procedures according to International Reporting Standards (IFRS).

The research question of this paper is which accounting standards for the compilation of financial statements should be used. The compilation of financial statements in

accordance with transnational standards leads to an increase in the comparability and clarity of the financial statements in a transnational context. However, it is necessary to compare not only the benefit that the entity obtains, but also the costs associated with the process of preparing the financial statements. It follows from this that an entity - the object of decision making process - has to evaluate several criteria. The assessment of this problem from the point of view of several criteria is novel, because in many studies already carried out this problem has not yet been solved from the point of view of multi-criteria decision-making. Barth, Landsam and Lang (2008) dealt with the quality of IFRS financial reporting from the user perspective, Ewert and Wagehellstromnhofer (2005) in the context of the quality of accounting information, or Ball, Kothari and Robin (2000) with the view on revenue and accrual accounting.

The aim of the article is to determine whether it is more favorable to prepare financial statements according to the national or transnational accounting standards in the industrial companies in the Czech Republic. Utility is analyzed in terms of several criteria. The significance of criteria is different. The IFRS are considered to be the transnational accounting standards (Hail, Leuz & Wysocki, 2010). *The objects* of the study are companies which are preparing financial statements (according to the national or transnational accounting standards).

To achieve the aim of the paper, the author used standard positivist economic *methodology* - methods of description, deduction, comparison, study of legal sources and synthesizing methods. Methods of multi-criteria decision making – AHP method and TOPSIS method were used for specific analysis.

Currently, according to the legislation of the Czech Republic, accounting entities that are issuers of securities admitted to trading on a European regulated market are obliged to use IFRS. Other accounting entities only prepare financial statements in accordance with national accounting standards. Items and structure of financial statements are based on the categorization of the accounting entity. Accounting entities are categorized into micro, small, medium and large entities by turnover, assets and number of employees. If accounting entities use IFRS for determining profit or loss, the difference between IFRS and Czech accounting standards must be adjusted by determining to the tax base.

There are some limitations of the study. First it is focusing only on industrial companies. Nevertheless, industrial companies have a significant impact on the economics performance of the Czech Republic (Ministry of Industry and Trade, 2017).

Another limitation is that data for the analysis was obtained only from companies in the Czech Republic. Analysis of the companies in other states with different level of economic situation could bring different results.

The questionnaire survey was done in 2018. In 2018 the economy was in the phase of economic growth. Doing this survey in the phase of economic recession could lead to the different results too.

The last limitation is that there is no prior research study of decision analysis between accounting according to the Czech legislation and IFRS in the Czech Republic. The reason for this is the current accounting legislation where it is specified whether companies have to adhere to only Czech legislation or also IFRS.

The introductory part of the article deals with the definition of the importance of accounting and its harmonization. The following part is an overview of the research studies already carried out in this area. The third part of the article contains an overview of the methodology and data, which are used for the application part. The main part is the fourth chapter dealing with the decision-making situation and discussing whether is better to apply IFRS or to keep accounting according to national legislation. The final section summarizes the main results.

Research Studies and International Financial Reporting Standards

IFRS have an important role in the harmonization of accounting. Many countries have adopted IFRS in an attempt to increase the harmonization and global convergence of accounting rules and reporting standards (Leuz & Vysocki, 2016). IFRS improved financial statement transparency and comparability, and hence informativeness (Ball, Li & Shivakumar, 2015). IFRS include a Conceptual Framework, accounting standards and interpretations. In 2002, the European Union passed a regulation that requires consolidated and simple accounts for all companies listed in the European Union to use IFRS for fiscal years starting after 1 January 2005 (Bassemir, 2018). The European markets responded to this fact (Armstrong, Barth and Jagolinzer, 2010). Economic consequences of mandatory IFRS reporting around the world were analyzed by Daske, Hail and Leuz (2008). Analysis was made in 26 countries by using a sample of firms which are mandated to adopt IFRS.

IFRS adoption represented a major milestone toward financial reporting convergence. Investors are expected to get benefits from IFRS adoption. Nevertheless, mandatory IFRS reporting had only a little influence on liquidity of companies (Christensen, Hail & Leuz, 2013). Similar conclusions are presented by the study by Horton, Serafeim and Serafeim (2013), Chen et al. (2010) or Brown (2010) which also states that the accounting and preparation of financial statements in accordance with IFRS lead to improvement in the quality of financial reporting. However Ahmed, Neel and Wang (2013) mention that companies that use IFRS report significant increases in income smoothing and aggressive reporting of accruals, and a significant decrease in timeliness of loss recognition. These findings contrast with findings in studies which IFRS adoption leads to increased accounting quality. Results of Yip and Young (2012) or George, Li and Shivakumar (2016) show that mandatory IFRS adoption improves comparability of cross-country information.

The question of the quality of financial statements with IFRS application was dealt with by Barth and Isreali (2014) or Barth, Landsam and Lang (2008). Companies applying IFRS had an improvement in accounting quality. Many countries require or permit the use of IFRS on the basis of higher information quality and accounting comparability. Assessment the quality of the financial statements of Austrian, German and Swiss companies which have already adopted IFRS were the main point of the study Daske and Gebhardt (2006). Results of the study show that quality of financial statements has increased. Accounting theory argues that financial reporting reduces information asymmetry by disclosing relevant and timely information (Frankel & Li, 2004). One of the main results of Soderstrom and Sun (2007) or Bassemir (2018) is that legal system affects accounting quality through enforcement of accounting standards. An improvement of the quality of financial reporting by preparing the financial statements according to IFRS may occur in the longer term or not at all (Pena and Franco, 2017). Immediately after the implementation of IFRS the companies often reported the reduction of the quality of financial reporting, in the longer term – usually within two years, as compared with the quality of financial reporting prior to application of IFRS there was an increase in quality. As already mentioned, in addition to the increase in quality of financial reporting, an important effect of the adoption of IFRS is also the increase in the comparability of the financial statements. This statement is illustrated by the results of the studies by Brochet, Jagolinzer and Riedl (2013).

Czech Accounting's entities prepare financial statements primarily according to national accounting standards. Using of Czech accounting standards was analyzed by Hindls (1998), Strouhal (2009) or Fontes, Rodrigues and Craig (2005). The main advantage of accounting according to national accounting standards are lower costs in comparison with accounting according to IFRS. The disadvantage is the limited comparability of financial statements.

The analysis of Czech legislation was dealt by Pasekova et al. (2018). The problem of Czech legislation is the risk of errors, i.e. in the area of long term assets in the comparison with financial assets. Advantages and disadvantages of

accounting and reporting of intangible assets according to national standards and IFRS were examined by Svoboda (2008). Differences are especially in the area of valuation, where the Czech accounting system is not so sophisticated compared to IFRS. The relevance of the value of information in financial statements in the Czech Republic between 1994 and 2001 was analyzed by Hellstrom (2006). It has been confirmed that the significance and quality of accounting information has increased over the analyzed period. Despite a significant amendment to the Czech Accounting Act based on the EU Directive (2013/34/EU), compliance with IFRS is only partial, due to the different accounting model on which IFRS are based and the model underlying Czech accounting standards. Therefore, the use of IFRS in the Czech Republic is often desirable for companies that have foreign ownership (Jindrichovska & Kubickova, 2017).

Application of IFRS in the Czech Republic is dealt with by e.g. Honkova (2015). It was analyzed whether the companies are preparing financial statements in accordance with IFRS, and further whether individual companies act similarly. The problem of first application of IFRS is often particularly high initial costs. For the decision whether is advantageous to prepare the financial statements prepared in accordance with IFRS or just according to national accounting standards, it is necessary to take into account several groups of criteria (Krajnak, 2015). Study Evaluation of the Application of IFRS in the 2006 Financial Statements of EU Companies (2006) dealing with the evaluation of the application of IFRS on the financial statements of the EU companies notes as the main conclusion, that the quality of IFRS financial statements has increased. The adoption of IFRS according to Daske, Hail and Verdi (2013) or Jeanjean and Stolowy (2008), influences the transparency of information, in the long-term context it has an influence on costs and information asymmetry and thus on the increase of the competitiveness and efficiency of the markets. Another factor, why companies using IFRS, is to have more growth opportunities. Companies registered as a stock corporation are more leveraged, are externally rated, seek to raise external capital by issuing public bonds or equity, (Bassemir, 2018).

Whereas in the calculation of the profit or loss the entities may rely on the accounting procedures specified in IFRS, during the transformation of the accounting profit into the tax base there is a need to remove affect from IFRS, which for accounting entities in the Czech Republic means keeping dual accounting – one according to the national legislation and if their shares are publicly traded also according to IFRS (Mejzlik *et al.*, 2015).

Data and Methodology

A questionnaire survey was the main source for data analysis. The research was carried out in the year 2018 in the Czech Republic in Zlin region, where there exist, according to data of the Czech Statistical Office, 329 economics enterprises with number of employees exceeding 100 (Czech Statistical Office, 2018). This region was chosen due to its 8th place among 14 regions of the Czech Republic in terms of its share in gross domestic product. The performance of this region is not even in the field of minimum or maximum value of share in gross domestic

product, on the contrary it corresponds to the average of the Czech Republic (BusinessInfo, 2017).

Buglear (2012) states about difficulties to obtain data from all the subjects. For analyzing is appropriate to choose a sample from the population basic set which is determined by (1),

$$n = \frac{z^2 \cdot N \cdot r \cdot (1-r)}{(d^2 \cdot N) + (z^2 \cdot r \cdot (1-r))} \quad (1)$$

where N is the size of population, z the required degree of certainty, d permissible deviation rate and r expected deviation rate.

The degree of certainty is determined according to Buglear (2012) to 95 %, the degree of z is according to statistical tables 1,96. A size of basic set N is 329. The expected deviation rate of population r is as instructed by CHJ of the Ministry of Finance 2 %, permissible deviation rate d is according to the recommendations of the Chamber of Auditors of the Czech Republic 5 % (according to the International Standard on Auditing 530 Audit Sampling) (Chamber of Auditors of the Czech Republic, 2018). The size of a basic set sample is obtained by substituting the data into equation (1).

$$n = \frac{1,96^2 \cdot 329 \cdot 0,02 \cdot (1 - 0,02)}{(0,05^2 \cdot 329) + (1,96^2 \cdot 0,02 \cdot 0,98)} = 28$$

To obtain the relevant research findings, it is necessary to have data from 28 accounting entities.

The questionnaire was filled by the managing directors of the accounting department of the selected industrial companies. By their experience, job positions and professional work experience in the field of accounting is possible to be considered their evaluation in the questionnaire relevant. The questionnaire contained closed questions where the respondent compared the significance of the criteria using a scale from 1 to 9 points.

First, the respondents evaluated the significance of the five main criteria (10 comparisons of the significance of the relevant pair of assessed criteria). The following questions focused on expressing the significance of the sub-criteria (a total of 24 comparisons of the significance of the pair of sub-criteria).

According to (1) it was necessary to obtain data from a total of 28 industrial companies. The author addressed a total of 36 industrial companies in 2018. However, a total of 8 companies refused to provide this data due to data sensitivity and competition protection.

All of these respondents were approached twice. For the first time during the formulation of criteria and sub-criteria (which have been established in consultation with the managing director of accounting department) and secondly to determine the significance of the criteria.

The criteria were also based on results of studies by Razek and Bernstein (1976), Nan and Wen (2014) or Prochazka and Pelak (2016). The sub-criteria for the main criteria were established according to the studies and the results of the first round of the questionnaire survey.

The results of these studies show that important criteria are the cost of accounting, the information quality and the demandingness on understanding the information obtained from the accounting. According to Rausch (2011), when choosing an accounting system, it is important to evaluate not only the demandingness on understanding the information from the perspective of accountants, but also

from the perspective of another users of accounting such as shareholders, banks or suppliers. Some industrial companies do business at the stock exchange. Due to this fact another criterion under consideration is the possibility of entering the international stock exchange.

According to the data's survey were determined the significance of the criteria and for evaluating the utility of the j -th variant.

For determining the significance of the criteria was used a 9-point point scale. Value of 1 indicating, that the criteria are equally important for the respondent of decision-making situation, while value 9 indicates that the first criterion is absolutely more important than the second criterion.

AHP method and TOPSIS method are multi-criterial decision methods which are widely used (Ozcan, Unlusoy & Eren, 2017, Oztaysi, 2014 or Zyoud and Fuchs-Hanusch, 2017).

By comparison of criteria is prepared Saaty's matrix S (2),

$$S = \begin{matrix} & k_1 & k_2 & \dots & k_j \\ \begin{matrix} k_1 \\ k_2 \\ \vdots \\ k_i \end{matrix} & \begin{pmatrix} s_{11} & s_{12} & \dots & s_{1j} \\ s_{21} & s_{22} & \dots & s_{2j} \\ \vdots & \vdots & \ddots & \vdots \\ s_{i1} & s_{i2} & \dots & s_{ij} \end{pmatrix} \end{matrix} \quad (2)$$

where s_{ij} are elements of Saaty's matrix.

Weight of criteria is defined by Saaty method (Belton and Gear, 1983) by (3),

$$v_i = \frac{G_i}{\sum_{i=1}^n G_i} \quad (3)$$

where G_i is geometric mean (4),

$$G_i = \sqrt[n]{s_{i1} \cdot s_{i2} \cdot \dots \cdot s_{ij}} \quad (4)$$

Relevant evaluation of the criteria significance is verified through consistency coefficient CR (5) according to Alonso and Lamana (2006),

$$CR = \frac{CI}{RI} \quad (5)$$

where RI is the random index. CI is consistency index determined by the equation (6),

$$CI = \frac{\lambda_{max} - N}{N - 1} \quad (6)$$

where λ_{max} is the largest eigenvalue of the matrix and N is number of criterions. λ_{max} is determined by equation (7),

$$\lambda_{max} = \frac{1}{N} \sum_i^N (S \cdot w)_i / w_i \quad (7)$$

where N is a number of criteria, w is a vector and $S \cdot w$ is the i -th element of the vector.

In general, a model of multi-criteria decision-making is expressed by a criterion matrix (8),

$$A = \begin{matrix} & V_1 & V_2 & \dots & V_n \\ \begin{matrix} C_1 \\ C_2 \\ \vdots \\ C_m \end{matrix} & \begin{pmatrix} a_{11} & a_{12} & \dots & a_{1j} \\ a_{21} & a_{22} & \dots & a_{2j} \\ \vdots & \vdots & \ddots & \vdots \\ a_{m1} & a_{m2} & \dots & a_{mn} \end{pmatrix} \end{matrix} \quad (8)$$

where a_{ij} are elements of a matrix representing the absolute utility of j -th variant, and taking account of the i -th criterion, $V_1 - V_n$ are variants, $C_1 - C_m$ are criteria (Siroky, Krajcova & Hakalova, 2016).

The AHP method is the most widely used method of multi-criteria decision-making. The author of the method is professor Saaty, see e.g. Saaty (1990) or Saaty (1994). As the best there is selected such a variant, whose resultant weight according to (9) is the highest,

$$VV = \sum_{j=1}^n v_{gj} \quad (9)$$

where VV is the resultant weight and v_{gj} is global weight of the j -th variant.

Another widely used method is a TOPSIS method (Behzadian et al. 2012). The TOPIS method is used for the evaluation of variants of the distance from the ideal and basal variant (Hwang, Lai & Liu, 1993 or Opricovic & Tzeng, 2004)

The elements of the modified criterion matrix A are transformed into the values of r_{ij} using the relation (10),

$$r_{ij} = \frac{a_{ij}}{(\sum_{i=1}^n a_{ij}^2)^{1/2}} \quad (10)$$

This step gives a normalized criterion matrix R . The elements of the weighted criterion matrix R' are calculated using (4.20),

$$r'_{ij} = r_{ij} \cdot v_{ij} \quad (11)$$

where r_{ij} is the element of the normalized criterion matrix R and v_i the weight of the i -th criterion. The ideal $H = (H_1, H_2, \dots, H_k)$ and the basal variant $D = (D_1, D_2, \dots, D_k)$ are determined from the elements of matrix R' .

Next part of the method is the calculation of the relative distance indicator from ideal and basal. The relative distance indicator of a variant is calculated using (12),

$$c_i = \frac{d_i^-}{d_i^- + d_i^+} \quad (12)$$

where d_i^- is the distance of variant from the basal variant and d_i^+ the distance of variant from the ideal variant. The elements d_i^- and d_i^+ are determined by (13) and (14),

$$d_i^+ = \left[\sum_{j=1}^k (r'_{ij} - H_j)^2 \right]^{1/2} \quad (13)$$

$$d_i^- = \left[\sum_{j=1}^k (r'_{ij} - D_j)^2 \right]^{1/2} \quad (14)$$

where r'_{ij} is the element of a weighted criterion matrix R' , H_j is the ideal variant and D_j is basal variant.

Results

The decision-making situation is characterized by a total of 5 variants of V_N , namely:

V_1 – accounting in accordance with Czech accounting regulation and IFRS,

V_2 – accounting in accordance with Czech accounting regulations,

V_3 – accounting in accordance with IFRS,

V_4 – accounting in accordance with Czech accounting regulations, assuming and gradual implementation of IFRS and compliance of national legislation with IFRS in the period of time up to 10 years,

V_5 – same as V_4 with compliance within 5 years.

The period of 10 years for V_4 was chosen with regard to conclusion of the Convergence project which assumed the convergence of system IFRS and US GAAP in a time horizon up to 10 years. A number of studies, e. g. Barth et al. (2012), Daske (2006) or Ashbaugh and Ollson (2002) state that the bookkeeping of companies applying the IFRS is comparable to those who use US GAAP. Therefore, they are not included in the set of US GAAP variants. Also not included in is the set of variant, which is based on IFRS for SMEs. Financial statements according to IFRS for SMEs are not recognized by the global stock exchanges. More about IFRS for SMEs Ram and Newberry (2013).

All criteria were determined in accordance with already established research studies. Very important factor during accounting are costs (C₁). Important factor is also demandingness on understanding of accounting information (C₂) getting from financial statement (Lafond & Roychowdhury 2008). Comparison of quality of IFRS and national accounting standards was analyzed Barth, Landsam and Lang (2008) or Chalmers, Clinch and Godfrey (2011). They found that these differences have influence on the recognition or measurement of items of financial statements, which has consequences for stakeholders and shareholders

and also influence complexity of accounting (C₄). Accounting entities can't enter to an international stock exchange if their financial statements have been prepared according to national accounting standards. This fact is the reason for choosing another criterion under consideration (C₃). (Tominac, 2018 or Lin, Riccardi & Wang, 2012). Goodwin, Ahmed and Heaney (2011) or Stent, Bradbury and Hooks (2010) states that national accounting systems, in comparison with IFRS, are based on different principles, which has influence on understanding the content of accounting information (C₅).

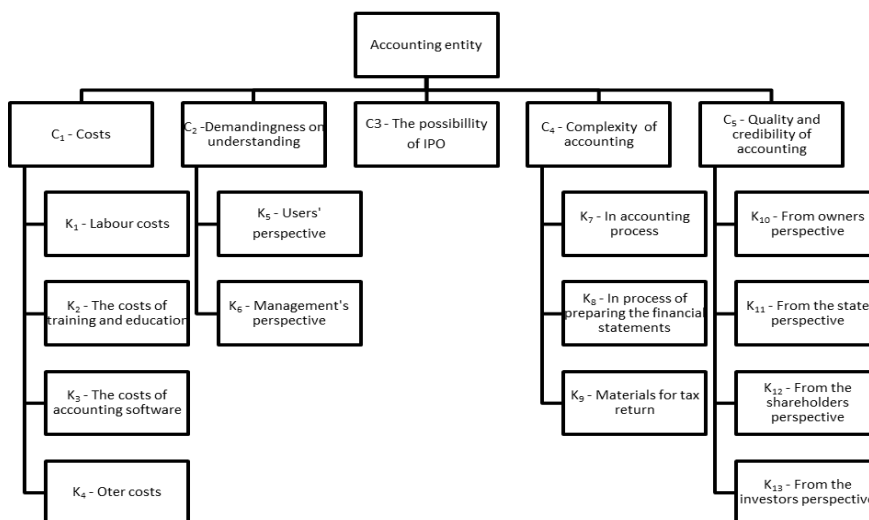


Figure 1. Criteria

Source: own processing by software MakeitRational

The input data which are captured in the decision-making matrix generally determined by (4) are shown by the Table 1. For the calculation of wage costs there are taken into decision-making process the average wages of workers in the accounting department (the Czech Statistical Office, 2018), the cost of training and education are taking according to the average prices of training courses focused on the field of accounting (Vox, 2018). In the case of the cost of the accounting software is used the prices of licenses of the accounting software, (Pohoda, 2018). The influence on the price of the goods and services, in the case of training courses and software has also level of applicable VAT rate (Siroky, Kovarova & Randova, 2012).

The values of the criterion matrix for criteria, K₅, K₆, K₇, K₈, K₉, K₁₀, K₁₁, K₁₂ and K₁₃ are average values obtained by carried out questionnaire-based survey expressing the utility of the *j*-th variant according to the weight of the *i*-th criterion and are scored from a scale of 1 to 10 points. The criteria K₅, K₆, K₇, K₈, K₉ and K₁₀ are the minimizing, criteria K₁₁, K₁₂ and K₁₃ maximizing. Minimizing criteria are also K₁, K₂, K₃ and K₄. Criterion C₃ is evaluated lexically. For this criterion "YES" is considered to be a desirable value as the possibility of admission to the stock exchange for the entity represents another way how to obtain needed capital for the business.

Table 1

Criterial Matrix

Criterion	V ₁	V ₂	V ₃	V ₄	V ₅
K ₁	288 754	206 253	247 504	247 504	257 504
K ₂	45 500	30 000	42 000	39 000	39 000
K ₃	36 200	19 960	32 210	27 940	32 660
K ₄	8 500	7 000	7 000	7 500	8 000
K ₅	8	7	9	10	10
K ₆	4	3	6	8	9
C ₃	Yes	No	Yes	No	No
K ₇	8	3	5	8	9
K ₈	10	7	8	9	9
K ₉	3	2	8	5	6
K ₁₀	8	7	10	8	8
K ₁₁	9	8	9	7	8
K ₁₂	7	5	9	6	8
K ₁₃	9	5	10	6	8

Source: own processing according to data from the questionnaire survey

Determining the Weighting of the Criteria

The utility of *j*-th variant is influenced by a different weight of *i*-th criteria that is determined by the Saaty's method (3). The score of a significance of criteria is carried out in accordance with the values determined from the questionnaire survey.

Table 2

Weight of Criteria

C _i	C ₁	C ₂	C ₃	C ₄	C ₅	v _i	CR
C ₁	1	4	7	3	2	43,32	0,0319
C ₂	1/4	1	3	1	1/2	12,78	0,0340
C ₃	1/7	1/3	1	1/5	1/7	4,15	0,0346
C ₄	1/3	1	5	1	2	19,78	0,0995
C ₅	1/2	2	7	1/2	1	19,97	0,0702

Source: own calculation's

Criterion C₁ – costs – is considered to be the most important, on the contrary, the least significant is the criterion C₃ dealing with the possibility of admission of the entity to the stock exchange and the related question of whether the world stock markets recognize the financial statements prepared in accordance with the rules of the *j*-th variant. The high degree of significance is for the criteria C₄ dealing with complexity of the accounting and for C₅ evaluating the quality and credibility of the accounting.

For the general criteria C₁, C₂, C₄ and C₅ there are also defined sub-criteria, whose weighting is shown in Table 3. The results of the table indicate that the most important criterion for a company are the wage costs (K₁). The high degree of significance is for criterion challenging level of understanding of the content of the accounting from the perspective of a user (K₅), requirements on the knowledge and experience while accounting (K₇) or the quality and reliability of the accounting from the perspective of accounting's users. (K₁₀).

Table 3

Local and Global Weights of Criteria and Sub-Criteria

Criterion	Weight (%)	Sub-criterion	Local Weight (%)	Global Weight (%)
C ₁	43,32	K ₁	63,35	27,44
		K ₂	13,37	5,79
		K ₃	16,37	7,09
		K ₄	6,91	2,99
C ₂	12,78	K ₅	87,5	11,18
		K ₆	12,5	1,6
C ₃	4,15	C ₃	4,15	4,15
C ₄	19,78	K ₇	57,14	11,30
		K ₈	28,57	5,65
		K ₉	14,29	2,83
C ₅	19,97	K ₁₀	59,68	11,92
		K ₁₁	11,46	2,29
		K ₁₂	20,04	4,00
		K ₁₃	8,82	1,76
Total			-	100,00

Source: own calculation's

Determination of Utility of j-th Variants by Using AHP

For determining the optimal accounting and reporting variants from the set of variants V_n are used two methods–

AHP method and TOPSIS method. The final rank of weight defined by the AHP method is charted in table 4.

The highest global weight determined by (9) is by variant V₂ – the accounting and preparation of financial statements according to Czech accounting standards. This variant has a high global weight, in particular for reasons of lower costs in comparison with other variants.

The reason why this variant is the best, is the fact, that costs are the most important criterion. Not only preparation of financial statements but also keeping accounts during the accounting period is easier in comparison with IFRS. The problem of this variant is a low quality and credibility of the accounting and financial statements compared to IFRS. Because the IFRS standards are transnational, the financial statements prepared in accordance with this system are more comprehensible than just financial statements in accordance with national (Czech) accounting standards. The advantage of this variant are therefore low costs, the downside is that such an accounting is not comparable, from the perspective of the transnational view. The world's stock exchange doesn't recognized these financial statements. Important is also the fact that from the perspective of users the financial statements according to IFRS has higher relevance than financial statements according to national accounting standards.

Variant with the second highest global weight is V₃, which is based on the substance of the respect for the IFRS. The main advantage of this variant is the quality of the financial statements, which is higher in comparison with the national accounting standards. The disadvantage is the higher difficulty in preparing financial statements or during keeping accounting, because IFRS system is more sophisticated and complex in comparison with the Czech accounting system. Another disadvantage is the fact that for the purpose of calculating the corporate tax in the tax return, the tax base identified from the accounting according to the IFRS must be excluded from the influence of IFRS. Therefore, at present, the accounting entities which are required to prepare the financial statements according to IFRS and also submit the tax return to corporate tax in the Czech Republic, implement a variant V₁. This variant is based on the dual keeping accounts – according to the Czech legislation and according to the IFRS. The main disadvantage of this variant are the highest costs – compared to other variants.

The results in table 4 imply the fact that variants based on gradual application of the IFRS to the Czech accounting legislation have the least global weights. A reason is the limited comparability of financial statements over time as significant changes in the accounting system. The disadvantage is the high requirements not only on the person preparing the accounting, but also on users of financial statements. Constant changes over the time horizon of 5 or 10 years limit significantly reduce the clarity of accounting.

Table 4

The Global Weights V₁-V₅ [%]

Criterion	V ₁	V ₂	V ₃	V ₄	V ₅
K ₁	0,94	15,51	4,21	4,21	2,56
K ₂	0,22	3,44	0,43	0,86	0,86
K ₃	0,27	4,20	0,63	1,44	0,56

Criterion	V ₁	V ₂	V ₃	V ₄	V ₅
K ₄	0,09	1,14	1,14	0,44	0,19
K ₅	2,86	6,16	1,22	0,47	0,47
K ₆	0,48	0,77	0,20	0,08	0,06
C ₃	1,78	0,20	1,78	0,20	0,20
K ₇	0,79	6,32	2,95	0,79	0,44
K ₈	1,28	3,00	0,19	0,75	0,44
K ₉	0,84	1,36	0,09	0,34	0,20
K ₁₀	1,34	0,44	7,54	1,25	1,34
K ₁₁	0,89	0,22	0,89	0,07	0,22
K ₁₂	0,53	0,13	2,08	0,29	0,97
K ₁₃	0,49	0,06	0,86	0,11	0,25
Total	12,80	42,95	24,22	11,28	8,75

Source: own calculation's

TOPSIS

Determination of the optimal variant of accounting by AHP method was shown in table 4. In table 5, the same decision-making problem is solved using the second of applied methods of multi-criterial decision-making – TOPSIS method. The original values of the criterion matrix in table 1 are restated and standardized the criterion matrix is obtained. The elements of normalized matrix are restated by weights of *i*-th criteria, whereby the weighted criterion matrix is obtained.

The indicator expressing a relative distance of variants from the basal variant is calculated using (12). The results in table 5 indicate that it is the most advantageous for the accounting entities to keep accounting and prepare the financial statements only according to the Czech accounting legislation (V₂). The second best option is the variant V₃, when the entities keep accounting in accordance with the requirements provided by IFRS system. These conclusions are consistent with the results found in a previous analysis by the AHP method.

The most remote variant from optimal values is V₁ – when the dual accounting is kept – according to Czech legislation and at the same time according to the IFRS. As already mentioned, this variant, which is the worst variant from a set of variants, must be now implemented by such accounting entities in the Czech Republic which want to enter the world's stock markets. According to the Act on accounting, the possibility to keep accounting in accordance with IFRS is enabled. Since accounting is also a basis for the preparation of tax returns and the calculation of tax liability of corporate tax, the entities must exclude the tax base from the influence of IFRS. This complex process complicates the preparation of corporate income tax return and thus increases the costs on the tax compliance. The analysis of time requirements for the preparation and payment taxes in the Czech Republic and Ukraine with focus on corporate income tax deal Kuznetsova, Krzikalova and Kuznetsov (2017).

In order to avoid the excluding the tax base from the influence of IFRS in the future, the way how to achieve is the unification of rules of Czech accounting regulations with IFRS. One of the options, how to get it, is gradually implementation of the IFRS rules to the Czech accounting regulations (see the variant V₄ and V₅). Paradoxically, the referred above has already been happening in the long term,

when selected practices from IFRS are being implemented to the national accounting through the EU directives.

Table 5

TOPSIS

K _n	V ₁	V ₂	V ₃	V ₄	V ₅	H _j	D _j
K ₁	0,000	0,214	0,107	0,107	0,081	0,214	0,000
K ₂	0,000	0,049	0,011	0,021	0,021	0,049	0,000
K ₃	0,000	0,061	0,015	0,031	0,013	0,061	0,000
K ₄	0,000	0,019	0,019	0,012	0,006	0,019	0,000
K ₅	0,060	0,090	0,030	0,000	0,000	0,090	0,000
K ₆	0,009	0,011	0,006	0,002	0,000	0,011	0,000
C ₃	0,029	0,000	0,029	0,000	0,000	0,029	0,000
K ₇	0,015	0,092	0,062	0,015	0,000	0,092	0,000
K ₈	0,000	0,044	0,029	0,015	0,015	0,044	0,000
K ₉	0,016	0,020	0,000	0,010	0,007	0,020	0,000
K ₁₀	0,034	0,000	0,103	0,034	0,034	0,103	0,000
K ₁₁	0,014	0,007	0,014	0,000	0,007	0,014	0,000
K ₁₂	0,015	0,000	0,029	0,007	0,022	0,029	0,000
K ₁₃	0,010	0,000	0,012	0,002	0,007	0,012	0,000
di+	0,257	0,112	0,142	0,186	0,211		
di-	0,082	0,267	0,174	0,122	0,096		
ci	0,242	0,704	0,552	0,395	0,313		

Source: own calculation's

Conclusion

The object of decision-making situation - the accounting entity - chose the optimal option from the set of 5 variants - accounting in accordance with Czech accounting regulation and IFRS (V₁), accounting in accordance with Czech accounting regulations, (V₂), accounting in accordance with IFRS (V₃), accounting in accordance with Czech accounting regulation based on compliance with IFRS in the period up to 10 years (V₄) or 5 years (V₅).

During decision-making analysis were considered 5 kinds of criteria – costs (C₁), demandingness on understand of accounting and accounting statements (C₂), the possibility of admission of the entity to the stock exchange (C₃), complexity of accounting (C₄) and quality and credibility of accounting (C₅).

The results of the decision analysis using AHP (see Table 4) and TOPSIS method (see Table 5) show that most advantageous for the entity is to prepare the financial statements only according to national accounting standards (V₂). The results show that the current legislation requiring for accounting entities whose capital is traded on world exchanges to prepare financial statements in accordance with IFRS and concurrently for purposes of income tax in accordance with national accounting standards is the least advantageous (V₁).

This situation increases the costs even more, which is the most important criterion (see Table 3). There are also growing requirements on qualifications of the staff, on processing the accounts or on user of accounting and financial statements.

The IFRS variant (V₃) is the second best. The main disadvantage of the accounting and preparation of financial statement according to IFRS are high costs associated with keeping accounting, especially at the moment of starting bookkeeping, in accordance with IFRS. The results of the questionnaire survey show that criterion C₃ dealing whether the world stock exchange recognize the financial statements is the least significant.

Globalization of the economy, increasing international cooperation and the free movement of capital are the factors that have caused the keeping accounting only according to Czech accounting legislation is not sufficient for the purposes of international comparison. A similar trend was also demonstrated in the accounting systems of other countries (Kvaal & Nobes, 2012). Respect for the principles established by IFRS ensures the comparability of outputs of the accounting, financial position and performance, even on an international scale. One of the basic requirements for comparability is the persistence of accounting methods, so that it could be possible to compare results not only in terms of place but also in time. A gradual implementation of the provisions of IFRS into national legislation can be the way, how to achieve full compliance with IFRS. However there is a transitional period before full compliance with this system that is limited by comparability over time, since the persistence of accounting methods due to the ongoing changes, cannot be ensured. The volatility of accounting policies reduces the reporting ability of financial statements. Therefore, the V₄ and V₅ variants do not have a high effect.

The results of the study under these conditions confirm that for accounting entities is better accounting in accordance with Czech accounting standards. Although studies Ashbaugh and Pincus (2001), Jiao et al. (2012) or Chalmers, Clinch and Godfrey (2011) state that adopting IFRS is preferable option in comparison with the national accounting standards. Differences in accounting systems cause for accounting entity higher costs (Bae, Tan & Welker, 2008).

Preparing financial statements according to international regulatory framework depends on the size of company. For companies of self-employed people in not necessary the requirement of international comparability. Costs for preparing financial statements according to IFRS are higher than effort from these financial statements. Nevertheless, big companies need comparability from international size. For a lot of them became preparing financial statements according to IFRS necessary. That's one of the reasons why in the sample size were included only companies with more than 100 employees. Small companies can use IFRS for SMEs.

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The Czech and, by extension, the European accounting rules in the past implemented the selected rules or procedures set out by IFRS into accounting. One example is e.g. component depreciation or depreciation with a residual value, which by its nature is based on IFRS. One of the problems of longevity of this process is absence of the Conceptual framework that contains criteria for the creation of accounting standards. While the European direction of accounting is primarily focused on the keeping accounts, IFRS is focused primarily on the field of financial reporting. As the result of the absence of a Conceptual framework that provides the basic ideological basis of IFRS, there cannot be expected in the short term the full approximation of the Czech accounting system with IFRS. For accounting entities with a transnational connection or accounting entities that are trading on public stock exchanges, this fact will continue to refer to the need of keeping a dual accounting – according to national regulations and according to IFRS, which is not according to the results of multi-criteria decision making optimal.

The limitation of the study is that this study was done under the accounting legislation and conditions of the Czech Republic. If the research was carried out in another country, the results of the weighting of the criteria and the evaluation of the utility of the other variants may be different. This limitation can be inspiration for similar study which could be done at international context, i.e. not only among companies in the Czech Republic, but Central Europa or Europa. These results can then-be compared with the results of this study.

Therefore, the limits of the survey are also in the structure of respondents and business environment of the country. Czech accounting system is more connected with tax system than in i.e. America. American accounting is used to be oriented for external users and costs with implementation of IFRS wouldn't be there so high as in the Czech Republic. Another factor is that larger accounting entities require higher transparency of the accounting. For these accounting entities is more probably to apply international accounting regulations than only prepare financial statement in accordance with domestic accounting standards.

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