

Comparative Analysis of Certification Schemes for Professional Accountants: Czech Case

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The knowledge level of professional accountants is emerging issue in each economy. Change of economic environment in Central and Eastern Europe in 90s of 20th century brought new requirements on professional accountants. This paper provides the comparative analysis between accounting certification scheme in the Czech Republic with international referential (qualifications ACCA, CPA Australia and AIA). The results show very high level of convergence between Czech model and international qualification schemes.

JEL Codes: M41

1. Introduction

According to Fisher & Murphy (1995) accounting is firmly established as an important profession and as a major employment destination. In addition they believe that there is some ambivalence regarding the image of the accounting profession as well as the status of accounting as an academic discipline.

The accounting profession desires a wider range of capabilities (over and above technical ability) that accounting graduates should possess, e.g. the ability to manage stress, an awareness of personal values, a basic knowledge of psychology, communication skills, motivation, persistence, empathy and a sensitivity to social responsibility (Scott et al., 1998). The profession has a responsibility towards members to encourage the cultivation of some of these skills and not focus so severely on only technical ability. The current accounting education is often focused on the acquisition of knowledge and an over-emphasis on technical knowledge in order to pass the professional examinations, rather than focusing more on the utilization of knowledge and more holistic attributes (Bayou & Reinstein, 2000; Koch & Kriel, 2005).

This paper provides evidence about Czech accounting certification scheme and compare it to international schemes. For the level of compatibility there will be used association coefficients for similarity (harmonization) and dissimilarity measurement.

2. Accounting Certification Schemes

Numerous researches deal with information potential of measurement and accounting. Information systems are to assure enough information and transfer it according to a company's need, in relation to a company organization structure (Tučková & Strouhal, 2010).

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2.1 Czech Certification Scheme

Due to the aim of some standardization and harmonization of the knowledge of the professional accountants, the certification system based on the British ACCA professional scheme was started in the Czech Republic in 1997. It was developed under the supervision of the Czech Ministry of Finance, EU PHARE and of course the British ACCA. The education and examination system was arranged in order to follow the original International Education Guideline 9 (IEG 9). This Guideline with the UNCTAD Qualification Guideline (from 1983) has been taken into account while forming education and examination systems.

System of accounting certification in the Czech Republic is run via Institute of Accounting Certification who has an exclusive contract from Union of Accountants CR. The total number of adepts of certification is currently higher than 10 000 people, from whose 55 % people are certified (however majority of them holding the technician accountant level).

During the period 1997 – 2008 was used three level system of the certification in Czech which especially stresses the attention of the “triumvirate” Accounting – Law – Taxes. Each adept should fulfill the following papers (see Table 1):

Table 1. Certification Exams in 1997-2008

| | |
|-------------------------|---------------------------------|
| Technician level | |
| P1 | Financial Accounting I |
| P2 | Law System I |
| P3 | Quantitative Methods and ICT I |
| P4 | Economics |
| P5 | Taxation I |
| Executive level | |
| P6 | Financial Reporting |
| P7 | Taxation II |
| P8 | Managerial Finance |
| P9 | Managerial Accounting |
| P10 | Quantitative Methods and ICT II |
| P11 | Law System II |
| Expert level | |
| P12 | Financial Strategy |
| P13 | IFRS |
| P14 | Financial Analysis |
| P15 | Auditing |

Source: www.icu-praha.cz

All exams are in written-form and the precision ratio requested for passing all exams is 60 %. To be able to enter this system it is necessary to be educated minimally at the high school (having a school-leaving exam). For the finalizing of all of the levels it's also necessary to fulfill the practical experience: 2 years for technician level, 4 years for executive level and 6 years for the expert level. On the other hand it is also possible to apply for the system of the controlled practice: 1 year for technician level, 2 years for executive level and 3 years for the expert level.

Table 2. Precision Ratio at the Exams

| P14 | P13 | P12 | P11 | P10 | P9 | P8 | P7 | P6 | P5 | P4 | P3 | P2 | P1 | Exam |
|--------|-------|-------|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------------|
| 100.00 | 25.00 | 40.00 | 54.55 | 100.00 | 85.00 | 82.95 | 62.86 | 47.78 | 74.42 | 22.73 | 75.00 | 25.71 | 86.96 | 6/2008 |
| 93.33 | 25.00 | 68.75 | 82.35 | 54.17 | 81.20 | 78.85 | 73.17 | 86.90 | 80.00 | 59.38 | 51.72 | 66.38 | 55.22 | 12/2007 |
| 100.00 | 71.43 | 68.75 | 96.23 | 76.92 | 67.03 | 84.75 | 72.41 | 84.78 | 86.61 | 19.18 | 55.56 | 78.75 | 64.62 | 6/2007 |
| 94.12 | 94.44 | 52.17 | 56.72 | 73.08 | 58.88 | 75.86 | 69.47 | 64.18 | 78.63 | 51.82 | 69.09 | 55.43 | 83.33 | 12/2006 |
| 93.75 | 87.50 | 60.87 | 85.94 | 85.70 | 57.48 | 80.82 | 68.75 | 75.79 | 67.52 | 38.83 | 55.00 | 76.60 | 73.97 | 6/2006 |
| 100.00 | 96.30 | 65.52 | 91.67 | 88.20 | 37.21 | 61.90 | 59.38 | 89.90 | 84.62 | 63.38 | 61.90 | 66.67 | 64.29 | 12/2005 |
| 77.78 | 60.00 | 59.09 | 73.17 | 70.00 | 52.90 | 73.33 | 60.26 | 85.39 | 66.67 | 64.08 | 69.80 | 62.80 | 63.51 | 6/2005 |
| 99.45 | 84.00 | 53.33 | 81.25 | 80.00 | 33.09 | 66.67 | 76.32 | 71.43 | 60.43 | 51.05 | 55.80 | 86.02 | 86.81 | 12/2004 |
| 100.00 | 70.59 | 56.52 | 99.12 | 63.30 | 41.06 | 48.84 | 57.33 | 70.24 | 64.68 | 41.88 | 47.50 | 83.03 | 77.97 | 6/2004 |
| 94.74 | 77.78 | 56.67 | 74.04 | 60.71 | 35.54 | 65.05 | 86.72 | 95.83 | 71.34 | 61.08 | 28.31 | 71.38 | 65.38 | 12/2003 |
| 95.24 | 90.91 | 65.38 | 68.13 | 77.42 | 20.00 | 62.50 | 67.83 | 79.52 | 62.45 | 65.92 | 67.86 | 62.14 | 80.67 | 6/2003 |

| | | | | | | | | | | | |
|-----|--------|--------|--------|--------|--------|--------|-------|--------|--------|--------|--------|
| P15 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 87.50 | 100.00 | 100.00 | 100.00 | 100.00 |
|-----|--------|--------|--------|--------|--------|--------|-------|--------|--------|--------|--------|

Source: www.icu-praha.cz

The certification scheme has been changed since 2008. It shall be stated that the International Education Standards (IES) stress or shape newly the tendencies which have been influencing the development of the accounting profession in the last decade (especially professional ethics, development of communication and interpersonal abilities, ICT etc.). Currently the system is based just on two levels: (i) certified accountant, and (ii) accounting expert. The exams are following (see Table 3):

Table 3. Certification Exams since 2008

| Certified accountant level | |
|-----------------------------------|-------------------------------|
| P1 | Financial Accounting I |
| P2 | Law System |
| P3 | Quantitative Methods and ICT |
| P4 | Management Economics |
| P5 | Taxation |
| P6 | Corporate Financial Reporting |
| P7 | Professional Ethics |
| P8 | Managerial Finance |
| Expert level | |
| P9 | Managerial Accounting |
| P10 | IFRS |
| P11 | Advanced Financial Management |
| P12 | Management |
| P13 | Auditing |

Source: www.icu-praha.cz

All exams are in written-form however the precision ratio requested for passing all exams is currently only 50 %. The length of practice is based on historical second, resp. third level; i.e. for certified accountant level 4 years and for expert level 6 years of practice.

Table 4. Precision Ratio at the Exams

| Exam | 12/2009 | 6/2009 | 12/2008 |
|------|---------|--------|---------|
| P1 | 73.91 | 77.78 | 76.36 |
| P2 | 62.50 | 72.57 | 48.36 |
| P3 | 62.50 | 90.91 | 44.44 |
| P4 | 88.89 | 71.88 | 66.67 |
| P5 | 77.03 | 54.24 | 54.55 |
| P6 | 25.24 | 71.83 | 35.48 |
| P7 | 88.11 | 91.33 | 95.57 |
| P8 | 82.67 | 64.29 | 29.63 |
| P9 | 100.00 | 100.00 | N/A |
| P10 | 4.17 | 38.89 | 60.87 |
| P11 | 60.61 | 33.33 | 50.00 |
| P12 | 100.00 | 100.00 | 100.00 |
| P13 | 100.00 | 100.00 | 100.00 |

Source: www.icu-praha.cz

Successful adepts of the certification scheme (certified accountant level or executive level and higher) may be member of professional body - **Chamber of Certified Accountants Czech Republic (CCA CR)**. The primary goals of this Chamber are to contribute to the development and improvement of the accounting profession in the Czech Republic by implementing an accounting professional certification system, providing the continued professional development of accountants, issuing a Code of Ethics and other standards regulating the activities of professional accountants, supervising professional accountants' adherence to standards, collaborating in the development of accounting professions and in the field of accounting methodology and the assertion of legislative regulations of the accounting profession with other professional organizations and economic universities.

2.2 International Certification Schemes

There shall be mentioned at least following leading accounting certification scheme which are valid and run round the world: (i) ACCA, (ii) AIA, and (iii) CPA. All three systems are possible to study worldwide. In the Czech Republic is very popular ACCA qualification scheme.

2.2.1 ACCA

Among the highly recognized accounting certification schemes belongs the scheme of the Association of Chartered Certified Accountants (ACCA). It is a British based professional body founded in 1904, which provides accounting certification worldwide having more than 140 000 members in 170 countries.

Currently ACCA runs two-level scheme consisting of fundamental and professional level. Within the fundamental level there might be applied certain exemptions from the exams, e.g. Czech accounting experts may receive this exemption for all nine papers of fundamental level and they need to pass just exams from professional level. The ACCA scheme has the following structure (see Table 5):

Table 5. ACCA Professional Scheme

| Fundamental level | |
|---------------------------|-----------------------------------|
| F1 | Accountant in Business |
| F2 | Management Accounting |
| F3 | Financial Accounting |
| F4 | Corporate and Business Law |
| F5 | Performance Management |
| F6 | Taxation |
| F7 | Financial Reporting |
| F8 | Audit and Assurance |
| F9 | Financial Management |
| Professional level | |
| P1 | Professional Accountant |
| P2 | International Corporate Reporting |
| P3 | Business Analysis |
| P4* | Advanced Financial Management |
| P5* | Advanced Performance Management |
| P6* | Advanced Taxation |
| P7* | Advanced Audit and Assurance |

Source: www.accaglobal.com

Within the professional level there is an obligation to pass papers P1-P3 and to pass two from papers P4-P7. A great competitive advance of ACCA is in the fact that the foreigners are able to pass their exams in their country (e.g. Czech adepts write their exams in Prague). All exams are in written form and the required precision ratio is 50 %.

2.2.2 Association of International Accountants

The Association of International Accountants (AIA) is another accounting certification provider based in the United Kingdom. AIA was founded in 1928 and nowadays has their members in more than 85 countries.

AIA runs three-level scheme consisting of one foundation level and two professional levels (see Table 6):

Table 6. AIA Professional Scheme

| Foundation level | |
|------------------------------|---------------------------|
| F1 | Financial Accounting I |
| F2 | Business Economics |
| F3 | Management Accounting I |
| F4 | Law |
| F5 | Auditing and Taxation |
| F6 | Information Processing |
| Professional level I | |
| P1 | Auditing |
| P2 | Company Law |
| P3 | Management Information |
| P4 | Business Management |
| P5 | Financial Accounting II |
| P6 | Management Accounting II |
| Professional level II | |
| P7 | Financial Accounting III |
| P8 | Financial Management |
| P9 | Professional Practice |
| P10 | Taxation and Tax Planning |

Source: www.aiaworldwide.com

AIA (same like ACCA) provides an opportunity for foreigners to pass the exams in their country. All exams are in written form and the required precision ratio is 50 %.

2.2.3 CPA Australia

Certified Practising Accountants Australia (CPA) has been founded in Australia in 1952 from following bodies: Commonwealth Institute of Accountants (est 1886), Federal Institute of Accountants (est 1894). Its certification is well-known in Asia-Pacific area. CPA's system consists just from two levels (see Table 7):

Table 7. CPA Australia Professional Scheme

| Mentor Program | |
|-----------------------|---|
| P1 | Academia |
| P2 | Auditing/Assurance |
| P3 | Financial Accounting |
| P4 | Financial Planning |
| P5 | Information Technology |
| P6 | Insolvency and Reconstruction |
| P7 | Management Accounting |
| P8 | Taxation |
| P9 | Treasury/Financial Risk Management |
| CPA Status | |
| P10 | Reporting and Professional Practice |
| P11 | Corporate Governance and Accountability |
| P12 | Business Strategy and Leadership |

Source: www.cpaustralia.com.au

There shall be stated that this certification scheme is not widely known and spread within Central and Eastern Europe.

3. The Methodology and Model

An empirical analysis is performed on accounting qualification schemes for professional accountants. It involves closely analyzing the foresights of the national professional accounting certification scheme and global ones (ACCA, AIA, CPA Australia). The similarities and dissimilarities between the considered certification schemes are therefore determined.

The most frequently used methods in trade literature when analyzing the level of comparison between systems are Jaccards' association coefficients (e.g. Strouhal et al., 2009). The Jaccard coefficient (Jaccard, 1901) is defined as the size of the intersection divided by the size of the union of the sample sets:

$$J(A,B) = \frac{|A \cap B|}{|A \cup B|} \quad (1)$$

The Jaccard distance is complementary to the Jaccard coefficient and measures the dissimilarities. It is obtained by dividing the difference of the sizes of the union and the intersection of two sets by the size of the union:

$$J_{\delta}(A,B) = 1 - J(A,B) = \frac{|A \cup B| - |A \cap B|}{|A \cup B|} \quad (2)$$

There was identified a series of elements regarding accounting exams which we then organized within three groups as follows: (i) exams within basic level; (ii) exams within specialized level; and (iii) professional experiences. The two considered coefficients offer the possibility of quantifying both the association degree and the dissimilarity degree between different sets of accounting certification schemes taken into consideration for analysis. So as to dimension the association or compatibility level, the calculation formula for the Jaccards' coefficients shows as follows:

$$S_{ij} = \frac{a}{a + b + c} \quad (3)$$

$$D_{ij} = \frac{b + c}{a + b + c} \quad (4)$$

where: S_{ij} represents the similarity degree between the two sets of analyzed accounting certification schemes; D_{ij} represents the degree of dissimilitude or diversity between the two sets of analyzed accounting certification schemes; a – the number of elements which take the 1 value for both sets of schemes; b – the number of elements which take the 1 value within the j -set of schemes and the 0 value for the i -set of schemes; c – the number of elements which take the 1 value within the i -set of regulations and the 0 value for the j -set of schemes.

To receive higher robustness of the results we have concluded the testing of similarities and dissimilarities using Roger-Tanimoto coefficient and Lance-Williams coefficient. The calculation formulas are following:

$$R\&T = \frac{d + a}{d + a + 2(b + c)} \quad (5)$$

$$L\&W = \frac{b + c}{2a + b + c} \quad (6)$$

where: R&T represents Roger-Tanimoto coefficient (for measurement of the similarity level); L&W represents Lance-Williams coefficient (for measurement of dissimilarity level); and d represents the number of elements which take the 0 value for both sets of schemes.

4. The Findings

As mentioned before, there has been performed comparative analysis of accounting schemes and tested their compatibility. For measurement of similarities have been used Jaccard similarity coefficient and Roger-Tanimoto coefficient; for measurement of dissimilarities have been used Jaccard dissimilarity coefficient and Lance-Williams coefficients. Results are provided within Tables 8 and 9.

Table 8. Tests of Similarity

| Scheme | | CZE | ACCA | AIA | CPA |
|--------|----|--------|--------|--------|--------|
| CZE | JC | 1.0000 | 0.7333 | 0.9286 | 0.7333 |
| | RT | 1.0000 | 0.6000 | 0.8824 | 0.6000 |
| ACCA | JC | 0.7333 | 1.0000 | 0.7857 | 0.7143 |
| | RT | 0.6000 | 1.0000 | 0.6842 | 0.6000 |
| AIA | JC | 0.9286 | 0.7857 | 1.0000 | 0.7857 |
| | RT | 0.8824 | 0.6842 | 1.0000 | 0.6842 |
| CPA | JC | 0.7333 | 0.7143 | 0.7857 | 1.0000 |
| | RT | 0.6000 | 0.6000 | 0.6842 | 1.0000 |

Source: own analysis

Table 9. Tests of Dissimilarity

| Scheme | | CZE | ACCA | AIA | CPA |
|--------|----|--------|--------|--------|--------|
| CZE | JC | 0.0000 | 0.2667 | 0.0714 | 0.2667 |
| | LW | 0.0000 | 0.1538 | 0.0370 | 0.1538 |
| ACCA | JC | 0.2667 | 0.0000 | 0.2143 | 0.2857 |
| | LW | 0.1538 | 0.0000 | 0.1200 | 0.1667 |
| AIA | JC | 0.0714 | 0.2143 | 0.0000 | 0.2143 |
| | LW | 0.0370 | 0.1200 | 0.0000 | 0.1200 |
| CPA | JC | 0.2667 | 0.2857 | 0.2143 | 0.0000 |
| | LW | 0.1538 | 0.1667 | 0.1200 | 0.0000 |

Source: own analysis

From the presented analysis could be seen, that there is a high level of compatibility of Czech accounting certification scheme with international ones. As a closest scheme might be considered AIA professional scheme (comparable for 92.86 % using Jaccard coefficient, resp. 88.24 % using Roger-Tanimoto coefficient), which is less popular than ACCA in the Czech Republic. Czech scheme and AIA scheme are moreover the closest from the performed analysis. High level of compatibility could be also seen between British schemes (ACCA and AIA).

5. Conclusions

There should be stated that the professional qualification is not requested by labor market. That's why that only about 10 % of all professional accountants in the Czech

Republic are certificate holders. As a biggest advantage of Czech certification scheme shall be stated the basement on ACCA professional scheme and the compatibility with the certification scheme for external auditors. Professional accounting certification schemes in the Czech Republic need to be more promoted to the whole accounting profession as well as to employers.

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Appendix - Data Source for Statistical Analysis

| Paper | CZE | ACCA | AIA | CPA |
|-------------------------------|------------|-------------|------------|------------|
| Accounting I | ☺ | ☺ | ☺ | ☺ |
| Law | ☺ | ☺ | ☺ | ☹ |
| Statistics | ☺ | ☹ | ☹ | ☹ |
| ICT | ☺ | ☹ | ☺ | ☺ |
| Economics | ☺ | ☹ | ☺ | ☹ |
| Taxation | ☺ | ☺ | ☺ | ☺ |
| Ethics | ☺ | ☺ | ☺ | ☺ |
| Finance | ☺ | ☺ | ☺ | ☺ |
| Managerial Accounting | ☺ | ☺ | ☺ | ☺ |
| IFRS | ☺ | ☺ | ☺ | ☺ |
| Financial Management | ☺ | ☺ | ☺ | ☺ |
| Management | ☺ | ☺ | ☺ | ☺ |
| Auditing | ☺ | ☺ | ☺ | ☺ |
| Performance Management | ☹ | ☺ | ☹ | ☹ |
| Financial Reporting | ☺ | ☺ | ☺ | ☺ |
| Insolvency and Reconstruction | ☹ | ☹ | ☹ | ☺ |