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IMPACT OF ACTIVITY-BASED COSTING ON FINANCIAL PERFORMANCE IN THE CZECH REPUBLIC

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Abstract

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Looking for factors affecting business performance is one of a central concern of business economists for several years. Activity-Based Costing (ABC) is a management tool that provides additional and more accurate information on the costs and company performance, thus contributes to better manager decision making, and thus has potential to affect the financial performance. This paper aims to investigate the link between the use of ABC among corporations in the Czech Republic and improvement in corporate financial performance.
The empirical survey was carried out among 548 Czech medium-sized and large companies from various economic sectors. Financial performance was measured by standardized Return on Assets from 2005 to 2011.
The ABC expansion among enterprises in the Czech Republic is currently comparable with neighbouring countries, although the extent of its use is lower. Surprising but statistically significant results show that businesses that use ABC have on average the same or even lower financial performance than businesses without ABC.

Keywords: Activity Based Costing, financial performance, the Czech Republic, cost management

INTRODUCTION

In Western Europe since the 1970s and in central and eastern Europe since the 1990s, there has been a significant rise in pressure on companies from competition. In order to remain competitive, their managers have been forced to find more and more ways to reduce costs. However, without an understanding of how a business's costs operate, this situation can lead to an ill-considered lowering of costs without acknowledging the possible negative impact on the company's ability to create value and profit. That is why businesses are increasingly paying closer attention to cost management.

Cost management underwent considerable changes when new, more sophisticated approaches and methods of cost management were discovered. Instead of the traditional organization of a company, which tracks costs based on organizational units, a process view of the organization began to gain currency. This is based on tracking corporate processes and activities as the real causes of the creation of value and costs. Connected to this approach is the concept of Activity Based Costing (ABC) or Activity Based Management (ABM).

The 1980s saw ABC expand rapidly, particularly in English-speaking countries (Majerová, 2010). Previous research (Šiška and Matýska, 2007; Popesko and Novák, 2008) showed that it has taken a longer time to become established in Czech business practice.

The theoretical effects of using ABC on the performance of a company have been thoroughly described in academic and popular literature (e.g. Cokins, 2001), but the question remains whether the supposed advantages of ABC are realized in practice. Foreign research into this issue has provided mixed results (see below), and in the Czech Republic research into the use of ABC has not yet been carried out on a sufficiently large sample. Demonstrating the positive impact of cost management in terms

of particular activities in our country may increase businesses' interest in this method and contribute to the increased financial performance of Czech businesses.

Based on the present situation, the aim of this paper is to discover whether the employment of this methodology is linked to an increase in a business's financial performance.

LITERATURE REVIEW

The History of ABC and its Principles

In the 1980s, the growing need to complement the traditional approaches of managerial accountancy with a strategically focused tool for cost management led to the development of ABC in the USA. What started out as a calculation technique became a complex approach to the management of an organization's activities. The American Consortium for Advanced Management – International (CAM-I) played an important role in formalizing the principles and raising awareness of ABC.

CAM-I (2000) defines ABC as a *"methodology that measures the cost and performance of activities, resources and cost objects. Resources are assigned to activities, then activities are assigned to cost objects based on their use. ABC recognizes the causal relationships of cost drivers to activities."* Here "cost objects" is used to mean any kind of entity which the manager wishes to be cost measured, e.g. a product, customer, division, department, product line, region, or a combination of these. Activity Based Management (ABM) is sometimes separated from ABC and is usually defined as utilizing the information from ABC in the management of a business.

The basic purpose of classifying costs according to particular activities is to express as precisely as possible the relationship between costs and the reason for their creation, particularly in cases where this reason is not an increased volume of final outputs (Král *et al*., 2010). Costs from traditional cost centres are an overly aggregated expression of the internal procedures and processes which lead to them. That is why in ABC these processes (and the resources invested in them) are broken down into activities, with the costs incurred in performing them being indicated. The costs of the activities are then assigned to final outputs (cost objects). As well as offering a different view of the costs in the ledger, another important difference between the ABC calculation model and traditional models is the transition from discrete functional areas of an organization to functionally interdependent processes and activities (Staněk, 2003).

Utilizing Information from ABC

The aim of ABM is to improve the performance/profit of an organization using information on the causes of overheads, their measurement and management. ABC is a support for operational and strategic decision making. Based on empirical research results (Cohen *et al*., 2005; Innes *et al*., 2000; Krumwiede and Suessmair, 2008) the methodology is in practice used for: more precise product-cost calculations and their reduction, product pricing, cost modelling, customers and products profitability management, activity cost analysis, an identification of cost factors (cost drivers), budgeting, deciding on production volume and product mix, decisions concerning outsourcing, measuring the costs of unused capacity, measurement of quality (insufficient) costs, benchmarking, re-engineering and procedural improvement.

The authors agree that the greatest benefits that ABC brings are for medium-sized and large businesses with large product diversity and a relatively high ratio of overhead costs (Krumwiede, 1998; Cooper and Kaplan, 1990; Cagwin and Bouwman, 2002). Areas which have had the most experience with it have been the manufacturing industry with a heterogeneous production and assembly technology. However, the methodology has also been relatively widely applied in non-production sectors, e.g. in commercial enterprises, banking, insurance and transport (Král *et al*., 2010).

One of the disadvantages in using ABC is the extent and complexity of ascertaining input data and the need for regular updating. In turn this relates to the high costs of the management and maintenance of the ABC system. Due to business economists' lack of knowledge and practical experience with this relatively new methodology, the costs for its implementation and use are multiplied by the need to be linked to a consultancy company.

One of the most common reasons for businesses rejecting ABC is the predicted costs for its implementation and use, as well as the complex methodology. However, existing users' experience of ABC tends to disprove the above reasons for rejection. Research by Krumwiede (1997) showed that from amongst ABC users of businesses belonging to the Cost Management Group, 89% said that the implementation has been cost effective. All of the respondents to the research by Innes *et al*. (2000), who were ABC users, agreed with the importance and success of its implementation.

The Expansion of ABC

The expansion of ABC may testify to its positive impact. The methodology originated in the USA and specialist as well as popular articles were written mainly in English. Therefore, it is understandable that the expansion ABC began in the United States and other English-speaking countries. Much of the research about the expansion of ABC was carried out in Great Britain.

One of the oldest and most cited studies was carried out by Innes and Mitchell on the largest British businesses from 1991, which then repeated the same questionnaire in 1994 and then in 1999 (Innes *et al*., 2000). The adoption rate for ABC was 6% in 1991, 20% in 1994 and 18% in 1999. The stagnation

in the adoption rate for ABC in the UK was shown in a study by Al-Omiri and Drury from 2007.

The expansion of ABC amongst businesses in the USA has been significantly larger – the rate of ABC adoption is between 21% and 53% (Krumwiede, 1997; Ittner *et al*., 2002; Cagwin and Bouwman, 2002; Hrisak, 1996; Krumwiede and Suessmair, 2007).

Concerning Australia, at the beginning of the 1990s the expansion of ABC within Australia was similar to Great Britain (20%), but by 1998 Chenhall and Langfield-Smith recorded an ABC adoption rate of 52%, and six years later Baird *et al*. (2004) recorded an unbelievable 78%. There was an even greater rate of adoption of Activity Analysis (AA) and Activity Cost Analysis (ACA). AA, ACA and ABC are levels of activity management based on Gosselin's differentiation (Gosselin, 1997). Nanni *et al*. (1992) believed that many companies had not implemented a comprehensive ABC system because most of its benefits had already been provided to the company through cost analysis activities.

There has also been relatively high interest in ABC in Scandinavia, although the process of ABC expansion has been slower here. A Finnish study by Lukka and Grandlund from 1994 did not find any businesses using ABC. Research by Malmi (1999) gave an adoption rate of 23%, while Kallunki and Silvola (2008) recorded a 28% expansion, demonstrating that the process of ABC expansion has continued here. Bjornenak's results (1997) showed that 40% of the largest manufacturing companies in Norway had already implemented ABC or planned to do so. In line with the theory, Bjornenak confirmed that companies with a large proportion of overheads adopt ABC more often.

In other non-English-speaking European countries there has been less expansion. This is because countries in continental Europe traditionally have different cost systems which are more developed than was true for the USA prior to the rise of ABC (Bhimani *et al*., 2007). Cohen *et al*. (2005) have shown that the majority of ABC users from a research sample in Greece did not begin to implement ABC until after 1999.

It is interesting to compare the traditional methods of cost accounting in the USA and Germany (Krumwiede and Suessmair, 2007), which in terms of managerial accounting is closer to the Czech Republic. On average, German companies use far more cost centres and cost drivers than American organizations. The expansion was found to be approximately the same – 19% for Germany and 21% for the USA. However, they also discovered that German companies placed more emphasis on cost systems and are more satisfied with them than American businesses.

The differences in the results of the individual studies can be partly explained by the differing company samples, as a higher rate of adoption can be assumed with capital intensive businesses, with businesses offering a wide range of products, with large companies and with export-oriented entities (Malmi, 1997). Another source of discrepancy might be the differing proportion of businesses from specific sectors in the sample under research, as Innes *et al*. (2000) demonstrated that the financial sector has a higher adoption rate of ABC than the manufacturing sector.

Research by Bhimani *et al*. (2007) attempted to eliminate the problem of the commensurability of the different research studies. The authors presented an identical questionnaire (translated into the national languages) at the same time to large businesses within G7 countries. The results revealed that the adoption rate in these countries varied significantly. The greatest expansion was in North America and Great Britain, where the adoption rate was between 40% and 60%. In Germany it was 30% and in Italy 28%, with the lowest rate in Japan at 17%.

The Effect of ABC on Performance

A relationship between the use of ABC and a stronger financial performance was discovered by Cagwin and Bouwman (2002) and Krumwiede and Charles (2011). A direct positive relationship was found between them only under certain conditions. Nevertheless, Cagwin and Bouwman discovered a statistically significant synergy when using other strategic initiatives in conjunction with ABC. If ABC is used with JIT or TQM, the increase in financial performance is greater than when a strategic initiative is used without ABC. Four years later Cagwin with Barker (2006) attained similar results. A synergically positive effect on the performance of a company using ABC in conjunction with other strategic management tools was also confirmed by Maiga and Jacobs (2006), Banker *et al*. (2008), and Al-Khadash and Feridun (2006).

Ittner *et al*. (2002) discovered an indirect impact of ABC on the reduction of costs through the improvement in quality and production times. The direct impact of ABC on financial performance was discovered in a British study (Kennedy and Affleck-Graves, 2001), which detected it three years after the implementation of ABC. The most significant improvement came in the last year, which might be explained by the complexity of the ABC system and the longer time period required for its full implementation.

ABC in the Czech Republic

Until recently there had only been one publication written in Czech about ABC which might familiarise researchers with its methodology (specifically Staněk, 2003). Although university textbooks for managerial accounting mention this methodology, only a few pages are dedicated to it. This may explain the relatively low ABC adoption rates by Czech businesses discovered in earlier research, and which according to Staněk (2003) is lower than neighbouring Slovakia. In the Czech Republic only Popesko has conducted detailed research into activity management. In 2004 he carried out a quantitative survey amongst medium-

sized and large organizations operating within industry (117 returned questionnaires). From the research it emerged that 43% of the businesses knew of the methodology, though only 21% of these were fully informed about the ABC system and only 5% of businesses used ABC. He repeated the same research in 2007 with very similar results – an ABC adoption rate of 4% (Popesko and Novák, 2008). In 2007 Šiška and Matýska carried out research focusing on business efficiency, and among 291 businesses they discovered that 22% used ABC.

The objective of this research was to discover whether the link between the use of ABC and higher financial performance also applied in the Czech Republic. Therefore, on the basis of the investigation the hypotheses H1 and H2 was established:

H1: Businesses in the Czech Republic which use ABC demonstrate higher financial performance than those businesses which do not use ABC.

H2: Financial performance raised after ABC implementation.

MATERIAL AND METHODS

The Sample

The objective of the research was to gain a comprehensive picture of the influence of activity based cost management on Czech businesses. For this reason a very wide primary research sample was chosen. The sample consisted of commercial entities covering all major sectors of the Czech economy (businesses arranged into sections according to their activities A – N and P – R according to the CZ-NACE classification), located in the Czech Republic. All common legal forms of businesses were represented (joint-stock companies, limited liability companies, limited partnerships, public companies, cooperatives and branch plants). Due to the character and realities of the research, the sample was limited to medium and large companies with more than 50 employees. The list of businesses with basic identifying data and data from financial statements was obtained from the Albertina CZ Gold Edition nationwide company database, which contains information from the register of legal entities in the Czech Republic.

From the complete basic sample containing 9110 businesses, 6363 businesses with a valid email address were contacted to complete a questionnaire. Completed questionnaires were returned by 548 businesses and this group represents the selected sample. The rate of return, therefore, was therefore 8.61%.

Although it is possible to find certain differences between the two samples, due to the method of selecting the businesses (all the businesses from the basic sample which gave contact details were contacted) and the high absolute number of answers obtained (548 businesses), it is possible to consider the responses obtained as a relatively representative sample, the results of which can be generalized to the investigated population of medium-sized and large businesses.

Research Methodology – the Questionnaire

Businesses' financial data from the Albertina CZ database was acquired, as well as contacts and information on the size of the business and its legal form. Reliable date on ABC usage could only be acquired through direct questioning.

Data collection was carried out in the summer of 2013 using a website-based questionnaire. Due to the character of the questions, the questionnaire was aimed at management from the economic, finance or controlling departments. The staff from these departments are usually linked to the implementation of ABC and area also most likely to utilize information from it (Larson and Kerr, 2006).

Performance Evaluation

Financial performance is the most frequently used type of performance measured in economic studies, and this performance is most frequently measured using indicators based on revenues, while other indicators that are often used include return on assets and profitability indicators (Hult *et al.*, 2008). According to research by Allouche and Laroche (2005) indicators based on accounting data display a significantly stronger relationship to competitive factors than other types of indicators.

In this research there was selected for performance measurement a traditional and commonly used indicator for financial proportional performance based on accounting data – return on assets (ROA). For each year the indicator was constructed separately in the following way:

$$ROA_i = \frac{Operating\_pofit_i}{Total\_assets_i} \times 100.$$

Return on assets expresses the profitability of all the resources involved and is one of the basic indicators in financial analysis. The proportional construction of this indicator allows for the comparison of businesses of various sizes. The operating profit in the numerator was used because it is not influenced by a company's secondary activities and it reflects the business's market success. The total assets in the denominator is associated with the stakeholder's view of the organization and its use guarantees the exclusion of the influence of different capital structures across businesses.

To reduce the risk of the data being influenced by random fluctuations, data covering a longer time period was used. The ROA indicator was calculated for each firm over the relatively long time series of seven consecutive years (2005–2011). Due to the occurrence of missing values we included into the evaluation of financial performance businesses with a maximum of three missing values.

In order to evaluate the data acquired it was necessary to deal with the differing financial performance depending on the sector and, similarly, with the differing economic development of the sector over time. For this reason, the data was standardized separately each year according to the sector. In this way it was possible to compare businesses' performance across sectors and years.

For standardization the following formula was used expressing the Z-score:

$$Z_i = \frac{X_i - \tilde{X}_s}{\sigma(X_s)},$$

where i = (1, 2, 3, 4, 5, 6, 7) and the mean value in the sample is the median (middle value) of each sector of the basic sample, then the standard deviation in the denominator is the standard deviation of the median of each sector of basic sample. The use of the standardization maintains an informative z-score value in each year.

The aggregate of the business's seven-year financial performance was then obtained as the arithmetical average of the seven standardized values of ROA.

The mean value of the businesses' financial performance, measured by the seven-year average of a standardized ROA, does not differ between the selected and basic sample (the median of the basic sample = 0.02, the median of the selected sample = 0.03). This hypothesis was confirmed by a t-test as well as a median test. The distribution in the two samples can be considered as normal and is the same for both (carried out by Mann-Whitney U test, Kolmogorov-Smirnov test, Kruskal-Wallis test). Therefore, the results of the selected sample's financial performance can also be applied to the entire basic sample.

Methodology for the Statistical Evaluation of Data

The data acquired from the questionnaires and from the Albertina CZ database was processed and evaluated using IBM SPSS Statistics and Microsoft Excel statistical software. For a description of the basic and selected samples an univariate analysis of the data was used (absolute and relative frequencies, measures of central tendency median or arithmetical average). The businesses' responses were analysed and compared amongst businesses with specific characteristics (business field, size, etc.).

The statistically significant difference between groups of businesses was tested using standard statistical tests, in particular the t-test, analyses of variance, and four sets of tests were used as non-parametric tests: the Median test, the Mann-Whitney U test, the Kolmogorov-Smirnov test and the Kruskal-Wallis test.

The next step in the statistical evaluation was to carry out a bivariate analysis, i.e. the search for relationships between two variables. Here the crosstabs procedure in particular was used, which shows the different incidence of phenomena observed between the groups of businesses under research. To measure the strength of association between variables there was also calculated the coefficiency values η (éta), Cramer's V, Kendall's Tau, Pearson's correlation coefficient R.

To avoid the influence of a third variable on performance, the crosstabs were used and Somers' D calculated.

The values for all the coefficients are available from the author. The strength of association and correlation of two variables has been interpreted according to the De Vaus classification (Mareš and Rabušic, 2003).

The level of statistical significance, with regard to the nature of the issue under investigation, was chosen as $\alpha = 0.10$. In similar studies it is standard to use a level of significance of $\alpha = 0.05$, though according to Blahuš (2000) there is no reason to demand such a low level of risk with tasks of this type.

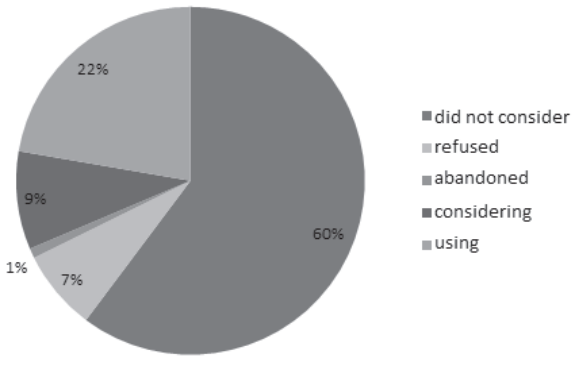
When comparing businesses from the various CZ-NACE sections, businesses from section B, I, P and R were not analysed because only a few businesses from these sections responded, which would not provide sufficient explanatory power for the results. When assessing the entire selected sample, businesses from sections B, I, P and R were included in the analysis.

RESULTS

In the sample of 548 businesses, 120 of them, i.e. 22%, state that they use ABC. The expansion of this tool in the year of this study is illustrated by Fig. 1.

The rate of adoption, however, is not the same in all spheres and sectors, ABC being most widespread among industrial businesses with mass production (29% of them utilize ABC) and service businesses (28%). These are followed by agricultural businesses, of which one in four uses ABC. Manufacturing businesses with serial and unit production employ ABC less often (20% and 16%).

Although the descriptive statistics revealed significant differences between sectors, the



1: *The expansion of ABC*
Source: author

relationship between the use of ABC and the CZ-NACE section is low to moderate and is on the border of statistical significance, with Cramer's V = 0.201; p = 0.106.

From the reasons given for businesses choosing not to introduce ABC (41 businesses), those stated most frequently were the high implementation and maintenance costs (21 times) and the complexity of the method (19 times). Furthermore, the non-utilizability of the information obtained was mentioned 7 times, the lack of experience and knowledge of the method 4 times, and the dependence of the decision on the mother company once.

The subject of the research was medium-sized and large businesses with 50 or more employees. The size of the business proved to be a moderately important factor for the adoption of ABC. Larger businesses adopted ABC more often (Cramer's V = 0.239; p = 0.001). 16% of businesses with 50 to 99 employees used ABC, while ABC was prevalent in one third of businesses with over 250 employees. The degree of association was also shown to be statistically significant, Pearson's correlation coefficient = 0.144; p = 0.001.

As far as the legal form is concerned, only joint-stock companies, limited-liability companies and cooperatives were analysed. Other legal forms were represented only in single businesses. Joint-stock companies exhibited the highest average rate of adoption, 29%. Limited-liability companies used ABC less (19%). Of the 25 cooperatives evaluated, not one uses ABC. A statistically significant though low correlation was thus determined between the rate of ABC adoption and the legal form of enterprise (Cramer's V = 0.177; p = 0.004), which was also confirmed by the degree of association (Pearson's coef. = –0.154; p = 0.000).

The complexity of used ABC model was measured by number of monitored activities and cost drivers in enterprise ABC system. Median number of monitored activities is 10, and the median number of cost drivers is 5. These two figures have a very strong mutual dependency (Pearson's R = 0.693, p = 0.000). Although this is a relatively low number, indicating the simple ABC model, businesses with a very complicated ABC model were also present. Businesses which abandoned ABC frequently used the more complicated model.

The main part of the research was to test the hypotheses about the existence of a difference between corporate financial performance with and without the use of ABC. By standardizing the values of financial performance explanatory power of z-score remained unchanged, therefore, the basic sample mean of z-score (median) was almost the same every year and close to zero – in each year ranging from 0.000 to 0.002). Median of seven-year average was 0.025.

The median of the seven-year average of standardized ROA for businesses with ABC was –0.015, arithmetic average was 0.034, and the median of businesses without ABC was 0.041, arithmetic average was 0.141. The t-test, as well as ANOVA, established a statistically significant difference between the mean values of the two sets (p = 0.066). Businesses using ABC thus have lower performance than businesses without ABC.

The possible effect of a third variable which could distort the results was tested. Spalek and Castek (2010) specified the sector, size and legal form of a business as relevant variables which demonstrably affect the business's performance. In this case the effect of the sector in view of the standardization carried out across sectors, which was performed with the express aim of eliminating the effect of the sector on financial performance can be excluded.

When examining the effect of the third variable of size on financial performance a statistically significant effect is evident in only two of the seven size categories (250–499 employees and 1000–1499 employees), while for each of these categories variable operate in another direction (Somers' D = 0.248; p = 0.076, respectively Somers' D = –0.800; p = 0.029). The very small change in this coefficient indicates the negligible effect of this third variable.

Another factor which was examined is the legal form of the business. This is a nominal variable, that is why the comparison using the crosstabs procedure were carried out. With joint-stock companies no difference in financial performance was established between businesses with ABC and without ABC: Somers' D = 0.006; p = 0948. A slight difference was evident with the legal form of the limited company: for standardized ROA, as a dependent variable, the result is Somers' D = –0.150; p = 0.071. The t-test which was also carried out confirms these results with a probability of p = 0.027; t = 2.236. The median of standardized ROA for limited companies with ABC is 0.036; for limited companies without ABC it is 0.144. Limited-liability companies which use ABC thus exhibit slightly worse financial performance on average than limited companies without ABC. For other legal forms it was not possible to calculate the coefficients due to their small representation in the sample.

Hypothesis H1: "Businesses in the CR which use ABC demonstrate higher economic performance than businesses which do not use ABC" was not confirmed.

In view of the surprising results the investigation of the development of financial performance up to 5 years before and up to 5 years after the introduction of ABC into the business were examined. The differences between the performance of companies before and after the introduction in period ±5 years, ±3 years and ±1 year are not statistically significant (for results from t-test see Tab. I).

However, developments in the financial performance of businesses based on year of ABC adoption is not constant but shows a definite pattern of development (Tab. II, Fig. 2).

The median financial performance of businesses 5 years before ABC adoption had a slightly rising trend, 3 years before introducing up to year of

I: *Mean financial performance up to 5 years and up to 5 years after introducing ABC*

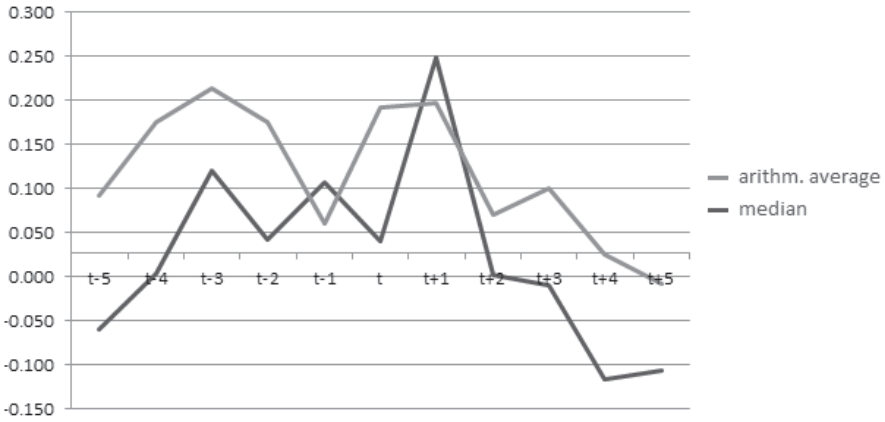
Standardized ROA -3 to -1 year before introducing ABC		Standardized ROA +1 to +3 years after introducing ABC		t	Sig.
Median	Arithm. average	Median	Arithm. average		
0.099	0.123	0.068	0.123	0.001	0.999
Standardized ROA -5 to -1 year before introducing ABC		**Standardized ROA +1 to +5 years after introducing ABC**		**t**	**Sig.**
Median	**Arithm. average**	**Median**	**Arithm. average**		
0.051	0.128	0.030	0.086	0.585	0.559
Standardized ROA a year before introducing ABC		**Standardized ROA a year after introducing ABC**		**t**	**Sig.**
Median	**Arithm. average**	**Median**	**Arithm. average**		
0.107	0.061	0.248	0.198	–1.011	0.314

Source: author

II: *Financial performance for each year based on the year of ABC adoption*

Year	t – 5	t – 4	t – 3	t – 2	t – 1	t	t + 1	t + 2	t + 3	t + 4	t + 5
Median of stand. ROA	–0.060	0.005	0.120	0.043	0.107	0.040	0.248	0.002	–0.010	–0.116	–0.106
Arithm. Average of stand. ROA	0.092	0.175	0.214	0.176	0.061	0.192	0.198	0.071	0.100	0.026	–0.008

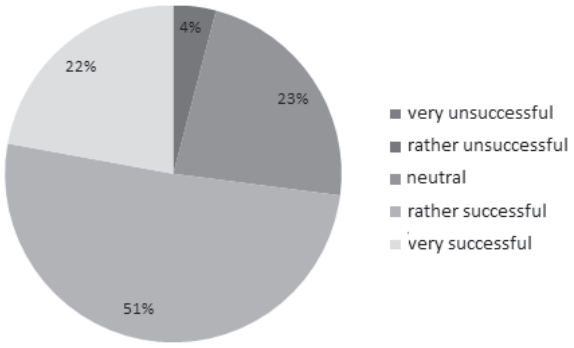
Source: author



2: *The development of median and arithmetic average of standardized ROA up to 5 years before and up to 5 years after ABC introduction*
Source: author

introducing was slightly higher than average. In the year after ABC adoption the median of financial performance increased considerably, then fell to below the average values. Trend of arithmetic average has a higher performance during 5 to 2 years prior to the introduction, the decline in performance is compared to a median already in the year t–1. Subsequent development is similar to median.

To test the significance of the difference in performance in year t + 1 compared to years before introduction, the mean values of performance in years t – 5 to t – 1 and the average value in year t + 1 using t-test and the median test was compared. Median of standardized ROA for the period t – 5 to t – 1 was 0.051, arithmetic average = 0.128, in year t + 1 median increased to 0.248, aritmetic average = 0.198. T-test found no difference between the mean values of both groups (t = 0.463; p = 0.644). The median test gives the same result, which found no difference between the median of both groups (p = 0.581).



3: *Success of ABC introduction from the perspective of respondents*
Source: author

Hypothesis H2: „Financial performance raised after ABC implementation." was not confirmed.

Although a connection was not demonstrated between the use of ABC and higher financial performance, the introduction of ABC into the business is evaluated positively by most of the respondents (see Fig. 3). The worst evaluation of „very unsuccessful" was not selected even once. Businesses which introduced ABC and later abandoned it (5 businesses) evaluated its introduction twice as neutral and three times as more unsuccessful.

The perceived success of the ABC introduction is not associated with actual financial performance (Kendal's Tau = –0.031; p = 0.654).

DISCUSSION

The results indicate an average level of expansion of ABC among businesses in the Czech Republic in comparison with recent studies in other non-English-speaking European countries (Majerová, 2010); on the other hand, 60% of businesses had not even considered its introduction. This is probably due to the anticipated financial demands and complexity of this tool, or due to a lack of information about the method (Popesko, 2004). In recent years we have witnessed a slight acceleration of growth in the expansion of this tool in the Czech Republic, which can be explained by the gradual incorporation of information about ABC into courses in managerial accounting and controlling at Czech universities and the publication of popular professional literature (also) covering the issue of ABC in Czech.

In keeping with the theories, expansion differs in various economic sectors. One surprising finding is the relatively high dissemination among agricultural businesses, which generally adopt strategic management tools to a lesser degree (Suchánek *et al.*, 2013).

As expected, the size of the business affects the adoption rate of ABC. Large businesses have more resources for projects of this type, and managers of large businesses are under more pressure to try to increase their efficiency. These characteristics are also typical of joint-stock companies, which are traditionally larger than other legal forms.

The surprise is the refutation of hypotheses H1 and H2 about the link between the use of ABC and higher corporate financial performance. The lower financial performance of ABC adopters supports the idea that businesses do not have recourse to ABC until they are in trouble and are looking for ways to improve their performance. This possibility is also supported by the course of average development of performance before and after the introduction of ABC into the business (Fig. 3). One of the possible interpretations of this development is that during a drop in performance the business will introduce ABC at considerable expense. The newly acquired information is successfully employed to a large extent in the following year, but in subsequent years resources are no longer earmarked for updating the ABC system or carrying out a new analysis of costs and they cease to work with the system to the original extent. In addition, increased costs of the licence for a special ABC module for the information system may persist.

A greater difference between the performance of adopters and non-adopters is found with limited-liability companies, which can be explained by using the indicator of ROA to measure financial performance. That is to say, the profit for companies with relatively small founding capital (limited companies) constitutes a larger proportion of the entire capital than is the case for businesses with large founding capital (joint-stock companies) and therefore a drop in it manifests itself more strongly in a business with small founding capital than in the second case.

Linked to this is the second likely explanation of the observed businesses performance course. A possible connection in ABC introduction and certain life cycle stages of an enterprise was discovered by Kallunki and Silvola (2008). In their study they reported that ABC is mostly introduced to enterprises in the phase of adulthood, i. e. a phase of stabilized business performance. The adulthood phase precedes the phase of growth with growing performance, the adulthood phase is followed by a phase of crisis, during which the businesses performance is sharply reduced (Kislingerová *et al.*, 2010). The same course is also evident in the data collected in this research. This hypothesis may be a subject for further research.

In contrast with the results regarding financial performance, businesses which use ABC are more or less in agreement over the predominantly positive evaluation of its introduction. This means that managers also monitor other criteria of the success of the ABC system rather than just hard data about financial performance.

It was established that the most widespread form of ABC is a simple model with just a few activities and cost drivers. Businesses often use ABC only for key processes or costly processes. In this way, the information determined about a business's costs is adequate and at the same time is not too expensive to establish; it represents a compromise when there is a lack of financial resources. When the system is reduced in this way, however, there is also a limited employment of its possibilities, and in particular a concentration on information which does not require further analysis, i.e. establishing the costs of products and setting prices and identifying the costs of activities.

The reason for the refutation of H1 and H2 about financial performance may lie in this relatively limited use of information (in comparison with the possibilities which ABC offers). After reading a book or attending a specialized course on ABC, managers are convinced of the wide possibilities of ABC (and therefore more and more businesses introduce it),

but it is likely that in the specific situation of their own business they are no longer able to analyse the information obtained by ABC and use it to their own benefit for actual decision making.

As far as the established values of the statistical tests are concerned, the objection can be raised that the recorded differences in the results between groups of businesses are not large in a number of cases; however, it is necessary to bear in mind that, even with its low statistical degree of association, a relationship revealed in such a heterogeneous group as these businesses of various sectors and sizes, may have a fundamental factual significance. In addition, in large samples we always tend to find a lower degree of association and correlation than in small samples (Mareš, Rabušic, 2013).

CONCLUSION

The aim of this research was to examine the connection between the use of ABC and higher financial performance among businesses in the Czech Republic. The results obtained by analysing data from the questionnaire and the financial statements of businesses from the sample can be generalized to the population.

In the Czech Republic, ABC entered into business practice more slowly than in Western European countries, even though its expansion is now on a comparable level. Nevertheless, more than half of businesses have still not considered introducing this tool, so the thesis from earlier studies concerning a lack of information about the method among business managers still stands. A belief prevails among businesses that the introduction of ABC is expensive and its use complicated. Although the adoption rate of ABC is comparable with neighbouring countries, there is a conspicuous difference in the way it is employed, especially in comparison with German-speaking countries. In an attempt to find a cheap solution and maximum ease of use, Czech businesses tend to introduce a very modest ABC model with only a few activities and apply it only to several main processes. The information obtained is thus inevitably limited, as is the potential for using it in decision making. That is probably the reason why businesses utilizing ABC do not show higher financial performance than businesses without ABC.

From the results obtained concerning the use of ABC in the Czech Republic in connection with the theoretical potential of ABC, a conclusion can be reached about the appropriateness of current and future managers being better informed about the ABC method so that they are able to make better use of information from ABC. One way of doing this is to incorporate teaching about ABC methodology into courses on managerial accounting and controlling at universities, and to increase the awareness of this tool's using literature which managers read, i.e. popular journals or books aimed at managers. Since both of these routes are now being developed to better inform managers, a new era is dawning in the Czech Republic.

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