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A statistical analysis of the financial performance of organic and conventional farms in the Czech Republic with respect to their size

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Abstract: Organic farming represents an environment-friendly alternative to conventional farming techniques. The aim of this paper is to assess whether there are differences in financial performance of the Czech agricultural enterprises as measured by financial analysis indicators in relation to the selected farming system (conventional *vs.* organic), the farm size (with respect to organic and conventional farms) and the interaction of these two factors in the period 2012–2016. A three-step approach including two-way multivariate analysis of variance (MANOVA), non-parametric two-way analysis of variance (ANOVA), specifically the Scheirer-Ray-Hare test, and *post hoc* Dunn's test has been employed. The data sample comprises of 172 conventional and 136 organic farms, divided into three size categories. The effect of the selected farming system is manifested in return on sales, cost ratios, and asset turnover ratio. The farm size affects return on assets, cost ratios, liquidity and debt. The interaction of the factors has only been detected as regards return on assets.

Keywords: analysis of variance; conventional farming system; financial indicators; multivariate analysis of variance; organic farming system

Over the last five decades (between 1961–1963 and 2007–2009), global food production increased by approximately 170% (FAO 2013). Most of this growth originated from agricultural intensification achieved using synthetic fertilisers, pesticides, breeding and cultivation of high-yielding crops, together with strong mechanisation, intensive tillage and monocultures (Joshi 1999). However, this conventional farming system led to a sharp increase in environmental costs, severe damage to farmland due to soil erosion, compaction and loss of organic matter, eutrophication, pollution of water sources by agricultural chemicals and loss of biodiversity (Godfray et al. 2010).

In order to reduce negative impacts of agriculture on the surrounding ecosystems, and to ensure its long-term environmental sustainability, the society increasingly demands the expansion of organic farming, in which all of its elements (the soils minerals, organic matter, microorganisms, insects, plants, animals and humans) interact and work together to create a coherent, self-regulating and sustainable agricultural unit (Lampkin et al. 1999). Various studies document the benefits of organic farming. Liu et al. (2016) and Lori et al. (2017) documented the positive effect of organic farming on soil biota, in terms of soil structure, amount of organic matter and microbial diversity and activity, which supports long-term soil productivi-

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ty. Moreover, according to Hole et al. 2005, Mondelaers et al. (2009) and Barral et al. (2015), organic farming enhances biodiversity and lowers pollution of surrounding terrestrial and aquatic ecosystems.

While conventional farming relies on synthetic fertilisers and pesticides, organic farming avoids or largely excludes their use by relying upon crop rotations, manuring, mechanical cultivation, organic fertilisers, and biological pest control to maintain soil productivity, supply plant nutrients and control pests (Hudson 2010). These requirements imposed on organic farmers regard to design and management of biological processes using natural resources which are internal to the system, strict limitation of the use of chemically synthesised additives, restriction of GMOs and external inputs (with certain exceptions for organic inputs) are in the member states of the EU stipulated in the Council Regulation No. 834/2007 and implementing regulations. Fulfilling these terms enables a farmer to become an organic one.

Conventional farmers are motivated to change the farming system not only for socio-environmental but also for financial reasons (Koesling et al. 2008). Most of the studies undertaken in various countries of the world have agreed that organic farmers achieve the same or higher profitability on average than conventional farmers, thanks to a price premium for organic products (McBride and Greene 2009), lower production costs (Mendoza 2002; Connolly et al. 2008), a combination of a price premium and lower costs (Urfi et al. 2011; Sgroi et al. 2015), or provided subsidies (Offermann et al. 2009; Nachtman 2015), which compensate for the lower organic crop yields. In a recent meta-analysis performed using a global dataset spanning 55 crops grown on five continents, Crowder and Reganold (2015) found that when organic premiums were not applied, benefit/cost ratios of organic agriculture were lower (7–8%) than conventional agriculture. However, when premiums were applied, organic farms were more profitable (22–35%) and had higher benefit/cost ratios (20–24%) than conventional ones.

The analysis of the financial performance of conventional and organic farms in the Czech Republic has only been performed by a few authors. Brozova (2011) and Brozova and Vanek (2013) concluded that the economic situation of organic farms compared to conventional ones tends to manifest more favourable results. However, their economic results are significantly influenced by subsidies without which an absolute majority of enterprises would operate at a loss, and also by natural and climatic conditions, and their field of activities. Brozova and Beranova (2017) also confirmed more positive financial results for organic farms. Additionally, they compared the financial indicators of Czech organic farms with average values achieved in the EU. This comparison revealed significantly better profitability in the Czech Republic. Another study of this issue was conducted by Naglova and Vlasicova (2016), who assessed and compared the economic situation of organic, biodynamic, and conventional farms using financial analysis indicators, performance indicators, economic efficiency indicator, and multidimensional intercompany comparison methods. The authors found that organic farms were the most profitable, the most efficient in terms of economic efficiency and took the first place in the multidimensional intercompany comparison. A recent study conducted by Krause and Machek (2018) confirmed that organic farms outperformed conventional ones in terms of profitability. On the other hand, asset turnover of organic farms was significantly lower. These authors examined the influence of the farm size (measured by the natural logarithm of the total assets) on financial performance indicators as well. They detected its significant effect on return on assets, gearing, current ratio and volatility of sales.

However, Krause and Machek (2018) did not differentiate the influence of the size on the financial performance indicators separately for organic and conventional farms. Although existing professional publications documented higher profitability of organic farms in general, they did not examine differences in the financial performance of organic and conventional farms of various sizes (size categories). Organic farming is based on different principles (e.g. emphasise on using of internal inputs, exclusion of synthetic additives, limited usage of heavy machinery) than conventional one which may influence the ability of organic farms to gain economies of scale. They refer to the capability of a farm to lower costs of production by increasing production and thus, their financial performance with respect to their size. The economies of scale can occur because the farmer is able to spread more production over the same level of fixed costs (Duffy 2009).

Therefore, the aim of this paper is to assess whether there are differences in financial performance of the Czech agricultural enterprises as measured by financial analysis indicators in relation to the selected farming system (conventional *vs.* organic), the farm size (with respect to organic and conventional farms) and the interaction of the farming system and the farm size.

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MATERIAL AND METHODS

The analysis performed has been based on the accounting data of selected farms – legal entities, operating in the territory of the Czech Republic. The examined period is 2012–2016. The list of all agricultural enterprises [by the Statistical Classification of Economic Activities (CZ-NACE)], their accounting data, and the number of employees were obtained from the database Bisnode Magnusweb (Bisnode 2019). To distinguish between conventional and organic farms, the data from the Registry of Ecological Entrepreneurs were used. The sample does not include the farms that also do other than agricultural activities, and mixed farms, which used partly organic and partly conventional farming. Data about the activities of agricultural enterprises was obtained in their annual reports available in the Czech Trade Register or their internet websites. The farms with missing data required for the analysis were excluded from the dataset.

For the purposes of the paper, the farms are categorized by their economic size based on the modified methodology stipulated in European Directive 2013/34/EU. Originally, this methodology categorises business units into micro, small, medium-sized and large, using three criteria, i.e. balance sheet total, net turnover and the average number of employees during the fiscal year. These criteria typically provide objective evidence as to the economic size of an entity. The farms that did not fall in one category only during the investigated period were excluded from the sample. After the initial farm categorisation, the sample of organic medium-sized and large farms was statistically insufficient. For this reason, only micro and small companies are analysed. Due to the predominant number of micro-farms, the micro category was divided into two subcategories (micro I and micro II) for a more detailed analysis. The organic farms and 120 randomly selected conventional farms in each size category were subjected to the manual verification of their sole agricultural activity. The sample was created using the probabilistic multi-stage sampling method.

Criteria limits and the number of organic and conventional farms in the size categories are provided in Table 1. According to the database Bisnode Magnusweb (Bisnode 2019), the total number of active agricultural enterprises was 23 652. However, data necessary for categorisation was available only for 3 127 conventional and 303 organic farms. After the categorisation and the application of all conditions mentioned above, the final sample of farms comprises a total of 172 conventional and 136 organic farms.

Based on literature (Hyblova and Skalicky 2018; Zorn et al. 2018) the following indicators measuring financial performance were selected: return on sales (*ROS*), return on assets (*ROA*), debt ratio (*DR*), current ratio (*CR*), and asset turnover ratio (*ATR*). The operating ratio (*OR*) and personnel cost ratio (*PCR*) were added to assess the operating and labour costs. To calculate the *ROS* and *ROA*, the earnings before interest and taxes (*EBIT*) were used as this allows analysing the performance of a company's core operations without tax expenses and the costs of the capital structure influencing profit. In compliance with the Czech accounting regulation (Decree No. 500/2002 Coll.), operating agricultural subsidies are reported among other operating revenues entering the *EBIT* ratio. Thus, all operating revenues including operating agricultural subsidies were included in the calculations of *ROS* and *ROA*.

For the purposes of statistical analysis, the mean values of the following calculated indicators for the time period 2012–2016 were applied.

$$ROS = \frac{EBIT}{sales} \quad (1)$$

Table 1. Farm categories based on their economic size

Size category	Criteria limits			Organic farms in sample (number)	Conventional farms in sample (number)
	balance sheet total (EUR)	net turnover (EUR)	average number of employees		
Micro I	175 000	350 000	5	56	61
Micro II	350 000	700 000	10	32	39
Small	4 000 000	8 000 000	50	48	72

To be included in a size category, the entities on their balance sheet dates must not exceed the limits of at least two of the three criteria

Source: Own processing based on Directive 2013/34/EU

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$$ROA = \frac{EBIT}{total\ assets} \quad (2)$$

$$OR = \frac{operating\ costs}{sales} \quad (3)$$

$$PCR = \frac{labour\ costs\ including\ costs\ of\ social\ and\ health\ insurance}{sales} \quad (4)$$

$$DR = \frac{liabilities}{total\ assets} \quad (5)$$

$$CR = \frac{current\ assets\ including\ inventories}{current\ liabilities} \quad (6)$$

$$ATR = \frac{sales}{total\ assets} \quad (7)$$

In order to analyse the differences in the financial performance of agricultural enterprises related to the selected farming system (i.e. the eco factor), the farm size (i.e. the size factor) and interaction of these two factors (i.e. the eco:size factor), three-step approach including two-way multivariate analysis of variance (MANOVA), two-way analysis of variance (ANOVA) and *post hoc* analysis is employed.

Design of data suggests the panel structure, but while financial indicators differ through the years of the examined period, both eco factor and size factor are time invariant. Common panel approaches (e.g. fixed or random effects models) cancel out time-invariant variables and would result in an empty model. Based on the graphical assessment, the difference between indicators across farm groups considered seems to be rather stable through the examined years. Thus, the median value of the indicator for each farm is computed, resulting in data design rather cross-sectional than panel.

Normality assumption assessed based on histograms differentiated by all the factors considered and the results of the Shapiro-Wilk normality test (Shapiro and Wilk 1965) is not met. For this reason, the non-parametric version of statistical methods should be used.

In the first step, MANOVA is used to detect the presence of influence of the factors on financial performance as measured overall by the financial indicators. MANOVA is an extension of the univariate analysis of variance (Haase and Ellis 1987) and for this paper, it is estimated with the Formula (8). MANOVA is a parametric method, thus Z score transformation is employed to make it more robust to the violation of normal distribution assumption (Conover 1999). For MANOVA, outlying observations are removed as this method is sensitive to them.

$$ROA + ROS + DR + OR + PCR + CR + \\ + ATR \sim eco + size + eco : size \quad (8)$$

In the second step, for the analysis of the influence of the eco-, size and eco:size factors on each indicator separately, the non-parametric two-way ANOVA is applied. Each group of farms tested is identified by a two-digit alphanumeric code, in which the letter indicates the type of farming system (C – conventional; O – organic) and the number expresses the farm size group (1 – micro I; 2 – micro II; 3 – small). Non-parametric two-way ANOVA is based on ranks and thus does not require similarity of distribution and is robust against outliers.

Non-parametric Scheirer-Ray-Hare (SRH) test is used. The test is an extension of the Kruskal-Wallis test, which is done by computing a statistic H given by the effect sums of squares divided by the total mean squares (Scheirer et al. 1976). The test statistic H is given by:

$$H = (N-1)\frac{\sum_{i=1}^{g} n_i(\overline{r}_i - \overline{r})^2}{\sum_{i=1}^{g}\sum_{j=1}^{n_i}(r_{ij} - \overline{r})^2} \quad (9)$$

where: g – the number of groups; n_i – the number of observations in group i; r_{ij} – the rank of observation j from group i; N – the total number of observations across all groups;

$\overline{r}_i = \frac{\sum_{j=1}^{n_i} r_{ij}}{n_i}$ – the mean rank of all observations in group i;

$\overline{r} = \frac{1}{2}(N+1)$ – the mean of all the r_{ij}.

The *post hoc* analysis is performed using Dunn's test of pairwise multiple comparisons based on rank sums (Dunn 1964). It is used to detect a statistically significant effect of eco- and size factors among the groups of farms in the case that the null hypothesis of the statistical insignificance of the factor was rejected by the SRH test.

MS Excel was used to calculate financial indicators and R programming language was used to perform statistical tests.

RESULTS AND DISCUSSION

Table 2 presents descriptive statistics of the financial indicators of conventional and organic farms di-

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Table 2. Financial indicators (averages for 2012–2016)

Indicator	Descriptive statistics	C1	O1	C2	O2	C3	O3
	mean	–0.424	0.596	0.056	0.538	0.154	0.511
	median	0.064	0.573	0.097	0.317	0.147	0.341
ROS (EUR)	std. dev.	1.994	1.381	1.102	1.104	0.176	0.632
	min.	–14.613	–3.427	–5.627	–0.548	–0.632	–0.906
	max.	0.700	4.370	3.655	6.268	1.039	2.390
	mean	–0.018	0.089	0.068	0.062	0.075	0.066
	median	0.029	0.053	0.074	0.056	0.071	0.056
ROA (EUR)	std. dev.	0.244	0.135	0.101	0.073	0.052	0.072
	min.	–1.488	–0.156	–0.248	–0.090	–0.022	–0.065
	max.	0.256	0.789	0.424	0.231	0.275	0.393
	mean	1.834	6.454	1.810	2.891	1.235	2.528
	median	1.218	3.986	1.151	2.184	1.117	2.191
OR (EUR)	std. dev.	2.034	7.023	3.130	2.530	0.389	1.622
	min.	0.608	1.065	0.797	0.631	0.847	0.865
	max.	15.614	34.665	19.985	13.809	3.484	9.782
	mean	0.491	0.838	0.887	0.762	0.254	0.738
	median	0.310	0.630	0.250	0.531	0.239	0.545
PCR (EUR)	std. dev.	0.528	0.723	2.686	0.822	0.140	0.685
	min.	0.029	0.072	0.101	0.123	0.019	0.129
	max.	2.588	3.357	15.525	4.184	1.007	3.610
	mean	75.266	76.634	48.018	55.490	41.302	41.597
	median	59.996	52.528	46.929	45.921	35.465	33.451
DR (%)	std. dev.	61.775	81.572	32.164	37.393	21.747	27.030
	min.	0.839	4.241	1.571	6.352	7.031	5.017
	max.	349.349	428.250	157.008	209.333	96.698	98.155
	mean	6.742	6.474	5.307	4.343	6.529	6.436
	median	3.477	2.451	3.577	2.360	4.328	4.550
CR (times)	std. dev.	7.273	10.359	6.903	6.359	6.201	5.988
	min.	0.120	0.434	0.855	0.417	0.488	0.269
	max.	29.067	46.454	32.171	34.981	30.734	29.357
	mean	0.822	0.310	0.995	0.250	0.661	0.242
	median	0.618	0.148	0.725	0.206	0.531	0.187
ATR (EUR)	std. dev.	0.861	0.512	0.999	0.148	0.465	0.189
	min.	0.029	0.033	0.006	0.051	0.122	0.036
	max.	4.568	2.828	5.052	0.563	3.383	0.852

C – conventional; O – organic; 1 – micro I; 2 – micro II; 3 – small; *ROS* – return on sales; *ROA* – return on assets; *OR* – operating ratio; *PCR* – personnel cost ratio; *DR* – debt ratio; *CR* – current ratio; *ATR* – asset turnover ratio

Source: Own calculations

vided into three size categories. Both SRH and Dunn's test examine differences in ranks. Therefore, they cannot determine a more financially efficient farm group – the median values[1] of corresponding farm groups need to be taken into account for the assessment of efficiency.

Table 3 presents the results of MANOVA suggesting statistically significant (at 0.01) differences in the over-

[1]Median values are taken into account due to normality violation.

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Table 3. Results of MANOVA

Factor	Pillai's trace value	*F* statistics	*P*-value	Significance
Eco	0.403	24.190	0.000	***
Size	0.140	2.711	0.000	***
Eco:size	0.119	2.285	0.049	**

*, **, ***statistical significance levels at 0.1, 0.05 and 0.01, respectively

Source: Own calculations

Table 4. Results of Scheirer-Ray-Hare test

Indicator	Eco factor			Size factor			Eco:size factor		
	H statistics	*P*-value	significance	*H* statistics	*P*-value	significance	*H* statistics	*P*-value	significance
ROS	57.478	0.000	***	2.314	0.314	ns	3.544	0.167	ns
ROA	0.695	0.405	ns	5.994	0.050	*	6.979	0.031	**
OR	105.112	0.000	***	10.590	0.005	***	3.295	0.193	ns
PCR	54.909	0.000	***	5.181	0.075	*	4.148	0.126	ns
DR	0.033	0.856	ns	18.581	0.000	***	1.455	0.483	ns
CR	2.644	0.104	ns	6.930	0.031	**	1.068	0.586	ns
ATR	103.271	0.000	***	1.196	0.550	ns	0.020	0.990	ns

*, **, ***statistical significance levels at 0.1, 0.05 and 0.01, respectively; ns – no statistical significance; *ROS* – return on sales; *ROA* – return on assets; *OR* – operating ratio; *PCR* – personnel cost ratio; *DR* – debt ratio; *CR* – current ratio; *ATR* – asset turnover ratio

Source: Own calculations

all financial performance between organic and conventional farms (eco factor) and among micro I, micro II and small farms (size factor). Obtained results indicate a significant (at 0.05) additional effect derived from the interaction of eco- and size factors as well.

Table 4 provides the statistical significance of the differences in financial analysis indicators as found by the Scheirer-Ray-Hare test. Detected significance of differences suggests the effect of the selected farming system on *ROS*, *OR*, *PCR* and *ATR* and the effect of size on *ROA*, *OR*, *PCR*, *DR* and *CR*. Additional interaction effect of eco factor and size factor is detected only in case of the indicator *ROA*. Statistical significance of differences in the financial performance among farm groups discovered by the Dunn's test are presented in Table 5; full results in Tables S1–3 [Tables S1–S3 in electronic supplementary material (ESM); for the supplementary material see the electronic version].

Organic farms compared to conventional ones show a higher efficiency of making profits from the sales which, according to Vlasicova and Naglova (2016), suggests more favourable economic situation of organic farms. Farm's ability to use assets to generate profit assessed by *ROA* is influenced by the effect of the size factor and the interaction effect of eco:size factor. With increasing size, farms use in general assets more efficiently to generate profit. However, the additional effect of eco:size interaction on *ROA* needs to be taken into consideration which manifests in the fact that O1 farms have higher *ROA* than C1, but O2 and O3 farms have the same indicator lower than C2 and C3. This finding particularises the results of the study conducted by Krause and Machek (2018). By contrast, the efficiency of the use of assets to generate sales expressed by *ATR* is affected by the eco factor but not the size. Myskova and Hajek (2017) reported that companies should reach *ATR* of at least 1 while the recommended value is 1.5. However, the agricultural sector is characterised by a high volume of assets and relatively low sales, so the *ATR* values are considerably lower than the recommended value. The results show that conventional farms, regardless of size, are able to use the assets better to generate sales than the organic ones.

Results of the SRH test suggest the effect of the selected farming system and the farm size on the *OR*. However, the size effect is not strong enough for conventional farmers to be identified by the less robust Dunn's test as well. Conventional farms reach lower *OR* values than the organic ones – to achieve the sales, they have substantially lower operating

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Table 5. Results of Dunn's test

Groups of farms	*ROS*	*ROA*	*OR*	*PCR*	*DR*	*CR*	*ATR*
C1 *vs.* C2	ns	ns	ns	ns	*	ns	ns
C1 *vs.* C3	**	***	ns	***	***	ns	ns
C2 *vs.* C3	ns	ns	ns	ns	ns	ns	ns
C1 *vs.* O1	***	*	***	***	ns	ns	***
C2 *vs.* O1	***	ns	***	***	ns	ns	***
C3 *vs.* O1	***	ns	***	***	*	ns	***
C1 *vs.* O2	***	ns	***	**	ns	ns	***
C2 *vs.* O2	***	ns	***	***	ns	ns	***
C3 *vs.* O2	***	ns	***	***	ns	ns	***
O1 *vs.* O2	ns	ns	***	ns	ns	ns	ns
C1 *vs.* O3	***	ns	***	***	***	ns	***
C2 *vs.* O3	***	ns	***	***	ns	ns	***
C3 *vs.* O3	***	ns	***	***	ns	ns	***
O1 *vs.* O3	ns	ns	***	ns	**	ns	ns
O2 *vs.* O3	ns	ns	ns	ns	ns	ns	ns

*, **, ***statistical significance levels at 0.1, 0.05 and 0.01, respectively; ns – no statistical significance; C – conventional; O – organic; 1 – micro I; 2 – micro II; 3 – small; *ROS* – return on sales; *ROA* – return on assets; *OR* – operating ratio; *PCR* – personnel cost ratio; *DR* – debt ratio; *CR* – current ratio; *ATR* – asset turnover ratio

Source: Own calculations

costs, and so they reach higher operational efficiency. *OR* values decrease with a growing size, which indicates the presence of economies of scale by reducing costs through bulk purchases. *PCR* is a subset of *OR*, capturing the volume of personnel costs per 1 euro of sales. *PCR* is affected by the farming system as well, but the farm size compared to *OR* has only a weak effect. The more than double personnel costs of organic farms might be a compensation of their employees for a higher proportion of manual labour due to lower mechanisation and restricted use of chemical insecticides or herbicides (manual weeding, pest and disease control are necessary).

The cost ratios obtained are consistent with the findings of Uematsu and Mishra (2012), who found that organic crop producers incur higher production costs and spend more on labour. The same conclusions were reached by McBride and Greene (2009). On the other hand, Crowder and Reganold (2015) concluded that organic farms have higher labour costs, but total costs are not significantly different. By contrast, Sgroi et al. (2015) found that conventional farmers have higher production costs, but lower labour costs than organic farmers. When comparing Czech conventional, organic and biodynamic farms, Naglova and Vlasicova (2016) concluded that conventional farmers have the highest production and labour costs.

The indebtedness of both conventional and organic farms decreases with growing size. The effect of the size is not strong enough to be identified by the less sensitive Dunn's test in all pairs of farms differing in size (e.g. C2 *vs.* C3 or O2 *vs.* O3). Although according to SRH test, the selected farming system does not affect *DR*, Dunn's test found it for the pair C1 *vs.* O3. Farm indebtedness ranges within the generally recommended range of 30–60%.

Conventional and organic farms manifest high levels of current liquidity. Results of SRH test indicate the influence of the size on *CR*, but it is not strong enough to be revealed by Dunn's test as well. According to Seligova (2017), *CR* values should be in the range of 1.5–2.5. The level of liquidity of O1 and O2 farms is within the recommended values; the other farms exceed the upper limit. Excessive liquidity reduces profitability because the financial resources are not allocated in more lucrative forms of assets able to generate profits. The found values indicate high values of net working capital and expensive financing of farms.

CONCLUSION

This paper assessed whether there are differences in the financial performance of Czech farms in relation to the selected farming system, the farm size and the in-

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teraction of these two factors in the period 2012–2016. The results of MANOVA suggest statistically significant differences in the overall financial performance of organic and conventional farms and farms in various size categories. Additional interaction of the eco factor and the size factor was revealed. Based on the results of Scheirer-Ray-Hare test, the effect of the selected farming system on *ROS*, *OR*, *PCR* and *ATR*, the effect of farm size on *ROA*, *OR*, *PCR*, *DR* and *CR* and the effect of the mutual interaction of the eco- and the size factor on *ROA* were discovered.

Organic farms can make a significantly higher profit from their sales, which suggests their more favourable economic situation. On the other hand, in terms of *ROA* (excluding micro I farms) and *ATR*, conventional farmers have a better ability to use the assets efficiently to generate profit or sales. Organic farms have a lower operational efficiency; to achieve their sales, they spend more than double of operating costs of conventional farms. They also have higher personnel costs. The results for both conventional and organic farms indicate the presence of economies of scale. The indebtedness of both types of farms decreases with a growing size – small farms with the lowest *DR* represent the lowest credit risk to their lenders. Agricultural enterprises manifest a high level of *CR*, which points to high values of net working capital and a conservative financing strategy. Additionally, *CR* grows with increasing size.

The conducted analysis is limited by the exclusion of natural persons and mixed farms from the data sample. Another limitation could be considered a large amount of excluded agricultural enterprises due to missing data (many farms do not disclose their financial data) and the necessity to manually verify some entries. Future studies could extend the data sample by natural persons and apply modern methods of performance evaluation (e.g. Economic Value Added). Besides, they could focus on the influence of ecological agricultural subsidies on the financial performance of organic farms. Studies taking into account the relationship of natural indicators of financial performance would also be of importance.

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