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Measurement of agricultural producers' groups  
performance: Background, features and objectives

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## **Abstract**

### **RŮŽIČKOVÁ, K., VAVŘINA, J.: Measurement of agricultural producers' groups performance: Background, features and objectives**

The economic performance of an enterprise obviously depends on various internal and external factors. Those factors are not only the input variables entering various aggregated calculations but also analytical inputs as the effectiveness of company processes, management of costs, innovation capabilities, further sustainable development and in the case of agriculture in the EU also the public subsidy schemes implemented through the EU Common Agricultural Policy. In this article, the basic economic performance measures are presented, and their applicability on the sample of agricultural producers' groups and wholesale entities is verified. There are specific constraints of these entities, as for example in the producers' groups legal agreements ensuring the sale of member enterprises' production or cooperative purchasing of production inputs. Therefore, the performance of agricultural producers' groups directly affects the economic performance of all participating entities. According to the structure and characteristics of agricultural producers' groups may be inferred that whilst the common performance measurement techniques are applicable on the majority of companies, agricultural producers' groups represent specific entities and therefore there is a need for adjusted performance measurement approach. The aim of this paper is thus firstly, to discuss the traditional techniques for performance measurement and highlight the input data sources, as well as practically verify their applicability on the sample of Czech agricultural producers' groups and wholesale, both operating within the field of fruit and vegetables; and secondly, to provide a basis for further research in employment of analytical performance measurement systems as Balanced Scorecard or Benchmarking in this branch of business.

## **Key words**

agri-business, agricultural producers' group, benchmarking, economic performance

**JEL:** L25, Q13, M21

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## **Introduction**

Agricultural enterprises in the whole European Union are forced to actively seek new ways how to increase their competitiveness (Sarris, Doucha and Mathijs, 1999; Huml, Vokáčová and Kala, 2010; Adenaeuer and Heckelei, 2011; Pennerstorfer and Weiss, 2012) and one of them is to boost their economic performance in the context of increasing dynamics of competition forces' models within the agribusiness (Bogetoft, 2005; Blazkova, 2010; Chavas, 2011; Pascucci, Gardebroek and Dries, 2012; Pennerstorfer and Weiss, 2012). The economic performance of respective agricultural entrepreneur inevitably depends on both internal and external factors, as well as in other branch of business (Arcas-Lario and Hernández-Espallardo, 2003). However, in the particular case of agricultural enterprises, the firm competitiveness is also derived from the competitive advantage of external funding, for example via the public subsidy schemes of the EU Common Agricultural Policy (CAP). On the other hand, those enterprises have to face tough competition within the European single commodity market and dynamic business environment within the commodity verticals. Therefore any cooperation and integration tendencies among individual agricultural enterprises outweighing these disadvantages are considered to be an adequate reaction (Bogetoft, 2005).

Since any cooperative initiatives in the other business areas represent a significant advantage (Lavie, Haunschild and Khanna, 2012), agricultural companies are no exception. The most common form of this trend among agricultural enterprises in the Czech Republic, or in the agri-food chain as a whole, are the groups of agricultural producers as the legal business forms of horizontal cooperation and integration (Vavřina and Martinovičová, 2011), mostly in the form of equity alliances (Lavie, Haunschild and Khanna, 2012).

The fruit and vegetable sector is pointed out as essential related to business activities of agricultural producers groups, because after the Czech Republic's accession to the EU especially producers of fruits and vegetables face the tough competition of the EU common market and only strong effort to improve their economic efficiency can help them to create their sustainable competitiveness. One possible approach for achieving the better competitiveness is the concentration of individual agriculture business entities via groups of agricultural producers (Ministry of Agriculture of the Czech Republic, 2004, cited in Vavřina and Martinovičová, 2011).

The objective of this paper is to examine and review the applicability of different approaches for measurement economic performance of these entities, since this group performance essentially affects economic viability and sustainable development of participating individual agricultural enterprises.

The paper is structured as follows: firstly, methods and resources are outlined, together with identification of key authors. Secondly, literature review is provided, on the basis of latest findings of respected authors and institutions. Thirdly, comparison of chosen performance measurement techniques is carried out and illuminating table summarizing each technique description, possible limitations, input data, interpretability and comparability is presented. Finally, the applicability of those techniques is verified on the sample of agricultural producers' groups and wholesale entities, both in the field of fruit and vegetables operating in the Czech Republic.

## **1 Methods and Resources**

This article is based on the research of economic performance measurement within the groups of agricultural producers of fruits and vegetables in the Czech Republic. For the purposes of this article, beside the review of current literature and scientific papers, the quantitative data of observed entities were analysed by parametric ANOVA – one-way analysis of variance accompanied by empirical verification of primary assumptions (homoscedasticity and normal distribution). Non-parametric Kruskal-Wallis ANOVA was employed when the assumptions of homoscedasticity and normality of distribution was not met. The Bartlett's test was employed for verification the homoscedasticity, and the Shapiro-Wilk test for verification of normal distribution within the both samples.

This article draws the data from the corporate database Amadeus of Bureau van Dijk on the agricultural producers' groups and wholesale entities, all operating within the fruit and vegetable sector in 2010. The dataset consists of 9 groups of agricultural producers and 40 wholesale entities. All observed entities are legal bodies according to the Czech law and order. On the basis of these data, not only the applicability of common performance techniques is examined, but also the comparability and interpretability of results is provided, mainly with respect to companies' structures of assets and capital, and interrelationships among participating entities. Finally, potential development of this topic is outlined. All the findings are supported with the literature review on agricultural producers' groups and measurement of their performance from valuable resources as for example Banaszak (2005,

2007); Bigliardi and Bottani (2010), Pascucci, Gardebroek and Dries (2012), and Vavrina and Martinovicova (2011).

## **2 Cooperation within the agricultural business**

In the context of current needs of small and medium-sized enterprises<sup>1</sup> (SMEs), any form of cooperation represents an effective competitive tool in the process of globalization. SMEs can implement the economies of scale worse comparing to bigger companies and those companies have to face tough bargaining power of customers and suppliers. In connection with these facts, SMEs often create forms of mutual horizontal cooperation of similarly operating companies to remain competitive and economically viable (Arcas-Lario and Hernández-Espallardo, 2003; Structural change in agriculture, 2011).

The ability of individual agricultural entrepreneurs to face the competition on the market place is obviously influenced by many aspects within the broader structure of this industry sector. One of the aspects could be the size of the agricultural business entity. The last available data state that in the European Union are more than 13.7 million of agricultural entrepreneurs when 47 % of them are very small economic units, employing about 23 % of labour force and utilising 7 % of agricultural area. On the other hand, there is 77 % of total agricultural area of the EU utilised by 11 % of business entities, which have land area bigger than 20 hectares (Structural change in agriculture, 2011).

Kaplan and Norton (2006) highlight the fact that the most important factor to be considered in the context of company performance in general regardless the company size is the system alignment, because the company value is driven by the company itself. They introduce the process of value creation as a synthesis of value originated in customers and value originated in a company itself. Therefore, value created by the group is transferred to the individual group members (Pavelková *et al.*, 2009). Company value may hence serve as an effective performance measure due to monitoring the complete information from company's background (Randall, 1999). Moreover, through company value maximization benefit not only the company owners, but also other stakeholders, i.e. customers, creditors or employees (Neumaierová, 2005).

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<sup>1</sup> According to definition of COMMISSION REGULATION (EC) No 800/2008 of 6 August 2008 declaring certain categories of aid compatible with the common market in application of Articles 87 and 88 of the Treaty (General block exemption Regulation)

In the agricultural sector, beside the agricultural companies the agricultural producers' groups are created to assemble the individual companies as members, however, with separate financial and economic control (Presová and Tvrdoň, 2005). Those networks are built to support the member companies: to improve the products' positions, sharing costs or simply to reduce the competitive forces within the industry (Tvrdoň, Peřinová and Erlebach, 2002; Bogetoft, 2005; Hernández-Espallardo, Arcas-Lario and Marcos-Matás, 2012), moreover, they can receive a funding from national and international authorities. Nevertheless, there are authors defining success of cooperative organizations in very different terms (Noe and Rebello, 1995; or Bruynis, 1997, Sexton and Iskow, 1988, Ziegenhorn, 1999, all cited in Banaszak, 2007).

The establishment and further development of agricultural producers' groups in the European Union (EU) as the form of horizontal cooperation/integration is strongly related to the public subsidy schemes of the EU CAP. The significant increase of newly established groups of agricultural producers in the new member states of EU can serve as the evidence. This fact is connected mainly with the broaden scope of accessible subsidy titles and respective financial budget, namely the subsidy title *Setting up of Producers' Groups and the Common Organization of Market with fruit and vegetables* (Vavřina, Martinovičová, 2011).

The recent unfavourable development within the agricultural markets in the 2009 is negatively influenced by world financial crisis as well; however, it can make the efficient cooperation/integration of individual business entities a useful tool for creating their competitive advantage and sustainable development of the agricultural producers and to reach the individual competitiveness improvement.

In compliance with aforementioned facts, the economic performance of these groups of agricultural enterprises as legal entities directly influences the economic performance of their members, individual participating enterprises. In the following paragraphs, the applicability of commonly used techniques is verified, both theoretically and empirically, on the sample of producers' groups and wholesale entities operating within the fruit and vegetable sector. The wholesale entities were considered due to the assumption that their way of operations shows some similarities to the producers' groups and therefore wholesale entities may serve as an effective benchmark for measuring agricultural producers' groups' performance. The basic overview and potential obstacles related to economic performance measurement of groups of agricultural producers are provided in the following paragraphs.

### **3 Overview of performance measurement techniques**

There are many company performance measures broadly used by theory and practice (Chmelíková, 2011; Damodaran, 2007; Beranová and Basovníková, 2011; Jewell and Mankin, 2011; Saunders, Kaye-Blake, Hayes and Shadbolt, 2007). Their basic overview is summarized in the table 1. The table is structured according to the economic literature and classifies the techniques by the ultimate type of indicators: aggregated or analytical. The aggregate financial measures try to reflect all company performance aspects, whereas the analytical measures focus on particular aspects of company performance. Nevertheless, those two perspectives are mutually interconnected. Earnings after taxation, profitability ratios, pyramidal decomposition of profitability ratios and predictive measures are treated as aggregate financial measures, whereas Balanced Scorecard and Benchmarking are considered as analytical measures of company performance.

Beside the measures of company performance, the table 1 summarizes also the description and calculation of these measures together with their potential limitations within the observed groups of agricultural producers, sources of input data, their interpretability and comparability.



Type of indicator	Measures of company performance	Description and calculation	Limitations	Data sources of input variables	Interpretability	Comparability
Aggregate financial measures	Earnings after taxation (EAT)	EAT of a company are calculated as the sum of all relevant expenses deducted from the net sales realized. The important part from the expenses is created by costs of goods sold (COGS). EAT can be considered as net income (NI).	Therefore, to have a positive EAT does not necessarily mean showing adequate performance (different accounting policies, extraordinary company activities,...). In addition, EAT provides only the information from the current year, and uses nominal or historical prices.	Accessibility of publicly issued financial statements in the Czech Business Register or databases of corporate economic data, e. g. Amadeus.	Relevant via vertical decomposition of respective EAT components and horizontal analysis of time series' development.	Proceed able, however strongly depending on need for respective system of peer group clustering according to for instance range of economic activities, provided services and total economic size of all participants via employing relevant indicator.
	Profitability ratios	Margin ratios	<b>Gross profit margin</b> compares the revenues after the deduction of COGS with the revenues, whereas <b>net profit margin</b> uses in numerator directly NI.	Similar to aggregated indicator EAT.	Relevant via pyramidal decomposition of profitability ratios and horizontal analysis of time series' development.	Similar to the aggregated indicator EAT.
		Return ratios	<b>ROS</b> uses EBIT in its calculation which is then divided by company's revenues. <b>ROA</b> employs also EBIT in its calculation which is then divided by company's assets, to find out how profitable a company is relative to its total assets. <b>ROE</b> shows the amount of NI returned as a percentage of the company equity to present how much profit company generates with the invested money.			
	Pyramidal decomposition of aggregated measures	The <b>EVA</b> indicator stands for economic value added and is often calculated as net operating profit after taxation (NOPAT) minus the discount rate multiplied by the company capital (C).	It is a typical example of component analysis based on decomposition of factors affecting the performance. Despite the facile interpretation, many analytical steps need to be done.	Financial statements or economic databases; unlike the costs of equity capital, which estimation has not been established for observed area of producer's groups.	Relevant via decomposition of EVA, vertical decomposition of EVA components and horizontal analysis of time series' development.	

**Tab. 1: The overview and description of the indicators/measures related to agricultural producers' groups performance, source: own work based on Kaplan and Norton, 2007; Bigliardi and Bottani, 2010; Brezuleanu and Brezuleanu, 2011; Vavřina and Martinovičová, 2011**

(continues)

**Tab. 1 (continuation)**

Aggregate financial measures	Predictive aggregated measures	The calculation of <b>CFROI</b> assumes initial investment ( <i>II</i> ) in the form of the company itself. This <i>II</i> then equals the sum of quotients originated in comparing gross <i>CF</i> with <i>CFROI</i> and net assets with <i>CFROI</i> , including the economic lifetime ( <i>n</i> ) in particular years ( <i>t</i> ). The <b>MVA</b> is calculated as the difference between the market value of a company and the invested capital. <b>SVA</b> serves for the value for the owner's value calculation, where the two shareholder values are compared.	The objective of these measures is to find an aggregated view on company performance assuming the company as an investment. The attention is paid especially on prediction of future perspective. Moreover, the purpose of <b>MVA</b> and <b>SVA</b> approaches is its applicability at publicly traded enterprises, which is not the case of the Czech groups of agricultural producers according to findings of Vavřina and Martinovičová (2011).	There are needed both publicly issued financial data, namely values of assets and capital and also internal estimations of costs of equity capital which similarly to <b>EVA</b> approach has its applicability constraints.	Relevant via horizontal analysis of time series' development.	Similar to aggregated indicator <b>EAT</b> .
Analytical	Balanced Scorecard (BSC)	The method of BSC translates the overall company strategy into specific goals for particular perspective of performance to enable measuring, monitoring, managing and evaluating those goals in the compliance with the relation cause – consequence.	Although the complex approaches were originally developed for purposes of industrial enterprises, they seem to be applicable after verifying of certain conditions within agricultural producers' groups as well (Kaplan and Norton, 2007; Bigliardi and Bottani, 2010; Brezuleanu and Brezuleanu, 2011).	Financial statements or economic databases are usable only for the step-wise analysis of respective components, therefore there is a strong need for using significant internal data and employing detailed knowledge of internal business processes.	Relevant via decomposition of respective components such as aggregated, analytic or ratio indicators and their vertical and horizontal analysis.	Because of fact that these complex methods are developed to compare performance of entities, the possibilities of entities' relevant comparability is the best of the observed approaches, however it is strongly depending on need for respective system of peer group clustering as well.
	Benchmarking	The logic of company performance is connected with similarity to the reference, i.e. the way of performing an activity. This approach enables better understanding of the process of assessing company performance. By comparing individual features of particular activity with the presented reference, an insight into the uniqueness of the activity can be reached.				

Aggregated financial measures based on monitoring company earnings or even income can be misleading, since these results are only comparing company's costs with revenues. Profitability ratios are easily interpretable, because compares absolute values and results in ratios, for example ROA measures the earnings with the total assets and provides the property perspective of a company without considering different financial sources (Jewell and Mankin, 2011); ROE incorporates the net income and offers the information how many profit is generated by the company on the shareholder's equity. Based on the fact that retained earnings and registered capital are parts of the equity, the individual relatively low net incomes do not allow growing the ROE ratio. ROS ratio and net profit margin are two traditional key ratios for company effectiveness measurement. They both indicate any potential problems in a company in advance and it can be assumed that decrease in these ratios result in decreasing other ratios. Especially ROS ratio shows how many earnings before interests and taxes are generated by sales realized. However, sales realized are relatively substantial.

Taking into account EVA and its pyramidal decomposition, the discount rate for each company needs to be stated firstly. There are two main ways of calculating the discount rate, either via the capital asset pricing model (CAPM) (Hail and Leuz, 2005; Chen and Yuan, 2011) or via INFA method. For the sector of agriculture in the Czech Republic, it is more efficient to use dynamic scorecard INFA, firstly presented by the Neumaier (Neumaierová, 2005). This method is dedicated to the monitoring of key company financial indicators incorporating them into the formula  $r_e = r_f + RP$ , where RP stands for additional risk and is calculated as  $RP = r_{LA} + r_{POD} + r_{FINSTAB} + r_{FINSTRU}$  where all  $r_s$  stand for additional risks associated with company size, business risk, financial stability and financial structure, respectively (Neumaierová, 2005).

In this paper, chosen measures are further applied and discussed on the sample of agricultural producers' groups trading within the fruit and vegetable sector.

#### **4 Features and specifics of agricultural producers' groups**

The characteristics of agricultural producers' groups are verified on the sample of 9 agricultural producers' groups, all dedicated to the commodities of fruits and vegetables within the Czech Republic, as described in Table 2, according to the information from the database Amadeus in 2010. 40 wholesale entities were chosen for comparison, as they operate within the same market with fruits and vegetables and report some similarities with agricultural producers' groups, mainly in terms of their motives and character of business activities (Tvrdoň, Peřinová and Erlebach, 2002). Both these entities act as agents between growers/producers and customers (Banaszak, 2005;

Samuel and Shah, 2009). Chosen similarities are further examined and empirically verified later in the paper.

Selected ratios of financial situation of these entities and their descriptive statistics are presented in the table 2. All absolute measures were left out due their non-comparability within the sample.

	Chosen measures	Mean	Median	Standard deviation	Minimum	Maximum	Sample size
Agricultural producers' groups	Credit period (days)	47,47	57,03	24,51	0	79,12	9
	Collection period (days)	32,93	39,03	16,58	0	49,71	
	Return on shareholder funds %	19,78	6,90	42,69	-8,58	131,55	
	Return on assets %	2,29	1,43	4,58	-4,39	12,86	
	Profit margin %	0,57	0,26	1,47	-1,82	3,79	
	Current ratio	1,27	1,17	0,39	0,90	1,97	
Wholesale entities	Credit period (days)	48,29	46,52	23,98	9,43	119,43	40
	Collection period (days)	44,93	41,64	25,86	6,47	118,32	
	Return on shareholder funds %	18,53	12,97	55,94	-206,70	131,55	
	Return on assets %	6,65	4,91	9,01	-9,49	38,92	
	Profit margin %	2,02	1,22	3,38	-4,92	14,98	
	Current ratio	1,57	1,26	1,05	0,70	6,16	

**Tab. 2: Descriptive statistics of research samples and selected indicators, own work based on data from Amadeus (2010)**

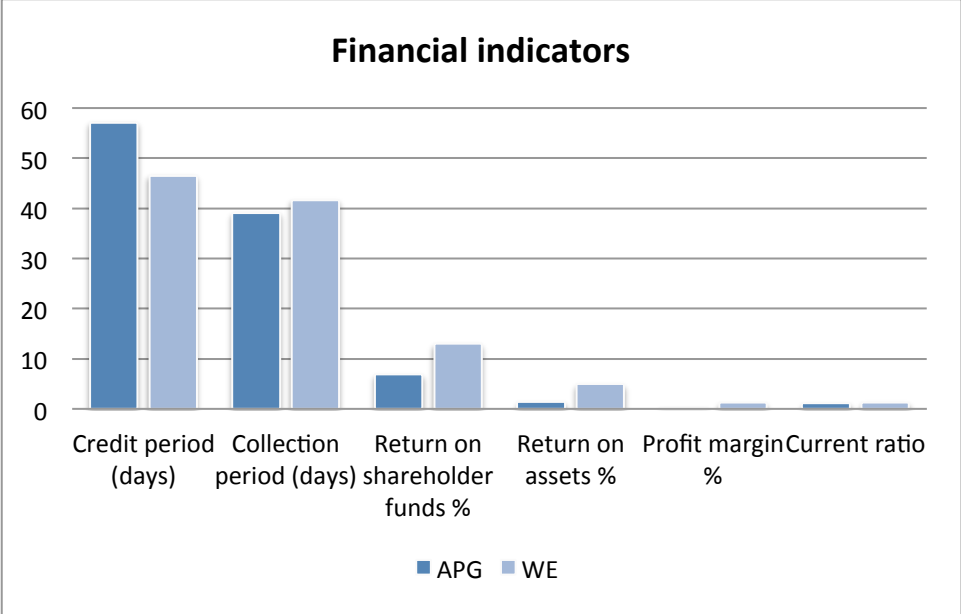
Basic features of agricultural producers' groups in terms of measuring their economic performance relate primarily to the property and financial structure. However, for the purposes of this paper, the collection period and credit period were chosen as the representants of accounts payable and receivable management; profit margin and returns on shareholder funds and total assets as the representants of profitability, and current ratio as representant of company liquidity.

The examined samples confirmed that it is obvious for these companies to operate on the basis of buying and selling proved by the policy of "strict collections and lax payments", especially in the sample of agricultural producers' groups (APG). These strict collections take in both samples slightly longer than one month, whereas more lax payment policy have definitely the APG. This fact may be

the result of intercompany arrangements, based on fact that the suppliers of APG are individual APG members and often even the co-owners of the APG. On the contrary, both samples show considerably low profitability, reflected by low profit margins. Moreover, pure APG report even lower profit margin compared to wholesale entities (WE). These low profit margins may be the consequences of enormous sales, however, accompanied with high costs of goods sold (COGS) which results in low net incomes.

It is not obvious for these business groups to employ external financial sources, for example bank loans, they rather ask for public funding.

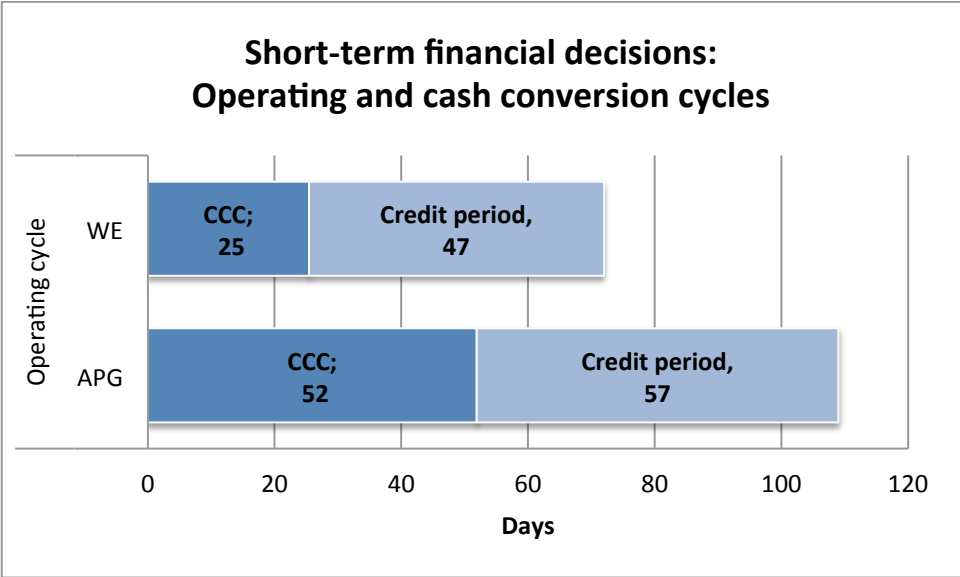
As far as EAT is concerned, the results point out that those companies are rather non-profit oriented, what is declared in net profit margins as well. Whereas net profit margins are rather low, the current ratios show standard values comparing to industry mean values (based on FADN database values of observed indicators). Chosen ratios are presented in the figure 1.



**Fig. 1: Comparison of agricultural entities: value of median within observed financial indicators, own work based on data from Amadeus (2010)**

The return on assets is calculated as a ratio of net income and total assets. Those ratios are very low for both analysed industries. However, the ROA for APG is almost zero, which points at very low or even negative net incomes. The return on shareholder funds, as a ratio of profit/loss before tax and equity (total assets minus total liabilities), is higher than the ROA, and in this case is again higher for wholesale entities. Profit margin uses profit of loss before tax (ROS uses EBIT) when comparing with turnover (operating revenue). This margin is extremely low in both cases; however it is slighter higher in the wholesale sector.

The operating cycle (OC), as illustrated in the figure 2, has the overall length of 70, or 110 days, respectively (as a sum of Collection period and Stock turnover, or a sum of cash conversion cycle and credit period). The OC is a time from the beginning of the trading process with purchase of goods on account to the collection of cash from the sale of these goods. The operating cycle is considerably longer for APG - 110 days, whereas for WE this cycle takes only 70 days. The figure 2 illustrates not only the operating cycles of APG and WE, but also their Cash Conversion Cycles, as a difference of OC and Credit periods.



**Fig. 2: Short-term financial decisions of sample entities; own work based on data from database Amadeus (2010)**

The CCC says how many days the inputs are tied up in the production and sales until it is converted into cash by realizing sales to customers. Just as the operating cycle is different in both cases, so the CCC noticed a slight difference. From the figure 2 it is evident that the periods are not long compared to industry mean values (based on FADN database) and the production and sales are being realized remarkably quickly. These facts confirmed the assumption about the primary business objective of those entities which is buying and selling of goods, however, with particular differences in accounts payable management.

In the following paragraphs, further statistical verification of previous assumptions of differences and similarities between APG and WE was managed. The partial goal of this statistical analysis is to identify, whether WE can be the suitable peer group for comparison of APG’s business performance. The missing peer group for APG was identified as the ultimate constraint for employing modern analytical methods of economic performance measurement (see Tab. 1).

Indicator	Bartlett's test for equality of variances		Shapiro-Wilk Normality Test				Parametric ANOVA/ Non-parametric (KW) ANOVA	
	P-value	F	APG		WE		Prob>F / Prob>Chi-sq	F / Chi-sq
			P-value	Test statistic	P-value	Test statistic		
Credit period	0,9377	0,0061	0,8751	0,9253	0,3509	0,9624	0.9274/ -	0.01/ -
Collection period	0,1511	2,0608	0,2161	0,8648	0,0077	0,9048	0.1915/ 0,2781	1.76/1.18
Return on shareholder funds	0,3641	0,8238	6.4097e-004	0,5451	1.3157e-005	0,7637	- / 0.3661	- / 0.82
Return on total assets	0,38	4,3033	0,0396	0,7919	0,0111	0,9109	- / 0.1711	- / 1.87
Profit margin	0,0135	6,103	0,037	0,8219	1.7913e-004	0,8452	- / 0.1213	- / 2.4
Current ratio	0,0046	8,0391	0,2018	0,862	2.9831e-007	0,6434	- / 0.6237	- / 0.24

**Tab. 3: Statistical analysis of results of empirical research within selected economic performance indicators. Statistical tests of observed economic indicators (significance level = 5%): own work based on data from database Amadeus (2010)**

According to the selected results of statistical tests (see Tab. 3) it can be stated that homoscedasticity and normality of distribution of APG and WE sample of business entities based on Bartlett's test for equality of variances and Shapiro-Wilk Normality Test was met only for indicator Credit period. So, the parametric analysis of variance was employed to verify, whether both APG and WE come from population with the same mean of indicator Credit period. The result of this test proved this assumption on the significance level of 5 %.

The indicator Collection period within the WE entity sample did not meet the need for normality of distribution. Under these circumstances another test for normality distribution was employed. It was the Lilliefors test and it is in fact the modified Kolmogorov-Smirnov normality test for testing the given hypothesis. According to the results of the Lilliefors normality test under unknown mean and variance the need for normally distributed population was met on the significance level of 5 % (test statistic KS = 0.1039, p-value = 0.3233). To verify the results of normality testing the QQ plot was elaborated. According to this verification it can be said that the normal distribution of population is met and the different results of employed tests are caused with the outliers. So, both parametric and non-parametric analyses of variance were employed to verify, whether both APG and WE come from population with the same mean of indicator Collection period. The results proved that both APG and WE come from population with the same mean of indicator Collection period.

The indicators Return on shareholder funds, Return on total assets, Profit margin and Current ratio did not meet the need for homoscedasticity and normality of distribution for both APG and WE entity samples, even when Cochran homoscedasticity test and Lilliefors normality test were employed. So, only non-parametric analysis of variance was employed. All results of non-parametric Kruskal-Wallis analysis of variance proved that APG and WE come from population with the same mean of indicators Return on shareholder funds, Return on total assets, Profit margin and Current ratio.

Statistical analysis of results of empirical research within selected economic performance indicators proves that WE seems to be suitable peer group for comparing economic performance of APG and employing analytical economic performance measures.

## **Conclusions**

Within a given sample of agricultural business entities was examined whether the applicability of presented economic performance measurement techniques will be appropriate or inappropriate for this branch of business. Since these techniques may be adjusted according to specialized estimations of any particular industry, they may appear as misleading, anyway. Therefore it is necessary to employ for measuring the economic performance of agricultural primary producers' groups more complex methods and approaches. This trend can be seen in other industry branches as well.

These characteristics do not correspond with conventional performance measurement techniques as it is verified in the table 1 which outlines the comparison of chosen techniques for company performance measurement. The article summarizes the commonly used techniques and presents specific applicability limitations, on the other hand, it provides possible basis for further research in employment analytical performance measurement systems as Balanced Scorecard or Benchmarking.

The aforementioned complex methods of performance measurement essentially require the respective peer group of business entities as the benchmark. According to described specifics and features of agricultural producers' groups (tab. 2) and the employed statistic tests (tab. 3) it was proved that the wholesale entities seem to be the relevant benchmark for them.

This article above all presents authors' primary study of the problem area measuring the performance of agricultural producers groups. The given results will be continuously verified and the following studies will be aimed at further more oriented on empirical analyses of particular methods and approaches.



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