



THE INFLUENCE OF SOME SELECTED VARIABLES FROM ACCOUNTING SYSTEM ON PROFIT OR LOSS OF AGRICULTURAL COMPANIES IN THE SLOVAK REPUBLIC

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ABSTRACT

The article presents the influence assessment of significance of some selected variables from the entrepreneurs' accounting system on the achieved profit or loss of the agricultural companies in the Slovak Republic. Accounting information serves as an active tool for internal users for operational as well as strategic company management, and for external users the information is determined as legally binding output information which is a subject to disclosure. Individual financial statements of assessed agricultural companies are considered to be the relevant source of information. Agricultural companies are represented by commercial companies and agricultural cooperatives. Profit or loss after income tax presents the final complex effect of economic company's performance. The existence and development of companies is conditioned by assets which amount and structure depend on focus and the range of subject activity but as well as on specific factors set by the production process in the agricultural primary production. The increase in liabilities is notable by the influence of insufficient amount of own company funding sources, mainly the increase in trade payables. The continuance of company reproduction process is secured by a bank loan drawdown. The income situation of companies of agricultural primary production is favourably influenced by the subsidies of non-investment character. During the observed period of years 2004 – 2014 the examined variables were assessed by means of statistical methods. The obtained results of rate determination of statistical correlation between selected variables by means of classical canonical analysis and non-parametric correlation analysis secured that in the assessed group of companies all analysed variables influenced statistically significantly profit or loss after income tax, mainly the total value of assets and non-investment subsidies, except for years 2010, 2012 a 2013, when the statistically insignificant correlations was determined between profit or loss and especially short-term trade payables and current bank loans. As regards the existence point of view it is recommended to companies to maintain the optimal assets and capital structure as well as the achievement of suitable profitability of company's activity. Only the complex attitude towards the subject issue can be the assumption of sustainability for companies of agricultural primary production in the Slovak Republic and the increase in their performance.

Keywords: variable; accounting; profit or loss; correlation; agricultural company

INTRODUCTION

For many centuries Slovakia with its countryside was a typical agrarian country. Despite the areal industrialization after 1950 agriculture remained its characteristic feature. Evidential sector organization of agricultural production was created as a result of manufacturing expansion. It was caused by industrialization process. It caused largely one-sided orientation of rural regions towards the agricultural activities. In the current era of globalization, especially after the accession to the EU, the position of agriculture is changing especially in the trend of the EU Common Agricultural Policy reforms (Horská et al., 2013). Hanová et al. (2015) compared economic position of the Slovak Republic with the EU countries by using the

selected socio-economic indicators. The entrepreneurship in agriculture takes place in a certain environment which is partially the same as an environment in other economy spheres but in part it has specifics which are conditioned by the character of transformation relations and the participation of soil and climatic factors in the reproduction process (Grznár et al., 2010). The specifics of agricultural companies are presented by a high correlation on natural conditions, a time variance between the flow of production and work process typical mainly for crop production, work seasonality in agricultural production (Bielik and Turčeková, 2013). The different natural and geographical conditions caused the creation of the specific regions with the economic structures, and with

the variety of environmental and social conditions (Papcunová et al., 2015). Agricultural production is linked to a risk. Some of the risks are common with other sectors in the economy and some are unique. Climate and weather related risks have a strong effect on agricultural production (Tóth et al., 2016). Risk and return are negatively related and investors are comparing the risk with a profitability.

By means of the specific function and the importance of agriculture within the national economy this sector is the subject of government regulations which deforms a market and market prices as these are the input for accounting systems of agricultural companies and significantly influence the profit or loss of agricultural companies and the assessment of their economic performance (Dvořáková, 2012). Accounting shall report the unique character of agricultural activities (biological substance of production process) which influences mainly the several variants of measurement and classification of assets but as well as the calculation of profit or loss which correctly indicates the company performance. Accounting is a conservative discipline however it should follow the global trends and apply them in a manner that would ultimately ensure reliable and relevant information about financial position and performance of a company (Stárová et al., 2014). The primary function of financial accounting is to provide all its users with reliable data not only for evaluating the company performance in the past, but also for the ability to take right decisions in the future, i.e. to predict the future conditions of business activities. The issue of accounting information provided by the company financial reporting is treated by Tumpach et al. (2013), Bähr et al. (2006), Grünberger (2006), Kieso et al. (2004).

Profit or loss is an important financial indicator expressing the effectiveness and efficiency of a business activity mainly in connection to the contributed capital. It is the basic information source and the measurement of financial profitability of contributed capital to the respective accounting period (Baštinová, 2007). Profit or loss represents the measurement of sold production, the efficiency of used live and materialized labour and the measurement of used contributed capital (Serenčěš et al., 2010). The objectively affecting disparities and particularities of agricultural companies influence the amount of profit. The maximization of profitability is one of the main tasks (Kotulič et al., 2007). In connection with this statement, various determinants of profitability are mentioned: natural conditions, economic conditions, production structure, used manners and technologies, the level of labour utilization, production quality, sales prices, the amount of costs, turnover, liquidity, the manner of financing of business activity, other factors. Consistently Grznár et al. (2010) state that the creation and division of profit is influenced by many factors. In order to analyse carefully the company economy it is essential to identify them. Profit or loss for the current accounting period is treated by Pakšiová and Kubaščíková (2014), Strouhal et al. (2013), Šteker and Otrusínová (2013).

Maintenance and repair of company property substance is the base for time and content differentiation and cost allocation to company income when determining profit or loss. It presents one form of income situation

determination of an accounting entity which is combined with the assessment of property situation through the changes in property substance of a company (Pakšiová, 2014). Understanding the business property of a company is a starting point and a criterion for determining the economic result (Pakšiová and Kubaščíková, 2015). Decision-making on assets acquisition and on acquiring the financial sources needed for assets acquisition belong to the strategic decisions of management as it influences the future development and effectiveness of subject activity (Baštinová, 2009). Basic sources for assets are conditioned by the activity range as well as the legal form. Gyurián and Kútina (2016) analysed the development of various business forms. The process of decision, in general, is the process of the optimal choice from the set of eventual possibilities under existing conditions. The current law highly determines the most appropriate form of economic activity for them. Property and financial structure of companies is as well as treated by Kieso et al. (2004), Ross (2008), Scheffler (2006), Wagenhofer (2002).

Users utilize information about the financial position mainly for the prediction of company loan needs in the future and as well as for the consideration of ability to pay its debts in time. Information on company performance is used for the assessment of potential changes in the structure of economic sources which will be probably used in the future and for effectiveness consideration with which the additional sources should be used (Bohušová et al., 2013). Trade payables and loans from commercial banks which help companies to secure fluent operational cycle of agricultural production are as well as treated by Serenčěš et al. (2010). The essential specific of entrepreneurship in agriculture is the active participation of government and its agrarian policy trying to sustain the food balance, to utilize the domestic production potential and the fulfilment of outside production functions of agriculture (Grznár et al., 2010). The subsidies from European sources have the crucial importance in the income of agricultural companies. Legally eligible direct payments from the EU are long-term guarantees of short-term bridge loans from commercial banks which farmers pay directly after the granting of subsidies (Serenčěš et al., 2010). Direct payments have strong impact on production in countries with relatively lower incomes because financially constrained farms quite often use direct payments as a source of credit (Ciaian et al., 2011). Baštinová (2009) points to subsidies as an external source of funding. Šteker and Otrusínová (2013) state that from the accounting point of view the subsidies are classified as subsidies to acquisition or technical improvement of fixed assets (so called investments subsidies) and subsidies for cost recovery (so called operational subsidies).

The article task is to assess the influence of selected variables from accounting system on profit or loss in the assessed group of agricultural companies in the Slovak Republic during the observed period of years 2004 – 2014 by means of selected statistical methods.

MATERIAL AND METHODOLOGY

In connection with the article content the data source is presented by the data from resort database for the selected

group of companies of agricultural primary production in the Slovak Republic. They derive from the Information Letters of the Ministry of Agriculture and Rural Development of the Slovak Republic (hereinafter referred as "MARD SR") expressing the data from individual financial statements of selected companies in the time horizon of years 2004 – 2014.

The assessed selected group of agricultural companies present those legal persons who performed the entrepreneurship activity without the change of legal form during the assessed period of years. They present the same companies in the observed time line. The mostly occurring forms of entrepreneurship in the agriculture of the Slovak Republic are a company with limited liability, a joint stock company and a cooperative. Commercial companies prevail upon agricultural cooperatives in the assessed group of agricultural companies as regards their frequency pursuant to the legal form. In the observed period the change of legal forms was noticeable from the economic reasons, presented mainly by the transformation of agricultural cooperatives to companies with limited liability. Therefore, the number of cooperatives decreased. The final group of companies is presented by 737 legal persons who are represented by 292 agricultural cooperatives and 445 commercial companies.

The article assesses the significance of correlations between selected variables from accounting system of companies of agricultural primary production to their accounting result (profit or loss) after income tax for the current accounting period (hereinafter referred to as "AR"). The analysed variables present the following: assets total (hereinafter referred to as "AT"), short term trade liabilities (payables) (hereinafter referred to as "STTL"), current bank loans (hereinafter referred to as "CBL") and subsidies of non-investment character (current bank loans and financial assistance) (hereinafter referred to as "CBLFA").

Canonical analysis is used for the assessment of correlations between two examined sets of variables which belongs to multivariate explanatory techniques. Simultaneously the correlation rate is assessed between selected evaluated variables from accounting system of agricultural companies and their achieved profit or loss during the observed years by means of non-parametric correlation, namely as regards deviations from normality. For this purpose the Kendall coefficient Tau is used which obtains values from the interval $<-1, 1>$, where -1 presents indirect correlation, 1 direct correlation and 0 independence of variables. The null hypothesis is tested which declares that the pair of variables is independent (Munk, 2011).

MS Access and MS Excel are used for the data pre-processing and the system STATISTICA is utilized for the purpose of relation analysis between variables, concretely the modules Non-parametric methods and Multivariate exploratory techniques.

Standard methods of scientific work are used for the article processing, viz. selection, analysis, comparison, synthesis and deduction, presenting the basic methodical attitudes towards the processing of theoretical and applicable part of article.

RESULTS AND DISCUSSION

The entrepreneurship activities of agricultural companies are performed in specific conditions in comparison with other entrepreneurs. Peculiarities of agricultural productions present climate conditions and seasonality.

The effectiveness of decision-making and management of companies is directly depend on volume and quality of required information, provided by accounting information system. The dominant of accounting function is to secure information for receipt and control of decision in each area of an entrepreneurship activity. The integrated set of such information is provided by the financial statements of a company. The aim of individual financial statements preparation is to provide its users with such a structure, volume and character of information which enables to acquire the overview of assets, liabilities, equity and disclosed profit or loss.

Profit or loss for a certain accounting period provides information about profitability of company activities, presenting the own source for assets covering acquired from entrepreneurship activities from the date of preparation of the financial statements till the date of decision about its using during the accounting period following its acquiring. The level of disclosed profit or loss is influenced by the obtained income and expenses mainly from operational activities which closely relates to subject of company activities. Profit positively affects the disclosed company equity, while loss has negative influence on the value of equity. In the year 2014 differences in profit or loss between agricultural cooperatives and commercial companies moderated (**Report on agriculture and food sector in the Slovak Republic 2014**). According to **Adamišin and Kotulič (2013)** a higher economic performance of commercial companies can be determined not only by different approaches to the management of subjects, but as well by a better starting situation in the past (on contrary to cooperatives) or even the potentially inconvenient selected basis for comparison of economic performance (agricultural land).

Deriving from the literary sources the selected variables from accounting systems of companies in the Slovak Republic with the influence on profit or loss of agricultural companies were identified. Canonical analysis was used for the determination of correlation between two sets of variables.

Based on the achieved results of canonical correlation coefficient (Canonical $R = 0.9650$; $\text{Chi}^2(400) = 1703.4$; $p = 0.0000$), left set of variables 10 and right set 40 (Table 1) very strong level of correlation was determined between sets of selected variables which is as well as statistically significant. The first set of variables presents profit or loss and other assessed variables belong to the second set. As the canonical correlation coefficient is closed to 1, the greater level of correlation is determined.

Based on the Chi-Square tests with successive roots removed the statistically significant results of canonical correlation coefficient were achieved. The values of canonical correlation coefficient of 10 variables observed for the analysed period of 10 years are statistically significant (Figure 1).

Nonparametric (rank-order) correlation analysis by means of Kendall Tau correlation coefficient was used for

Table 1 Canonical Analysis Summary (2005 – 2014).

N=159	Left Set	Right Set
No. of variables	10	40
Variance extracted	100.000%	53.5083%
Total redundancy	76.9482%	40.4427%
Variables: 1	AR2005	AT2005
2	AR2006	STTL2005
3	AR2007	CBL2005
4	AR2008	CBLFA2005
5	AR2009	AT2006
6	AR2010	STTL2006
7	AR2011	CBL2006
8	AR2012	CBLFA2006
9	AR2013	AT2007
10	AR2014	STTL2007
11		CBL2007
12		CBLFA2007
13		AT2008
14		STTL2008
15		CBL2008
16		CBLFA2008
17		AT2009
18		STTL2009
19		CBL2009
20		CBLFA2009
21		AT2010
22		STTL2010
23		CBL2010
24		CBLFA2010
25		AT2011
26		STTL2011
27		CBL2011
28		CBLFA2011
29		AT2012
30		STTL2012
31		CBL2012
32		CBLFA2012
33		AT2013
34		STTL2013
35		CBL2013
36		CBLFA2013
37		AT2014
38		STTL2014
39		CBL2014
40		CBLFA2014

Source: Own calculation based on data from the Information Letters of the MARD SR.

the influence examination of selected variables to the total profit or loss after income tax for the accounting period. In the time horizon of years 2004 – 2014 the statistically significant influence of analysed variables on profit or loss was determined in the selected group of companies except for year 2010, 2012 and 2013 when the statistically insignificant correlation was identified between profit or loss and several selected variables.

As regards the achieved values of correlation coefficient in 2004 – 2014 the total value of assets and subsidies of

non-investment characters had the greatest influence on profit or loss. In 2014 the statistically significant influence on profit or loss was determined for all variables in the assessed group of ($p = 0.0000$). Furthermore the proportional correlation between profit or loss and selected variables was determined in 2014 based on the values of correlation coefficient (Kendall Tau = 0.1070 – 0.1940).

Correlations of analysed variables are presented by a matrix chart (Figure 2). The chart figures correlation fields from the pairs of points of individual variables and a

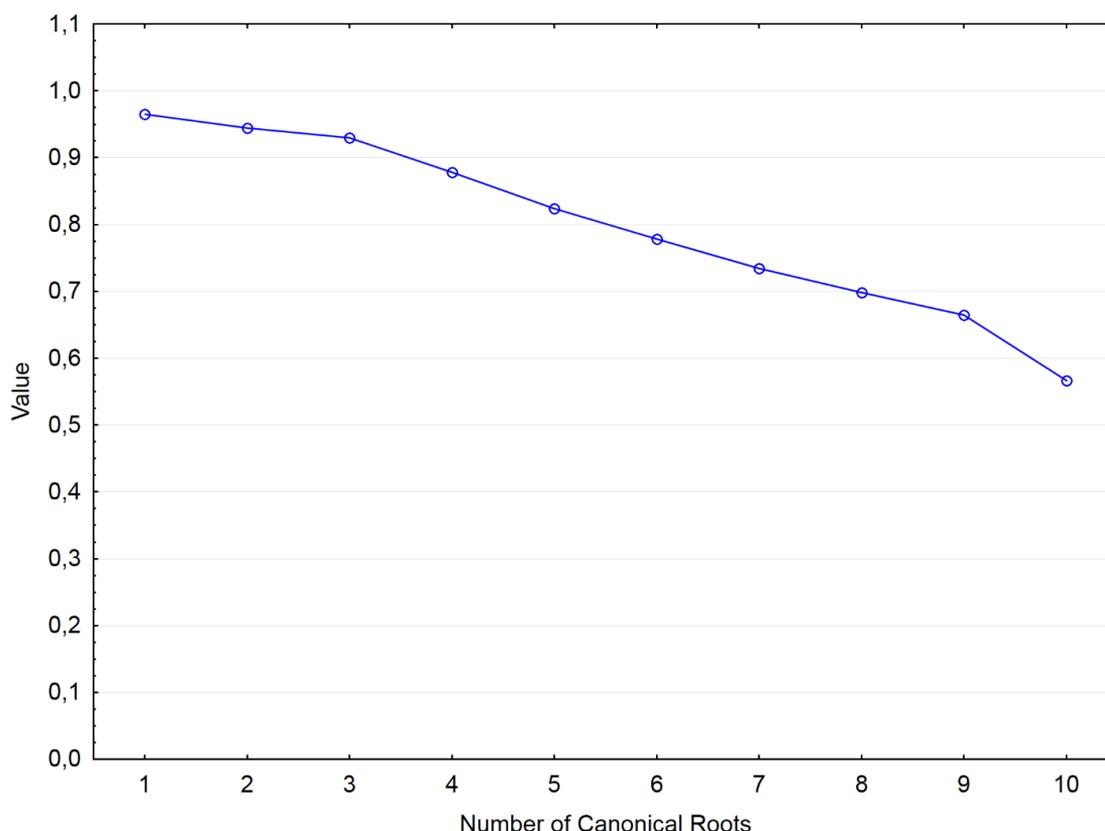


Figure 1 Plot of Canonical Correlations (2005 – 2014).

Source: Own calculation based on data from the Information Letters of the MARD SR.

dependent variable presented by profit or loss. The points in chart are overlaid by a growing axis for a proportional correlation.

In 2010 (Table 2) the statistically significant influence was determined between AR and STTL ($p = 0.7291$), AR and CBL ($p = 0.8927$), in 2012 (Table 3) between variables AR and CBL ($p = 0.1093$) and in 2013 (Table 4) between AR and STTL ($p = 0.6966$), AR and CBL ($p = 0.1668$), AR and CBLFA ($p = 0.2341$). Based on the statistical significance of Kendall coefficient Tau the low correlation was acquired in further assessed years (mainly for total assets and subsidies of non-investment character) and trivial correlation (mainly for short-term trade

payables and current bank loans). In 2009 the inversely proportional correlation was between variables, in 2010 between AR and STTL, AR and CBL, and in 2013 between AR and STTL

Size, profitability, collateral value of assets, non-debt tax shield, retained profit and liquidity were selected as the main determinants of the capital structure of agricultural companies (Aulová and Hlavsa, 2013).

Amount and structure of property is conditioned by sources of funding which differentiate as regards the maintenance of production process and simultaneously the realization of output in companies of agricultural primary production. The optimal ratio between separate items of

Table 2 All Groups Kendall Tau Correlations for the year 2010.

Pair of Variables	Valid	Kendall	Z	p-level
AR2010 & AT2010	1255	0.041089	2.180375	0.029230
AR2010 & STTL2010	1245	-0.006552	-0.346310	0.729110
AR2010 & CBL2010	744	-0.003305	-0.134902	0.892689
AR2010 & CBLFA2010	1223	0.066971	3.508089	0.000451

Source: Own calculation based on data from the Information Letters of the MARD SR.

Table 3 All Groups Kendall Tau Correlations for the year 2012.

Pair of Variables	Valid	Kendall	Z	p-level
AR2012 & AT2012	1425	0.098294	5.558931	0.000000
AR2012 & STTL2012	1397	0.065567	3.671374	0.000241
AR2012 & CBL2012	779	0.038333	1.601257	0.109320
AR2012 & CBLFA2012	1376	0.081493	4.528657	0.000006

Source: Own calculation based on data from the Information Letters of the MARD SR.

Table 4 All Groups Kendall Tau Correlations for the year 2013.

Pair of Variables	Valid	Kendall	Z	p-level
AR2013 & AT2013	1428	0.074087	4.194360	0.000027
AR2013 & STTL2013	1412	-0.006926	-0.389882	0.696624
AR2013 & CBL2013	752	0.033689	1.382534	0.166808
AR2013 & CBLFA2013	1376	0.021412	1.189884	0.234092

Source: Own calculation based on data from the Information Letters of the MARD SR.

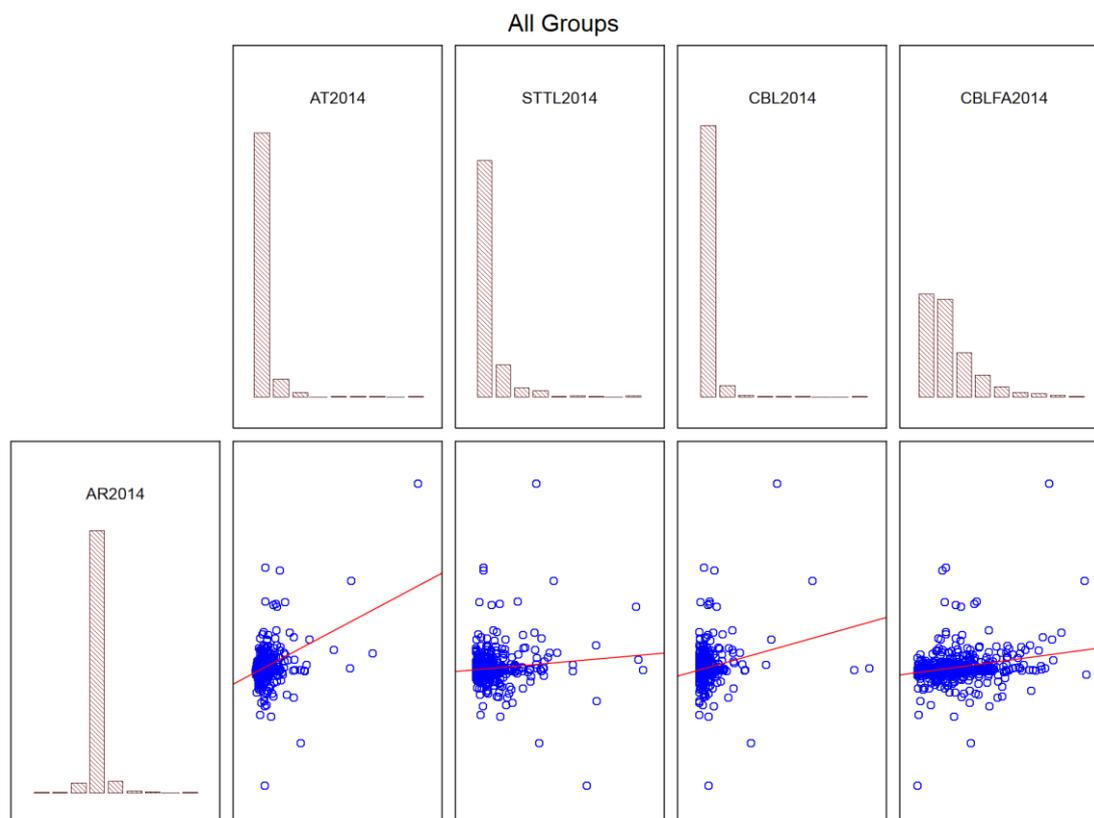


Figure 2 Matrix chart of selected variables for the year 2014.

Source: Own calculation based on data from the Information Letters of the MARD SR.

fixed assets and current assets depends on a company amount, its production focus and economic situation.

Companies acting in the same industry produce similar products, have similar technological equipment, similar structure of expenses and these tendencies are expressed in the financial structure of these companies (Kalusová and Fetisovová, 2015). This profit or loss presents the situation when more profitable companies are able to generate more own sources for financing of their entrepreneurship activities and are not forced to appeal to external institutions providing companies with the capital.

The determination of optimal financial structure belongs to the crucial decisions of management leading to a financial stability. The ratio of own and external capital differentiate from individual conditions of separate companies. Mainly it is applicable for agricultural companies as they are influenced by the biological character of production, seasonality but as well as currently valid system of subsidies payments (Serenc̄es̄ et al., 2014).

Currently the short-term liabilities have a decisive ratio to the structure of total capital, mainly trade payables as

external sources of assets funding. They present the existing companies commitments arising from past events. Days payable outstanding is the economical expression of cash flow transitivity. It has the proven predictive ability for creditors. It requires the systematic managing activity.

Bank loans participate significantly in the total liabilities. Short-term loans prevailed in the structure of total loans with a critical amount mainly as regards the operation of agricultural companies and hassle-free collateral realized by means of subsidies – direct payments from the EU (Report on agriculture and food sector in the Slovak Republic 2014). Direct payments from the EU were vital as the loan collateral which was the guarantee against short-term bridge loans provided by commercial banks to agricultural companies. In that way companies decrease the risk of loan repayments and maintain the credit-worthiness and credit market position, as evidenced by the increase in short-term loans to this industry for the financing of operational cycle of agricultural output (from soil preparation till output realization) (Report on agriculture and food sector in the Slovak Republic

2012). Companies drew down loans, mainly for the purchase of inventory, the settlement of trade payables and payables towards employees. Agricultural companies began to drawdown loans more extensively after 2004. Precisely the year 2004 and the implementation of direct payments caused that agricultural companies became more credit-worthy for banks. (Serenčič et al., 2010).

In the case of Slovak agricultural companies we can conclude that the structure of funding sources is not optimal. As the main reason we consider the strict requirements and credit standards of banks due to their precautions and the need to respect their capital adequacy. Companies fail to fulfil the strict requirements and as a result they cannot obtain a bank loan (Kalusová and Badura, 2017). Slovak agricultural companies are struggling with a high indebtedness and an inappropriate structure of external funding sources (a decisive share of liabilities consists of short-term funds, while the share of long-term external funds is minimal).

Subsidies of investment and non-investment character belong to the forms of government intervention to the financing of companies. They positively affect the profitability situation of entrepreneurs. Received subsidies of non-investment character as a part of other income from operation activities underlie the obtained level of profit or loss of assessed companies. They are presented mainly by direct payments which relate to a disclosed area of agricultural soil in companies.

Financial situation of agricultural companies was influenced by the system of subsidies payments which the Slovak agriculture adopted in the intentions of the Common Agricultural Policy (CAP) after the accession of the Slovak Republic to the EU (Serenčič et al., 2014).

The biggest increase in operational subsidies in the monitored period 2004-2012 occurred in Slovakia (Svoboda et al., 2015). Together with investment subsidies and other possible measures they are the basis of the Common Agricultural Policy which is financed from the EU budget.

Capping of direct payments was especially an important issue for countries with large farms, like the Slovak Republic (Pokrivčák et al., 2015). Farms that would be affected by capping cultivate a much larger area; have higher assets, equity, sales, and profits.

Subsidies partially compensated the loss, without them the majority of agricultural companies would report the loss (Report on agriculture and food sector in the Slovak Republic 2014). Subsidies in agriculture in a total amount decreased as a consequence of resource depletion from the Rural Development Programme 2007 – 2013 and the slower receiving of payments from the Rural Development Programme 2014 – 2020 as well as the moderate decrease in the subsidies from the budget of the Slovak Republic.

Kozáková et al. (2014) compared organic and conventional agriculture in the Slovak Republic over period of years 2009 – 2012. In respect to their results they concluded that organic farms in their sample generate results comparable with conventional farms in a sense of profitability. Higher subsidies of organic farms successfully compensate lower revenues. Therefore the motivation for an owner to focus on organic farming is not lower than the focus on conventional farming.

Subsidies were motivating and financial stabilizers of agricultural companies (Report on agriculture and food sector in the Slovak Republic 2010). Direct payments and other subsidies are an indispensable part of production cost recovery of farmers and maintenance of their income on the socially accepted level.

CONCLUSION

A content and methodical point of view of financial accounting secures the relevant information on processes and results of entrepreneurship activities. The priority objective of accounting is to provide the true and fair view on all facts related to property, income and financial situation of entrepreneurs. Profit or loss after income tax, namely net profit, presents the crucial source of entrepreneurship financing activities with a direct influence on equity.

The article aim was to assess the influence of selected variables from accounting systems on achieved profit or loss of companies of agricultural primary production in the Slovak Republic. Based on the statistical assessment it can be stated that in the selected group of companies there was found the high statistically significant correlation between profit or loss as a dependent variable and other independent variables. Furthermore, we can state that in the assessed years 2004 – 2014 particularly assets and subsidies of non-investment character had the significant influence on profit or loss after income tax.

According to our opinion there exist several differences in company property structure deriving from the ability to create and acquire funding sources which concretely differentiate in agricultural companies. The securing of entrepreneurship activities increase the needs for allocation of external sources for financing of current operational requests as well as the repair and improvement of assets. Company indebtedness is crucially influenced by the increase in trade payables and the participation of bank loans in the structure of external funding sources. During the accounting period the suitable amount of cash is secured by means of loan drawdown which is paid by granted subsidies. Pursuant to the Common Agricultural Policy the significant financial sources of companies of agricultural primary production in the Slovak Republic are the received non-investment subsidies mainly in the form of direct payments which influence the assessment of their credit worthiness performed by banks when providing loan products. Without subsidies the assessed companies would report loss. The selection of optimal capital structure from short-term as well as from long-term point of view should be a continuous task of management in companies. Above mentioned facts are documented also by the reports on agriculture and food sector in the Slovak Republic for the observed period of years 2004 – 2014.

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