

APPLICABILITY OF BANKRUPTCY MODELS FOR EVALUATION OF ECONOMIC RESULTS OF DIFFERENT LEGAL FORMS

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Abstract: *The article will deal with the evaluation of the economic results of farm enterprises according to legal forms. Specifically, it will focus on the issue of cooperatives and limited liability companies, and that because of changes in the commercial code since 1st January 2014. The changes which occurred (amount of capital, number of founders etc.), will play an important role in the selection and even in the very foundation of emerging companies. There is therefore an opportunity to evaluate achieved economic results of the abovementioned legal forms. The analysis will devote to the issues of the used of bankruptcy models in agriculture and profitability in the financial analysis. Data will be obtained and processed from the database of companies of Albertina for time series 2006-2011. In total, there will be 393 cooperatives and 706 limited liability companies.*

Keywords: *Bankruptcy models, Altman Z-Score model, Index IN, CH-index, G-index.*

JEL Classification: *M21*

1. INTRODUCTION

However at present days, when there is still lingering financial crisis, many companies are facing retention on the market or even to survive. The main objective of all companies is to work, prosper and to avoid bankruptcy. Most of these tasks are addressing to management and on its decision depends whether the company will prosper or not. To ensure that companies found their situation, they need thorough analysis of their financial situation. One of these tools of financial analysis, which is suitable for using of these evaluations, are bankruptcy models, that are discussed by many economists, because they allow identifying potential threats. Given these facts is constantly increasing importance and need for financial analysis and becomes an integral part of corporate governance.

Bankruptcy models to inform users whether in the foreseeable future, the company is threatened by bankruptcy. It is based on the fact, that every company that is threatened by bankruptcy, already some time before this event, has symptoms that are typical for bankruptcy. Among the most common symptoms belong problems with current ratio, amount of the net working capital, problems with profitability of invested capital (Růčková, 2011).

The objective of this article is to evaluate the economic results of the Czech farm enterprises by legal forms (mainly cooperatives and limited liability companies) with the help of the use of bankruptcy models. Process of economic activities of these companies is monitored between years 2006 to 2011.

2. METHODOLOGY

Data were obtained from the database Albertina for time series 2006 – 2011. After cleaning the data file were analyzed 393 cooperatives and 709 limited companies. They were selected companies focusing their activities on crop and agriculture production.

Therefore, for this article were used the systems created especially for the Czech environment (IN Index), Slovak

environment (G-index, CH-index), or adjusted for these conditions (Altman Index). Gurčík's index besides bankruptcy prediction allows to distinguishes prosperous and viable enterprises of agricultural production (Gurčík, 2002). CH-Index was created for the evaluation of Slovak farm enterprises, but it is also used for the evaluation of Czech farms (Chrastinová, 1998). By applying these models to the two selected groups of farm enterprises will be identified their results, the results will be compared and on the basis of analyzed facts will be evaluated situation of these companies.

Regarding the Altman Z-Score model was used the model modified for the Czech economy (Kislingerová, Neumaierová, 1999). In the Czech Republic the insolvency has the considerable importance for economic activities, therefore the basic model of 1968 was supplemented by indicator "overdue liabilities to profit". Because from the financial statements cannot be detected overdue liabilities, there was created supposition that 25 % of liabilities are overdue liabilities (this assumption is also used in the index IN).

Within the index IN created by Inka and Ivan Neumaierovi (2002) was chosen model IN95. This index was created for Czech conditions. The index is made up of six indicators with appropriate weights. The article works with weights for agriculture.

3. THEORETICAL BASIS

The issue of bankruptcy model is presented by a number of international authors: Beaver (1966), Altman (1968), Taffler and Tisshaw (1977), Beerman (1976), Bilderbeck (1979), Ko (1982). We can find as well as models made directly for the Czech environment created by Neumaierová and Neumaier (2002), and for the Slovak environment created by Chrastinová (1998), Gurčík (2002).

Kopta (2006) dealt with the applicability of bankruptcy models to agricultural businesses, from which indicated that the explanatory power of Altman Z-score was 51.8 %, Zeta

was with probability 57.1 % and Z model was 45.5 %. Explanatory power of CH-Index was lowest, the model ranked correctly only 0.9 % bankruptcy businesses. All other firms were classified in the gray zone.

4. RESULTS

The value of Z-Score model, both for cooperatives and for limited liability companies, is situated in the gray zone. As shown in Figure 1, since 2009 there is an increase of this indicator and businesses can get into the zone of the financial stability. Since 2007 the value of this indicator had a downward trend, which was caused by declining profit, which descended by 650 thousand for cooperatives in 2008 and 530 thousand for limited liability companies. In 2011 cooperatives and limited liability companies are still situated in the gray zone, although they produced the largest profit for all years.

Limited liability companies achieved better results. However, they should pay attention to total assets, because if in subsequent years the assets increased by an average of 25 %, they could get to crisis zone. Conversely cooperatives have worse results, which can be expressed, according to more detailed data analysis that if the foreign sources decreased on average by 18 %, businesses would get out of the crisis zone to safe zone.

Area of the grey zone in 2011 predicted due to the amount of the index rather prosperous situation.

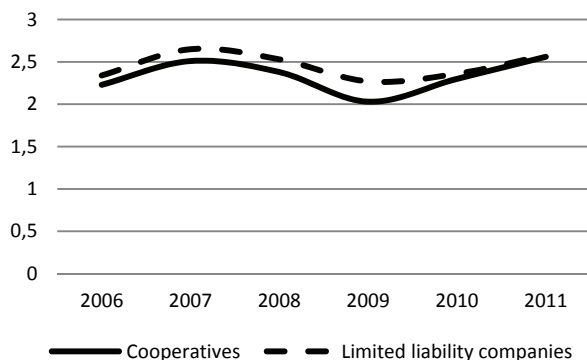


Fig. 1 Z-Score model of Altman

Source: Own processing

The greatest weight has, within the indicator of index IN, an indicator of "profit before interest and tax to assets". Since 2007, the indicator had an influence to this index very negatively, because it had reached very low values. Within the cooperatives this value, in 2009, was approaching to a negative value, due to the amount of profit, which was the lowest for the reviewed period. Return on assets is higher for limited liability companies, which it is due to the size of the profit, in this analysis the profit before interest and tax. The profit is influenced by many factors, one of them is the profit depending on the size of crop production and breeding livestock and poultry. And limited liability companies demonstrated higher productivity of these influencing factors.

The indicator "income to assets", which has the second highest weight in the calculation of the index IN, positively affects the resulting index, because it is possible to record the growth of revenues (since 2009) both for cooperatives and for limited liability companies.

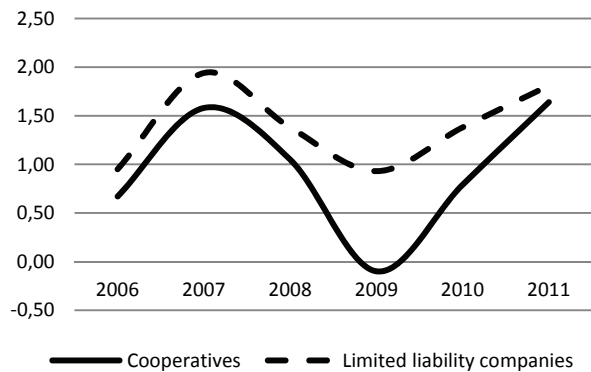


Fig. 2 Index IN95

Source: Own processing

Detailed view at the individual indicators says that index of Chrastinová is negatively affected by an indicator using obligations, i.e. an indicator of payback liabilities, when it was found that payback liabilities is within one month. In contrast the indicator of current assets has the positive impact.

According to this indicator it did not arise any negative development in 2009 both at cooperatives and at limited liability companies, even if items for all indicators fell sharply. It is caused by the weights of individual indicators. Other indexes this negative phenomenon, caused by the financial crisis, noticed.

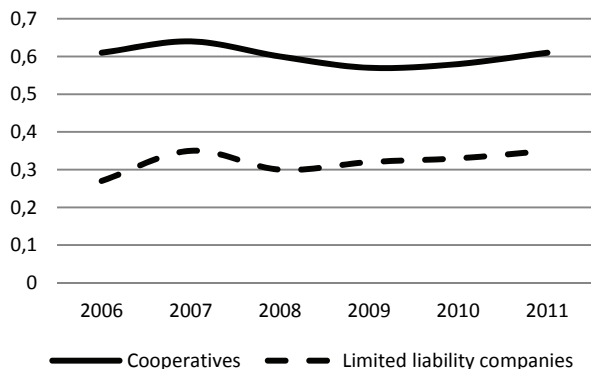


Fig. 3 Index of Chrastinová

Source: Own processing

According to the index of Gurčík the limited liability companies are included to the gray zone and the cooperatives to the zone of prosperity. The fact that the cooperatives are in the zone of prosperity, is that they show a much higher retained earnings.

The emphasis is put on the indicator "profit to liabilities", which unlike the other indicators does not record significant fluctuations, not even in 2009, when the value of all indicators fell sharply, and thus it contributes the most to the value of index a lot.

The indicator "stockpiles to revenues", whose values are the second highest value (the indicator "retained earnings to assets" shows the highest values), however, this indicator reduces the value of this index because it is set the negative weight.

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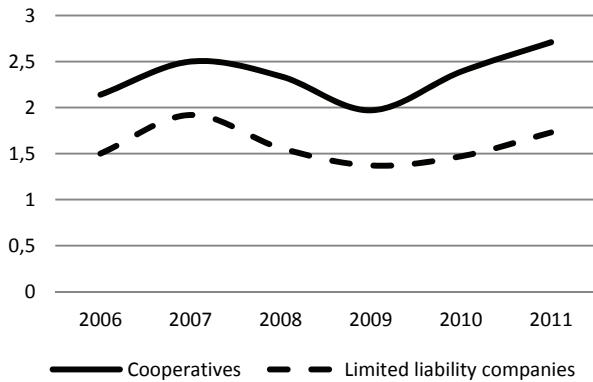


Fig. 4 Index of Gurčik
Source: Own processing

5. CONCLUSION

Finally, it should be mentioned that these results of analysis of bankruptcy models have different information ability. For the Altman Z-Score model, index IN95 and Ch-index were found out identical results from this analysis, i.e. that cooperatives and limited liability companies are located in the gray zone. Index of Gurčik ranked the limited liability companies into the zone of the gray as well, but cooperatives were ranked into the zone of prosperity. This difference can be interpreted due to different information

ability of bankruptcy models which was described by Kopta (2006). According to his study, index of Gurčik classifies companies into the gray zone with the fault of 16 percent.

According to the bankruptcy prediction models and financial ratios it is possible to expect good financial health both cooperatives and limited liability companies. Due to the financial ratios, which appeared in the creation of these models, can be determined that profitability indicators achieved the optimum values and sometimes even above-average values in their individual evaluation.

At conclusion can be evaluated that the applications of these models to agriculture have the same explanatory ability, but businesses showed high profitability, which can be caused by subsidies in agriculture, because the subsidies have a significant impact on the profitability of the company. Another topic of the article may be the thinking about how it would look without subsidies or if they would have changed.

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