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APPLICATION OF SELECTED DEBT RATIOS
ON SLOVAK AGRICULTRURE

The company can be funded from a variety of sources such as foreign or own capital. This article will be devoted to the analysis of foreign sources of funding in the agricultural sector for selected years while specific ratios have been selected. Ratio of debt is in general a ratio of outputs of each balance sheet and profit and loss statement of a company with the regard to the items which are characterizing the actual debt. Based on it is possible to monitor and analyze the financial resources of the company. Hence it is the ratio of equity and foreign capital in the business, while this situation has of course an impact on corporate financial stability, but also on the return on equity, debt or credit. For the purposes of developing this article it has been worked with the data of Slovak agriculture companies in the chosen period of 2004- 2011. We assume that farms will use the optimal proportion of debt and equity capital.
Key words: agricultural enterprises, debt, Slovak agriculture

Introduction

There is a presumption that a higher proportion of own capital provides a basis for financial stability and independence of the company. Because the own capital is composed of its own resources, it is more expensive than foreign capital which consists of bonds and loans. However, the use of foreign capital is advantageous in case if the interest rate is lower than the profitability of the company itself. When the company's debt is too high, there is an increase of actual costs incurred for the acquisition of foreign capital, which can undermine the viability of the company due to the reduction of corporate liquidity. There are various debt ratios, but for the development of the article following indicators were chosen:

- Total indebtedness,
- Indicator of long-term debt,
- Indicator of short-term debt,
- Indicator of degree of self-financing,
- Indicator interest coverage.

In general indicator of debt discusses what a volume of foreign property is involved to cover the own property. While regarding indicators of indebtedness is not realy possible to determine the optimal ratio of equity and foreign capital in the company. This ratio depends on factors such as return on equity or interest rate, etc.

Methods and Resources

Appropriate for the purpose of the paper we used individual data for a sample of agricultural enterprises from the official database of the Slovak Research Institute of

Agricultural and Food Economics for the selected period. The database contained balance sheets, profit and loss statements and other informations about slovak agricultural enterprises. For the article we have just selected all the items which were needed for calculations of the indebtedness ratios which are subsequently mentioned.

The total debt ratio is a primary indicator of the group of debt ratio indicators. We follow the arguments by Miklovičová J. - Gurčík, Ľ. (2008), that the recommended value for this ratio is not exceeding 50% of the debt. However, in developed market economies we can consider for the extreme value the 70% -75% of the debt. On the other hand, the argument by Knápková, A. - Pavelková, D. - Barking. K. (2013) is that, the recommended value of this ratio is between 30-60%. When the indicator of the total debt ratio can be concluded that higher values of indicator may pose a risk to lenders. We will mention the recommended values for the parameters which were used in this article. Indicator of long-term debt ratio has a recommended value of 50%.

Consequently, short-term debt ratio has a recommended maximum value of 30%. Along with long-term debt ratio indicator helps to a better shape of the structure of the debt ratio and improves the business perspective on the overall financial position of the business. Indicator of self-financing can be understood as opposed to debt ratio and its recommended value is above 30%. Interest coverage indicator expresses the ability of enterprises to pay interest for foreign capital and thus the ability to pay interest on loans, but not loans. This ratio has a recommended value in the range of from 3.00 to 5.00.

Results and Discussion

Selected ratios will be calculated, while the results are processed in tables and figures.

Total indebtedness

$$Total\ indebtedness = \frac{Foreign\ capital}{Equity + Liabilities}$$

Table 1 contains descriptive statistics for the Total indebtedness. The total indebtedness in the year 2011 can be concluded as follows: 10% of companies with the lowest total indebtedness reaches the value 0.82 or more (top decile), 25% of the companies with the lowest total indebtedness reaches the value 0.65 or more (upper quartile), average value of total indebtedness in 2011 was 0.45 (average), 50% of companies reaches the value of total indebtedness from 0 to 0.41 and 50% of the the companies the value of 0.41 or more (median), 25% of the companies with the highest total indebtedness reaches the value from 0 to 0.21 (lower quartile), 10% of companies with the highest total indebtedness reaches values between 0 and 0.12 (bottom decile).

Table 1: Descriptive characteristics of the total indebtedness of the the years 2004-2011

	2004	2005	2006	2007	2008	2009	2010	2011
Top decile	0,93	0,94	0,91	0,90	0,85	0,88	0,88	0,82
Upper quartile	0,72	0,74	0,68	0,68	0,66	0,67	0,66	0,65
Average	0,50	0,52	0,48	0,51	0,48	0,49	0,47	0,45
Median	0,43	0,43	0,42	0,44	0,44	0,45	0,42	0,41
Lower quartile	0,21	0,23	0,20	0,23	0,24	0,24	0,22	0,21
Bottom decile	0,11	0,11	0,11	0,12	0,12	0,12	0,11	0,12

Source: Own calculations

Provided the recommended values are observed can be concluded that the average total debt is still ranged around 50%.

Figure 1 describes the evolution of the values of descriptive characteristics for the total indebtedness observed in the years 2004 - 2011. If the focus is on the previous table no. 1, it can be estimated that the total indebtedness of the companies in the observed period is still around 50% of the debt. The graph shows that only total indebtedness of the companies fall in the upper quartile, and has significant changes. The highest value of debt ratio 94% was in year 2005.
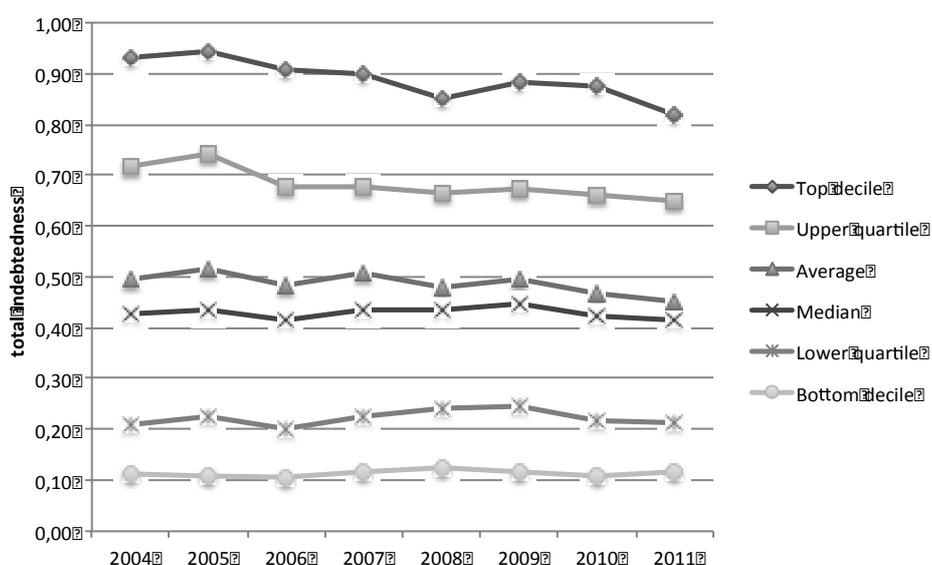

Figure 1: Descriptive characteristics of the total debt ratio of the the years 2004-2011
Source: Own processing

From the preceding Table 1, and Figure 1 are not identified significant changes in the evolution of the total indebtedness.

Long-term debt ratio

$$Long-term\ debt\ ratio = \frac{Long-term\ foreign\ capital}{Equity + Liabilities}$$

Table 2 contains descriptive statistics for the Long-term debt ratio. The long-term debt ratio in the year 2011 can be concluded as follows: 10% of companies with the highes long-term debt ratio reaches the value 0.29 or more (top decile), 25% of the companies with the highest long-term debt ratio reaches the value 0.17 or more (upper quartile), average value of long-term debt ratio in 2011 was 0.12 (average), 50% of companies reaches the value of long-term debt ratio from 0 to 0.07 and 50% of the the companies the value of 0.07 or more (median), 25% of the companies with the highest long-term debt ratio reaches the value from 0 to 0.02 (lower quartile), 10% of companies with the highest long-term debt ratio reaches values between 0 and 0.00 (bottom decile).

Table 2: Descriptive characteristics of the Long-term debt ratio of the the years 2004-2011

	2004	2005	2006	2007	2008	2009	2010	2011
Top decile	0,33	0,34	0,36	0,33	0,34	0,33	0,30	0,29
Upper quartile	0,16	0,17	0,18	0,16	0,19	0,18	0,16	0,17
Average	0,11	0,12	0,13	0,12	0,13	0,13	0,12	0,12
Median	0,04	0,06	0,06	0,06	0,09	0,08	0,07	0,07
Lower quartile	0,00	0,01	0,01	0,01	0,02	0,02	0,02	0,02
Bottom decile	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00

Source: Own calculations

The recommended value of this ratio is 50% of long-term financing in the equity, and liabilities. From Table 2 it can be seen that, middle of the value of long-term debt ratio are different as required. Companies which are falling under the upper decile are not even come closer.

In this case, there are companies that do not use long-term foreign funds. To achieve this status affects the selected field investigations. We can consider that the acquisition of corporeal property can be pre-financed from short-term sources of the company, profits of the company or subsidies which are flowing into agriculture.
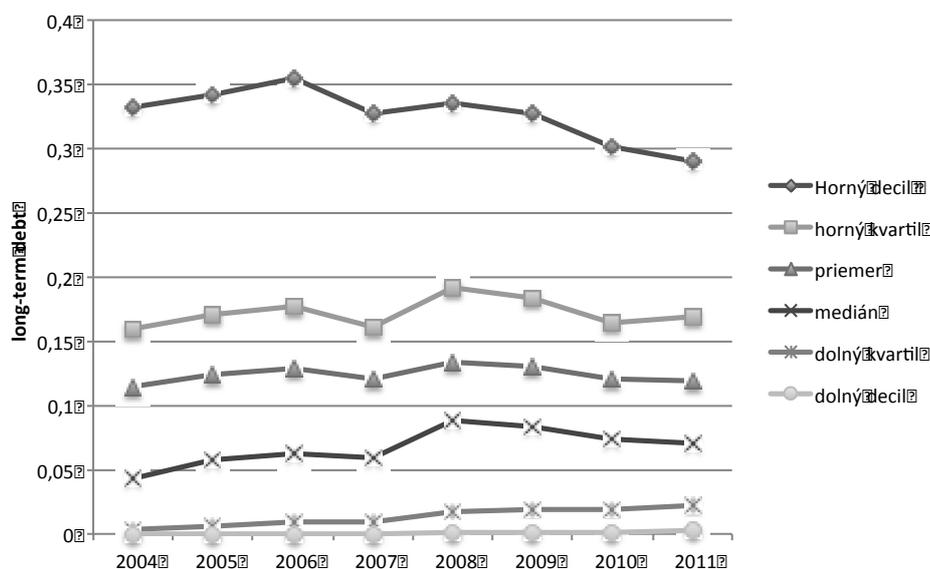

Figure 2: Descriptive characteristics of the Long-term debt ratio of the the years 2004-2011
Source: Own processing

When analyzing Figure 2 there are not observed large fluctuations in values during the reporting period. What is pronounced, the top decile data are more than a half above the median value.

Short-term debt ratio

$$Short-term\ debt\ ratio = \frac{Short-term\ foreign\ capital}{Equity + Liabilities}$$

Table 3 contains descriptive statistics for the Short-term debt ratio. The short-term debt ratio in the year 2011 can be concluded as follows: 10% of companies with the highes short-term debt ratio reaches the value 0.66 or more (top decile), 25% of the companies with the highest short-term debt ratio reaches the value 0.43 or more (upper quartile), the average value of short-term debt ratio in 2011 was 0.30 (average), 50% of companies reaches the value of short-term debt ratio from 0 to 0.24, and 50% of the the companies the value of 0.24 or more (median), 25% of the companies with the highest short-term debt ratio reaches the value from 0 to 0.11 (lower quartile), 10% of companies with the highest short-term debt ratio reaches values between 0 and 0.06 (bottom decile).

Table 3: Descriptive characteristics of the Short-term debt ratio of the the years 2004-2011

	2004	2005	2006	2007	2008	2009	2010	2011
Top decile	0,76	0,76	0,71	0,70	0,65	0,68	0,68	0,66
Upper quartile	0,47	0,47	0,45	0,48	0,46	0,46	0,46	0,43
Average	0,37	0,35	0,32	0,35	0,32	0,34	0,32	0,30
Median	0,23	0,24	0,22	0,25	0,25	0,26	0,25	0,24
Lower quartile	0,11	0,12	0,10	0,12	0,12	0,13	0,12	0,11
Bottom decile	0,05	0,05	0,05	0,06	0,06	0,06	0,06	0,06

Source: Own calculations

For indicator of short-term debt ratio is the recommended amount to a maximum of 30% The average value of this indicator can be considered within the groupe with the recommended value (Table 3). Certain intake over the recommended value reflects the seasonality of agriculture, because companies use short-term bank loans to cover the period from the purchase of seeds to the subsequent sale of goods. After then the added value and the incurred cost will be returned to the agricultural company.
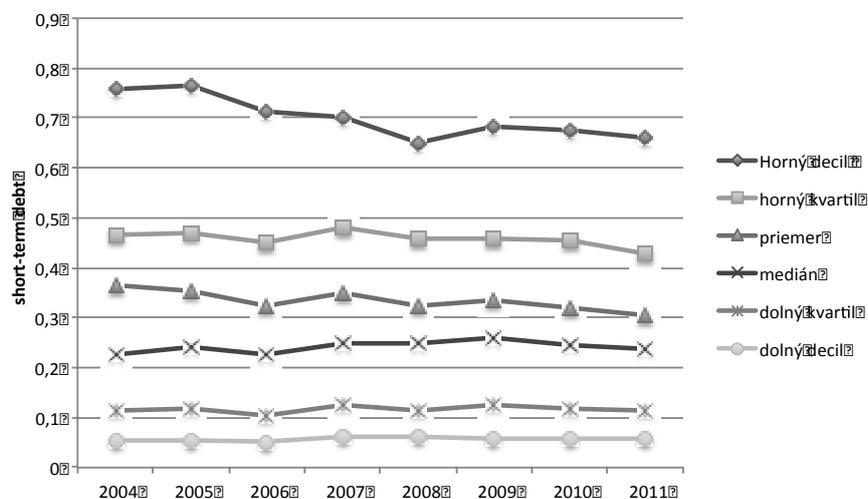

Figure 3: Descriptive characteristics of the Short-term debt ratio of the the years 2004-2011
Source: Own processing

As with the previous indicator, with the indicator for short-term debt ratio are not observed rising or declining trends. Development of the indicator in the observed period was balanced.

Degree of self-financing

$$The\ \deg ree\ of\ self-financing = \frac{Equity}{Equity + Liabilities}$$

Table 4 contains descriptive statistics for the Degree of self-financing. The degree of self-financing in the year 2011 can be concluded as follows: 10% of companies with the lowest degree of self-financing reaches the value 0.83 or more (top decile), 25% of the companies with the lowest degree of self-financing reaches the value 0.71 or more (upper quartile), the average value of degree of self-financing in 2011 was 0.47 (average), 50% of companies reaches the value of degree of self-financing from 0 to 0.51 and 50% of the the companies the value of 0.51 or more (median), 25% of the companies with the lowest degree of self-financing reaches the value from 0 to 0.26 (lower quartile), 10% of companies with the lowest degree of self-financing reaches values between 0 and 0.10 (bottom decile).

Table 4: Descriptive characteristics of the Degree of self-financing in the the years 2004-2011

	2004	2005	2006	2007	2008	2009	2010	2011
Top decile	0,87	0,85	0,85	0,84	0,83	0,82	0,83	0,83
Upper quartile	0,76	0,73	0,74	0,73	0,70	0,68	0,70	0,71
Average	0,44	0,44	0,46	0,44	0,47	0,43	0,45	0,47
Median	0,54	0,50	0,52	0,50	0,50	0,46	0,49	0,51
Lower quartile	0,24	0,22	0,24	0,25	0,27	0,23	0,24	0,26
Bottom decile	0,05	0,04	0,06	0,07	0,11	0,06	0,06	0,10

Source: Own calculations

The Table 4 shows that the average value of this ratio exceeds recommended value of 30%. The following Figure 4 describes the time evolution of the values of this indicator for the selected period, but as with total indebtedness ratio indicator is not realy possible to compare the pronounced changes in the time evolution.
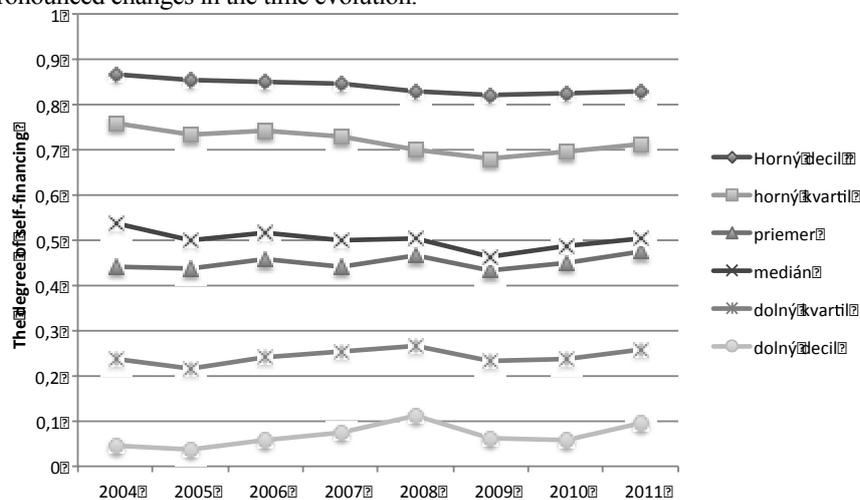

Figure 4: Descriptive characteristics of the Degree of self-financing in the the years 2004-2011
Source: Own processing

Interest coverage

$$Interest\ coverage = \frac{Profit\ before\ interest\ and\ taxes}{Interest\ expenses}$$

Table 5 contains descriptive statistics for the Interest coverage. The interest coverage in the year 2011 can be concluded as follows: 10% of companies with the best value of interest coverage reaches the value 29.03 or more (top decile), then 25% of the companies with the best value of interest coverage reaches the value 8.87 or more (upper quartile), the average value of interest coverage in 2011 was 2.33 (average), 50% of companies reaches the value of interest coverage from 0 to 2.25 and 50% of the the companies the value of 2.25 or more (median), 25% of the companies with the best value of the interest coverage reaches the value from 0 to 1.04 (lower quartile), 10% of companies with the best value of interest coverage reaches values between 0 and 7.30 (bottom decile).

Table 5: Descriptive characteristics of the Interest coverage in the the years 2004-2011

	2004	2005	2006	2007	2008	2009	2010	2011
Top decile	49,83	13,88	13,64	15,93	11,02	13,10	14,91	29,03
Upper quartile	12,06	4,78	4,76	6,49	3,97	2,94	4,03	8,78
Average	18,92	-5,32	3,89	17,05	8,97	-6,02	16,69	2,33
Median	3,40	1,56	1,85	2,38	1,48	1,10	0,54	2,25
Lower quartile	1,16	-0,32	0,94	1,10	0,59	-7,17	-3,31	1,04
Bottom decile	-8,10	-13,97	-6,82	-2,28	-5,55	-21,59	-12,49	-7,30

Source: Own calculations

Due to the general recommended value for loan coverage (3.00 - 5.00) it can be estimated (Table 5) that in the agricultural sector on the one hand, fulfilled the recommended value , and on the other hand, we can observe the extreme values of with the negative character whether deciles, quartiles, average, or median
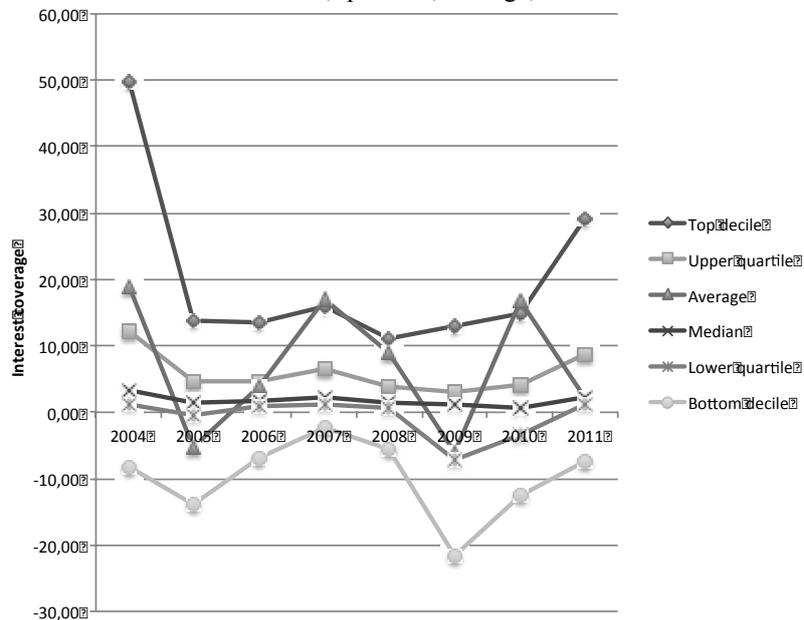

Figure 5: Descriptive characteristics of the Interest coverage in the the years 2004-2011
Source: Own processing

Conclusion

Based on an analysis of selected indicators of debt of farms in the Slovakia can be concluded that:

- indicators such as total idebtedness correspond to the recommended values,
- indicators such as degree of self-financing and interest coverage do not correspond to the recommended values suggesting that they are unable to pay interest as well as credits itself,
- for most of the indicators is not possible to identify a clear trend, because they are balanced in the chosen time period.

Debt ratios were examined for the agricultural sector as a whole. Based on the results it would be appropriate to divide the farms according to the nature of production, legal form, number of employees or size of enterprise. Values that were obtained based on indicators should not be perceived as recommended for companies located in the agricultural sector.

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