Micro-economic analysis of firms differentiation

Mikroekonomická analýza diferenciácie podnikov

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Abstract: After liberalisation established new relations in Slovak economy, it seemed that problems of agricultural companies differentiation would disappear. But the economic results of our companies confirm the existence of this problem. In the pre-reform period, agricultural production intensity was considered as a main factor of economic differentiation. Transformation of economy after 1990 changed the methodological approach to business performance evaluation. The interest was shifted towards the value evaluation comparing businesses with regard to financial indicators. These methods enable to classify enterprises into bonity classes and to set their sequence according to performance.

Key words: differentiation, microeconomic analysis, enterprise, profitability, profit

Abstrakt: Po nástupe trhových vzťahov v ekonomike SR sa predpokladalo, že problém ekonomickej diferenciácie v poľnohospodárstve prestane existovať. Výsledky podnikov však potvrdzujú, že tento jav stále existuje. Do roku 1990 bola za rozhodujúci faktor diferenciácie považovaná intenzita výroby, ktorá bola aj metodologickým základom vyjadrovania podnikových rozdielov. Transformácia ekonomiky zmenila metodologické prístupy k hodnoteniu výkonnosti podnikovej sféry. Do popredia sa dostali hodnotové metódy, ktoré skúmajú podniky prostredníctvom ekonomicko-finančných ukazovateľov a umožňujú triediť podniky do bonitných tried a stanovovať ich poradie výkonnosti.

Kľúčové slová: diferenciácia, mikroekonomická analýza, podnik, rentabilita, zisk

There is a lot of indicators setting higher accent on financial analysis. It is mainly transformation of Slovak agriculture, current economic situation of individual entrepreneurs, their financial position, unstable situation of producers in agriculture, secondary insolvency and also the threat of possible bankruptcy in this sector. That is why we have to use financial analysis as an instrument reflecting the level of successfulness or unsuccessfulness of different subjects.

The next problem is over-emphasising the data acquired by technical analysis without their interpretation. For that reason, we should make not only a detailed technical analysis but also a fundamental one. This analysis of other non-financial characteristics can identify important facts about the company's prospects and company's structure.

Basic ratios informing about company's ability to pay current liabilities are called liquidity ratios. Different authors define these ratios and their internal segmentation differently.

According to Baláž (1996), liquidity ratios enable to analyse and quantify company's ability to pay its liabilities. For better comparison we often use relative ratios: quick liquidity calculated as a ratio between financial capital and short-term liabilities; current liquidity calculated as a ratio between financial capital with short-term receivables and short-term liabilities; total liquidity defined as a ratio between current assets and short-term liabilities.

Vicen (1997) interprets liquidity as a general company's ability to get cash for covering current liabilities. Liquidity and solvency characterise and quantify different level of covering liabilities. In his opinion, liquidity is connected with a longer time period and solvency is the immediate ability of firm. Vicen separates total, current, quick and cash liquidity. Total liquidity is defined as a ratio between current assets and current liabilities. The recommended interval of values for this ratio is from 1.5 to 2.5. Current liquidity is a ratio between current assets without inventories and current liabilities. Acceptable interval of values for this ratio is from 1.1 to 1.5. Quick liquidity is calculated as a ratio between the most liquid assets with short-term receivables and current liabilities. Optimal value of this ratio is interval 1.0 to 1.5. Cash liquidity is described as a ratio between the most liquid assets and current liabilities. Recommended value is between 0.9 and 1.0.

According to Bielik (1999), activity ratios express efficiency and utility of company's current assets and short-term capital. He describes the following activity ratios:

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receivable payment period, liability due period, inventory turnover period, total asset turnover and degree of company's successfulness. Bielik includes these ratios in one indicator of successfulness, because they express successfulness of turnover process and its segments. For example, insufficient stocks cause low output and an enterprise does not reach sales, that could be reached. He analyses the structure of company's capital by debt ratios.

Gurčík (2000) says that debt ratios enable to analyse and quantify the proportion of assets financed with debt. They can also quantify influence of this proportion on economic result. When indebtedness of enterprise increases, then the risk of enterprise will increase too. That is why especially banks, investors and shareholders are interested in this aspect of the firm's financial situation.

MATERIALS AND METHODS

Methodology of technical analysis of one-dimensional and two-dimensional ratios and their "recommended values" is often taken from the foreign literature. Therefore, in different conditions of national economies, there are different ways how to create the algorithm of formulas for these ratios and which lines from balance sheet and profit and loss account to use. This dissimilarity impacts the outside look at economic situation of enterprise and differentiation of firm's economic results in relation to its environment. The aim of this article is to analyse economic results of the examined group of agricultural enterprises farming in Slovakia in comparison with the recommended values of selected financial indicators. We use for our research the relative ratios of liquidity, activity, indebtedness and profitability. These ratios have a great importance for financial analysis. According to principles for creating the system of indicators, every ratio has to give a separate look at the economic results. But it is generally known, that some indicators overlap in their interpretation. For that reason, we should use simple systems of indicators. Then we can examine interdependence among these ratios or to find mutual relations (Table 1).

RESULTS AND DISCUSSION

For realisation of this analysis, we used a group of 60 agricultural enterprises. This group is homogenous in the view of activity, it means agricultural production. In the analysed group of enterprises, there are included the following legal forms: co-operatives, limited liability com-

Table 1. Selected economic indicators

Indicators	Unit	Pattern of calculation	Algorithm
Liquidity			
Quick ratio	coef.	financial capital/current liabilities	S51/(S91+S103+S104)
Current ratio	coef.	(financial capital + short-term receivables)/ current liabilities	(S51+S42)/(S91+S103+S104)
Total ratio	coef.	(current assets – long-term receivables)/ current liabilities	S 28/(S91+S103+S104)
Activity			
Receivable payment period	days	(receivables/sales) × 365	[(S36+S42)/(V1+V5)] × 365
Liability due period	days	(liabilities/sales) × 365	[(S84+S91)/(V1+V5)] × 365
Inventory turnover period	days	(inventories/sales) × 365	[S 29/(V1+V5)]× 365
Debt			
Total debt	%	(debt/total capital) × 100	(S 79/S 61) × 100
Credit debt	%	(bank credits/equity capital) × 100	(S 101/S 62) × 100
Debt-equity ratio	%	(debt/equity capital) × 100	(S 79/S 62) × 100
Rate of financial independence	%	(equity capital/total capital) × 100	(S 62/S 61) × 100
Profitability			
Return on investment	%	[(economic yields + interests)/ total capital] × 100	[(V60+V42)/S 61]× 100
Return on equity	%	(economic yields/equity capital) × 100	(V 60/S 62) × 100
Profit margin	%	(economic yields/sales) ×100	[V 60/(V1+V5+V19)] × 100
Return on costs	%	(economic yields/total costs) × 100	(V 60/TC) × 100

S – balance sheet
V – profit and loss account
TC – total costs = V 2 + 8 + 12 + 17 + 18 + 20 + 22 + 24 + 26 + 28 + 31 + 38 + 40 + 42 + 44 + 46 + 54
current liabilities = short-term liabilities + current bank credits + short-term financial subsidies

Table 2. General characteristic of the analysed group of companies

Legal form	Region 2		Region 1		Total	
	number of company	proportion (%)	number of company	proportion (%)	number of company	proportion (%)
Co-operative	21	70	20	67	41	68
Limited liability company	7	23	9	30	16	27
Joint stock company	2	7	1	3	3	5
Total	30	100	30	100	60	100

panies and joint stock companies. 68% of these companies are co-operatives. Similar to the proportions in the agricultural sector of Slovakia in total, 27% of the group are limited liability companies and 5% joint stock companies. Data collection was made from annual statements of enterprises for the years 1998, 1999, 2000. Companies were characterised by their location into two regions differing by soil and natural conditions. These are: the Žilina region with price classes of soil from 1 to 8, in the Northern part of Slovakia (region 1), and in South-Western part of Slovakia, there was selected the region of Nitra, with price classes of soil from 14 to 20 (region 2). The number of companies and the percentage in the sample characterised by legal forms can be seen in the Table 2.

Characteristics of the analysed group of companies according to the recommended values for agricultural enterprises

In the next tables, there can be found the evaluation of the analysed group of companies according to the recommended values for each year.

In the year 1998, more than 30% enterprises reached good values in the view of liquidity. Majority of enter-

Table 3. Characteristics of the analysed group of companies according to the recommended values for agricultural enterprises in the years 1998

1998	Percentage of firms according to the recommended values			Total	Recommended values for agricultural enterprises*	
Indicators	good values	acceptable values	unacceptable values		good values	acceptable values
Liquidity						
quick ratio	31.67	46.67	21.67	100	0.2–2.5	0.05–0.19
current ratio	40.00	46.67	13.33	100	0.81–2.5	0.1–0.8
total ratio	36.67	18.33	45.00	100	1.5–3.0	0.91–1.49
Activity						
receivable payment period	43.33	28.33	28.33	100	0.01–70	70.01–120
liability due period	15.00	30.00	55.00	100	0.01–80	80.01–160
inventory turnover period	46.67	25.00	28.33	100	0.01–150	150.01–200
Debt						
total debt	36.67	28.33	35.00	100	0.01–30	30.01–50
credit debt	38.33	36.67	25.00	100	0.00–10	10.01–40
debt-equity ratio	36.67	26.67	36.67	100	0.01–40	40.01–100
rate of financial independence	46.67	25.00	28.33	100	60.01–∞	40.01–60
Profitability						
return on investment	60.00	25.00	15.00	100	1.01–∞	1–(–2.7)
return on equity	68.33	21.67	10.00	100	0.11–∞	0.1–(–9.99)
profit margin	61.67	23.33	15.00	100	0.5–∞	0.49–(–13.99)
return on costs	71.67	18.33	10.00	100	–0.5–∞	–0.51–(–11.49)

* Source: Information Letters CD Ministry Of Agriculture SR, Research Institute of Agricultural and Food Economics, recommended values for agricultural enterprises, 1997, own calculation

Table 4. Table 3. Characteristics of the analysed group of companies according to the recommended values for agricultural enterprises in the years 1999

1999	Percentage of firms according to the recommended values			Total	Recommended values for agricultural enterprises*	
Indicators	good values	acceptable values	unacceptable values		good values	acceptable values
Liquidity						
quick ratio	31.67	36.67	31.67	100	0.2–2.5	0.05–0.19
current ratio	41.67	43.33	15.00	100	0.81–2.5	0.1–0.8
total ratio	33.33	15.00	51.67	100	1.5–3.0	0.91–1.49
Activity						
receivable payment period	40.00	41.67	18.33	100	0.01–70	70.01–120
liability due period	15.00	31.67	53.33	100	0.01–80	80.01–160
inventory turnover period	38.33	31.67	30.00	100	0.01– 50	150.01–200
Debt						
total debt	45.00	25.00	30.00	100	0.01–30	30.01–50
credit debt	45.00	36.67	18.33	100	0.00–10	10.01–40
debt-equity ratio	43.33	23.33	33.33	100	0.01–40	40.01–100
rate of financial independence	53.33	25.00	21.67	100	60.01–∞	40.01–60
Profitability						
return on invest.	63.33	23.33	13.33	100	1.01–∞	1–(–2.7)
return on equity	55.00	30.00	15.00	100	0.11–∞	0.1–(–9.99)
profit margin	48.33	36.67	15.00	100	0.5–∞	0.49–(–13.99)
return on costs	63.33	25.00	11.67	100	–0.5–∞	–0.51–(–11.49)

Table 5. Table 3. Characteristics of the analysed group of companies according to the recommended values for agricultural enterprises in the yearr 2000

2000	Percentage of firms according to recommended values			Total	Recommended values for agricultural enterprises*	
Indicators	good values	acceptable values	unacceptable values		good values	acceptable values
Liquidity						
quick ratio	31.67	41.67	26.67	100	0.2–2.5	0.05–0.19
current ratio	36.67	46.67	16.67	100	0.81–2.5	0.1–0.8
total ratio	35.00	21.67	43.33	100	1.5–3.0	0.91–1.49
Activity						
receivable payment period	36.67	41.67	21.67	100	0.01–70	70.01–120
liability due period	13.33	38.33	48.33	100	0.01–80	80.01–160
inventory turnover period	40.00	26.67	33.33	100	0.01–150	150.01–200
Debt						
total debt	43.33	30.00	26.67	100	0.01–30	30.01–50
credit debt	48.33	40.00	11.67	100	0.00–10	10.01–40
debt-equity ratio	40.00	33.33	26.67	100	0.01–40	40.01–100
rate of financial independence	63.33	18.33	18.33	100	60.01–∞	40.01–60
Profitability						
return on invest.	46.67	43.33	10.00	100	1.01–∞	1–(–2.7)
return on equity	55.00	28.33	16.67	100	0.11–∞	0.1–(–9.99)
profit margin	48.33	36.67	15.00	100	0.5–∞	0.49–(–13.99)
return on costs	60.00	28.33	11.67	100	–0.5–∞	–0.51–(–11.49)

* Source: Information Letters CD Ministry Of Agriculture SR, Research Institute of Agricultural and Food Economics, recommended values for agricultural enterprises, 1997, own calculation

prises came under the acceptable values and good values according to the indicators of activity, indebtedness and profitability (Table 3), too. Only one indicator, liability due period, is not on the acceptable level. It is a very important activity indicator. Majority of enterprises (55%) has liability due period longer than 160 days.

Very interesting is also to notice the shifts of companies in the selected intervals. In the year 1998, 13.3% of enterprises did not reach the acceptable level of current liquidity. In the next year, it was 15% (Table 4) and in the year 2000, it was 16.67%. Conversely total liquidity ratio has the opposite tendency. In spite of it, majority of enterprises are in the interval of unacceptable values. The trend of inventory turnover period for all group is negative and the number of enterprises with unacceptable values increases. Proportional positive trend is seen in total indebtedness.

For the year 2000 (Table 5), there were characteristic better results in comparison with the previous years. Typical for this year were good results of companies from the view of financial independence, return on equity and return on costs.

Determination of branch standards

Table 6 shows the differences between standards for different soil and natural conditions typical for the Northern and Southern part of Slovakia. In comparison with values recommended by the Research Institute of Agricultural and Food Economics, our group of enterprises reaches a low level of quick and current liquidity and satisfactory total liquidity. Liability due period recommended by the Research Institute of Agricultural and Food Economics is not typical for our firms. Total debt and the rate of financial independence are convenient.

The result of our research are values of ratios characterising agricultural sector. All values of analysed indi-

Table 6. Diferences between standards for different regions

Indicators	Region 2	Region 1	RIAFE ´97*
Liquidity			
quick ratio	0.05–0.29	0.06–0.37	0.2–2.5
current ratio	0.48–1.24	0.36–1.59	0.81–2.5
total ratio	1.20–3.33	1.09–4.80	1.5–3.0
Activity			
receivable payment period	57.85–104.94	54.05–142.71	0.01–70
liability due period	104.61–276.47	98.69–539.48	0.01–80
inventory turnover period	121.75–187.38	105.73–274.86	0.01–150
Debt			
total debt	25.08–53.89	14.86–54.34	0.01–30
credit debt	5.27–37.37	0.00–21.43	0–10
debt-equity ratio	33.84–121.23	16.52–118.49	0.01–40
rate of financial independence	45.35–73.83	37.54–83.14	60–8
Profitability			
return on investment	0.41–4.22	–2.03–13.52	1.01–8
return on equity	–2.07–5.12	–6.04–21.86	0.11–8
profit margin	–2.34–4.34	–13.46–22.40	0.5–8
return on costs	–1.69–3.80	–6.97–12.42	–0.5–8

Source: Information Letters CD Ministry Of Agriculture SR, Research Institute of Agricultural and Food Economics, recommended values for agricultural enterprises, 1997, own calculation

Table 7. Standard values for liquidity ratios

Indicators	Unit	Interval for enterprises			Characteristic
		better-than-average	average (branch standards)	worse-than-average	
Liquidity					
Quick ratio	coef.	–	0.06–0.22	–	interval
Current ratio	coef.	–	0.43–0.92	–	interval
Total ratio	coef.	–	1.19–2.75	–	interval

Table 8. Standard values for activity ratios

Indicators	Unit	Interval for enterprises			Characteristic
		better-than-average	average (branch standards)	worse-than-average	
Activity					
Receivable payment period	days	0.01–57.2	57.21–85.47	85.48–∞	min.
Liability due period	days	0.01–105.8	105.9–275.51	275.52–∞	min.
Inventory turnover period	days	0.01–118.74	118.75–167.25	167.26–∞	min.

Table 9. Standard values for debt ratios

Indicators	Unit	Interval for enterprises			Characteristic
		better-than-average	average (branch standards)	worse-than-average	
Debt					
Total debt	%	0.01–20.96	20.97–40.02	40.03–∞	min.
Credit debt	%	0.00–0.96	0.97–20.64	20.65–∞	min.
Debt–equity ratio	%	0.01–25.16	25.17–87.98	87.99–∞	min.
Rate of financial independent	%	∞–43.74	43.75–60.25	60.26–∞	max.

Table 10. Standard values for profitability ratios

Indicators	Unit	Interval for enterprises			Characteristic
		better-than-average	average (branch standards)	worse-than-average	
Profitability					
Return on investment	%	∞–3.28	–0.81–3.29	–0.80–(–∞)	max.
Return on equity	%	∞–7.57	–3.29–7.58	–3.28–(–∞)	max.
Profit margin	%	∞–2.81	–5.65–2.82	–5.34–(–∞)	max.
Return on costs	%	∞–2.37	–4.17–2.38	–4.16–(–∞)	max.

cators are described in Tables 7, 8, 9, 10. We wanted to determine branch standards for agricultural sector and our acquired intervals are:

Standard values for quick liquidity are from 0.06 to 0.22 and for current liquidity from 0.43 to 0.92. For total liquidity in agriculture, there is characteristic the interval of values from 1.19 to 2.75.

According to the results of our research, the enterprises that are better-than-average should cash payments from receivables in 57 days, pay their liabilities in 105 days and turn over their inventories in 118 days (Table 8). Characteristic intervals for agricultural sector are from 57.21 to 85.47days for the receivable payment period, 105.9–275.51 days for the liability due period and 118.75–167.25 days for the inventory turnover period.

Branch standards for debt ratios are described in the Table 9. For debt-equity ratio, there is typical the interval of values from 25.17 to 87.98%. This interval is quite wide and permits high values. It reflects the current situation in agriculture and also corresponds to the high value of liability due period.

The next table (Table 10) shows the results of profitability analysis. Standard interval for return on investment is from –0.81 to 3.29, for return on equity from –3.29 to 7.58. Other results are seen in the Table 10.

CONCLUSION

The aim of this research was to analyse differentiation of firms farming in different soil and natural conditions. Our results confirm the existence of disproportions in the acquired economic results and also differences between branch standards for the selected indicators.

According to our research we can say, that the theme of evaluation of firm's efficiency is actual in the conditions of market economy too. Economists of each scientific school wanted to determine the border between successful and unsuccessful enterprise. That is why there have been formed so many methods for evaluation of the firm's efficiency. They suppose, that the level of company's economic activity will affect his financial indicators.

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