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## **APPLYING RATIO ANALYSIS TO FINANCIAL BALANCE EVALUATION OF AGRICULTURAL PRODUCTION COOPERATIVE**

### **1. Introduction**

The transformation and adaptation processes that have been occurring in Polish agriculture after our access to the EU force applying modern analytical techniques while managing an agricultural production cooperative. Attention should be drawn to a number of various obstacles which in the conditions of profound changes in the economical, legal and social environment impede obtaining objective results of effectiveness and profitability measurements in agriculture [Ziółkowska 2005, p. 30; Kapusta 2006, p. 67-71]. In the conditions of market economy, the financial analysis assumes paramount importance, yet its results just reflect the results of individual activities, while the reasons of these phenomena are hidden in the extent to which individual production features are used and in the company's environment [Sierpińska, Jachna 1998, p. 277; Kapusta 1997, p. 160].

### **2. Aim, range and methodology of research**

The aim of the research was evaluation of the state of financial management and components of property in the Agricultural Production Cooperative by using the ratio analysis.

The range of research covered five years' span (2001-2005) of the Cooperative's existence. In order to obtain the synthetic-complex evaluation of the financial situation of the Cooperative, the method of ratio analysis was used [Bednarski 2007, p. 7-20; Bień 2005, p. 367; Skov 1994, p. 199].

The source of materials used in the study were property balances as well as profit and loss accounts, obtained from the accountancy department of the analysed Cooperative.

### 3. Results of the study

The aim of the ratio analysis was estimating mutual relations of individual economic values arising from financial reports, such as: balance as well as profit and loss account. Applying appropriate ratios makes it possible to evaluate various aspects of financial, and in some cases even economic activities. From the separate items in financial reports we can isolate a wide range of different kinds of ratios, but it is necessary to take into account a limited number of them in order not to distort the holistic picture of the reality. Thus sets of standard ratios were applied, those which characterize financial fluidity, profitability and the firm's capability to service debts [Bień 2005, p. 124].

#### 3.1. Financial fluidity ratios

Keeping financial fluidity, that is discharging short-term obligations on time, is a fundamental condition of running a firm efficiently and of following rational financial policy. The analysis of the financial fluidity is performed by ratios expressing the relation of certain fluidity means to short-term obligations (tab. 1).

Table 1. Ratios of financial fluidity

Name of ratio	Computational formula	Measure unit	Value of ratio					
			desired	2001	2002	2003	2004	2005
Current fluidity	<u>turnover means total</u> current obligations	point	1,2-2,0	2,22	1,40	0,17	0,16	0,31
Fast fluidity	<u>turnover fluid means</u> current obligations	point	0,8-1,2	1,56	0,83	0,04	0,04	0,10
Turnover in debts	net sales average state of debts	point	max	0,64	0,78	1,99	8,18	3,50
Turnover in reserves	net sales average state of reserves	point	max	1,28	1,47	1,66	1,98	1,24

Source: author's study.

In the first two years of the research period the Cooperative did not have any problem with current fluidity and the ratio amounted to 2.22 and 1.40, respectively, which meant that it was able to discharge all current obligations with the turnover means it possessed. In the remaining years the ratio was below optimal value and then the Cooperative struggled to meet obligations on time. In 2005 a slight improvement in financial fluidity was recorded owing to the decrease in current obligations.

A more exploitive analysis of financial fluidity can be performed by fast fluidity ratio, which does not take into account reserves in turnover assets, and which is aimed at finding turnover means with high fluidity. It measures the firm's capability to repay debts promptly.

In the researched Cooperative the fast ratio reached optimal value only in 2002 and exactly at that time the financial situation of the unit was the best. In 2001 the fast ratio exceeded the upper level of desired value which was proof of freezing part of fluid turnover means. The remaining three years brought very unfavourable levels of the ratio and here the company experienced problems with current capability to discharge short-term obligations on time.

On the basis of the difference between the current and fast ratio it can be concluded that the Cooperative can boast a high level of reserves, containing a big share of frozen assets, which is a specific feature of agricultural production.

The ratio of debt turnover determines how many times in a year the company recreates the state of its obligations. If a satisfying level of the ratio falls below 7.0 it means that the company gives loans to its clients, which brings about long-term freezing of its assets in debts.

The ratio of debt turnover oscillated from 0.64 to 8.18. The optimal level was reached in 2004, i.e. 8.18 points. The remaining period of research showed the level of the ratio below optimum, which was brought about by the fact that funds were invested in debts for too long. From the conducted interviews it can be concluded that the Cooperative had the biggest problems with obtaining payment for the following products: cereals, sugar beets, onions and pork meat.

Besides the ratio of debt turnover, another ratio of reserves turnover was used. This ratio oscillated between 1.24 in 2005 and 1.98 in 2004 in the researched Cooperative. This situation was brought about mainly by difficulties in selling some commodities.

### **3.2. Profitability ratio**

One of more important measurements of evaluating the effectiveness of a company management is profitability which can be analysed by means of a range of ratios determined by the relation of net profit to net sales, capital and assets. The profitability ratios can be taken as a basis to evaluate the strategic aims of a company, leading to an increase in the firm's value, which can be accomplished largely through profitability [Bień 2005, p. 125]. The profitability ratios have been presented in tab. 2.

The ratio of sales profitability, called also the ratio of profit margin, shows the share of profit in net sales, expressed in percents. It informs about how high value of sales must be reached in order to obtain a certain amount of profit. The lower the ratio, the bigger the value of sales has to be reached in order to obtain a certain financial result. On the other hand, the higher level of the ratio, the higher effectiveness of the obtained income. Thus a high level of the ratio is desired.

In the researched Cooperative the ratio had a negative value in years 2001 and 2003; it was brought about by losses recorded in these years, that is why we cannot speak about any profit at that time. The profitability ratios in the remaining years reached satisfying levels; the situation was best in 2005, when the effectiveness of sales amounted to about 60%.

Table 2. Profitability ratios

Name of ratio	Computational formula	Measurement unit	Ratio value					
			desired	2001	2002	2003	2004	2005
Profitability of sales	$\frac{\text{net profit}}{\text{net sales}}$	%	max	-10,37	17,98	-128,96	19,91	60,45
Profitability of property (ROA)	$\frac{\text{net profit}}{\text{total assets}}$	%	max	-2,29	4,69	-50,18	8,10	16,99
Profitability of company's own capital (ROE)	$\frac{\text{net profit}}{\text{company's own capital}}$	%	max	-3,42	7,94	-98,10	-14,87	-51,66

Source: author's study.

The property profitability ratio (ROA) defined as relation of net profit to total assets, takes into account the profitability of all company's reserves, including the operational and financial activities. The profitability of property of the researched Cooperative remained on a low level. The situation was the best in 2005, when ROA ratio amounted to 16.99%, which meant that each 100PLN of the property's value gave 16.99PLN of profit. However, in the years 2001 and 2003 the Cooperative recorded losses and the ratios bore negative values.

The profitability ratio of the company's own capital (ROE) informs about the value of net profit per one unit of the company's own capital. The higher the value of the ratio, the better the financial situation of the company. A high effectiveness of the own capital creates the possibility of further development of the company.

The level of this ratio in the researched Cooperative reached a very unsatisfying level; in the period of four years values below zero were recorded. Lack of own capital profitability could be noted; that was brought about not only by the negative financial result in 2001 and 2003, but also by a negative value of the own capital itself which in the years 2003-2005 reached values below zero because of the previous years' losses and negative deductions of net profit during the turnover year. The best level of the ratio was reached in 2002 and that was 7.94%, however, it was not a satisfying level anyway.

### 3.3. Ratios of capability to service debts

The ratios of capability to service debts make it possible to analyse the state of debts and to determine a company's capability to meet loan obligations. Thus it is possible to estimate the long-term capabilities to service both long- and short-term obligations [Bień 2005, p. 126]. The ratios of capability to service debts were presented in tab. 3.

Table 3. The ratios of capability to service debts

Name of ratio	Computational formula	Measurement unit	Value of ratio					
			desired	2001	2002	2003	2004	2005
Charges on property	$\frac{\text{obligations} - \text{total property}}{\text{total property}}$	points	0,30-0,50	0,22	0,27	1,51	1,53	1,28
Covering property with own capital	$\frac{\text{own capital}}{\text{property} - \text{total}}$	points	1,00	0,66	0,59	-0,51	-0,54	-0,32
Relation of debts to own capital	$\frac{\text{obligations} - \text{total}}{\text{own capital}}$	points	< 1	0,34	0,46	-2,95	-2,8	-3,88
Covering debts with financial surplus	$\frac{\text{financial surplus}}{\text{average level of obligations}}$	points	max	-0,01	0,26	-0,46	0,08	0,15

Source: author's study.

The ratio of charging the property with obligations pictures the structure of financing the company's property. It determines to what extent the activities are financed by the company's own means, and to what extent by the external capital as well as what is the company's capability to return these means. The ratio takes into account both current and long-term obligations. The lower the ratio, the bigger financial independence and lower risk of taking new loans. In the first two analysed years the ratio remained on quite a high level, although it was lower than the optimal level (22% i 27%). However, the next years of the analysed period showed remarkable dependence of the Cooperative on external capitals. The level of debts showed that the assets were financed by the external capital in 151% in 2003 and in 128% in 2005.

The analysis of debts is complemented by the ratio determining covering the property with own capital. The ratio reached the highest value in 2001 and 2002 and amounted to 62.5% on average. However, in 2003-2005 the Cooperative's capital was financed totally from external sources.

The relation of financial obligations to the company's own capital determines the basic structural dependence of the company and – which is connected with it – the capability to cover the debts with the company's own capital, if need be. From this point of view, if the level of this ratio is higher than 1, it should be interpreted as undesirable. Thus the lower this ratio is, the higher is the company's own engagement in the company's activities. In the researched Cooperative the ratio remained on a good level, that is from 0.34 to 0.46 in the years 2001-2002; this was connected with a high value of the company's own capital. However, in the next years a negative own capital was recorded, which means that the Cooperative was not able to cover debts with its own property.

In 2002 26% of obligations were covered by financial means which came from the Cooperative's profit and amortization. In 2004 the obligations were covered

only in 8%, whereas in 2005 the surplus covered not more than 15% of the obligations. In the remaining years the ratios were negative, which was connected with the negative financial result.

#### 4. Conclusion

While estimating the financial balance by applying the ratio analysis it should be concluded that the researched Cooperative in the period of 2001-2005 had problems with current solvency, especially in the years 2003-2005, when the ratio of current fluidity was much lower than optimal value. The Cooperative gradually lost the ability to service short-term obligations, especially in the last three years, for which the fast fluidity ratio reached very unfavourable values: 0.04; 0.04; 0.10. The ratio of debt turnover exceeded the optimal level of 7 points only in 2004 – 8.18 points, which proves too long period of freezing financial means in debts. Difficulties with selling some products, which were experienced at that time, are illustrated by the reserve turnover ratio which oscillated from 1.98 in 2004 to 1.24 in 2005. In the analysed years there was a slight rise in the profitability of sales, while the highest level of sales profitability was reached in 2005. The ratio of property profitability remained on a low level, too, proving a low profitability of the total Cooperative's assets. The profitability of the Cooperative's own capital fell to negative levels, proving the lack of ability to finance the Cooperative with its own capital. As a result it became dependent on external capitals, especially in years 2003-2005, when its assets were financed by external capital in respectively: 151%, 153% and 128%. In three years (2002, 2004 and 2005) the obligations were paid with the obtained financial surplus. The ratio analysis performed showed that the changes taking part in capital's components and financial results negatively influenced the economic efficiency of the Cooperative and proved the necessity to introduce structural changes that will make it possible to adapt the Cooperative to market requirements.

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## **ZASTOSOWANIE ANALIZY WSKAŹNIKOWEJ DO OCENY RÓWNOWAGI FINANSOWEJ ROLNICZEJ SPÓŁDZIELNI PRODUKCYJNEJ**

### **Streszczenie**

Badania przeprowadzono w Rolniczej Spółdzielni Produkcyjnej w latach 2001-2005. Analiza wskaźnikowa wykazała, że następujące w analizowanym okresie zmiany w składnikach majątkowych i wynikach finansowych wpłynęły ujemnie na sprawność ekonomiczną Spółdzielni i wskazują na konieczność wprowadzenia zmian strukturalnych umożliwiających pełniejsze dostosowanie Spółdzielni do wymagań rynkowych.