

Marzena Ganc

Warsaw University of Life Sciences – WULS

e-mail: marzena_ganc@sggw.pl

ORCID: 0000-0002-5267-7940

PROVISIONS FOR LIABILITIES VERSUS THE FINANCIAL SECURITY OF DAIRY COOPERATIVES

REZERWY NA ZOBOWIĄZANIA A BEZPIECZEŃSTWO FINANSOWE SPÓŁDZIELNI MLECZARSKICH

DOI: 10.15611/pn.2020.2.04

JEL Classification: P12, Q13, Q14

Summary: The main objective of the study is to determine the financial security of dairy cooperatives depending on the level of provisions for liabilities created, i.e. to answer the research question: does the level of provisions determine the financial security of dairy cooperatives? Dairy cooperatives in Poland, in which provisions for liabilities were created, were chosen in a targeted manner. The breakdown into groups was carried out using the quartiles method (assuming the level of provisions for liabilities as a criterion), and then the test for the significance of the Kruskal-Wallis differences was applied due to the greater than two groups isolated for analysis. The research hypothesis is as follows: the value of provisions for liabilities determines the level of financial security of dairy cooperatives. The research period covered 2012-2016. Financial liquidity, management efficiency and overall debt ratios were calculated. A relationship was found between the value of provisions for future liabilities and the level of liquidity ratios assessed. The larger the cooperative in terms of the isolated criterion, the higher the current, quick and immediate liquidity.

Keywords: dairy cooperatives, liquidity, provisions for liabilities.

Streszczenie: Głównym celem badania jest określenie bezpieczeństwa finansowego spółdzielni mleczarskich w zależności od poziomu rezerw utworzonych na zobowiązania, tj. uzyskanie odpowiedzi na pytanie badawcze: czy poziom rezerw determinuje bezpieczeństwo finansowe spółdzielni mleczarskich? W sposób celowy wybrano spółdzielnie mleczarskie zlokalizowane w Polsce, w których utworzono rezerwy na zobowiązania. Podział na grupy przeprowadzono z użyciem metody kwartyli, a następnie zastosowano test istotności różnic Kruskalla-Wallisa. Okres badawczy obejmował lata 2012-2016. Obliczono płynność finansową, efektywność gospodarowania i ogólny wskaźnik zadłużenia. Stwierdzono związek między wartością rezerw na przyszłe zobowiązania a ocenianym poziomem wskaźników płynności. Im większa spółdzielnia w zakresie wybranego kryterium podziału, tym wyższa bieżąca, szybka i natychmiastowa płynność finansowa.

Słowa kluczowe: spółdzielnie mleczarskie, płynność finansowa, bezpieczeństwo finansowe, rezerwy na zobowiązania.

1. Introduction

An extremely important branch of all economies is the food industry, which is closely related to agriculture. In Poland, the dairy industry plays an important role in the agricultural sector, bringing together producers and processors of this raw material to work in the common interest, thus creating dairy cooperatives. It is a small sphere of agribusiness, in which farmers' cooperatives play a paramount role [Pietrzak 2010]. On the European Union (EU) scale, Poland, with production at the level of approximately 12 billion litres of milk is considered to be a large producer of this raw material. The importance of the dairy industry as an important link in the agribusiness system in Poland is confirmed, among other, by the 20% share in the value of commercial agricultural production, almost 14% share in sales, 11% share in food exports, and 15% share in consumer spending on food [Pietrzak 2006]. Milk processing is one of the few spheres of agribusiness in Poland in which the cooperative form of farming dominates [Dyka, Grzegorzewski 2000]. The dairy industry is one of the most important sectors of Poland's food economy, however in the period after the crisis it lost its international price competitiveness, which was based on its cheap raw material. A requirement for maintaining the competitiveness of the industry in the future will be an increase in the efficiency of milk processing. According to Baran, one of the factors for improving the efficiency of milk processing in cooperatives may be the concentration of production, and the related increase in its scale [Baran 2007].

The dairy market consists of a number of related product markets reflecting a wide range of end products [Pietrzak 2007]. The business model typical for enterprises in the dairy industry, especially cooperatives, is dependent on the purchase of raw milk supplied from farmers – the owners of cooperatives [Jacobson, Cropp 1999].

The dairy products market in Poland is undergoing dynamic changes. Among them, one should first and foremost highlight the progressing concentration and increasingly intense competition from both domestic and foreign entities [Domańska, Kijek, Tomczyńska-Milk 2014]. Despite the worsening crisis, the financial situation of the food industry has slightly improved compared with 2005, both in terms of profitability and the management of current assets [Czerwińska-Kayzer, Florek, Stanisławska 2014].

The financial security of a company is a leading problem in shaping the security strategy for the implementation of its current and future business activities. Financial collateral is understood as an enterprise's ability to create and use financial conditions for the effective and efficient continuation and development of the company's operations. These conditions include the creation and maintenance of the appropriate level and structure of value and dynamics: the sale of products and services offered, profitability, liquidity and financial solvency, as well as investment and balance sheet reserves. Linking balance sheet reserves with the profitability and liquidity and solvency of companies is justified by seeking dependencies between the creation and use of balance sheet reserves, profit management, and the financial situation of the company [Duraj, Sosnowski 2015].

Dairy cooperatives play an important economic role on the market not only in Poland, but also in North America and Western Europe. According to Chaddad and Cook [2010], the success of the managers of these entities is the ability to generate and maintain internal capital, as well as the flexibility of payments to members of the cooperative [Chaddad, Cook 2010]. The integration of the cooperative business objective and profitability has a fundamental impact on the financial liquidity of this legal group of entities [Akridge, Hertel 1992].

One of the basic conditions for the continuation and development of a company's operations in a competitive market is ensuring financial security [Manfredo, Richards 2007; Ling 2012]. Without it, an enterprise is not a reliable entity that fulfils its goals towards stakeholders, i.e. the owners, managers, creditors, employees, customers, suppliers, strategic partners and the local community. This is particularly important in the assessment of cooperative entities whose business objective is not the maximum financial result, but the benefits for farmers and milk suppliers [Wasilewski, Chmielewska 2006].

The ability of an economic entity to continue operations may be manifested in the company's future balanced income and expenses [Karbownik 2012]. An assessment of a company's financial security, therefore, assumes – in accordance with accounting principles – that the entity does not intend to discontinue its economic activity or significantly restrict its scope [Szczecińska 2007]. On the other hand, the development of an enterprise is a more complex issue, resulting from the variability of diverse matter and the existing state of affairs. This is a long-term process of quantitative and qualitative changes leading to diversification and the enrichment of the components of the company's resources, and the relationships that exist between them [Sierpińska, Jachna 2002]. The commencement and development of economic activity requires the availability of adequate resources, including finances [Michalski 2001]. A company's financial resources that are owned, or its potential, should protect it from external and internal threats, thus ensuring the continuation of the company's business and the financial conditions for its development [Wędzki 2003].

Soboh, Oude Lansink, Van Dijk [2011] did not list the accelerated and immediate liquidity ratios, as well as the inventory cycle in days, the receivables cycle in days, the liabilities cycle in days and the working capital cycle in addition to the current liquidity ratio. However, they emphasised the need to study receivables and short-term liabilities turnover ratios. Zuba [2014, p. 26] additionally included the cash conversion cycle in this group of indicators and, in addition, drew attention to measuring solvency, including the debt coverage ratio, interest coverage ratio, and debt ratios. Szymańska [2017] and Zaporozhtseva [2001] highlighted the measurement of the long-term debt ratio. Among the measures of the financial security assessment presented by Franc-Dąbrowska [2008] and Duraj [2010], the asset structure ratios were also isolated, although only Duraj further emphasised the possibility of examining a company's financial security using net cash flows from operating activities, as well as the financial provisions included in the balance sheet.

The report will apply a traditional approach to financial security, based on liquidity and management efficiency ratios.

Enterprises in the dairy sector are subject to the same operating principles as other economic entities and base their activities on business account. They strive to achieve profitability and financial security, the basis for this being financial liquidity and solvency. Hence the security in conditions of intense competition and uncertain economic situation is gaining greater importance, especially for dairy cooperatives. These is because their mission and implemented economic and social goals, treat financial security as their main priority. Without it, they cannot be safe and credible entities, offering real economic benefits to its members and stakeholders.

2. Material and methods

The aim of the research is to determine the relationship between the level of provisions for liabilities and the financial security of dairy cooperatives measured by financial liquidity and management efficiency ratios. The hypothesis for research is: the value of provisions for liabilities determines the level of financial security of dairy cooperatives. From a sample of 99 dairy cooperatives, those that created provisions for liabilities were target-selected. The selected sample can be treated as quasi representative, due to the 89% market share of the cooperatives accepted for analysis. The cooperatives selected were divided into groups using the quartile method. Assignment to a specific group was additionally carried out based on an expert method – for example, outlier cooperatives that fell within the first quartile were assigned to the second group because they better suited this group. Using the Shapiro-Wilk test, no distribution normality was found for the analyzed variables in individual groups. The Kruskal-Wallis rank ANOVA test confirmed the legitimacy of dividing the sample into quartiles according to the criterion of provisions for liabilities. Then the Kruskal-Wallis rank ANOVA test was used to determine the significance of differentiation in the level of provisions for liabilities in individual quartiles. The test indicated the significance of the differences between the isolated quartiles. The research period covered 2012-2016. The number of entities in the analysed years is presented in Table 1. In most of the cooperatives accepted for analysis, provisions for liabilities were created.

Table 1. Number of dairy cooperatives in the research

Year	2012	2013	2014	2015	2016
Number of dairy cooperatives creating provisions	62	60	58	54	54
Total dairy cooperatives	99				

Source: own study.

Table 2. Number of dairy cooperatives in quartiles

Quartile (groups)	Year				
	2012	2013	2014	2015	2016
I	15	15	14	13	13
II	16	15	15	14	14
III	16	15	15	14	14
IV	15	15	14	13	13
Total	62	60	58	54	54

Source: own study.

In the researched period, the largest number of cooperatives creating provisions for liabilities occurred in 2012, while the lowest number of these entities was recorded in 2015-2016. The number of dairy cooperatives was determined by the requirements for creating provisions for liabilities related to the obligation of auditing financial statements. The creation (or lack thereof) of provisions is determined by the requirement to audit the financial statements; the entities whose statements are subject to an external audit are required to create provisions for future liabilities. The number of entities in specific groups (quartiles) is presented in detail in Table 2.

3. Results

Table 3 presents the structure of provisions for liabilities in the cooperatives studied. The provisions created in cooperatives were dominated by those created for retirement benefits. The second-largest provisions in the analysed period were the other reserves, and the lowest share was recorded for provisions for deferred income tax. There was also an increase in the provisions for total liabilities, from approximately PLN 62 million in 2012 to almost PLN 84 million in 2016.

The current liquidity ratio in each group of cooperatives increased in 2016 compared with 2013 (Table 4). There was no uniform trend in this aspect noted during the period studied. The largest increase in this area was in dairy cooperatives with the lowest reserves for liabilities, from 1.29 in 2013 to 1.94 in 2016. In addition, a relationship was observed between the value of provisions created for liabilities and the level of current liquidity. The overall liquidity ratio decreased along with the decrease in provisions for liabilities. This situation could be caused by the fact that maintaining provisions for future liabilities determines the level of the current liquidity ratio. The lowest ratio of overall financial liquidity occurred in cooperatives in the group with the lowest provisions, in 2012, in which it amounted to 1.29. It is worth noting that during the period in question all the cooperatives, regardless of the grouping criterion, maintained liquidity at the 'adequate' level specified in numerous literature sources. Such a situation may be caused by the need to maintain funds for payment for dairy raw material to their suppliers (owners of the cooperative).

Table 3. The structure of provisions for liabilities

2012					2013				
Quartile	TP	PDT	PRB	OP	Quartile	TP	PDT	PRB	OP
I	62 073.9	4 390.9	43 276.5	14 406.4	I	64 470.9	4 459.8	47 649.9	12 361.9
II	12 212.7	2 461.1	9 239.7	511.9	II	14 242.4	3 311.6	10 790.2	140.5
III	2 948.6	247.6	2 547.8	153.2	III	3 948.9	268.5	3 428.7	251.7
IV	281.6	40.2	197.3	44.1	IV	570.7	34.9	454.9	80.8
2014					2015				
Quartile	TP	PDT	PRB	OP	Quartile	TP	PDT	PRB	OP
I	67 139.3	7 815.1	45 604.6	13 719.7	I	96 882.6	6 236.7	69 600.6	21 045.8
II	15 508.4	904.8	14 439.1	128.6	II	20 141.8	2 807.3	17 295.7	38.8
III	4 427.0	502.3	3 536.8	387.9	III	5 462.6	25.1	4 828.5	609.1
IV	787.9	45.3	582.7	159.9	IV	1 014.3	130.4	846.8	37.1
2016									
Quartile	TP		PDT	PRB	OP				
I	84 195.6		5 306.7	63 076.3	15 812.6				
II	17 586.4		2 911.6	14 595.4	79.4				
III	4 438.6		139.3	3 833.5	465.8				
IV	396.4		36.6	348.9	10.8				

TP – total provisions, PDT – provisions for deferred income tax, PRB – provisions for retirement benefits, OP – others provisions.

Source: own study.

Table 4. Current liquidity ratio (current assets/current liabilities)

Quartile (group of dairy cooperatives)	Year				
	2012	2013	2014	2015	2016
I	2.17	2.02	2.08	2.22	2.41
II	1.66	1.62	1.65	1.61	1.65
III	1.50	1.64	1.88	1.75	1.70
IV	1.29	1.46	1.64	1.54	1.94

Source: own study.

Table 5 presents the development of quick financial liquidity in the cooperatives, depending on the level of provisions for liabilities. In cooperatives with the highest and lowest provisions for liabilities, an upward trend in the quick liquidity ratio was found. In the other groups included in the study, no such phenomenon was established. Taking into account the standards of quick financial liquidity presented in the literature (approximately one), it can be stated that the majority of cooperative enterprises included in the analyses were characterised by over-liquidity.

This situation is related to the specificity of the activities of cooperative entities presented in the wider Ganc studies [2016], which showed that cooperatives on the milk market in Poland maintain financial liquidity above the standards suggested in the literature on the topic in question.

Table 5. Quick financial liquidity (current assets – inventories – accrued expenses/ current liabilities)

Quartile (group of dairy cooperatives)	Year				
	2012	2013	2014	2015	2016
I	1.51	1.51	1.54	1.72	1.82
II	1.24	1.22	1.26	1.22	1.16
III	1.09	1.15	1.39	1.36	1.21
IV	0.99	1.10	0.90	1.16	1.52

Source: own study.

Similarly to the current liquidity ratio, a relationship was found between the level of provisions created for future liabilities and the quick liquidity ratio. The higher the value of provisions, the higher the quick liquidity.

The immediate (cash) liquidity ratio in all cooperative groups increased in 2016 compared to 2012 (Table 6). The largest increase in this respect was noted in cooperatives with the lowest provisions for future liabilities, from 0.18 in 2012 to 0.6 in 2016. When assessing the cash liquidity ratio in the entities studied, it should be noted that the majority of cooperatives in this area were characterised by excess liquidity (the exception in this respect was entities with the lowest provisions for liabilities in 2012, in which this ratio was 0.18). This is due to the specificity of cooperative entities on the milk market, for whom the maintenance of cash at a higher level than that recommended in the literature guarantees the fulfilment of the statutory purpose of these entities, namely, the timely payment for dairy raw materials to their suppliers – farmers.

Table 6. Cash ratio (cash/current liabilities)

Quartile (group of dairy cooperatives)	Year				
	2012	2013	2014	2015	2016
I	0.47	0.37	0.40	0.64	0.57
II	0.27	0.18	0.19	0.28	0.29
III	0.24	0.28	0.49	0.50	0.37
IV	0.18	0.24	0.37	0.22	0.60

Source: own study.

Table 7 presents the evolution of the inventory turnover ratio in days in the cooperatives studied. In the cooperatives with the highest provisions for liabilities on (group I), a significant deterioration of the situation in this respect was noted in 2016 compared to 2012. Inventory turnover in these cooperatives increased from 24 days in 2012 to 54 in 2016. Such a situation should be assessed unfavourably, because the cooperatives produce food products with a relatively short shelf-life. In addition, the largest entities in terms of the adopted grouping criterion have a more diversified range (more products with a longer shelf-life, for example, maturing cheeses, etc.) compared with the cooperatives in the fourth group, which mainly produce basic dairy products. A relationship was found between the level of provisions created for liabilities and the ratio of inventory turnover in days. The lower the value of the provisions, the shorter the inventory turnover. The cooperatives keeping inventory the shortest were small cooperatives in terms of the isolated criterion in 2016, in which the ratio was six days. In the cooperatives from groups I and II, it was found that the inventory turnover period in days was reduced, respectively, from 20 and 30 days in 2012 to 15 days in 2016 in both groups of entities.

Table 7. Inventory turnover ratio (inventories * 365/sales revenue) (days)

Quartile (group of dairy cooperatives)	Year				
	2012	2013	2014	2015	2016
I	24	22	25	23	54
II	20	21	17	18	15
III	32	44	38	29	15
IV	14	23	28	19	6

Source: own study.

The cooperatives with the highest provisions for liabilities saw an upward trend in the ratio of turnover of trade receivables from 43 days in 2012 to 94 days in 2016 (Table 8). This situation could have been caused by a clearly more liberal policy in terms of receivables collection or consumers failing to fulfil payments. On the other hand, cooperatives in the group with the highest provisions for liabilities are characterised by excess liquidity, therefore such a long waiting period for trade receivables does not threaten financial security in these entities. The cooperatives with the lowest level of created reserves, in which in 2016 the analysed ratio was 10 days, collected their receivables the quickest.

Table 9 shows the level of trade liabilities turnover in days. In the dairy cooperatives with the highest provisions for liabilities, an increase was recorded in this respect in 2016 compared to 2012 (from 47 in 2012 to 53 in 2016). In the remaining cooperative groups there was a decrease in the liabilities turnover ratio, and the biggest reduction was recorded by the cooperatives with the lowest level of provisions created for liabilities (from 52 in 2012 to only 15 days in 2016). It is

Table 8. Turnover of trade receivables ratio in days (trade receivables *365/sales revenue)

Quartile (group of dairy cooperatives)	Year				
	2012	2013	2014	2015	2016
I	43	44	47	48	94
II	39	19	38	37	22
III	53	60	56	53	18
IV	36	43	52	38	10

Source: own study.

worth noting that all cooperative groups had a relatively short period of repayment of trade liabilities due to the fact that most of them concerned payments for dairy raw material to farmers who are members of the cooperative. Liabilities to milk suppliers are a priority in the payment of cooperative entities on the dairy market, because this is directly related to the articles of association of these entities. The highest liabilities turnover in days ratios occurred in cooperatives in group III (with an average level of provisions) in 2012-2015, while in 2016 in this group of cooperatives there was a significant reduction in the time of collection of liabilities to 32 days.

Table 9. Trade liabilities turnover ratio in days (liabilities * 365/sales revenue)

Quartile (group of dairy cooperatives)	Year				
	2012	2013	2014	2015	2016
I	47	48	51	50	53
II	47	32	44	47	43
III	79	95	83	80	32
IV	52	68	76	50	15

Source: own study.

The overall debt ratios in the examined cooperatives should be assessed favourably. In the years included in the analyses, its highest value slightly exceeded 0.50 (Table 10). This means that the total liabilities of dairy cooperatives constituted just over half of the balance sheet total of these entities. Cooperative managers largely finance their activities with their own funds, and if they need external financing, they use less-risky, long-term outside funds. The lowest level of overall debt was found in the cooperatives with the highest provisions for liabilities in 2016, in which it amounted to 0.37, while the highest value in this respect was noted in cooperatives with the lowest level of provisions in 2012 (0.55). The cooperatives in the fourth group also recorded a decrease in the overall debt ratio in 2016 compared to 2012 – from 0.55 to 0.41. This situation was caused by the repayment of some of the investment loans, as well as by an increase in the value of liabilities by increasing own funds.

Table 10. Debt ratio (liabilities/total capital)

Quartile (group of dairy cooperatives)	Year				
	2012	2013	2014	2015	2016
I	0.42	0.44	0.45	0.40	0.37
II	0.46	0.42	0.44	0.51	0.48
III	0.49	0.54	0.50	0.52	0.52
IV	0.55	0.50	0.48	0.48	0.41

Source: own study.

No uniform relationship between the level of the overall debt ratio and the value of provisions created for liabilities was noted. However, it can be concluded that the cooperatives with the highest reserves had lower overall debt than the entities with the lowest values of the isolated allocation criterion.

4. Conclusions

The aim of the research was to determine the relationship between the level of provisions for liabilities and the financial security of dairy cooperatives measured by financial liquidity and management efficiency.

The majority of provisions for liabilities in the examined dairy cooperatives are provisions created for the pension benefits of employees – members of the cooperatives. In second place in the structure of provisions for future liabilities are those categorised as other provisions (in dairy cooperatives these may include provisions for other employee benefits, liabilities arising from ongoing court rulings, etc.)

When assessing the financial liquidity of dairy cooperatives, it should be stated that there is a relationship between the value of provisions for liabilities and the level of these ratios. The larger the cooperative in terms of the isolated criterion, the higher the current and immediate and quick liquidity.

The general debt ratios in the examined cooperatives should be assessed favourably. In the years included in the analyses, its highest value slightly exceeded 0.50. This means that the total liabilities of dairy cooperatives constituted just over half of the balance sheet total of these entities. Cooperative managers largely finance their activities with their own funds, and if they need external financing, they use less risky, long-term outside funds.

References

- Akridge J.T., Hertel T.W., 1992, *Cooperative and investor-oriented firm efficiency: A multiproduct analysis*, Journal of Agricultural Cooperation, vol. 7, pp. 1-14.
- Baran J., 2007, *Efektywność spółdzielni i pozostałych form prawnych działających w przemyśle mleczarskim z wykorzystaniem metody DEA*, Roczniki Nauk Rolniczych, Seria G, tom 94, zeszyt 1, Warszawa, pp. 109-119.
- Bieniasz A., Czerwińska-Kayzer D., 2016, *Bezpieczeństwo finansowe przedsiębiorstw przemysłu spożywczego*, Journal of Agribusiness and Rural Development, 2(40), pp. 239-247.
- Chaddad F.R., Cook M.L., 2010, *Understanding new cooperative models: An ownership-control rights typology*, Review of Agricultural Economics, vol. 26, no. 3, pp. 348-360.
- Czerwińska-Kayzer D., Florek J., Stanisławska J., 2014, *Assessment of the financial situation of the food industry in Poland in 2005 and 2010*, Acta Scientiarum Polonorum, Oeconomia, no. 4(13), pp. 43-54.
- Duraj N., Sosnowski T., 2015, *Zabezpieczenie finansowe rezerwami bilansowymi działalności nowych spółek giełdowych*, Studia Prawno-Ekonomiczne, t. XCVII, pp. 217-237.
- Dyka S., Grzegorzewski P., 2000, *Zarządzanie spółdzielnią*, Difin, Warszawa.
- Franc-Dąbrowska J., 2008, *Jak kształtowano płynność szybką i natychmiastową w przedsiębiorstwach rolniczych?*, Zeszyty Naukowe SGGW w Warszawie, Ekonomika i Organizacja Gospodarki Żywnościowej, no. 64, Warszawa, pp. 39-52.
- Jacobson R., Cropp R., 1999, *Dairy Cooperatives and Their Role in The United States, Dairy Markets and Policy Issues and Options*. Cornell University, pp 1-7.
- Karbownik L. (2012). *Pojęcie oraz obszary kreowania bezpieczeństwa finansowego przedsiębiorstwa*, Acta Universitat Lodzianis, Folia Oeconomica, no. 267, pp. 79-93.
- Ling K.C., 2012, *The Nature of the Cooperatives: A Dairy Cooperative Case Study*, USDA Rural Development.
- Manfredo M., Richards T.J., 2007, *Cooperative risk management, rationale, and effectiveness: The case of dairy cooperatives*, Agricultural Finance Review, vol. 67, issue 2, pp. 62-79.
- Michalski G., 2001, *Pomiar poziomu płynności finansowej w przedsiębiorstwie – wybrane zagadnienia. Zarządzanie finansami firm – teoria i praktyka*, Prace Naukowe Akademii Ekonomicznej we Wrocławiu, no. 894, pp. 185-199.
- Pietrzak M., 2006, *Efektywność finansowa spółdzielni mleczarskich, koncepcja oceny*, Wydawnictwo SGGW, Warszawa.
- Pietrzak M., 2007, *Szacowanie premii za ryzyko w przedsiębiorstwach pozagiełdowych na przykładzie spółdzielni mleczarskich*, Zeszyty Naukowe, no. 45, Prace Instytutu Ekonomiki i Organizacji Przedsiębiorstw, no. 50, Szczecin, pp. 46-59.
- Sierpińska M., Jachna T., 2002, *Ocena przedsiębiorstwa według standardów światowych*, PWE, Warszawa.
- Soboh R., Oude Lansink A., Van Dijk G., 2011, *Efficiency of cooperatives and investor owned firms revisited*, Journal of Agricultural Economics, 63, 1, pp. 110-121.
- Szczecińska B., 2007, *The application of the method of logarithm finding in the causal analysis of the financial results of enterprises of the food sector*, Acta Scientiarum Polonorum, Oeconomia, no. 6, pp. 99-104.
- Szymańska E.J., 2017, *Determinants of profitability of enterprises of the meat industry in Poland*, Acta Scientiarum Polonorum, Oeconomia, no. 16, pp. 83-91.
- Wasilewski M., Chmielewska M., 2006, *Fundusz udziałowy a kondycja finansowa spółdzielni mleczarskich*, Acta Scientiarum Polonorum, Oeconomia, Roczniki Naukowe Szkoły Głównej Gospodarstwa Wiejskiego w Warszawie, no. 2, p. 70.
- Wędzki D., 2003, *Strategie płynności finansowej przedsiębiorstwa*, Oficyna Ekonomiczna, Kraków.
- Zaporozhtseva L.A., 2017, *Strategic foundation of securing effectiveness of commercial organization' activities*, Eurasia: Economics & Business, no. 1, pp. 45-54.
- Zuba J., 2014, *Wpływ zadłużenia na rentowność i bezpieczeństwo finansowe wybranych spółdzielni mleczarskich w Polsce*, Roczniki Naukowe Stowarzyszenia Ekonomistów Rolnictwa i Agrobiznesu, tom XVI, zeszyt 3, p. 2.