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## **DAIRY PLANTS FINANCIAL AND ECONOMIC SECURITY EVALUATION**

**Abstract.** *The essence of the concept “financial and economic security of the enterprise” is covered. Methodological approaches to the enterprise financial and economic security evaluation are considered, enabling the method of index number rating score of the enterprise financial and economic security to be found. Dynamics of milk and dairy production in Ukraine has been studied. Ukrainian regions leading in liquid processed milk production have been identified. Dynamics of milk and dairy production per man has been analyzed which allowed to find out the annual increase in demand per man. Integrated index of the dairy enterprise financial and economic security has been evaluated. As a result, the ways to increase the managerial efficiency of financial and economic security of the following enterprises: PJSC “Dubnomoloko”, PJSC “Kupyans'ki milk canning plant”, PJSC the “Yagotyns'ki creamery”, PJSC the “Pervomais'ki milk canning plant” are offered.*

**Keywords:** *evaluation, financial and economic security of the enterprise, dairy industry, management.*

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## ОЦІНЮВАННЯ ФІНАНСОВО-ЕКОНОМІЧНОЇ БЕЗПЕКИ ПІДПРИЄМСТВ МОЛОКОПЕРЕРОБНОЇ ПРОМИСЛОВОСТІ

*Анотація.* У статті розкрито сутність поняття фінансово-економічної безпеки підприємства. Розглянуто методичні підходи щодо оцінювання фінансово-економічної безпеки підприємства, що дозволило виявити підхід рейтингової оцінки показника фінансово-економічної безпеки підприємства. Досліджено динаміку виробництва молока та молочних продуктів України. Виявити області України, які є лідерами з виробництва молока рідкого обробленого. Проаналізовано динаміку виробництва молока та молочних продуктів на одну особу, що дозволило встановити щорічне зростання попиту на одну особу. Визначено підприємства молокопереробної галузі. Проведено оцінку інтегрального показника фінансово-економічної безпеки підприємств молокопереробної галузі. За результатами оцінки запропоновано шляхи підвищення ефективності управління фінансово-економічної безпеки таких підприємств, як: ПАТ «Дубномолоко», ПАТ «Куп'янський молочноконсервний комбінат», ПАТ «Яготинський маслозавод», ПАТ «Первомайський молочноконсервний комбінат».

**Ключові слова:** оцінювання, фінансово-економічна безпека, підприємство, молокопереробна галузь, управління.

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## ОЦЕНИВАНИЕ ФИНАНСОВО-ЭКОНОМИЧЕСКОЙ БЕЗОПАСНОСТИ ПРЕДПРИЯТИЙ МОЛОКОПЕРЕРАБАТЫВАЮЩЕЙ ОТРАСЛИ

*Аннотация.* В статье раскрыто сущность понятия финансово-экономическая безопасность предприятия. Рассмотрено методические подходы относительно оценивания финансово-экономической безопасности предприятия, что позволило выявить подход рейтинговой оценки показателя финансово-экономической безопасности предприятия. Исследовано динамику производства молока и молочных продуктов Украины. Выявлены области Украины, которые являются лидерами по производству молока жидкого обработанного. Проанализировано динамику производства молока и молочных продуктов на одного человека, что позволило установить ежегодный рост спроса на одного человека. Определены предприятия молокоперерабатывающей отрасли. Проведена оценка интегрального показателя финансово-экономической безопасности предприятий молокоперерабатывающей отрасли. По результатам оценки предложены пути повышения эффективности управления финансово-экономической безопасностью таких предприятий, как: ПАО «Дубномолоко», ПАО «Купянский молочноконсервный комбинат», ПАО «Яготинский маслозавод», ПАО «Первомайский молочноконсервный комбинат».

**Ключевые слова:** оценивание, финансово-экономическая безопасность, предприятие, молокоперерабатывающая отрасль, управление.

**Introduction.** Traditionally dairy industry takes the largest share of the food industry in Ukraine, in addition to the current development of national economy, the products of the industry have one of the highest shares in the export of food industry. This topic takes on special significance in modern and exceptional conditions of coincidence of Ukraine's need of reorientation in export markets, associated with this need of providing a new level of quality, specific threats of military action on its territory and conditions of the state financial and economic security. Therefore the analysis and evaluation of financial and economic security of enterprises is extremely important for predicting the behavior of dairy processing industry.

**Literature review.** Trends in the development and functioning of the dairy sector in Ukraine are studied and worked on in the works of such scientists: L.A. Yevchuk, A.V. Barabash, H.O. Yeresko, N.I. Pratsyuk, V.M. Kalinchyk. At the same time, T.V. Bozhydarnik, N.V. Bozhydarnik, G.V. Divenko explore the impact of technological and innovative component of the competitiveness of enterprises. Aspects of marketing of agricultural enterprises are considered by O.P. Arseniev, V.A. Bespalov, V.P. Halushko, J. Hrokom, T.G. Dudar and others. Researches on the financial and economic security of enterprises belong to A.V. Aref, I.P. Moyseyenko, O.M. Marchenko, T.B. Kuzenko and others.

**Unsolved aspects of the problem.** However, not covered in the literature remains the aspect of the evaluation of the financial and economic security of dairy industry companies, which would reveal the weaknesses of the financial and economic system of individual businesses and help to correctly predict their development priorities, giving the opportunities to enter new international markets.

**Task formulation.** The aim of an article is the evaluation of the financial and economic security companies of the dairy industry using a rating approach.

**Results.** At present the need to ensure financial and economic security and its role as an integral conditions of life of each entity is widely recognized. According to I. Moyseyenko and O.M. Marchenko, financial and economic security of an enterprise is its financial and economic situation, which provides protection of its financial and economic interests from internal and external threats and provides the necessary financial and economic conditions for sustainable development in the current and long term periods [2, p. 28].

To date, the study of this issue had allowed scientists to identify the following three main methodological approaches to the diagnosis of the financial and economic security:

1. Resource-functional approach, according to which the assessment of the financial and economic security is based on the assessment of the specific criteria defined by scientists, the use of the resource provision of an enterprise according to which the following functional components of economic security are reviewed: financial, power, information, technical, technological, food, legal, personnel and the environmental. Enterprise selects the ideal ratio of economic security, then calculates the actual ratio, compares it with the ideal and then determine the specific level of economic security. The advantage of the approach is that it covers all areas of the company and trying to assess the state of resources. The disadvantages of the approach include basement of criteria in determining the aggregate share of each functional component on expert opinion, indicating a significant impact on the subjective level of financial and economic security [1].

2. Indicator approach, which is proposed to estimate the summary of financial and economic security by comparing actual values and limits of indicators, which are threshold values of indicators characterizing activity of enterprises in different functional areas. The disadvantages of the approach include lack of illumination of threshold indicators that characterize the activities of the company in accordance with a certain level of financial and economic security.

3. The approach of rating indicators of financial and economic security, which is based on compliance with financial ratio ranked number. The advantages of this approach include simplicity and affordability of calculations to assess indicators of financial and economic security in conditions of limited access to information base of the company.

The approach of rating indicators of financial and economic security is determined by the formula [3, p. 57-58]:

$$R = 2Km + 0,1Kpl + 0,08Kok + 0,45Krp + Krvk,$$

where  $Km$  – current assets to equity ratio;

$Kpl$  – current ratio;

$Kok$  – capital turnover;

$Krp$  – return on sales;

$Krvk$  – return on equity.

Enterprise's assessment rating of below 1 is considered to be unreliable. Thus, the higher number means the higher the rating and reliability of economic enterprise is.

The last mentioned approach will be used in the study of the financial and economic security of dairy processors. However, firstly the analysis of the state of the industry to which they belong will be done.

Dairy industry in Ukraine is one of the leading sectors of agriculture. Using the data table 1 the dynamics of milk and milk products for the 2011-2013 are presented.

The analysis of table 1 shows, that the liquid milk production, the productions of milk and cream, fat 6%, butter and yoghurt and other fermented or sour milk and cream for the period increases each year. So, in 2013 production of processed milk increased in comparison with 2012 by 5,61%, milk and cream, fat 6% – increased by 32,69%, butter production increased in 2013 comparing with 2012 by 6,43%, and yogurt and other fermented or sour milk and cream – by 6,75%. However, production of milk and cream powder in 2013 decreased comparing with 2012 by 14,74%.

*Table 1*

**Dynamics of production of milk and milk products for 2011-2013 [4]**

Product name	Years			The growth rate 2013 by 2012, %
	2011	2012	2013	
Liquid processed milk (pasteurized, sterilized, homogenized, clarified, peptized), thousand tons	890	910	961	105,61
Milk and cream, 6% fat, not concentrated and unsweetened, thousand tons	31,4	36,1	47,9	132,69
Milk and cream powder, thousand tons	53,6	63,1	53,8	85,26
Butter, thousand tons	76,7	88,6	94,3	106,43
Yoghurt and other fermented or sour milk and cream, thousand tons	474	489	522	106,75
Unfermented fresh cheese (unripe and immature), including buttermilk cheese and sour milk cheese, thousand tons	76,5	79,0	83,7	105,95
The fat cheese, thousand tons	178	168	165	98,21

Among the products of the dairy sector the largest share of production shows the liquid processed milk (pasteurized, sterilized, homogenized, clarified, peptized). In addition, almost every business sector has production capacity for this product. The production of liquid processed milk (pasteurized, sterilized, homogenized, clarified, peptized) in regions of Ukraine for 2012 – 2013 is analyzed in following table (Table 2).

So, the three leaders of the production of liquid processed milk (pasteurized, sterilized, homogenized, clarified) in 2012 – 2013 years started with Vinnytsia region (35,09% and 31,66%), Zhytomyr region took the second place – 14,31% and 15,67%, and Kyiv region took the third place with 10,31% and 10,37%. Other areas produced significantly less milk. The least for the analyzed period by the amount of produced liquid processed milk were Rivne region (0,42% and 0,46%), Ivano-Frankivsk region (0,59% and 0,5%), Odessa region (0,62% and 0,43%), Kirovograd region (0,02%).

Table 2

**Production of liquid processed milk by region of Ukraine 2012 – 2013, thousand tons [4]**

Name of regions and areas	2012		2013		The growth rate 2013 by 2012, %
	thousand tons	Share,%	thousand tons	Share,%	
Ukraine, total	909,7	100	961,3	100	105,67
ARC	7,7	0,85	7,2	0,75	93,51
Vinnitsia	319,2	35,09	304,3	31,66	95,33
Dnipropetrovsk	54,9	6,03	47,1	4,9	85,79
Donetsk	40,4	4,44	39,5	4,11	97,77
Zhytomyr	130,2	14,31	150,6	15,67	115,67
Zaporizhia	32,2	3,54	35,7	3,71	110,87
Ivano-Frankivsk	5,4	0,59	4,8	0,5	88,89
Kiev	93,8	10,31	99,7	10,37	106,29
Lugansk	12,7	1,39	20,0	2,08	157,48
Lviv	32,8	3,61	32,9	3,42	100,30
Mykolaiv	13,6	1,49	17,3	1,8	127,21
Odessa	5,6	0,62	4,1	0,43	73,21
Poltava	41,3	4,54	41,5	4,32	100,48
Rivne	3,8	0,42	4,4	0,46	115,79
Ternopil	25,4	2,79	27,2	2,83	107,09
Kharkiv	31,9	3,51	31,1	3,24	97,49
Kherson	6,5	0,71	12,2	1,27	187,69
Khmelnitsky	8,7	0,96	14,1	1,47	162,07
Kirovograd	-	-	0,2	0,02	-
Cherkasy	9,5	1,04	20,2	2,1	212,63
Chernihiv	7,4	0,81	11,3	1,18	152,70

Using the data table 3, the dynamics of production of milk and dairy products per capita for 2011 – 2013 is analyzed.

Table 3

**Dynamics of production of milk and dairy products per capita for 2011-2013, kg [4]**

Product name	Years			The growth rate 2013 by 2012, %
	2011	2012	2013	
Liquid processed milk (pasteurized, sterilized, homogenized, clarified, peptized)	19,4	20	21,1	105,5
Butter	1,7	1,9	2,1	110,53
Yogurt and other fermented or squashed milk and cream	10,4	10,7	11,5	107,48
Unfermented fresh cheese (unripe and immature), including buttermilk cheese and sour milk cheese	1,7	1,7	1,8	105,88
The fat cheese	3,9	3,7	3,6	97,30

So, for the analyzed period, the production of milk and dairy products per person increases. There was produced per capita in 2013 compared to 2012: liquid processed milk for 5,5% more, butter – for 10,53% more, and yogurt and other fermented or squashing milk and cream – for 7,48% more. Thus, we can conclude that the demand of milk and dairy products per person increases every year.

Based on the above analysis and the importance of the dairy industry the assessment of the financial and economic security of enterprises in the industry is done farther. Major dairy

enterprises, which belong to leaders, middle and lagging by the industry's development regions of the state, include: PJSC "Dubnomoloko" (Rivne region), PJSC "Kupyans'ki dairy canning combine" (Kharkiv region), PJSC "Yagotins'ki creamery" (Kyiv region), PJSC "Pervomais'ki dairy canning combine" (Kirovohrad region) [5].

The assessment of the financial and economic security of enterprises of the dairy industry is carried out using the methods of calculation of the rating number (Table 4).

Table 4

**The assessment of financial and economic security of enterprises of the dairy industry for 2012 – 2013**

Indicators	PJSC "Dubnomoloko"		PJSC "Kupyans'ki dairy canning combine"		PJSC "Yagotins'ki creamery"		PJSC "Pervomais'ki dairy canning combine"	
	2012	2013	2012	2013	2012	2013	2012	2013
1	2	3	4	5	6	7	8	9
Current assets to equity ratio	0,49	-1,05	-0,04	-0,1	0,6	0,66	0,40	-0,54
Current ratio	0,89	1,17	0,42	0,31	1,27	1,33	1,03	0,76
Capital turnover	0,86	1,08	3,25	3,64	2,12	2,28	1,17	1,06
Return on sales	-2,65	-8,34	-0,49	0,36	4,76	2,08	3	2,57
Return on equity	-	-	-2,62	2,21	33,48	16,1	16,58	11,68
Indicator of the financial – economic security of enterprises	-0,05	-5,64	-2,62	2,49	37,12	18,67	18,92	11,92

Analysis of the data table 4 shows that in the 2012-2013 the financial and economic security in the studied enterprises worsened. However, the highest rating indicator and correspondingly higher level of financial and economic security is observed at PJSC "Yagotins'ki creamery" in 2013 it amounted to 18,67. The indicator of financial and economic security of PJSC "Pervomais'ki dairy canning combine" in 2013 was 11,92, so, accordingly to this, the company is located at the second city. The third place, in terms of financial and economic security takes PJSC "Kupyans'ki dairy canning combine" with a score of 2,49. Critical indicator of the financial and economic security of PJSC "Dubnomoloko" – "-5,64" indicates a high probability of bankruptcy. It should also be noted that from the surveyed enterprises only PJSC "Kupyans'ki dairy canning combine" demonstrates the dynamics of the growth rate for the analyzed period.

**Implications and conclusions.** According to the results of the research it can be concluded that despite the growth in demand for milk and the main products of the dairy industry and the steady increase in their production in 2012 and 2013, the state of financial and economic security of main enterprises of the industry is poor. In this case, only one of the investigated enterprises (PJSC "Kupyans'ki dairy canning combine") demonstrates an improving indicator of financial and economic security (-2,62 and 2,49), but the company is still in the "close to the risk" area. In cases of other companies, a rapid fall in the level of financial and economic security is seen. PJSC "Dubnomoloko" is separately allocated among these companies, it's indicator of financial and economic security (to -0,05 and -5,64) shows a state of crisis. The most impressive is the dynamics of the fall of financial and economic security's level of PJSC "Yagotins'ki creamery" – with 37,12 in 2012 and 18,67 in 2013, respectively. The calculations of financial and economic security of the studied companies allows to establish that their greatest deterioration impact was the rate of return on equity. To improve profitability of equity in the enterprises of the dairy industry of Ukraine, it is necessary: to ensure the increase in net profit per 1 UAH of sales; to increase the rate of return on assets due to the introduction of innovative technologies; to improve the financial sustainability of the industry.

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