

# Assessment of Solvency and Financial Stability of Agricultural Consumer Cooperatives

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**Abstract**—Agricultural consumer cooperatives are non-profit organizations and act as socially-oriented business entities. They are formed to solve not only economic, but also social issues in rural areas. Domestic and foreign experience in the study of cooperatives has shown their ability to increase labor productivity, to improve financial condition, to update and to modernize the material and technical base of agricultural sector. Therefore, much attention is currently given to the successful operation of cooperatives. This paper is based on the review of the works of domestic and foreign scientists using a systematic approach to the issue, with economic and statistical, balance, abstract-logical research methods. The main part of the materials presented in this article is the assessment of solvency and financial stability of agricultural consumer cooperatives in the region. Data of the Department of AIC of the Kurgan Region became the basis for calculations for the studied business entities. Agricultural consumer cooperatives of the Kurgan Region were the objects of study. This paper considers the structure of the property of cooperatives and sources of their financing; identifies the features of the formation of their financial resources, as well as problems that negatively affect these parameters. Assessment revealed that the solvency of these business entities is at a high level, but the values of liquidity ratios significantly exceed recommended ones what indicates insufficiently rational use of resources. Unstable financial results of studied cooperatives led to the fact that own working capital for almost the entire period (2012-2018) was negative; this fact negatively affected a number of parameters that characterized the financial stability of entities. To strengthen their financial position, agricultural consumer cooperatives should increase their own capital expanding scope and activities what will solve not only economic, but also social issues and problems in rural areas.

**Keywords**—*agricultural consumer cooperation, solvency assessment, financial condition, equity capital, balance liquidity, profitability.*

## I. INTRODUCTION

At present day, the government is taking important steps to support agricultural production and rural areas. In this regard, issues related to the development of agricultural cooperation in modern market and institutional environment are in the focus of special attention of domestic economic science [1-3]. Significant theoretical and practical results of studying the activities of agricultural cooperatives are described in the works of both domestic (V.B. Burlakov, S.G. Golovina, V.K. Krutikov, A. Petrikov, V. Pakhomov, M.Yu. Sidorkina, A. Sobolev, A.V. Tkach, I. Trotsuk, I. Ushachyov, R. Khudyakova, R. Yanbykh, T.A. Dozorova,

N.R. Alexandrova and others), and Western scientists (Bijman J., Cooke M., Fulton M., Hakelius K., Hendrikse G., Hess S., Iliopoulos C., Karantininis K., Lerman Z., Nilsson J., Ollila P., Valentinov V. and others).

As it is known, a modern cooperative has to focus not only on purely economic goals (first of all, efficiency), but constantly manoeuvre between economic, social and environmental values, and therefore strive to be functional for its members both from the position of a business unit, and from the position of a special organization designed to solve numerous social problems of rural residents and communities [4-6]. In addition, as a rule, for beginner cooperators, there is a problem of a lack of initial capital and the high cost of borrowed funds what creates an additional burden on future members of agricultural cooperative [7]. Consequently, the survival and competitiveness of these business entities largely depends on their financial condition and, above all, on their solvency and financial stability.

The object of this study was agricultural consumer cooperatives of the Kurgan Region. The subject of this study is a set of parameters that determine their solvency and financial stability.

## II. RESEARCH METHODOLOGY

Methodological basis of this study includes the analysis of economic information, statistical data, graphical interpretation method. Theoretical studies were based on the review of the works of domestic and foreign scientists on evaluating activities of agricultural consumer cooperation. The basis for calculations became the official statistics of the Goskomstat of Russia, the Department of Agriculture of the Kurgan Region for the studied business entities.

Studying of agricultural cooperatives at the level of the Kurgan Region involves using a set of different techniques, methods for collecting and processing information specified in financial (accounting) statements. To achieve the objectives of the study regarding solvency and financial stability of agricultural consumer cooperatives, a systematic approach was applied, as well as different qualitative and quantitative methods: economical and statistical, balance, abstract-logical, method of expert evaluations and comparisons. Based on the consolidated balance of cooperatives in the Kurgan Region, these parameters were studied, specifics of the formation of financial resources of cooperatives were defined, as well as problems that negatively affect the results of operations and require resolution for the further development of consumer cooperatives in the region.

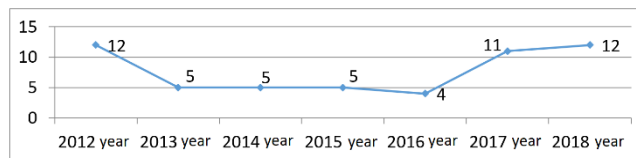
The main part of materials presented in this article on the characteristics of the financial results of agricultural consumer cooperatives is the calculation and analysis of generally accepted parameters of financial stability and solvency for the studied business entities.

### III. RESULTS

The solvency of an economic entity is directly related to its equity ratio in order to timely pay off for its liabilities. A consumer cooperative, in spite of the fact that it is a non-profit organization, has the right to carry out entrepreneurial activity if this helps to achieve the goals for which it was created. Therefore, the main sources of financial resources of cooperatives are share contributions, income from entrepreneurial activity, other sources (loans, borrowed funds, etc.). In addition, they form funds: share (which determines the nature of property relations of cooperative members); indivisible (determined by the charter of cooperative); reserve (created to cover losses from emergency circumstances in the amount of at least 10% of share fund), and development. In addition to total costs, cooperatives make payments to their members in an amount not exceeding 20% of total income received. Based on the foregoing, the role and importance of the analysis of their solvency it becomes clear. This assessment allows external entities to define long term financial opportunities of the cooperative. Short term assessment of financial stability is also important; it is directly

related to the assessment of the degree of balance liquidity, liquid current assets and solvency of the organization [8].

In the Kurgan Region, changes of the number of agricultural consumer cooperatives (ACC) are unstable. The years 2013-2016 turned out to be failures, but by the end of the analysis period, situation had changed and became equal to the level of 2012 what happened, first of all, due to the government support for these entities (Figure 1).



Source: <http://dsh.kurganobl.ru> – official website of the Department of agri-food complex of the Kurgan Region

Fig. 1. Changes in the number of agricultural consumer cooperatives, units.

In this regard, the value of property has increased, as well as the volume of financing. Table 1 shows the aggregated balance of agricultural consumer co-operatives of the region for 2012-2018.

Until 2018, more than 90% of assets accounted for current assets (inventories, receivables and short-term financial investments). In 2018, the share of cash of cooperatives increased by 13.6% while reducing the share of reserves by 14.8%.

TABLE I. CHANGES IN THE COMPOSITION OF PROPERTY AND SOURCES OF FINANCING IN THE ORGANIZATION

Parameter	2012	2013	2014	2015	2016	2017	2018	2018 to 2012, -fold
1 Non-current assets	880	3338	9764	7964	5120	8293	94774	> 107.7
2 Current assets	85320	96853	98904	107938	98766	107644	170334	> 2.0
3 Equity	-1801	-3881	4441	6606	1029	26929	70039	> 39.9
4 Long-term obligations	50993	67790	87650	95981	85764	68540	59336	> 1.2
5 Short-term obligations	37008	36282	16577	13313	17093	20468	135733	> 3.7
Balance	86200	100191	108668	115902	103886	115937	265108	> 3.1

<sup>a</sup>. Source: <http://dsh.kurganobl.ru> – official website of the Department of agri-food complex of the Kurgan Region.

In general, during the study period, the value of non-current assets (due to the acquisition of fixed assets and uncompleted capital investments in production facilities) and equity (due to an increase in retained income) increased especially sharply. At the same time, the share of borrowed capital in liabilities has been declining over the past 2 years, although its absolute value is growing as well as the cost of other balance items. In 2018, the share of current debt for the first time exceeded the share of long-term liabilities.

Solvency assessment is based on the characteristics of the liquidity of current assets, i.e. the time required to turn them into cash. Balance liquidity, in turn, depends on the degree of compliance of means of payment with short-term liabilities. Grouping of assets and liabilities of balance is shown in Table 2.

TABLE II. GROUPING OF ASSETS AND LIABILITIES AT THE END OF THE YEAR, THOUSAND RUR

Parameter	Group code	2012	2013	2014	2015	2016	2017	2018
Most liquid assets	A1	52541	55377	61175	51770	34542	52978	51458
Quick assets	A2	15482	13993	29639	45330	42216	35153	53056
Slow assets	A3	17297	27483	8090	10838	22008	19513	65820
Sticky assets	A4	880	3338	9764	7964	5120	8293	94774
Total assets		86200	100191	108668	115902	103886	115937	265108
Maturing liabilities	P1	35199	31726	11080	6031	10699	10054	29785
Short-term liabilities	P2	1809	4556	5497	6716	6394	7359	12314
Long-term liabilities	P3	50993	67790	87650	95981	85764	68540	59336
Fixed liabilities	P4	-1801	-3881	4441	7174	1029	29984	163673
Total liabilities		86200	100191	108668	115902	103886	115937	265108

<sup>a</sup>. The table was calculated by the author.

Based on these data, it is possible to assess the type of balance liquidity (Table 3). The balance is considered to be absolutely liquid if there are the following ratios (Formula 1):

$$A1 \geq P1, A2 \geq P2, A3 \geq P3, A4 \leq P4 \quad (1)$$

Until 2017, agricultural consumer cooperatives had a non-liquid balance, since slow assets did not exceed the value of

long-term liabilities, and sticky assets, on the contrary, exceeded equity, i.e., there was a lack of financing. Since 2017, the fourth inequality normalized, as mentioned above, due to the growth of retained income. Therefore, the consolidated balance of cooperatives has changed from a non-liquid state to an insufficiently liquid state.

TABLE III. ASSESSMENT OF BALANCE LIQUIDITY TYPE

2012			2013			2014			2015			2016			2017			2018		
A1	>	P1	A1	>	P1	A1	>	P1	A1	>	P1	A1	>	P1	A1	>	P1	A1	>	P1
A2	>	P2	A2	>	P2	A2	>	P2	A2	>	P2	A2	>	P2	A2	>	P2	A2	>	P2
A3	<	P3	A3	<	P3	A3	<	P3	A3	<	P3	A3	<	P3	A3	<	P3	A3	<	P3
A4	>	P4	A4	>	P4	A4	<	P4	A4	>	P4	A4	>	P4	A4	<	P4	A4	<	P4
Non-liquid															Insufficiently liquid					

<sup>a</sup>. The table was calculated by the author.

Balance liquidity is considered to be the basis of solvency of an economic entity. In other words, liquidity is a way to strengthen solvency. However, at the same time, if the organization has an impeccable reputation and is constantly

solvent, it is easier for it to maintain its liquidity. Solvency of agricultural consumer cooperatives of the Kurgan Region is shown in Table 4.

TABLE IV. CHANGES IN PARAMETERS OF ORGANIZATION'S SOLVENCY

Parameter	Standard value	2012	2013	2014	2015	2016	2017	2018
Absolute liquidity ratio	$\geq 0.2$	1.4	1.5	3.7	4.1	2.0	3.0	1.2
Critical liquidity ratio	0.7-0.8	1.8	1.9	5.5	7.6	4.5	5.1	2.5
Current liquidity ratio	$\geq 2$	2.3	2.7	6.0	8.5	5.8	6.2	4.1

<sup>a</sup>. The table was calculated by the author.

In the dynamics of 2012-2018, solvency parameters also have no stable trend, although all ratios exceed standard values. This indicates a high degree of coverage of liabilities with assets. At the same time, high current liquidity ratio may indicate the presence of idle cash and excess reserves. In other words, this means suboptimal financial management in cooperatives.

Unlike balance liquidity which characterizes the organization's ability to pay off its short-term debtors at the moment, financial stability is a certain state of a business entity that guarantees its constant solvency. Financial stability

depends not only on the results of its activities, but also on changes in external environment. Financial stability of organization indicates the state of its economic resources, their distribution and use what guarantees the further development of its activities. Therefore, solvency is an external expression of the financial condition of organization, and financial stability is its internal characteristic which indicates the balance of cash and commodity flows, income and expenses, funds and sources of their formation [9]. Thus, one of the most important tasks facing cooperatives is the assessment of their financial stability (Table 5).

TABLE V. CHANGES IN FINANCIAL STABILITY OF COOPERATIVES (AT THE END OF THE YEAR)

Parameter	Standard value	2012	2013	2014	2015	2016	2017	2018
1. Equity to total assets ratio	$> 0.5$	x	x	0.04	0.06	0.01	0.23	0.26
2. Ratio of borrowed and own funds (financial leverage)	0.5-0.8	x	x	23.5	16.5	86.5	3.3	2.8
3. Current debt ratio	0.1-0.2	0.4	0.4	0.2	0.1	0.2	0.2	0.5
4. Financial stability ratio	$> 0.7$	0.6	0.6	0.8	0.9	0.9	0.4	0.5

<sup>a</sup>. The table was calculated by the author.

In the course of assessing financial stability, not all conventional coefficients were used, since, with the exception of 2017, own working capital of agricultural consumer cooperatives was negative. Moreover, in 2012-2013, there was uncovered loss in balance. Therefore, the values of such parameters as current assets to equity ratio, or equity ratio do not reflect reality. For the same reason, equity to total assets ratio and financial leverage for the first 2 years of the analysis were not calculated.

First two coefficients do not correspond to the recommended values for the entire period, since there is not enough equity. Current debt ratio met the standard in 2014-2017. But in 2018, the value of this ratio has risen sharply due to the increased growth rate of short-term liabilities (3.5 times) over the growth rate of balance currency (1.2 times) what was due to an increase in all items of short-term liabilities and especially in deferred income. Financial stability ratio that shows the share of equity and long-term liabilities in the

balance currency for only three years (2014-2016), exceeded minimal recommended value.

As a result of performed assessment, it can be concluded that in the long term the financial condition of the agricultural cooperatives in the region is not stable. The main reasons are: shortage of equity, high share of borrowed capital. Nevertheless, we should not forget that the specifics of organizing the activities of consumer cooperatives allow the possibility of attracting borrowed funds, both of their members and other legal and physical persons, as well as government support; moreover, active efforts are taken in this direction.

Most often, when assessing the financial condition of economic entity, balance structure and solvency are compared. But this method does not take into account such economic parameters as profit and profitability; it can lead to the considering of enterprises with steady production growth and positive profitability to be insolvent and vice versa. Disturbance of financial balance is obvious not only from

liquidity, but also from profitability. Profitability parameters allow evaluating the efficiency of using assets in a business entity [10].

Due to the fact that gross profit, profit from sales and net profit were obtained just in several years, the profitability parameters of production, sales, assets and capital for a number of years are negative (Table 6).

TABLE VI. CHANGES IN PROFITABILITY PARAMETERS

Parameter	2012	2013	2014	2015	2016	2017	2018
<i>Source data</i>							
Gross profit, thousand RUR	1658	-903	2124	5975	1908	4479	2295
Profit from sales, thousand RUR	-2607	-4137	-1385	2400	-467	199	-2338
Net profit, loss, thousand RUR	-2087	-1697	237	276	-1726	20152	348
Cost value, thousand RUR	67034	46006	54507	19878	29029	34275	71766
Average asset value, thousand RUR	76529	93196	104430	112285	109894	109912	190523
Average value of current assets, thousand RUR	75651	91187	97879	103421	103352	103205	138989
Average cost of equity, thousand RUR	-1291	-2881	1721	5525	3819	13979	34119
<i>Calculation</i>							
Profitability of assets (net profit),%	-2.7	-1.8	0.2	0.3	-1.6	18.3	0.2
Profitability of current assets (net profit),%	-2.8	-1.9	0.2	0.3	-1.7	19.5	0.3
Profitability of equity (net profit), %	-115.9	-43.7	13.8	5.0	-45.2	144.2	1.0
Profitability of sales (profit from sales),%	-3.8	-9.2	-2.5	9.3	-1.5	0.5	-3.2
Profitability of production (gross profit),%	2.5	-2.0	3.9	30.1	6.6	13.1	3.2

a. The table was calculated by the author. Source: <http://dsh.kurganobl.ru> – official website of the De-partment of agri-food complex of the Kurgan Region.

It is the above-mentioned contradiction that is observed when comparing financial stability ratio and profitability of production. So, in 2017 and in 2018, the profitability of production activities was 13.1% and 3.2%, respectively, and financial stability ratio was less than the standard one. This fact once again confirms that consumer cooperatives should continue increasing their equity and attract long-term loans to expand the scope of their activities.

#### IV. CONCLUSIONS

Thus, during reviewed period from 2012 to 2018, there was an increase in the number of agricultural consumer cooperatives in the Kurgan Region; accordingly the cost of property and the volume of financing also increased. A significant increase in the share of non-current assets indicates increasing production potential of organizations, and the increasing of equity is a positive factor indicating growing financial stability of consumer cooperatives. Moreover, additional volumes of borrowed financial resources allow them to significantly expand the volume of agricultural production.

Performed assessment showed a high degree of solvency that provides the ability to fully pay for their liabilities. At the same time, over-normative values of solvency ratios indicate suboptimal financial management. So, the excessive amount of idle cash can be explained by the irrational use of these resources; excess reserves lead to decreasing liquidity of cooperatives and increase in costs.

Analysis of the financial stability of cooperatives which determines long term solvency showed, firstly, an unstable trend, and secondly, non-compliance with standard values for a number of parameters. At the same time, high share of borrowed funds indicates the specifics of the formation of financial resources in consumer cooperatives and cannot be interpreted unambiguously. This conclusion is also confirmed by the parameters of production profitability that, during the study period, were significantly differentiated, in particular, profitability of equity with the value in the range from -115.9% to 144.2%

To strengthen their financial position, agricultural consumer cooperatives should increase their own capital with

expanding scope and activities; it will solve not only economic, but also social issues and problems in rural areas.

Currently, the government pays great attention to improving the agrarian policy of supporting and developing agricultural consumer cooperation which contributes to the competitiveness of small and medium-sized agribusiness and consolidates its position in agri-food markets [11-13]. V.B. Burlakov, summarizing the views of leading economists and agrarians, mentioned that cooperation is the most rational and effective way to develop agricultural industry because the future belongs to it [14]. The government now continues paying great attention to improving the agrarian policy of supporting and developing agricultural consumer cooperation which contributes to the competitiveness of small and medium-sized agribusiness and consolidates its position in agri-food markets [14,15].

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