

FORECASTING AS A WAY TO REDUCE THE RISKS OF A CASH FLOW DEFICIT IN AGRICULTURAL ORGANIZATIONS

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Abstract

Cash is the most important resource, since an organization, if there are sufficient funds, can acquire everything that is necessary for carrying out production activities. The research was based on an agricultural organization that is engaged in the production of sugar beets and grain, as well as dairy and beef cattle breeding. Analysis of cash flows by direct, indirect and coefficient method showed that the company under study in the current year belongs to a "normal enterprise", since it received a positive net cash flow from operating and financial activities and a negative one from investment. The calculated ratios of the efficiency of using the organization's funds over the past years have either increased or remained stable. To synchronize flows over time intervals and reduce the risks of a shortage of funds, the authors have developed cash flow forecasts for a year and a half by direct and indirect methods. Both plans showed that cash flow from current activities is positive, that is, the company's activities are profitable and generate income. The organization will be able to pay off the accumulated liabilities. The developed budgets will make it possible to predict the flow of cash flows of the enterprise, to control the synchronization of receipts and expenditures of funds, thereby maintaining their required volume to fulfill payment obligations.

Key words: cash flows, analysis, ratios, forecasting, budgets

INTRODUCTION

In financial management a special attention has to be paid on the main financial indicators among which cash flow is very important as it is closely related to efficiency of the company. In any sector of activity, but especially in the agricultural companies, the success in their development depends, first of all, on how efficiently its cash flows are organized [1, 5, 7, 10]. Cash flow management is a tool that helps to achieve a high level of enterprise profit [1]. Assessment and forecasting of cash flows allow management to control the synchronization of income and expenditures of funds, thereby maintaining the amount of funds required to fulfill payment obligations. [2]. In addition, this allows a more realistic assessment of the payment capabilities of the enterprise, making such a choice of funding sources and purposes of use that will create an optimal cash flow scheme that can lead to growth of economic value and long-term viability of the enterprise [3]. The purpose of this study is to propose practical recommendations for improving the

management of cash flows in an agricultural organization.

MATERIALS AND METHODS

The study was based on a large agricultural enterprise LLC "Vertunovskoye", which specializes on the production of sugar beets and grains with a fairly developed dairy and meat cattle breeding. The main sources of information for the analysis and forecasting of cash flows were the following forms of the company's financial statements: a cash flow statement, a balance sheet, a statement of financial results, as well as synthetic and analytical accounting data on cash accounts. The calculation and forecasting of cash flows were carried out by two methods - direct and indirect. The direct method takes into account information about the positive and negative flows of the enterprise, generated by the cash method by taking into account the economic turnovers that are associated with cash transactions. The indirect method according to the construction algorithm is the reverse of the direct one. It is carried out using the

recalculation of the obtained financial result by making certain adjustments to the amount of net profit [7]. With the help of the coefficient analysis, the levels of various relative indicators, their deviations from the basic values characterizing cash flows, as well as the efficiency of their use were examined.

RESULTS AND DISCUSSIONS

Cash flow management cannot exist without their primary analysis.

Table 1 shows data on cash flows by type of activity for 2017-2019.

At the end of 2019 there was an increase in cash balances compared to the beginning of the study period (2017) by 993 thousand rubles, which had a positive impact on the liquidity of the organization.

In 2018 the balance decreased by 523 thousand rubles or 52.4%. At the same time, the increase in the organization's funds occurred mainly due to the positive cash flow from current activities.

Table 1. Analysis of cash flows by type of activity of LLC "Vertunovskoe", (thousand rubles)

Indicator	2017	2018	2019	Deviation (+, -) 2019 from		Growth rate, %
				2017	2018	
Cash balance at the beginning of the year	482	1,522	999	517	-523	207.26
Net cash flow from current activities	335,915	555,683	139,490	-196,425	-416,193	41.53
Net cash flow from investing activities	-218,517	-526,209	-197,707	20,810	328,502	90.48
Net cash flow from financing activities	-116,358	-29,997	59,773	176,131	89,770	-51.37
Net increase (decrease) in cash	1,040	-523	1,516	476	2,039	145.77
Cash balance at the end of the year	1,522	999	2,515	993	1,516	165.24

Source: Financial statements of LLC "Vertunovskoe".

At the same time, there is a significant outflow of money for investment activities due to the physical and obsolescence of non-current assets that need to be updated, and financial activities due to the company's

growth [13]. In this case, the source of financing for capital and financial investments was not only cash from the sale of manufactured products, but also borrowed funds.

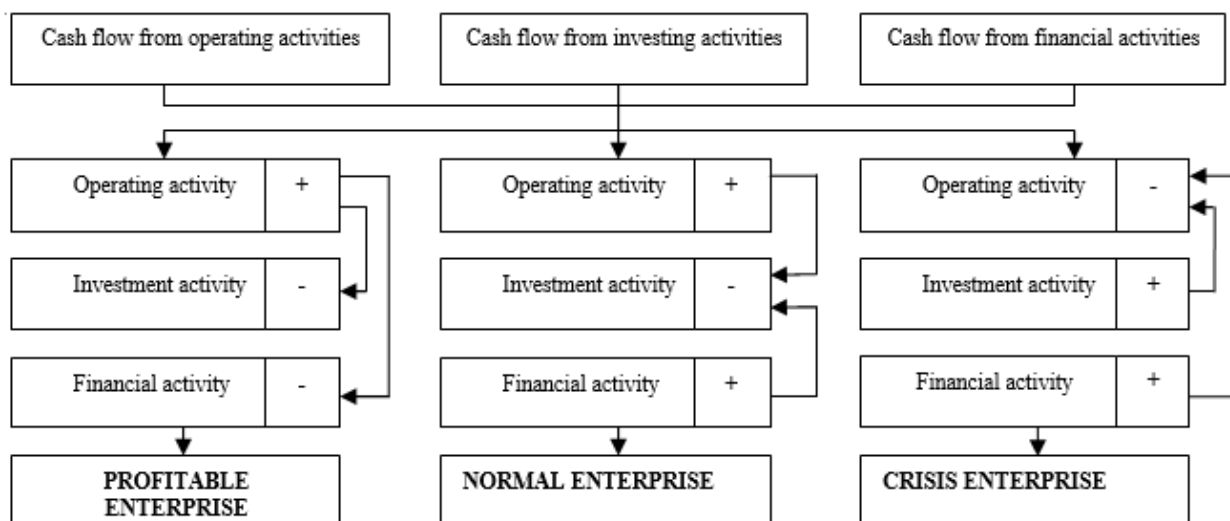


Fig. 1. The structure of cash flows by main activities and their ratio

Source: Nosov et al. (2016) [6].

Thus in 2019 positive net cash flows from current activities in the amount of 139,490 thousand rubles were received which allowed the organization to finance investment activities, the negative cash flow for which

amounted to 197,707 thousand rubles. The organization also received positive net cash flows from financing activities in 2019 in the amount of 59,773 thousand rubles.

Having considered the net cash flows for the three types of activities and their ratio, it is possible to determine the financial condition of LLC Vertunovskoye.

According to Figure 1 we could conclude that the surveyed company in 2019 belongs to a "normal" enterprise.

Assessment of the quality of net cash flow was carried out using the coefficient method (Table 2).

Table 2. Indicators characterizing the efficiency of using cash flows of LLC Vertunovskoye

Coefficient name	2017	2018	2019	Deviation (+, -) 2019 from	
				2017	2018
Liquidity ratio CF	1.01	0.99	1.02	0.01	0.03
Coefficient of participation of current activities in the formation of PCF	0.82	0.86	0.64	-0.18	-0.22
Coefficient of participation of investment activities in the formation of NCF	0.54	0.36	0.20	-0.34	-0.16
Current solvency ratio	1.53	1.81	1.18	-0.35	-0.63
Solvency ratio	1.001	1.001	1.002	0.001	0.001
Return on cash flow ratio	0.58	0.25	0.30	-0.28	0.05
Return on cash outflow ratio	0.58	0.24	0.31	-0.27	0.07
DP efficiency ratio	0.001	-0.0004	0.002	0.001	0.0024
Reinvestment ratio CF	8.73	1.99	12.46	3.73	10.47

Source: Financial statements of LLC "Vertunovskoe".

The resulting coefficients presented in Table 2 show the efficiency of using the monetary funds of the studied enterprise - over the course of two years, either the growth of indicators is noticeable, or the stability of their level in general. The cash flow liquidity ratio (CF) changed insignificantly. The coefficient of current activities share in the formation of positive cash flow (PCF) decreased and amounted to 0.64 in 2019. The coefficient of investment activities share in the formation of negative cash flow (NCF) was 0.2 in 2019, which is 0.34 less than in 2017. During the specified period, the values of the coefficients of solvency and efficiency of CF increased. The profitability ratios of the outflow and cash inflow were 0.31 and 0.30 in 2019. At the same time, the coefficient of reinvestment of cash flows increased by 1.5 times compared to 2017.

Thus, we could conclude that the management of cash flows in LLC "Vertunovskoye" is carried out successfully - there are all the main types of cash flow: current, investment and financial activities. Indicators for all types

of activities have a positive trend, the growth rate increases annually, and the absolute growth rate has a positive trend.

However, in the course of the analysis it was revealed that the company does not have enough of the most liquid assets to pay urgent accounts payable. It is necessary to reduce the cash deficit, as the transformation of assets into the most liquid leads to financial losses. In addition, profitability ratios were reduced.

To change the negative situation and increase the level of basic financial indicators, it is necessary to take a number of measures.

We proposed to improve the process of forecasting cash flows for the studied organization [11].

In LLC "Vertunovskoe" budgets of various types are drawn up annually: income and expenses, cash flow, but a significant omission, in our opinion, is the preparation of budgets only once - for a year. It is more effective to draw up budgets on a quarterly basis to collect data on the dynamics of the enterprise and more quickly eliminate emerging problems [9].

Based on the data from the accounting statements of LLC Vertunovskoye, two forecast plans for cash flow for the long term were developed.

The first forecast plan is based on the direct method of constructing the budget of funds, the second - on the indirect method.

Table 3. Forecast of the cash flow budget for 2020-early 2021 (direct method), (thousand rubles)

Indicators	4 qr. 2019	1 qr. 2020	2 qr. 2020	3 qr. 2020	4 qr. 2020	1 qr. 2021	Total
Revenue	270,343	348,466	334,527	362,405	348,466	303,984	1,968,191
Cost price	189,240	243,926	234,169	253,684	243,926	212,789	1,377,734
Material costs	135,172	174,233	167,264	181,203	174,233	151,992	984,096
Labor costs	35,145	45,301	43,489	47,113	45,301	39,518	255,865
Operating expenses	21,627	27,877	26,762	28,992	27,877	24,319	157,455
Administrative expenses	0	0	0	0	0	0	0
Business expenses	0	0	0	0	0	0	0
Other costs associated with production and sale	21,627	27,877	26,762	28,992	27,877	24,319	157,455
Profit (loss) from sales	81,103	104,540	100,358	108,722	104,540	91,195	590,457
Finance income (interest income and share in profit / loss of affiliated companies)	0	0	0	0	0	0	0
Financial expenses	45,958	59,239	56,870	61,609	59,239	51,677	334,592
Interest and other payments on Sberbank loans	27,034	34,847	33,453	36,241	34,847	30,398	196,819
Interest and other payments on loans from other banks	18,924	24,393	23,417	25,368	24,393	21,279	137,773
Other non-operating income / expenses per qr.	48,662	62,724	60,215	65,233	62,724	54,717	354,274
Income tax expense	21,627	27,877	26,762	28,992	27,877	24,319	157,455
Current cash flow - total	62,179	80,147	76,941	83,353	80,147	69,916	452,684
Purchase of non-current assets	-32,069	-63,470	-66,008	-60,931	-63,470	-43,217	-329,165
Proceeds from the sale of assets, loan repayments and similar proceeds	19,369	26,841	25,767	27,914	26,840	29,455	156,186
Investment Cash Flow - Total	-12,700	-36,629	-40,241	-33,017	-36,630	-13,762	-172,979
Income including: obtaining loans and borrowings	56,069	75,512	78,532	77,022	70,982	67,282	425,399
Repayment of obligations	38,289	52,158	51,271	54,244	50,958	52,280	299,202
Requested obligations at Sberbank	2,167	2,952	2,902	3,070	2,884	2,959	16,936
Other liabilities in the future (at Sberbank and other banks)	36,122	49,206	48,369	51,174	48,074	49,321	282,266
Proceeds from equity participation in other organizations	0	0	0	0	0	0	0
Other income from financing activities	17,650	23,209	27,014	22,666	19,783	14,879	125,201
Financial cash flow - total	130	145	247	112	241	123	996
TOTAL CASH FLOW	49,609	43,663	36,947	50,448	43,758	56,277	280,701

Source: Financial statements of LLC "Vertunovskoe".

The company's revenue for 2020 is planned in the amount of 1,233,508 thousand rubles, it is assumed that next year it will increase by 13% and will amount to 1,393,864 thousand rubles. (based on the five-year average annual growth rate).

Agriculture is a material-intensive production, therefore material costs are more than 50%, labor costs - 13%, depreciation of fixed assets - 6% of proceeds. Thus, the total cost is about 70% of the revenue [12].

Also, based on the data of the annual financial statements for the last three years, it was revealed that the company has no selling and administrative expenses, and other expenses amount to 8%. Other non-operating income and expenses represent approximately 18% of revenues and are not expected to increase during the year. The budget provides for the growth of each type of expenses by 1% per month.

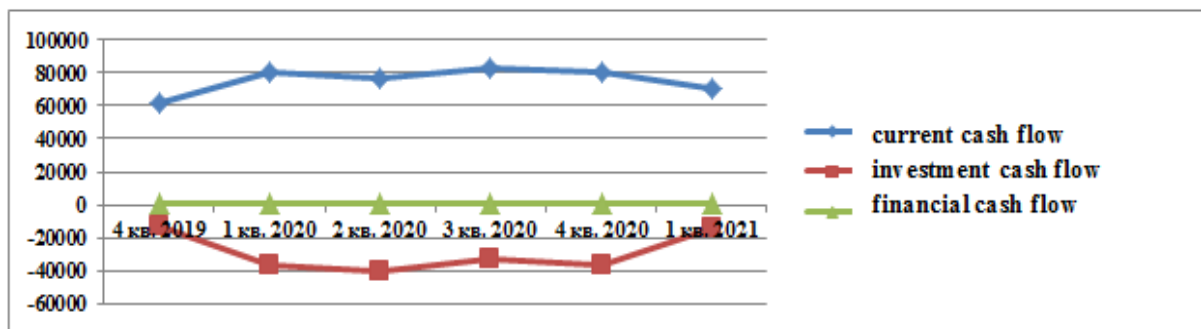


Fig. 2. Forecast of the organization's cash flows using the direct method, thousand rubles
 Source: Financial statements of LLC "Vertunovskoe".

Operating cash flow includes finance income from invested amounts and finance costs in the form of interest on loans and borrowings received. The organization is credited with Sberbank of Russia at 16% per annum and in other banks at 16 and 12.5% of the amount received. Interest on loans received is recorded every month at the specified rate.

Investment cash flow includes proceeds from the sale and purchase of assets.

Financial cash flow takes into account loans received from banks. On average, an organization needs 319,042 thousand rubles borrowed funds per year.

The cash flow forecast plan constructed by the direct method is presented in Table 3 and Figure 2.

The scheme reflects the dynamics of the organization's cash flows over a year and a half. The cash flow from the main activity in all periods is positive. Investment cash flow is generated through the sale and purchase of non-current assets, the return and provision of loans and similar receipts and payments. Financial cash flow depends on the amount of borrowed funds. Net cash flow over the period under review is also positive.

According to calculations, the organization's revenue for a year and a half would amount to 1,968,191 thousand rubles, in 2020 the revenue will be at the level of 1,393,864 thousand rubles, which is 272,493 thousand

rubles higher than the revenue of 2019. The cost of production for 2020 would amount to 975,705 thousand rubles, which is more than this indicator in 2019 by 306,722 thousand rubles. Operating expenses for 2020 would

amount to 111,509 thousand rubles. The financial expenses of the organization, which include interest on loans and borrowings received, would amount to 236,957 thousand rubles, of which 139,386 thousand rubles make payments on loans from Sberbank and 97,570 thousand rubles on loans from other banks.

Investment cash flow includes proceeds from the sale and purchase of non-current assets, loan repayments and similar receipts (-146,517 thousand rubles in 2020).

In addition to its own funds, the organization requires borrowed funds. During 2020, the company would take short-term loans in the amount of 302,048 thousand ruble.

Thus, the financial cash flow for a year and a half will amount to 996 thousand rubles, and for the year 774 thousand rubles (the low value is due to the return of loans and credits). The total cash flow in this case reflects the funds that the organization has at its disposal in the specified period and for a year and a half will amount to 280,701 thousand rubles.

The advantage of the direct method is its clarity, the disadvantage is that the calculation does not take into account changes in stocks of finished goods, accounts receivable and payable.

The disadvantage of the direct method can be overcome by using the indirect method. The baseline for using this method is net income. [8].

Net income could be projected in a variety of ways. You can calculate the average increase in net profit for the quarter and change its value based on this indicator, or use the result of calculations of the direct method based on

the amount of revenue and cost of production. [4].

The cash flow forecast plan using the indirect method is presented in Table 4 and Figure 3.

Table 4. Forecast of the cash flow budget for 2020-early 2021 (indirect method), (thousand rubles)

Indicators	4 qr. 2019	1 qr. 2020	2 qr. 2020	3 qr. 2020	4 qr. 2020	1 qr. 2021	Total
Net income (loss)	62,179	80,147	76,941	83,353	80,147	69,916	452,684
Depreciation	16,626	21,431	20,573	22,288	21,431	18,695	121,044
Change in working capital	16,959	-64,131	18,469	-71,709	-41,645	20,439	-122,618
Change [increase (-) or decrease (+)] in receivables compared to the previous period	-17,821	-21,491	-21,312	-19,768	-15,070	9,182	-86,280
Change [increase (-) or decrease (+)] in inventories compared to the previous period	27,824	-39,147	41,513	-46,702	-23,491	13,773	-26,230
Change [increase (+) or decrease (-)] in accounts payable compared to the previous period	6,956	-3,493	-1,732	-5,239	-3,084	-2,516	-9,108
Financial expenses	45,958	59,239	56,870	61,609	59,239	51,677	334,592
Interest and other payments on Sberbank loans	27,034	34,847	33,453	36,241	34,847	30,398	196,819
Interest and other payments on loans from other banks	18,924	24,393	23,417	25,368	24,393	21,279	137,773
Current cash flow - total	95,764	37,447	115,983	33,932	59,933	109,050	448,156
Purchase of non-current assets	-32,069	-63,470	-66,008	-60,931	-63,470	-43,217	-329,165
Proceeds from the sale of assets, loan repayments and similar proceeds	19,369	26,841	25,767	27,914	26,840	29,455	156,186
Investment cash flow -	-12,700	-36,629	-40,241	-33,017	-36,630	-13,762	-172,979
Income including: obtaining loans and borrowings	56,069	75,512	78,532	77,022	70,982	67,282	425,399
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Requested obligations at Sberbank	2,167	2,952	2,902	3,070	2,884	2,959	16,936
Other liabilities in the future (at Sberbank and other banks)	36,122	49,206	48,369	51,174	48,074	49,321	282,266
Other payments from financing activities	17,650	23,209	27,014	22,666	19,783	14,879	125,201
Financial cash flow - total	130	145	247	112	241	123	998
TOTAL CASH FLOW	83,194	963	75,989	1,027	23,544	95,411	280,128

Source: Financial statements of LLC "Vertunovskoe".

The company's net profit for a year and a half would amount to 452,684 thousand rubles. The current cash flow, in addition to net profit, also takes into account depreciation and changes in working capital. Depreciation for a year and a half would be at the level of 121,044 thousand rubles, and the change in working capital - 122,618 thousand rubles. Changes in working capital were calculated based on the amount of financial receipts, that is, funds received on credit were allocated to changes in accounts receivable, stocks of

finished goods and to pay off accounts payable.

It is difficult to achieve a complete cash balance, but it is assumed that the net cash flow should be positive.

According to the calculations, an increase in accounts receivable by 86,280 thousand rubles is expected, an increase in inventories by 26,230 thousand rubles and a decrease in accounts payable by 9,108 thousand rubles. The current cash flow for a year and a half would amount to 448,156 thousand rubles.

Cash flows from investing and financing activities do not differ from those calculated in the forecast plan using the direct method. Net cash flow for a year and a half would

amount to 280,128 thousand rubles. The obtained value differs slightly from the direct method and this imprecision is acceptable.

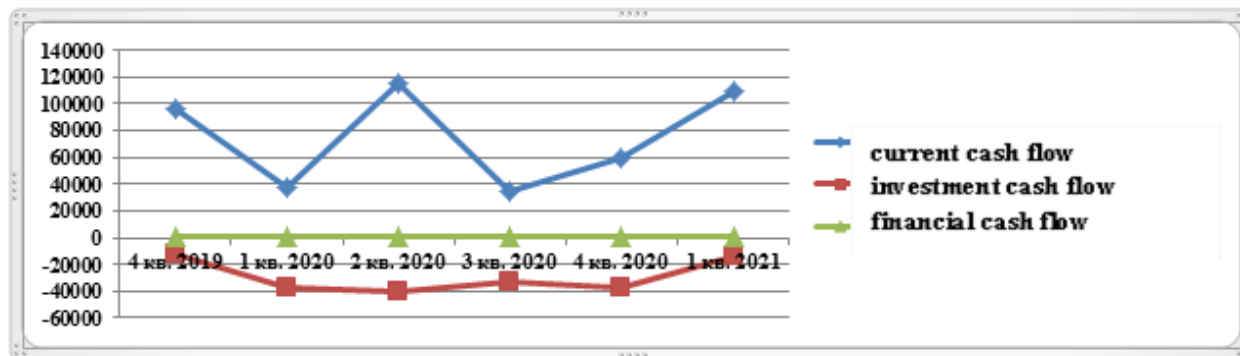


Fig. 3. Dynamics of the organization's cash flows using the indirect method, (thousand rubles)

Source: Financial statements of LLC "Vertunovskoe".

Both plans demonstrate that cash flow from current activities is positive, that is, the company's activities are profitable and generate income. During the analyzed period, the organization is able to pay off the accumulated liabilities.

CONCLUSIONS

The analysis of the state of cash flows of LLC "Vertunovskoe" made it possible to conclude that the company belongs to a "normal enterprise", since here we got a positive net cash flow from operating and financial activities and negative from investment. Cash flows are synchronized in time intervals and the risk of a shortage of funds in LLC "Vertunovskoe" is minimal.

It was revealed that a significant omission in forecasting financial indicators was the budgeting of funds once - for a year. In this regard, two cash flow forecast plans for a long-term period were developed - one and a half years, with a breakdown by quarters using direct and indirect methods. The plan provides information on the proposed loans and the use of funds received, discloses the investment policy of the company.

The developed budgets make it possible to predict the movement of cash flows and the main financial indicators of the enterprise and can be used for both internal and external use.

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