

DEVELOPMENT OF THE METHODOLOGY FOR ANALYZING THE TURNOVER OF RECEIVABLES AND PAYABLES

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The article is dedicated to the study of existing methods for the analysis of receivables and payables. The author identifies methodological contradictions in the existing approaches to turnover and their lack of information for the purpose of making managerial decisions. The author's methodology for calculating the turnover indicators of accounts receivable and accounts payable, depending on their role in the circulation of funds, is proposed. The calculation of indicators according to the current and proposed methodology is presented, a comparative analysis of the results is carried out, conclusions are drawn.

Keywords : receivables and payables, analysis, turnover, turnover rate, turnover period

JEL Classifications: O12

Introduction

Economic analysis of the organization's activities, as a function of management, is one of the key elements of the management decision support system in business. It becomes the basis for substantiating and making managerial decisions, monitoring their implementation. To do this, the analysis should solve the following tasks: track negative deviations, identify and predict existing and potential problems, production and financial risks, determine the impact of decisions made on the level of performance of an economic entity. The "quality" of the results of analytical procedures is largely determined by the clarity of the wording of the essence of the studied economic objects or processes, as well as the adequacy of analytical indicators and methods for their calculation [1, p. 31]. Accounts receivable and accounts payable are an inevitable consequence of the currently existing system of monetary settlements between organizations. Such a system is characterized by the presence of a gap in the time of payment with the moment of transfer of ownership of the goods, between the presentation of payment documents for payment and the time of their actual payment. The effective use of accounts receivable and accounts payable makes it possible to increase the liquidity and solvency of the organization, as well as to improve its financial condition in general. The article considers one of the most controversial financial categories - turnover, in particular the turnover of receivables and payables. Despite the fact that this category is "traditional" for economic analysis, the problem of an unambiguous approach to the definition of this category is still not solved. Existing methods of analysis still offer various models for calculating indicators that characterize the turnover of receivables and payables.

Basic Content of the Paper

The turnover of receivables and payables of the organization can be estimated:

- turnover rate - a complex indicator of the organizational and technical level of production and economic activities, reflecting the number of turnovers that the organization's debts make during the analyzed period;
- turnover period - the average period for which the organization returns to the economic activity or spends the funds accumulated in accounts receivable and payable.

We will analyze the regulatory sources of the Republic of Belarus, the opinions of leading analysts on the procedure for calculating the turnover of receivables and payables.

The Decree of the Ministry of Finance of the Republic of Belarus, the Ministry of Economy of the Republic of Belarus dated December 27, 2011 No. 140/20 (as amended on October 4, 2017) "On Approval of the Instructions on the Procedure for Calculating Solvency Ratios and Analyzing the Financial Condition and Solvency of Business Entities" presents the procedure for calculating coefficients the turnover of capital and the turnover ratio of working capital (short-term assets) in dynamics as part of the analysis of business activity and the assessment of the effectiveness of the use of funds of a business entity . Both turnover ratios are determined by the ratio of proceeds from the sale of products, goods, works, services (line 010 of the income statement) to the average value of total assets (line 300 of the balance sheet, the sum of columns 3 and 4, divided by 2) or short-term assets (line 290 of the balance sheet, the sum of columns 3 and 4, divided by 2) respectively [2].

In the scientific literature, there are other approaches to the calculation of indicators of receivables turnover. In most sources, the receivables turnover ratio is calculated as the ratio of sales proceeds to the average receivables for the period. The average value of indicators is defined as the chronological average for a certain period (according to the amount of data available); in the simplest case, it can be defined as half the sum of indicators at the beginning and end of the reporting period. In Western practice, analysts use the same formula for the receivables turnover ratio, but they take not the average value of receivables, but at the end of the period (sometimes minus doubtful receivables) for the purpose of subsequent comparison with previous periods, and more often the turnover in days is considered [3, p. 1260].

The approaches of analysts in the economic literature to the calculation of accounts payable differ significantly. Some authors (I.N. Chuev, L.N. Chueva, L.L. Ermolovich [4], L.F. Berdnikova, V.V. Odarich [5] and others) believe that the accounts payable turnover ratio is calculated similarly to the calculation of the accounts receivable turnover ratio by dividing the proceeds from the sale of products, goods, works, services (line 010 of the income statement) to the average value of accounts payable. Another part of the researchers (D.V. Lysenko [6] and others) define the turnover ratio of accounts payable as the ratio of the cost of goods sold to the average cost of accounts payable. L.T. Gilyarovskaya [7] uses a mixed approach, calculating turnover ratios using both revenue and cost of goods sold. A.D. Sheremet [8], G.V. Savitskaya [9], A.I. Alekseeva, Yu.V. Vasiliev, A.V. Maleeva, L.I. Ushvitsky [10] believe that in order to calculate the turnover ratio of accounts payable, it is necessary to correlate the turnover on repayment of accounts payable to its average cost.

Accordingly, in the economic literature, there are 3 options for the numerator in the formula for calculating the accounts payable turnover ratio:

- proceeds from the sale of products (works, services);
- cost of goods sold (works, services);
- debit turnover on accounts of settlements with creditors.

To clarify the calculations, let's consider the economic essence of the indicator of "turnover" of debts. Turnover is a value that characterizes the time period for which the full circulation of receivables or payables is carried out or the number of these requests for the time period [6, p. 167].

Consider the scheme of circulation of receivables and payables.

One of the conditions for the continuity of the organization's operating activities is the constant renewal of its material basis, that is, the systematic replenishment of consumed material resources (raw materials, components, purchased semi-finished products, spare parts, fuel, goods) with new ones. This, in turn, predetermines the continuity of the movement of enterprise funds, which occurs in the form of their circulation. In the process of operating activities, there is a constant transformation of individual components of assets and liabilities from one form to another, a change in their qualitative characteristics.

At the first stage, the company's funds are used to purchase material resources. This stage is characterized by the presence of funds in advances issued to suppliers or the presence of accounts payable.

The materials received by the enterprise enter the warehouse and lie in the warehouse for some time. This period is the inventory holding period. Then the materials are released into production and the technological process is carried out. Then the finished product is transferred and stored in the warehouse.

Then the product is sold, and it turns into cash, and if buyers are granted a deferred payment, into receivables. Next, the stage of repayment of receivables begins, which ends with the receipt of funds, which in turn are directed to the repayment of accounts payable [1, p. 52].

That is, the turnover of receivables is an integral part of the process of successive transition from one stage of production and circulation to another, starting with the process of acquiring inventories and ending with the receipt of funds in the company's accounts. The turnover of receivables, together with the turnover of inventories and cash, constitute the turnover of current (short-term) assets.

Accounts payable turnover is an indicator that links the amount of money that an organization must return to creditors by a certain date and the current value of purchases or goods and services purchased from creditors.

At the same time, when calculating the turnover of receivables, the following features should be taken into account:

- 1) the indicator of sales proceeds determines the turnover of receivables with buyers and customers for products sold (works, services). The turnover of receivables of founders, tax authorities, employees or accountable persons, etc. cannot be determined in any way by the value of revenue, since it is not directly related to these debts, which must be taken into account when conducting an analysis;
- 2) the amount of accounts receivable includes value added tax (value added tax). Sales proceeds reflected in the income statement are taken into account without value added tax. Therefore, the amount of revenue is not comparable in structure with the amount of accounts receivable.
- 3) sales proceeds are accounted for on an accrual basis, therefore, the receipt of funds may not be in full in the reporting period. On the other hand, as part of receivables, there may be amounts of overdue debt with a low guarantee of return.

When calculating the turnover of accounts payable, there are also certain aspects that must be taken into account:

- 1) the bulk of accounts payable are debts to suppliers and contractors for acquired material assets (work performed, services rendered) that arise at the beginning of the cycle. In the next step, materials are consumed in the production process and are included in the cost of goods manufactured or stored in warehouses as inventory. When a product is sold, production costs become part of the cost of goods sold and not part of the sales proceeds.
- 2) the amount of accounts payable includes value added tax. The cost of goods sold in the income statement does not include value added tax. Therefore, the amount of cost of goods sold is not comparable in structure with the amount of accounts payable.
- 3) in the composition of accounts payable, in addition to obligations to suppliers and customers (for the supplied material assets, work performed and services rendered), there are obligations to social funds, to the budget for all types of payments, to employees, etc., which arise already at the end of the production cycle and have a short period of existence, since their repayment takes place within a short period of time established by law after receiving funds from the sale of products. That is, these types of accounts payable are a consequence of production activities, and not a source of revenue or cost of sales.

Based on the studied features of the turnover of receivables and payables, it is proposed to calculate the turnover ratio and the turnover period using the following formulas presented in Table 1.

Table 1. The proposed methodology for calculating the turnover of receivables and payables

Indicator	Calculation formula
Receivables	
Accounts receivable turnover ratio with buyers and customers (<i>RTR (b. c.)</i>)	$RTR (b. c.) = \frac{R}{(AR\ b.c.\ b.p + AR\ b.c.\ e.p)/2}$ <p>where R is the net revenue from the sale of products for the reporting period, secured by cash, rubles; AR b.c. b.p - accounts receivable of buyers and customers at the beginning of the period, net of overdue debt (excluding value added tax), rub.; AR b.c. e.p - accounts receivable of buyers and customers at the end of the period, net of overdue debt (excluding value added tax), rub.</p>
Turnover ratio of other receivables (accounts for accounting for settlements, except for account "Settlements with buyers and customers") (<i>RTR (oth)</i>)	$RTR (oth) = \frac{C}{(AR\ oth.\ b.p + AR\ oth.\ e.p)/2}$ <p>where C is the turnover on the loan of the corresponding account, rub.; AR oth. b. p - receivables (excluding debts of buyers and customers) at the beginning of the period less overdue debts, rub.; AR oth. e. p - receivables (excluding debts of buyers and customers) at the end of the period minus overdue debts, rub.</p>
Turnover period (TP ar)	$TP\ ar = \frac{Tp}{RTR}$ <p>where Tp is the duration of the period in days (month, quarter or year in days); RTR- the turnover ratio of receivables (regardless of the type of debt).</p>
Accounts payable	
Accounts payable turnover ratio to suppliers and contractors (<i>RAP (s. c.)</i>)	$RAP (s. c.) = \frac{CP + Se.p - Sb.p}{(AP\ s.c.\ b.p + AP\ s.c.\ e.p)/2}$ <p>where CP is the cost of goods sold for the reporting period, secured by cash receipts, rub; Se. p- stocks at the end of the period, rub; Sb. p- stocks at the beginning of the period, rub; AP s. c. b. p - accounts payable to suppliers and contractors at the beginning of the period less overdue debt (excluding value added tax), rub.; AP s. c. e. p - accounts payable to suppliers and contractors at the end of the period less overdue debt (excluding value added tax), rub.</p>
Other accounts payable turnover ratio (settlement accounts, except for account "Settlements with suppliers and contractors") (<i>RAP (oth.)</i>)	$RAP (oth.) = \frac{C}{(AP\ oth.\ b.p + AP\ oth.\ e.p)/2}$ <p>where C is the debit turnover of the corresponding account, rub.; AP oth. b. p - accounts payable (except for debts to suppliers and contractors) at the beginning of the period less overdue debts, rub.; AP oth. e. p - accounts payable (excluding debt to suppliers and contractors) at the end of the period less overdue debt, rub.</p>
Turnover period (TP ap)	$TP\ ap = \frac{Tp}{RAP}$ <p>where Tp is the duration of the period in days (month, quarter or year in days); RAP- the turnover ratio of accounts payable (regardless of the type of debt).</p>

Source : own development based on [1-10]

Consider the calculation of the proposed indicators on a practical example in Table 2.

Table 2. Initial data for calculating turnover ratios

Name of indicator	Actually for		
	2021	2020	2021
Income statement data			
Revenue from sales of products for the period (without value added tax), thousand rubles.	-	1678.00	4708.00
Proceeds from the sale of products for the period, secured by cash (excluding value added tax), thousand rubles.	-	1450.00	4380.00
Cost of goods sold for the period, thousand rubles.	-	1340.00	3800.00
The cost of goods sold for the period, secured by cash thous .	-	1158.00	3535.00
balance sheet data			
	end of 2021	end of 2020	end of 2021
Stocks	35.00	29.00	73.00
Short-term accounts receivable, thousand rubles, including:	78.00	68.00	114.00
Settlements with buyers and customers, thousand rubles	67.00	56.90	84.20
including	5.00	3.00	12.00
- arrears			

- value added tax	13.00	11.50	16.80
Calculations on taxes and fees, thousand rubles	5.60	6.20	2.00
Settlements with other debtors	5.40	4.90	26.80
Credit turnover on account 68 "Calculations on taxes and fees"	-	247.80	354.00
Credit turnover on account 76 "Settlements with other debtors and creditors"	-	168.00	174.00
Accounts payable, thousand rubles including:	1315.00	1307.00	572.00
Settlements with suppliers and contractors, thousand rubles,	1284.00	1265.00	4439.00
Calculations on taxes and fees, thousand rubles	2.00	7.00	44.00
Settlements for social insurance and security, thousand rubles	6.00	8.00	17.00
Settlements with founders, thousand rubles	15.00	25.00	52.00
Debit turnover on account 68 "Calculations on taxes and fees"	-	453.70	532.00
Debit turnover on account 69 "Settlements for social insurance and security"	-	327.00	397.00
Debit turnover on account 75 "Settlements with founders"	-	45.00	53.00

Source: author's development

In table 3, we calculate the arithmetic averages of receivables and payables and analyze their turnover according to the current and proposed methods.

Table 3. Analysis of the turnover of receivables and payables according to the current and proposed methodology

Indicator	2020	2021	Absolute deviation
Average short-term accounts receivable, thous . rub . including:	73	91	+18
- settlements with buyers and customers	61.95	70.55	+8.6
- according to settlements with buyers and customers (excluding overdue debts and value added tax)	45.7	48.9	+3.2
- for other debts, thousand rubles.	11.05	19.95	+8.9
Average to payables, thousand rubles. including:	1311	939.5	-371.5
- according to settlements with suppliers and contractors, thousand rubles,	1274.5	2852	+1577.5
- for other debts , thousand rubles.	31.5	76.5	+45
Current methodology			
Accounts receivable turnover ratio with buyers and customers	27.09	66.73	+39.65
Accounts payable turnover ratio with suppliers and contractors	1.32	1.65	+0.33
Turnover ratio of other receivables	151.86	235.99	+84.13
Turnover ratio of other accounts payable	53.27	61.54	+8.27
The period of turnover of receivables with buyers and customers	13.48	5.47	-8.01
The period of turnover of accounts payable with suppliers and contractors	277.23	221.11	-56.12
Turnover period for other receivables	2.40	1.55	-0.86
Turnover period of other accounts payable	6.85	5.93	-0.92
Suggested methodology			
Accounts receivable turnover ratio with buyers and customers	31.73	89.57	+57.84
Accounts payable turnover ratio with suppliers and contractors	0.90	1.25	+0.35
Turnover ratio of other receivables	37.63	26.47	-11.16
Turnover ratio of other accounts payable	26.21	12.84	-13.38
The period of turnover of receivables with buyers and customers	11.50	4.08	-7.43
The period of turnover of accounts payable with suppliers and contractors	403.81	290.86	-112.96
Turnover period for other receivables	9.70	13.79	+4.09
Turnover period of other accounts payable	13.92	28.43	+14.51

Source : author's development

The data in Table 2 indicate that the values of turnover indicators obtained by the current and proposed methods differ significantly from each other. We draw a conclusion for each of the two methods based on the data obtained.

The current methodology. During the analyzed period, the state of settlements with buyers and customers has improved significantly. Thus, the turnover of accounts receivable with buyers and customers in 2021 compared to 2020 increased by 39.65 turnovers and decreased by 8 days. The high

turnover of receivables indicates an improvement in the payment discipline of buyers, that is, the timely repayment by buyers of their debt to the organization. The repayment period for other receivables in 2021 compared to 2020 decreased by 0.86 days and amounted to 1.55 days.

The turnover of accounts payable with suppliers and contractors in 2021 tends to increase. Thus, in 2021, this indicator amounted to 1.65 turnovers, which is 0.33 turnovers more than in 2020. The repayment period for other accounts payable in 2021 was 5.93 days, which is 0.92 days faster than in 2020 year.

The proposed methodology. Growth of values the turnover ratio of accounts receivable with buyers and customers in 2021 compared to 2020 reflect the improvement in the payment discipline of buyers, taking into account the actual funds received, and not just a comparison of the revenue indicator with the average debt balances, not taking into account that part of the revenue was not received in the reporting period. But the turnover ratio of other receivables in 2021 compared to 2020 decreased by 11.16 turnovers, that is, more significantly than according to the current methodology. In this case, the calculated indicators reflect the turnover of debts in comparison with their actual repayment in cash, and not in comparison with the proceeds, which are not involved in the circulation of receivables of other persons.

The results of accounts payable turnover with suppliers and contractors reflect a reduction in the repayment period by 112.96 days, which, on the one hand, increases the organization's need for loans and borrowings, and on the other hand, means a reduction in purchases with deferred payment and does not lead to the payment of penalties in terms of non-compliance with the terms of the contracts. The turnover ratio of other accounts payable decreased by 13.38 turnovers, which in days amounted to an increase of 14.51 days. This indicates a decrease in the rate of repayment of other accounts payable and means the availability of a temporary free source of financing for its current activities. The benefit of the enterprise in this case is not difficult to calculate: it consists in the difference in the amount of interest on the loan equal to the amount of this debt (if the enterprise took this money from the bank at interest), for the time the debt was on the balance sheet of the enterprise, and the amount of this accounts payable.

Payable is evaluated together with the turnover of receivables. In this case, the accounts payable turnover ratio is lower than the accounts receivable turnover ratio. This leads to a financial surplus for the organization, since the cash flow from buyers is faster than the repayment of accounts payable to suppliers and contractors.

Conclusion

Thus, the analysis of turnover according to the proposed method allows us to assess the organization's ability to generate income by making a turnover "money - goods - money" only for that part of the receivables that is really included in this cycle - for the debts of buyers and customers. The turnover of other receivables should be calculated on the basis of comparisons with the turnover on the loan of the relevant accounts. The turnover of accounts payable to suppliers and contractors shows how many times (usually, per year) the company pays the average amount of its accounts payable, in other words, the ratio shows the expansion or reduction of commercial credit provided to the enterprise. The circulation of funds for accounts payable to suppliers and contractors begins with the acquisition of resources and ends with the sale of finished products, the cost of which includes the costs of resources consumed in production. Therefore, in our opinion, the cost of goods sold, adjusted for the balance of stocks in warehouses, most realistically reflects the result of the turnover of accounts payable to suppliers and contractors. To calculate the turnover of other accounts payable, it is more expedient to use the debit turnover of the relevant accounts, which will reflect the rate of actual repayment of accounts payable.

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