

Assessment of Performance of Holding in the Context of Cash Flow Concept

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Annotation — The article has proved the necessity and analytical value of evaluating the results of the activities of structurally complex forms of business organization based on the concept of cash flow as an alternative to the traditional approach, which involves the use of the indicators formed by the accrual method. With this purpose, the authors have presented the system of the analytical indicators designed to assess the quality of cash flows in terms of the rationality of cash receipts and cash payments.

Keywords — *cash flow; cash flow quality; holding; cash flow evaluation criteria*

I. INTRODUCTION

Within the framework of the modern concept of financial management, the application of scientifically grounded analytical tools for accumulating the information on the achieved results of business structures is one of the main prerequisites for ensuring the effectiveness of management decisions made to achieve their dynamic development. This task is particularly relevant for structurally complex forms of business organization, which include holdings, the Russian Railways holding being among them.

The solution of this task predetermines the need to search for new theoretical and applied methodological structures, allowing to strengthen the analytical value of the information obtained with the help of these structures. In this vector, the development of the applied methodological tools for assessing the performance of the holding company based on the cash flow concept, which appeared in the mid-50s of the 20th century and currently has an active adaptation to solving the modern financial management problems, is considered to be relevant.

The evaluation of the results of the enterprise through the prism of the postulates of this concept provides the generation of analytical information about the emerging amount of cash flows, the quality of their structure and sufficiency. The high degree of actual dependence of business success on these factors gives a clear advantage to this approach to the implementation of analytical procedures compared with the traditional assessment of the performance of enterprises based on the use of economic indicators, the construction of which is based on the accrual principle. This advantage is due to the shift of emphasis to the study of actually emerging cash flows rather than estimated cash flows, which the traditional economic analysis, that considers the net profit of the enterprise as the main measurer of the financial effect of business activity, sins (for all its significance).

Thus, the purpose of the article is the development of the methodological support for assessing the performance of the holding by supplementing it with the system of the monetary and flow analytic indicators which were formed with account of the industry characteristics of the subject's activities.

II. RESULTS AND DISCUSSION

Taking into account the topic of the article, first of all, one should focus on the fact that by the performance of an enterprise, the authors understand the degree of the goal achievement, which in modern conditions of business is reduced to ensuring the dynamic development of an enterprise based on the generation of the high-quality cash flows.

The previous publications of one of the authors [1], [2] were devoted to the justification of the "quality of cash flow" definition. Summarizing the main statements of these articles, we should note that the "quality of cash flow" is considered to be the characteristics of the proportions and trends in the formation of cash flows, as well as their sufficiency, which meets the following requirements:

- rationality of the structure of cash flows both in their total value, and for each type of activity of the holding;
- minimizing irrational cash payments;
- balance of cash flows (in other words, the balance in terms of the value of positive and negative cash flows, the optimal ratio of the flows by the type of activity);
- high cash flow from the operating activities;
- ensuring liquidity and solvency, as well as relative independence from the borrowed funds;
- improving the efficiency of use of the funds.

Taking this set of criteria for the basis, we have formed the system of the absolute and relative financial indicators for the quantitative characterization of the quality of cash flows in order to assess the performance of the holding. The proposed system has a number of traditional analytical measurers, the coverage of which is not the task of this article due to their sufficient coverage in the special literature (for details see: [3], [4]). First of all, it concerns the indicators for evaluating the effectiveness of using cash: the profitability of the money received, the profitability of the money used, the cash turnover ratio, the duration of the cash turnover period. Further, we consider it to be necessary to describe the analytical content of the coefficients proposed by the authors as a supplement to the existing methodological support for the analysis of cash flows in terms of their rationality.

We summarized them into the certain groups according to their application for solving this analytical problem. The initial absolute figures for the practical application of such analytical measures, reflected in the Cash Flow Report and / or additionally (by calculation) extracted from the data, are summarized in Table I

1 The coefficients designed for the structural analysis of the formation of the net cash inflow (outflow) by the type of activity of the holding.

1.1 The ratio of the negative cash flow by the cash inflows from the current activities (r_{nci}) is calculated with the help of the formula (1) and it characterizes the sufficiency of the positive balance formed in the analyzed period, according to the results of operating activities, to compensate for the cash deficit in the financial and investment activities.

$$r_{nci} = CF_{ca} / (CO_{fa} + CO_{ia}) \quad (1)$$

The coverage of the negative cash flows with the positive result of the cash flow from the current activities is considered to be sufficient if $r_{nci} \geq 1$. If this condition is not met, then to specify the estimate, it is useful to calculate the adjusted value of this coefficient (formula (2)), when the remaining cash balance at the beginning of the analyzed period (RCB_n) is taken into account in the source of money deficit in financial and investment activities.

$$r_{nciex} = (CO_n + CF_{ca}) / (CO_{fa} + CO_{ia}). \quad (2)$$

If $r_{nci} < 1$, but at the same time $r_{nciex} \geq 1$, the compensation of the negative cash flows with the positive result of cash flow from current activities is considered to be sufficient.

1.2 The coefficient of participation of cash inflows from current and financial activities in covering the outflow of investments ($rCI CO_{ia}$) gives the quantitative estimate of the equity participation of cash inflows in reimbursing the emerging cash deficit as the result of investment operations. The indicator is calculated by the formula (3).

$$rCI CO_{ia} = (CF_{ca} + CF_{fa}) / CO_{ia}. \quad (3)$$

It is important to note the following: the calculation of the presented two factors is appropriate in the following cases:

- if the current activity ends with the cash inflow, and not the outflow;
- if in the financial and / or investment activity there is formed the negative balance of cash flows, i.e. the outflow (if this condition is not fulfilled, the coefficients can be calculated, but their content will change: the coefficients will show how many times the cash flow in the current activity is more / less than the cash flow on the financial and / or investment).

TABLE I. INITIAL ABSOLUTE INDICATORS FOR ESTIMATING CASH FLOWS

Name of the indicator	Calculation method	Analytical content
Net cash inflow / outflow (NCI/NCO)	$CF - UC$	Result (balance) of cash flow for all the business transactions and facts of the economic life for the analyzed period
Cash flow, total (CF)	$CF_{ca} + CF_{ia} + CF_{fa}$, where CF_{ca} – the cash flow from the current activities; CF_{ia} – the cash flow from the investment activities; CF_{fa} – the cash flow from the financial activities	Cumulative positive cash flow for the reporting period (or, the total amount of money that was received into circulation for the period)
Used cash, total (UC)	$UC_{ca} + UC_{ia} + UC_{fa}$, where UC_{ca} – the cash used from the current activities; UC_{ia} – the cash used from the investment activities; UC_{fa} – the cash used from the financial activities	Cumulative negative cash flow for the reporting period (or, total cash payments for the period)
Cash inflow / outflow of the current activities (CI / CO_{ca})	$CF_{ca} - UC_{ca}$	Result (balance) of cash flow of the operations carried out in the framework of the operating activities for the analyzed period
Cash inflow / outflow from the investment activities (CI / CO_{ia})	$CF_{ia} - UC_{ia}$	Result (balance) of cash flow of the operations carried out in the framework of the investment activities
Cash inflow / outflow of the financial activities (CI / CO_{fa})	$CF_{fa} - UC_{fa}$	Result (balance) of cash flow of the operations carried out in the framework of the financial activities for the analyzed period
Cash balance on a specific date (CB)	$CB + CF + UC$, where CB - cash balance at the end of the previous period	Temporarily free cash (or - the most liquid asset category, which provides current solvency)
Internal sources of cash flow (CF_{is})	$CF_s + CF_{fi} + CF_{fas} + CF_{ias} + CF_{is}$, where CF_s - cash flow from the sale of products / goods / works / services; CF_{fi} - cash flow of the financial investments; CF_{fas} - cash flow from the sale of fixed assets; CF_{ias} - cash flow from the sale of intangible assets; CF_{is} - cash flow funds from the sale of inventories, not included in the cash inflow from the buyers	Cash receipts formed on the basis of the financial and economic activities, i.e., from the business operations relating to the subject of the main type of activity, as well as the financial investments made, the sale of fixed assets, intangible assets and inventories
External sources of cash inflows (CF_{es})	$CR_s + CR_{bs}$, where CR_s - cash receipts in the framework of the state support; special-purpose financing; contributions from the owners (own external sources of funds); CR_{bs} - cash receipts in the form of loans, advances received from the buyers and customers, and other debt instruments (borrowed sources)	Cash receipts that are formed outside the operations related to the financial and economic activities, and which can be owned and borrowed
Net Operating Cash Expenses (NOCE)	$CP_{mp} + CP_{sr} + CP_{ncap}$, where CP_{mp} - cash payments for the payment of the purchased raw materials and materials, as well as goods / works / services; CP_{sr} - cash payments for remuneration of the staff; CP_{ncap} - cash payments to pay for the acquisition / modernization / reconstruction and preparation for the use of non-current assets	Amount of payments directly related to the main (s) type (s) of the economic activity
Tax Cash Expenses (TCE)	$CP_b + CP_{eb}$, where CP_b - cash payments to the budget (including penalties); CP_{eb} - cash payments to extra-budgetary funds (including penalties)	The amount of the tax obligations done to the budget and extra-budgetary funds in accordance with the applicable tax treatment of the enterprise (including penalties)
Financial Cash Expenses (FCE)	$P_{fd} + P_{li} + P_{oi} + P_i$, where P_{fd} - payment of dividends to the founders; P_{li} - payment of interest on the loans and borrowings (including penalties for late payments); P_{oi} - payment of interest on debt obligations (including penalties); P_i - payment of the amount of insurance when lending	Amount of the payments arising in connection with raising funds
Unreasonable cash expenses (UCE)	$P_{cdp} + P_{mc} + P_{bp}$, where P_{cdp} - payments to the suppliers for installments and / or deferred payment of the contract; P_{mc} - cash payments in the form of material compensation for the damage caused; P_{bp} - cash payments related to the payment of penalties to the budget, extra-budgetary funds, counterparties	The amount of cash payments that the company could avoid in the analyzed period
Payments for the return of the principal debt on the credit resources (P_{cdt})	Self-line in the cash flow statement	Cash payments for the payment of the principal debt on the loans and borrowings
Interest payments on the credit resources (IP_{cr})	Self-line in the cash flow statement	The amount of cash payments for the payment of interest on the loans and borrowings, including the payment of interest

2 The coefficients, evaluating the structure of the positive cash flow by the sources of income: internal and external, and in the latter - own and borrowed.

2.1 The participation rate of internal sources in the replenishment of cash flow (r_{IS}) (4) - characterizes the materiality of the receipt of funds in the organization's turnover (in other words - the ability of the organization to generate replenishment of cash) according to the result of business activities.

The recommended value of the coefficient of more than 0.5 units (this value is set on the basis of considerations of the need to ensure high quality of the cash flow, which is achieved by the predominant amount of cash received from the domestic sources compared to the others).

$$r_{IS} = CF I / CF. \quad (4)$$

2.2 The coefficient of dependence of cash inflows from external sources (r_{ESD}) (5) - assesses the equity participation of the receipt of funds in the organization's turnover from all external sources, both own and borrowed. The recommended coefficient value is less than 0.5 units.

$$r_{ESD} = CF_{es} / CF. \quad (5)$$

2.3 The coefficient of dependence of monetary inflow from borrowed sources (r_{MID}) (6) - measures quantitatively the equity participation of funds received by the organization on the returnable basis, that is, from creditors. The recommended coefficient value is less than 0.5 units.

$$r_{MID} = CF_b / CF. \quad (6)$$

3 The coefficients for assessing the structure of use of funds, which is carried out by the type of activity and areas (in other words, by purpose) of payments.

3.1 The share of net operating cash expenses (sNOCE) (7) assesses the materiality of using the organization's funds to pay expenses incurred in the framework of the main type (s) of economic activity.

$$sNOCE = CE / UC. \quad (7)$$

3.2 The share of tax cash expenses (sTCE) (8) describes the share of cash payments related to the payment of tax obligations.

$$sTCE = CE_t / UC. \quad (8)$$

If the share of tax cash expenditures increases, it is recommended to evaluate their reasonableness, which will require additional analytical procedures in the valuation vector of the current taxation systems (the methodological

foundations for solving this task are systematically presented in the publication by O. Koneva [5], their coverage was not part of the objectives of this study).

3.3 The share of financial cash expenses (sFCE) (9) gives the quantitative assessment of the materiality of cash payments related to payment of costs incurred by an enterprise in connection with raising funds for financing activities.

$$sFCE = CE_f / UC. \quad (9)$$

The growth in the dynamics of this indicator will not be a sign of deterioration in the cash flow structure of an enterprise if the enterprise has a rational structure of sources of financial resources according to the criterion of minimizing the price of capital (in other words, if the growth of this indicator is not accompanied by an increase in the weighted average price of capital).

3.4 The share of irrational cash expenses (sICE) (10) shows the share of unreasonable cash payments as part of all cash used.

$$sICE = CE_i / UC. \quad (10)$$

For a positive assessment of the structure of cash payments, the value of this indicator should tend to zero.

In addition to the considered indicators, it is proposed to evaluate the quality of the structure of cash expenditures on the basis of the following ratios, which allow studying the weight of the enterprise's diversion from the company's cash flow (in this case, it is understood as the amount of cash balance at the beginning of the period and the received cash for the entire period) of funds goals.

3.5 The net operating burden of cash flows (rNOB) ratio (11) assesses the materiality of the use of the organization's funds in circulation to pay for expenses incurred in the framework of the main type (s) of economic activity.

$$rNOB = CE_0 / (CF + CO). \quad (11)$$

3.6 The ratio of the tax burden on cash flows (rTB) (formula (12)) characterizes the proportion of funds withdrawn from the organization's money turnover for the purpose of paying tax liabilities.

$$rTB = CE_t : (CF + CO_t). \quad (12)$$

3.7 The ratio of the financial burden on cash flows (rFB) (13) provides a quantitative estimate of the share of funds diverted from the organization's turnover to pay for expenses arising from the attraction of financial resources.

$$rFB = CE_f / (CF + CO). \quad (13)$$

3.8 The coefficient of irrational load on cash flows (rIL) (14) characterizes the share of unjustified withdrawal of funds from the total amount that the holding had (the higher the value of this indicator, the lower the quality of cash flows).

$$rIL = CE_i / (CF + CO). \quad (14)$$

3.9 The debt load factor for cash flows (DLF) (15) describes the share of withdrawal of cash from circulation for the purpose of repaying credit resources and paying interest on them.

$$DLF = (UC_c + UC_i) / (CF + CO). \quad (15)$$

III. CONCLUSION

The specificity of the modern business environment in complex forms of business organization necessitates the constant search for new tools for analytic assessment of the results of their activities. In this article, the authors proposed one of the solutions to this problem, based on the modeling of financial indicators in order to assess business performance based on the concept of cash flows, their analytical content and assessment criteria were described. The proposed methodological toolkit, which, according to the authors, prerequisites for the provision of subsequent effective managerial impact, is not full and it presupposes its addition with the indicators whose focus is to evaluate such criteria for identifying the performance of the holding as ensuring liquidity and solvency, as well as cash inflow including that one from the main activity of the Russian Railways holding. Justification of their composition, when the study of the results of research in the field of efficiency assessment issues [6, 7] and cash flow management [8, 9], evaluation of stochastic cash flow factors [10, 11, 12], issues of the relationship between marketing and business value [13], the use of mathematical methods in the evaluation of cash flows [14, 15] being the base of the process, is the subject of another independent study.

Acknowledgement

The article was done on the basis of the research materials under the “Cooperative-network interactions as the resource of self-organization and achieving high-quality results in the economy” Grant of No. № 18-010-00192/19 RFBR

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