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**ANALYSIS OF CASH FLOW STATEMENT**

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**Abstract:** In the literature there is often emphasized the importance of cash flow analysis as an integral part of financial analysis, however the traditional cash flow analysis is limited to the vertical analysis of net cash flow from three levels of activities and, more rarely, to ratio analysis based on these three net cash flows. The purpose of the article is to evaluate the usefulness of such an analysis in the assessment of a company's financial position with the aim of improving it. Therefore, based on the literature review on the cash flow analysis, the authors highlight the usefulness of the decomposition analysis of the cash flow statement and propose a procedure for conducting such an analysis, in particular they propose making an in-depth analysis of the cash flow from operations consisting of several stages.

**Key words:** cash flow statement, financial analysis, cash flow analysis.

## **1. Introduction**

In the literature there is often emphasized the importance of cash flow analysis as an integral part of financial analysis. "It complements the traditional analytical ratios that are constructed based on data from the balance sheet and income statement about the information that is necessary for comprehensive assessment of the company's financial condition. It provides a more complete characterization of those aspects of the business which are not exposed in the basic financial statements, namely the cash efficiency of operating, investing and financing activities, liquidity and solvency" [Jerzemowska (ed.) 2004, p. 101]. Although cash flow statement was introduced relatively late into the financial reporting system, it should be emphasized, as reported by T. Waśniewski and W. Skoczylas, that "great practical usefulness of the information included in the cash flow statement gives a reason to conclude that it occupies an important place in the current financial reporting system as an important subject of financial analysis and tool of financial management in the company" [Waśniewski, Skoczylas 2004, p. 145].

The purpose of the article is to evaluate the usefulness of the methodology proposed in the literature for analyzing cash flow statement in the assessment of a company's financial position with the aim of improving the methodology. In order to realize this purpose, there were carried out the literature studies on the analysis of cash flow statement as an integral part of the company's financial analysis. Based on this and taking into account the usefulness of the decomposition analysis, a procedure for conducting such a cash flow statement analysis was proposed and a way of drawing conclusions about the company's financial condition was presented.

## 2. Literature review

In the literature there are two principal tools for the cash flow statement analysis: preliminary analysis and ratio analysis. The preliminary analysis usually includes evaluation of the signs of cash flow from operating, investing and financing activities, and sometimes also a vertical and horizontal analysis of the cash flow statement. Therefore, in the theoretical discussions on the cash flow analysis there are usually characterized 8 possible combinations of signs of cash flow from different activities (operating, investing and financing activities) that indicate the financial condition of a company [Jerzemowska (ed.) 2004, pp. 101–103; Bednarski 2007, pp. 164–165; Szczęsny (ed.) 2003, pp. 237–238; Kowalak 2008, pp. 84–86; Nowak 2008, –pp. 143–145; Olzacka, Pałczyńska-Gościński 2002, pp. 146–148; Rutkowski 2007, pp. 64–67; Sałdyka 2010, pp. 173–174; Sokół et al. 2010, pp. 113–115; Śnieżek 1997, pp. 102–103; Waśniewski, Skoczylas 2004, pp. 146–148]. However, if there is a total net cash flow from all activities also taken into account, there are 14 variations of financial condition [Rybicki 2009, pp. 158–159]. A brief description of the 8 variations developed based on cited literature is presented in Table 1.

There is no doubt that the interpretation presented in Table 1 is too general and cannot be explicitly referred to specific business situations, because very often it will lead to erroneous conclusions. In particular, it should be noted here that the following situations often occur:

- cash surplus from operating activities, which is interpreted positively, can be generated through depreciation,
- positive cash flow from operating activities may result from not settling of liabilities,
- positive cash surplus from investing activities can be negatively interpreted if it results from selling fixed assets, i.e. limiting company's potential to repay financial liabilities or liquidating operating expenses,
- based only on the sign of cash flow from financing activities it is not known whether debts were repaid according to the repayment schedule, or maybe after the termination of loan agreements which forced the company to liquidate the assets.

**Table 1.** Analysis of possible scenarios – cash flows from activities

Cash flow from activities:			Cases
Operating	Investing	Financing	
+	+	+	Concerns a company with high liquidity, which has a surplus of money from operating activity and gets more money from other activities than it pays out. It confirms most often the preparation for new investments or acquisitions.
+	–	–	Surplus from operating segment is used to pay for undertaken investments or pay to owners and creditors. If the net increase in cash and cash equivalents is negative, then it can suggest that the firm is in financial troubles, but if the total cash increases during the time, the situation is not bad and the firm saved money for the future.
+	+	–	Company cannot pay the financial liabilities with cash flow from operating activities and has to sell off its fixed assets. But it can mean a sound firm which owns shares in other companies paying dividends or it suggests that the company is restructuring its core business as well.
+	–	+	Positive surplus of cash from operating activity is not enough to meet capital expenditures (investing activity), therefore the firm has to gain additional external capital. This is typical of growing and developing corporations with such credibility to have access to capital.
–	+	+	Shortage of cash flow from operating activity is covered by cash from disposal of long term assets, by credits and loans and by issued capital. Although the company generates negative cash flow from operating activity, its financial condition is sufficiently good to be able to get external capital.
–	–	+	Such situation is typical of young growing companies which have access to external capital, though their operating activity generates negative cash flows.
–	+	–	Company is trying to cover negative net cash flow from operating activity and pay its financial liabilities. Cash comes from selling of long-term assets and financial investments. Such case could indicate serious financial troubles, because of shortage of cash flow from core business. The liabilities are paid thanks to selling off assets.
–	–	–	It could be a transition state and takes place in companies, that accumulated cash surplus in previous periods. Only then the company is able to pay its liabilities and to invest in fixed assets. But maintaining this situation can lead to exhausting the money surplus and loss of liquidity and could end in bankruptcy.

Sources: [Jerzemowska (ed.) 2004, pp. 101–103; Bednarski 2007, pp. 164–165; Szczęsny (ed.) 2003, pp. 237–238; Kowalak 2008, pp. 84–86; Nowak 2008, pp. 143–145; Olzacka, Pałczyńska-Gościńskiak 2002, pp. 146–148; Rutkowski 2007, pp. 64–67; Sałdyka 2010, pp. 173–174; Sokół et al. 2010, pp. 113–115; Śnieżek 1997, pp. 102–103; Waśniewski, Skoczylas 2004, pp. 146–148].

As T. Maślanka highlighted, to perform an analysis there will be a different meaning if cash flow oscillates about zero in comparison to flows with a value of a few or more percent of revenues or total assets [Maślanka 2008, pp. 53–54.]. It is enough to be a postponement in paying accounts receivables and therefore the sign of cash flow from operating activities will become negative.

Of course, it would be difficult to indicate in Table 1 all of the possible causes and interpretations of positive or negative net cash flow from operating, investing and financing activities, so the identification of the “sign” of the cash flow should primarily lead to formulating specific (depending on the reason for a cash flow analysis) questions that will require further analysis. Therefore, in relation to particular areas of the company’s activities it should primarily seek to answer the following questions:

**a) in the operating activities:**

1. To what extent does positive or negative net cash flow from operating activities correspond with the level of operating profit?

2. How does the level of working capital affect the size of the cash generated from operating activities? As a consequence of that:

- Is the change in operating receivables justified by change in the sales level, or perhaps it results from changes in the company’s situation leading to lengthen (there are difficulties in collecting accounts receivable) or shorten the credit period for customers?
- Is the change in inventories justified by the scale of business, or maybe there are changes in inventory management policies, problems with selling the goods?
- Is the change in non-interest-bearing current liabilities justified by the scale of business, or perhaps a company has problems with paying debts to suppliers?

**b) in the investing activities:**

- Are the cash inflows in the investing section received from the sale of assets used in ongoing operations or from the sale of investment assets, and perhaps these are the returns from earlier investments (dividends, interest, repayment of loans, etc.)?
- How much cash does the company spend to develop business operations and how much to buy investment assets? What are the sources of financing these activities?

**c) in the financing activities:**

- What is the scale of debt financing?
- Does the company use such sources of debt that are similar in nature to the equity? For example, loans from owners (especially subordinated debt) are shown as debt but they are similar to the equity – they accept higher risk and are used to help in crisis situations.
- Are the debt repayments reconcilable with debt repayment schedule?
- Does the company pay dividends regularly or is there only a one-time payment? Does the company fund dividends from internal or external sources? Will the company be able to maintain paying dividends in the future?



From the answers to those questions, analysts can obtain information [Palepu, Bernard, Healy 2000, p. 340]:

- How strong is the firm's internal cash flow generation? If the cash flow from operation is negative, is it because the company is growing or unprofitable or is having problems with working capital management?
- Does the company have the ability to meet its short-term financial obligations from its operating cash flow or should it reduce its operating potential?
- How much cash has the company invested in growth? Has the company used internal cash flow to finance its growth or should it find external financing?
- Has the company paid dividends from its internal free cash flow or had to borrow money?

Finding the answers to these questions requires an in-depth analysis of the cash flow statement, that is, vertical analysis and sometimes also horizontal analysis, but simultaneously taking into account the information contained and derived from the analysis of the other elements of the financial statement, because, as E. Śnieżek wrote: "data on the cash flows can become a reliable tool in the hands of users [...] until (and only) when they are analyzed in the context of information from the balance sheet, income statement and additional data compiled correctly. Cash flow is not an art for art's sake, it does not function independently in the world of accounting, finance and financial analysis, but in an essential way it supports and facilitates reading the information traditionally available" [Śnieżek 2000, pp. 40–45, after: Maślanka 2008, p. 59].

The vertical and horizontal analysis of financial statements is essential at the stage of the so-called reading of the financial statements that enables a preliminary assessment of the company's financial situation. It is based, respectively, on an analysis of the structure (individual items of financial statement are expressed as percentages of a base figure to show the relative significance of the items) and an analysis of the dynamics (i.e. an analysis of the percentage changes in individual items of financial statement over time). However, it can be noticed that the vertical and horizontal analysis of the cash flow statement is relatively rarely discussed in the literature, in contrast to the vertical and horizontal analysis of the balance sheet and income statement. The theoretical discussions on the analysis of cash flow statement are often limited to the analysis of the signs of cash flow from operating, investing and financing activities, then going straight to the ratio analysis.

Naturally, the question arises, how to conduct vertical analysis of the cash flow statement, especially if it is presented using the indirect method. The goal of the analysis is to analyze cash inflows and outflows in order to conduct a percentage contribution of cash flows from all three activities. Unfortunately, the operating cash flows section of the cash flow statement under the indirect method does not show separately cash inflows and outflows but only total cash from operating activities. Therefore, sometimes in the literature [Olzacka, Pałczyńska-Gościniak 2002, p. 152] in determining the percentage share of cash inflows and outflows, cash flows related

to operating activities are taken into account as net cash inflow or outflow (if net cash from operating activities is positive, it is classified as cash inflow and if it is negative – as cash outflow). Such an approach, unfortunately, has little cognitive value and can lead to wrong conclusions.

In the case of the horizontal analysis of the cash flow statement it was concluded that such an analysis allows to evaluate trends in changes of individual items over time [Waśniewski, Skoczylas 2004, p. 151]. The biggest problem, however, with this type of analysis is the very high volatility of cash flows from investing and financing activities, resulting primarily from the one-off nature of these activities. At this point it should be added that the volatility of cash flow from operating activities is high as well, which follows mostly from changes in working capital. This may be a result of delays in supplies or higher than average stock replenishment because of the use of promotional offers, unusual postponement of liabilities payments (delays or accelerations).

Because of the difficulty in conducting vertical analysis of the cash flow statement prepared using the indirect method, it is proposed to make an in-depth analysis of the cash flow from operations consisting of several stages. The procedure is illustrated in Figure 1.

The starting point is the net income, which is adjusted for the tax to bring it to the gross level (profit before paid tax). This adjustment is to increase the comparability of data from the cash flow statement and the income statement.

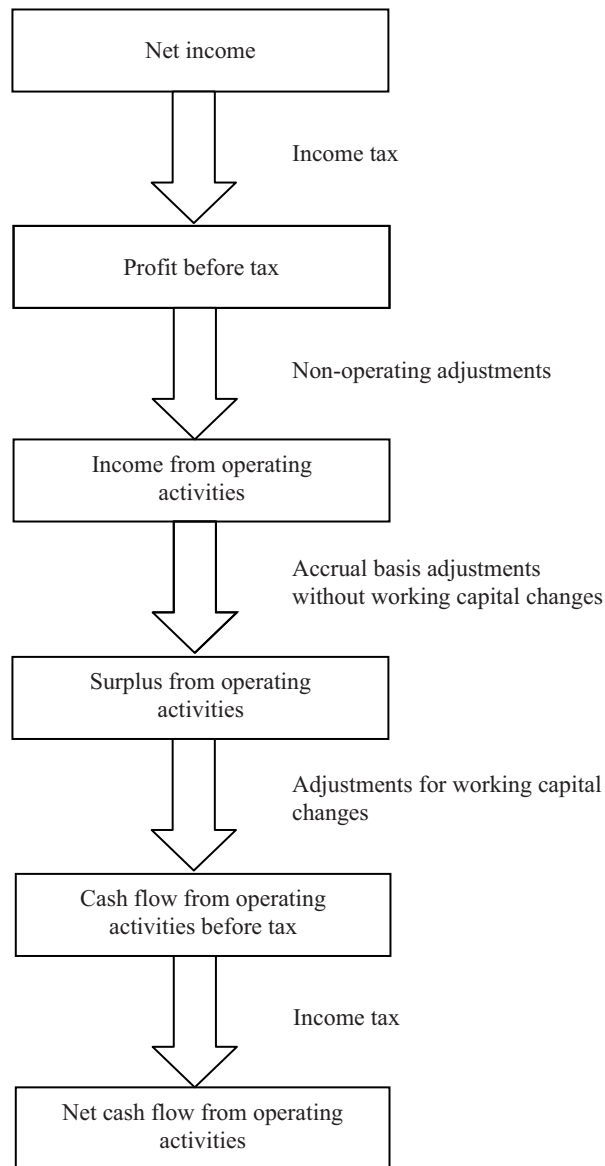
Next, the gross income is adjusted for (level I adjustment) non-operating items, such as gains from investment activities, interest expense and exchange rate differences. In this way, the so-called “income from operating activities” is determined.

This level of income is then adjusted for (level II adjustment) depreciation and amortization (depreciation and amortization are added back to the income) and other non-cash operating items except for changes in working capital, such as changes in reserves and changes in accruals. At this level the analyst should also take into account the changes in receivables, inventories and liabilities which are accounting adjustments (e.g. the changes are caused by updating the value of receivables), but do not result from the ongoing operations, and are recorded in the income statement in other operating income and expenses. Unfortunately, in order to make such corrections it is necessary to use data contained in the notes to the financial statements.

The resulting surplus from operating activities is finally adjusted for changes in working capital (level III adjustment), i.e.:

- changes in inventories,
- changes in accounts receivables,
- changes in liabilities excluding loans and credits.

Finally, after taking into account the tax paid (that is after turning the first adjustment) net cash flow from operating activities is obtained.



**Figure 1.** Adjustments in deeper analysis of cash flow from operating activity

Source: own elaboration.

It should be noted that this approach has certain limitations resulting from the construction of the cash flow statement. The most important are:

- inability to identify (as an external user of financial statements) the origin of foreign currency losses or gains – if they relate to operating activities, they

could be corrected separately on the adjustment level II (i.e. unrealized foreign currency losses or gains concerning operating receivables and liabilities);

- adjustments reflected in the item “Other adjustments” in the cash flow statement can have a different nature, both operating and non-operating,
- settlement of prepayments and accruals should be shown in the adjustment II (should be accrued in the same accounting period as the revenue following the matching principle) but if such expenses are incurred or prepayments are made, they should be shown as the adjustment III like working capital.
- changes in prepaid expenses and accrued expenses do not have to refer only to operating activities.

It is important to be aware of the simplifications made and if the adjustments mentioned above have a significant impact on the results of our analysis, we should approach carefully these results. This approach allows for detailed identification of the factors affecting the difference between operating cash flow and net income:

(1) influence of non-operating activities,

(2) influence of effects of operating activities resulting from the accrual basis of accounting,

(3) influence of the changes in working capital needs.

In the next step the analyst should explore the cash flow from investing activities (CFI) and cash flow from financial activities (CFF). The second stage could be divided into two types of flows:

- purchase or sale of long term assets (intangible assets and tangible fixed assets) known as cash flow in/from capability (capital expenditure),
- purchase or sale of financial instruments (securities, loans), interest received on loans, dividends received on equity securities (financial investments).

The benefits from capital expenditures are shown usually in the next periods in cash flow from operating activity and the benefits from financial investments are shown in cash flow from investing activity as inflows. Therefore, the sign of CFI can be interpreted differently depending on which part of investing activity the cash flow comes from. If there is a positive surplus because of the asset sales, it can mean either restructuring (disposal of unproductive assets) or selling off assets to pay debts. In turn, the surplus of outflows can mean the increase of capability of a business but also an increase in speculative activity. In future, more inflows from operating activities may be expected because of the increase in the potential but speculative activity is not always a good way of spending excess cash. The analysis can be distorted by the fact of investing in special purpose vehicles within the group. Then the question should be asked why they bought the shares.

Cash flow from financing activities (CFF) should be measured separately for equity and debt capital (cash flow to and from owners and creditors). However, the increase of capital usually means an increase in reliability (especially when this capital comes from shareholders). On the other hand, the outflows paid to creditors should be checked against capability of liquidity, especially with analysis of financial

ratios. If the company pays dividends or buys back shares in order of redemption, it should be checked whether the company is “drained” of cash or it can afford to return excess cash to shareholders. The analysis is complicated by the fact that debt capital may take the form of e.g. a subordinated loan or other debts from shareholders.

### 3. Conclusions

Based on the conducted analysis it can be concluded that the traditional cash flow analysis is limited to the vertical analysis of net cash flow from three levels of activities and, more rarely, to ratio analysis based on these three net cash flows. Such an analysis can lead to erroneous conclusions about the company due to:

- high volatility of net cash flow from operating, investing and financing activities;
- different nature of the factors affecting the net cash flow (continuous and recurring events or one-time events)
- postponement of payments separated from the time in which revenues and expenses are recorded (accordance with the accrual basis principle).

The analysis of the most important part of the cash flow statement, i.e. cash flow from operating activity, should be deepened especially to identify and alternatively eliminate the influence of:

- changes in working capital,
- taxes,
- one-off events, in particular non-operating transactions, effecting the difference between net income and cash flow from operating activity.

The analysis of investing activity should be made separately for capital expenditures (purchase or sell out fixed assets) and for speculative investments. Then the analysis of the financial part of the cash flow statement should be made separately for equity and debt.

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## ANALIZA RACHUNKU PRZEPŁYWÓW PIENIĘŻNYCH

**Streszczenie:** W literaturze przedmiotu niejednokrotnie podkreśla się duże znaczenie analizy rachunku przepływów pieniężnych jako integralnej części analizy finansowej, jednakże tradycyjna analiza przepływów pieniężnych jest ograniczona do analizy sald przepływów pieniężnych z trzech rodzajów działalności i rzadziej, do analizy wskaźnikowej. Celem artykułu jest ocena przydatności proponowanej w literaturze metodyki analizy rachunku przepływów pieniężnych przy dokonywaniu oceny finansowej przedsiębiorstw w praktyce gospodarczej zmierzająca do udoskonalenia tej metodyki. W związku z tym, na podstawie studiów literaturowych na temat analizy przepływów pieniężnych autorzy zwrócili uwagę na użyteczność analizy dekompozycyjnej rachunku przepływów pieniężnych i zaproponowali procedurę przeprowadzania takiej analizy, w szczególności wykonanie analizy pogłębionej z wyróżnieniem sald częściowych dla części operacyjnej rachunku przepływów pieniężnych.

**Słowa kluczowe:** rachunek przepływów pieniężnych, analiza finansowa, analiza przepływów pieniężnych.