ANALYSIS AND ACCOUNTING OF TOTAL CASH FLOW

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ABSTRACT: *In order to reach the objective of supplying some relevant information regarding the liquidity inflows and outflows during a financial exercise, the total cash flow analysis must include the analysis of result cashable from operation, of payments and receipts related to the investment and of financing decisions of the last exercise, as well as the analysis of treasury variation (of cash items).*

The management of total cash flows ensures the correlation of current liquidness flows as consequence of receipts with the payments 'flows, in order to provide payment continuity of mature obligations.

KEY WORDS: *total cash flow; financing function; adequacy rate; reinvestment rate; cash flow rate.*

JEL CLASSIFICATION: *M 41*

1. INTRODUCTION

Cash flows are defined as the increase or decrease, during a financial exercise, of cash (available funds and sight deposits) and cash equivalents (highly liquid short-term financial investments).

The analysis and accounting of total cash flows aim **the following procedures and objectives:**

- To examine the cash flows from the present operating activities in order to decide if they are positive and to establish the difference between the operating result and the net operating flows.
- To compare the cash flows from the present operating activities to the payments of dividends from the sections of financing activities in order to establish if these important outflows of money are covered and they do not represent a special effort for the company.

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- To examine the investment activity, which has an important informational value, in order to see if the company enlarges or not its activity and what parts are aimed at enlargement or contraction.
- On the basis of the investment activity analysis, it is examined the section regarding the financing in order to analyse the way in which the company finances its enlargement or if it does not enlarge, the way in which it reduces the debts related to financing.
- Finally, it is important to establish the consequences of the nonmonetary investment and financing operations on the cash flows. This kind of operations do not involve effective inflows or outflows of financial means, but they refer to fixed assets, long-term debts or equity capitals and may consist in replacing a fixed asset with a long-term debt or the payment of a debt by capitalization issue (Lala – Popa & Miculeac, 2012).

2. ANALYSIS OF CASH FLOWS RELATIVE TO THE OPERATING ACTIVITY

Total cash flows are made on the basis of the company's three main activities: operation, investment and financing.

In order to build the net cash flow generated by the operating activities, the international practice has defined two methods: **the indirect method and the direct method**, the difference between the two methods consisting in the way the flows related to the operating activity are defined (Palepu et al., 2010).

The indirect method which operates, theoretically, with information of engagement accounting, consists in adjusting the exercise's gross result:

- with the expenditure and non-monetary revenues (amortizations, provisions, exchange rate differences, postponed taxes, un allotted profits of associate companies and minority interests);

- with the variation of stocks and operating debts, respectively with the variation of the need of net circulating funds (asset and liability items involving the postponing of cashing and payments);

- with items of revenues and expenditure which are taken into consideration when determining the cash flows from the investment and financing activities (not to double the effects).

Through the indirect method, the cash flow related to the operating activity is defined as it follows:

Exercise's gross result
+ Depreciation expenses (amortizations and provisions)
- Depreciation revenues (amortizations and provisions)
+ Expenses regarding postponed taxes
- Expenses and revenues from exchange rate conversion and differences
- Result from the sale of fixed assets
- Result from the transfer of investment securities

- Revenues from subsidies for investments (calculated)
+ Cashed interests and dividends
- Paid interests and dividends
- Extraordinary expenses and revenues not related to operation
- Variation of stocks
- Variation of debts
+ Variation of suppliers and other non financial short-term debts
- Payments regarding the tax on profit
= **Net cash flow resulted from operating activities**

Because **the direct method** operates only with receipts and payments-like information, the net cash flow generated by operating activities will be calculated as difference between receipts and payments registered during the period, reflected into the available funds account.

According to direct method, the cash flows related to operating activities include:

- receipts from clients coming from the sale of goods, execution of works and supply of services;
- payments to suppliers of goods and services;
- payments as wages and other operating activities to and in the name of employees;
- receipts from royalties, commissions, fees and other revenues;
- payments regarding taxes, duties and other needs operation-related;
- paid or cashed interests and dividends;
- payments or refunding of tax on profit, if they cannot be identified specifically with the investment or financing activities;
- payments and receipts regarding expenses, respectively extraordinary revenues operation-related.

International Financial Reporting Standards treats differently the financial flows resulted from interests and dividends and their classification into one or another activity category. (Greuning et al., 2011)

The net operating cash flow (FNE) can be met in one of the following two situations:

a) FNE > 0, a positive operating cash flow means that the receipts exceed the payments related to the operating activity and there will be an excess of liquidity, which represents the source of value creation from the main object of activity.

b) FNE < 0, a negative operating cash flow means that the receipts are exceeded by the payments related to the operating activity and there will be a lack of liquidity.

A series of operating cash flow rates can be built a in order to see if it fits the company's needs.

1. The operating cash flow adequacy rate (RA_{FNE}) shows its capacity to cover the cash needs resulted from the financing and investment activity (N_{FI}).

There are two possibilities of calculation:

a) For one financial exercise:

$$RA_{FNE} = \frac{FNE}{N_{FI}} \qquad (1)$$

- If $RA_{FNE} > 1$, then during that period the cash flows cover all the cash needs from the financing and investment activity, (including the repartition of dividends), at the end of that period the company registering an excess of cash above its needs. In this case new opportunities must be found to invest or place the money. The optimum level of the indicator would be exactly 1, a deviation of +10% being considered still normal. Above it appears the problem of using the cash in excess.
- If $RA_{FNE} < 1$, then during that period the cash flows do not cover all the cash needs from the financing and investment activity. In this case it must find new sources of mobilization. It is a normal situation to launch on a market. From this reason it is monitored for several years.

b) For 5 consecutive years:

$$RA_{FNE} = \frac{\sum_{t=1}^{n} FNE_t}{\sum_{t=1}^{n} N_{FI_t}} \qquad (2)$$

This rate must be necessarily bigger or equal to 1. The previous condition is necessary but not sufficient, because the elements' dynamics must be monitored:
- If individual rates improve in time, then the indicator is considered to reflect a favorable situation for the company.
- If rates worsen in time, then the indicator is considered to reflect an unfavorable situation for the company.

2. The operating cash flow reinvestment rate (RR$_{FNE}$) shows how much of the operating cash flow is reinvested (INVT) during a financial exercise.

$$RR_{FNE} = \frac{FNEc_t}{INVT_t} \qquad (3)$$

where:

$FNEc_t$ - operating cash flow for period t, corrected with the tax on profit and dividends (sums which are deducted);

$INVT_t$ - investments done in period t, consisting in fixed assets and equipment with additional stocks related to them.

3. The operating cash flow rate (R_{FNE}), shows its position in total cash flows. If all cash flows are positive, then it shows the weight in total, having a meaning only when the total cash flow and the operation cash flow are positive.

$$R_{FNE} = \frac{FNE}{FN} = \frac{FNE}{FNE + FNI + FNF} \qquad (4)$$

and if FNE > 0, FNI > 0, FNF > 0 then:

$$FNE \% = \frac{FNE}{FN} \qquad (5)$$

- If R_{FNE} > 1, then it means that the operating activity is consumed by the other activities, the activity with the highest consumption having to be identified.
- If R_{FNE} < 1 there are two situations:
  - if all flows are positive, then the indicator shows the weight of operation in total, being advisable to be bigger then 75%;
  - if all total flows are positive, but there are negative flows (from financing or investment), there must be considered again what generates each flow.

In order to avoid distortions and sometimes the impossibility of calculation, respectively to catch all the situations, it is advisable to analyze them in absolute values on activities:

$$FN = FNE + FNI + FNF \qquad (6)$$

3. CASH FLOW ANALYSIS RELATED TO THE INVESTMENT ACTIVITY

The investment function measures the company's investment effort, at the level of internal growth (buy or sale of corporeal and non-corporeal fixed assets), as well as at the level of external growth (financial fixed assets) (Brealey et al., 2006).

Cash flows generated from investment activities (FNI) include:
- payments regarding the acquisition of fixed assets;
- receipts coming from the sale of fixed assets;
- cashed interests, as well as cashed dividends;
- debts variations related to investment operations;
- extraordinary revenues and expenses related to the investment activity.

The net cash flow from investment activities (FNI) can be found in the following situations:

a) FNI > 0, case in which cash is generated from the investment activities, cash which can be used to finance the other activities. The situation is abnormal if their size is considerable and it is not compensated by investments.

b) FNI < 0, case valid especially in the periods when there are made massive investments.

In this case we can build the **cash flow rate from the investment activity** (R_{FNI}) which shows its position in total cash flows. If all cash flows are positive, then it shows the weight in total. It has a meaning only when the total cash flow as well as the investment cash flow are positive.

$$R_{FNI} = \frac{FNI}{FN} = \frac{FNI}{FNE + FNI + FNF} \quad (7)$$

and if $FNE > 0$, $FNI > 0$, $FNF > 0$, then:

$$FNI \% = \frac{FNI}{FN} \quad (8)$$

- If $R_{FNI} > 1$, then it means that the investment supplies cash which is consumed by the other activities, the activity with the highest consumption having to be identified, the situation being abnormal.
- If $R_{FNI} < 1$, there are two situations:
  - if all flows are positive, then the indicator shows the weight of the investment activity in total, being advisable not to be bigger then 25%;
  - if all total flows are positive, but there are negative flows (from operation or financing), there must be considered again what effect generates each flow.

In order to catch all the possible situations, it is advisable to analyze them in absolute values on activities.

4. CASH FLOW ANALYSIS RELATED TO THE FINANCING ACTIVITY

The financing function emphasizes the financing sources to which the company applied in order to cover the fund needs (capital growth through contribution in cash or loan contracting), as well as the cash outflows related to getting these sources (payment of interests and dividends).

The cash flows generated by the financing activities (FNF) refer to:
- receipts from the issue of shares and other instruments of equity capital;
- payments to shareholders for buying or redemption of company's shares, that is payments regarding the reduction of issued capital;
- receipts coming from loans from the issue of bonds, credit, mortgage loan and other short or long-term loans;
- payments regarding the reimbursement of loans and bonds regarding to operations of financial leasing;
- paid dividends and interests;
- variation of debts referring to financing operations;
- extraordinary revenues and expenses related to financing.

The net cash flow from financing activities (FNF) can be met in the following situations:

a)   FNF > 0, case in which cash is generated from the financing activities, cash which can be used to finance the other activities. The situation is normal if it is done when there is an increase of equity capital items. Taking medium or long-term loans is not abnormal, when they connect with the needs of cash from the investment activity, respectively they benefit of the leverage effect.

b)   FNF < 0, case valid especially in the periods when credits are reimbursed, interests and taxes are paid massively, dividends are distributed. The situation is not necessarily negative.

A series of cash flow rates from the financing activity can be built in order to see if it fits the company's needs.

1. The financing cash flow adequacy rate (RA$_{FNF}$) shows its capacity to cover the needs resulted from the other activities (N$_{AC}$).

There are two possibilities of calculation:

a) For one financial exercise:

$$RA_{FNF} = \frac{FNF}{N_{AC}} \quad (9)$$

- If RA$_{FNF}$ > 1, then during that period the cash flows cover all the cash needs, including the repartition of dividends, at the end of the period the company registering an excess of cash coming from this activity above its needs. In this case new opportunities must be found to invest or place the money. The optimum level of the indicator would be exactly 1, a deviation of +5% being considered still normal. Above it appears the problem of sizing accordingly the resources compared to the needs.
- If RA$_{FNF}$ < 1, then during that period the cash flows do not cover all the cash needs from the financing and investment activity. In this case it must find new sources of mobilization. It is a normal situation to launch on a market. From this reason it is monitored for several years.

b) It is calculated for 5 consecutive years too. This rate must necessarily be bigger or equal to the unit.

2. The financing cash flow reinvestment rate (RR$_{FNF}$) shows how much of the financing cash flow is reinvested (INVT) during a financial exercise.

$$RR_{FNF} = \frac{FNFc_t}{INVT_t} \quad (10)$$

where:

$FNFc_t$ - financing cash flow for period t, corrected with the tax on profit and dividends (sums which are deducted);

$INVT_t$ - investments done in period t, consisting in fixed assets and equipment with additional stocks related to them.

3. The financing cash flow rate (R_{FNF}), shows its position in total cash flows. If all cash flows are positive, then it shows the weight in total. It has a meaning only when the total cash flow and the financing cash flow are positive

$$R_{FNF} = \frac{FNF}{FN} = \frac{FNF}{FNE + FNI + FNF} \quad (11)$$

and if FNE > 0, FNF > 0, FNI > 0, then:

$$FNF\% = \frac{FNF}{FN} \quad (12)$$

- If R_{FNF} > 1, then it means that the financing activity is consumed by the other activities, the activity with the highest consumption having to be identified.
- If R_{FNF} < 1, there are two situations:
  - if all flows are positive, then the indicator shows the weight of financing activity in total, being advisable not to be bigger then 25%;
  - if all total flows are positive, but there are negative flows (from operation or investment), there must be considered again what generates each flow.

In order to avoid distortions and sometimes the impossibility of calculation, respectively to catch all the situations, it is advisable to analyze them in absolute values on activities.

5. ANALYSIS END ACCOUNTING OF TOTAL CASH FLOWS

We have previously mentioned that total cash flows are formed on the basis of the three activities: operation, investment and financing. In some situations, there can be flows with extraordinary feature, which also must be taken into consideration. They are not normal flows. They should not exist, but because of some aleatory activities they can interfere and distort the cash flows. (Emery et al., 2004).

Total cash flows are formed on activities according to the following table:

**Table 1. Constitution of total cash flows according to direct method
– simplified scheme**

SPECIFICATION	Symbol and Formula
Receipts related to the operating activity	Ie
Payments related to the operating activity	Ee
CASH FLOW FROM THE OPERATING ACTIVITY	FNE = Ie - Ee
Cash inflows related to the investment activity	Ii
Cash outflows related to the investment activity	Ei
CASH FLOW FROM THE INVESTMENT ACTIVITY	FNI = Ii - Ei
Cash inflows related to the financing activity	If

Cash outflows related to the financing activity	Ef
CASH FLOW FROM THE FINANCING ACTIVITY	FNF = If - Ef
Cash inflows related to extraordinary activities	Ix
Cash outflows related to extraordinary activities	Ex
CASH FLOW FROM EXTRAORDINARY ACTIVITIES	FNX = Ix - Ex
Total cash inflows	FI = Ie + Ii+ If + Ix
Total cash outflows	FE = Ee + Ei+ Ef + Ex
TOTAL CASH FLOW	FN = FNE + FNI + FNF + FNX

On the basis of cash flows the company's available funds are formed. There are two situations:

a) The company does not have treasury credits, and in this case the available funds at the end of the period (DBf) are given by the available funds from the beginning (DBi) to which the cash flow (FN) is added:

$$DBf = DBi + FI - FE = Dbi + FN \qquad (13)$$

therefore

$$FN = DBf - DBi = \Delta DB \qquad (14)$$

b) The company starts with a treasury deficit, that is it has treasury credits (passive treasury TP). In this case, the available funds at the end of the period are given by the available funds from the beginning to which the cash flow is added:

$$DBf = DBi - TP + FI - FE = DBi + FN - TP \qquad (15)$$

therefore

$$FN - TP = DBf - DBi = \Delta DB \qquad (16)$$

Available funds and treasury operations are formed according to the following table:

Table 2. Constitution of available funds and treasury operations

SPECIFICATION	SYMBOL and FORMULA
Available funds at the beginning of the period	DBi
Short-term bank credits at the beginning of the period	CBTSi
Cash flow	FN = FNE + FNI + FNF + FNX
Current bank credits at the end of the period	CBTSf
Available funds at the end of the period	DBf = DBi + FN + Δ CBTS

The cash flows are considered to be sufficient if they generate available funds at the end of the period so that the net treasury is positive.

In my opinion, in order to make the analysis of total cash flow, the following aspects must be taken into consideration:
1. The analysis of total cash flow level;
2. The analysis of total cash flow dynamics;
3. The analysis of total cash flow structure.

1. The analysis of total cash flow level can be done on the basis of several criteria of comparison:

- The level of total cash flow is adequate as long as:
  - it is positive, the receipts being bigger than the payments (FN > 0; FI > FE);
  - it generates more available funds at the end of the management period than at its beginning (DBf > DBi ; ΔDb > 0);
  - it ensures a net positive treasury (TN > 0) and in growth (ΔTN > 0) ;
  - it covers the possible deficits of initial treasury.
- The size of the cash flow may be a sign for the company's future needs.

2. The analysis of total cash flow dynamics

The conditions that must be obeyed in order to ensure a maximum efficiency are:
a) $\Delta FN > 0$; $\Delta FI > 0$; $\Delta FE < 0$
b) $I_{FN} > 1; I_{FI} > I_{FE}$

3. The analysis of total cash flow structure is done on constitutive items, there being two possibilities:

- If all cash flows are positive, by reporting each item to the total cash flow we get its composition:

$$\frac{FNE + FNI + FNF + FNX}{FN} = \frac{FNE}{FN} + \frac{FNI}{FN} + \frac{FNF}{FN} + \frac{FNX}{FN} =$$
$$= FNE\% + FNI\% + FNF\% + FNX\% = 100\% \qquad (17)$$

Operating cash flows should have the majority, and the extraordinary ones should not exist.

- If not all cash flows are positive, then the structure can be calculated on constitutive items:
  a) On types of inflows:

$$\frac{Ie + Ii + If + Ix}{FI} = \frac{Ie}{FI} + \frac{Ii}{FI} + \frac{If}{FI} + \frac{Ix}{FI} = \quad (18)$$
$$= Ie\% + Ii\% + If\% + Ix\% = 100\%$$

The flows from operating and financing receipts should have the majority, while the investment and extraordinary ones should not exist.

b) On types of outflows:

$$\frac{Ee + Ei + Ef + Ex}{EI} = \frac{Ee}{EI} + \frac{Ei}{EI} + \frac{Ef}{EI} + \frac{Ex}{EI} = \quad (19)$$
$$= Ee\% + Ei\% + Ef\% + Ex\% = 100\%$$

I consider that the flows from operating and investment payments should have the majority, those from financing should be as little as possible, while the extraordinary ones should not exist.

6. CONCLUSIONS

The analysis of cash flows offers the possibility to establish and ensure the level of cash flows and current credits necessary to develop the operating activity, while ensuring a durable and dynamic financial equilibrium, with financing costs as reduced as possible.

For this purpose, it anticipates the value and periodicity of receipt and payment flows, their concordance with the level of owned resources, attracted or borrowed, compared to the estimated operating demands.

The management of total cash flows has the task to offer useful information about the change in commercial company's financial situation, allowing the evaluation of their capacity to generate future cash flows within the operating, investment and financing activities, as well as the adequate use of these flows.

We conclude that the advantages of cash flows analysis are major:
- Information is necessary to establish a company's capacity to generate cash and cash equivalents on the three categories of activities: operation, investment, financing (Lala-Popa & Miculeac, 2010)
- It increases the comparison degree of reporting the operation results between different companies because it eliminates the effects of using different accounting treatments for the same transactions and events.
- It gives the possibility to develop some valuation and comparison models of the updated value of future cash flows of different companies.

Possible future researches on this topic:
- analysis of cash flows from management operations;
- analysis of cash flows from capital operations;
- global analysis of cash flows using the profilograph method.

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