THE CASH CONVERSION CYCLE IN ROMANIAN COMPANIES

ANDONE DIANA
PHD STUDENT, BABES – BOLYAI UNIVERSITY CLUJ - NAPOCA, ROMANIA
andonediana2014@yahoo.com

GĂBAN LUCIAN
ASSISTANT PROFESSOR PHD, 1 DECEMBRIE 1918 UNIVERSITY ALBA IULIA, ROMANIA
gabanvasilelucian@gmail.com

Abstract. In this paper, we conducted a research on the equilibrium of cash operating cycle phases, between two moments: cash inflow and cash outflow. The research methodology is based on system financial ratios of 20 companies listed on Bucharest Stock Exchange in the energy industry. In this research paper it’s demonstrate how the cash conversion cash ratios system conducts to the short term company’s equilibrium.

Key words: operating activity, investment, financing, cash cycle, assets.

JEL: G32, M21

1. Introduction
Cash flow statements report a company’s inflows and outflows of cash. This is important because a company needs to have enough cash on hand to pay its expenses and purchase assets. Virtually all large companies operate on the accrual method of accounting, which means income and expense are recognized as they are earned or incurred, even though cash may not have been received or paid. The balance sheet and income statement reflect the company's performance under the accrual method. But to get an accurate picture of the company, you need to know how it is handling its cash.

A cash flow statement shows changes over time rather than absolute amounts at a point in time so as it shown in the balance sheet. It uses and reorders the information from a company’s balance sheet and income statement. While an income statement can tell you whether a company made profit, a cash flow statement tells you whether the company generated cash.

The bottom line of the cash flow statement shows the net increase or decrease in cash for the period. Generally, cash flow statements are divided into three main parts. Each part reviews the cash flow from one of three types of activities: (1) operating activities; (2) investing activities; and (3) financing activities.

Take into account these aspects we evaluate the cash conversion cycle inside the financial analysis based on a specific indicators system.

2. Literature review
Cash conversion cycle (CCC) is analyzed in today’s literature by many authors from several points of view: the correlation with working capital, profits, the correlation with value added, the correlation with liquidity or the correlation with company’s size.

Thus, authors from Pakistan studied the relationship between cash conversion cycle (CCC) and performance of cement industry of Pakistan based on the correlation and regression analysis between cash conversion cycle (CCC) and firm's return on assets (ROA) (Yasir, Majid & Yousaf, 2014) [1].

Another study from Japan also investigates the relation between a firm's cash conversion cycle and its profitability using dynamic panel data analysis in the Japanese industry (Nobanee, Abdullatif & AlHajjar, 2011) [2].

An Italian researcher verifies the impact and the influences of the cash conversion cycle on the 4,226 Italian SMEs performance. Thus they showed that the cash conversion cycle affects the profitability. The study takes EBITDA on Net Sales as measures of profitability to represent dependent variables (Muscettola, 2014) [3].

Another expert offered empirical evidence of the negative relationship between a company's net trade cycle and its profitability as measured by the Total Return on Total Assets. The results show that shorter net trade cycles are most commonly associated with higher profitability while the reverse is also true (Soenen, 1993) [4].
In his paper Walker Matthew demonstrates that the cash conversion cycle (CCC) is a concept and method of analysis which varies from book to book, and the results of computation are ambiguous, difficult to interpret, and not of much use in providing input to the financial planning process and to performance measurement (Walker, 1998) [5].

For the same purpose, other authors from Finland show that the computation of cash conversion cycle (CCC) has to take into account advance payments as a component of operational working capital (Talonpoika, Sari, Miia & Timo, 2014) [6].

In other academic papers is presented liquidity and cash conversion cycle aspects. Thus, authors from Taiwan examined if cash conversion cycle period (CCC) is a better liquidity measure comparing with the current and quick ratios. The research results show that CCC indicators better reflect the company's actual short-term debt-paying ability and liquidity (Li-Hua, Szu-Hsien, Yi-Min & Chun-Fan, 2014) [7].

Relationship between CCC and Liquidity, Invested Capital, and Firm Performance is shown in a recent paper. Thus is shown that US firms with more efficient cash conversion cycles were more liquid, required less debt and equity financing, and had higher returns. The results also indicate that small firm owners/managers may be reactive in managing cash conversion cycle (Ebben & Johnson, 2011) [8].

Finally I found that the importance of cash conversion cycle in the company’s management is explained in many papers. Thus, in their study authors in the United States examined the impact of independent directors on the cash conversion cycle of American manufacturing firms and indicate that the presence of independent directors on the board of directors shortens the inventory period and cash conversion cycle of manufacturing firms (Gill, Biger & Obradovich, 2015) [9].

Another relevant cash conversion cycle study investigates whether non-financial firms listed on the Nairobi Securities Exchange (NSE) exhibit a target cash conversion cycle (CCC). Thus a higher return on assets, investment in capital expenditure and growth opportunities has a significant negative association with the CCC. The results also show a significant positive relation between inflation and the CCC (Mutua, 2014) [10].

In the oil and gas industry an important study has revealed the impact of economic and financial variables on cash conversion cycle of energy, oil and gas sectors listed in Muscat Security Market. So results show the statistical significant impact of growth sales, firm size, and cash flow as financial variables and average daily production of oil, consumer price index, total merchandise import and total government expenditure as economic variables on cash conversion cycle (AL-Shubiri, 2015) [11].

From another point of view, the fundamental objective of each entity consists in triggering own capital in the mechanisms of the market so that, after each relation with the market, there would be obtained a capital – surplus determining the increase of the shareholders wealth (Needles, Anderson & Caldwell, 1987) [12]. In other words, owners are interested in placing the capital on the market in order to produce goods or to use it for speculative purposes and recovering it during a certain period of time, decreasing the period of capital recovery and, on the other hand, the maximization of the surplus and limiting the risks implied by the intervention of capital on the competition market.

This means that the sums invested by shareholders as economic capital will be under a continuous movement, transforming, highlighting the financial cycle of capital.

According to the International Financial Reporting Statements, the vertical balance sheet is a “liquidity” balance sheet and it is the main data source for the “liquidity-solvability” analysis, having the following features:

- it studies the failure risk of debt reimbursement of entities, offering better solutions to the demands of the creditors and to the banking institutions;
- it reflects better the liquidity and solvability of the applying entity and therefore emphasizes better its failure risk in reimbursement and bankruptcy risk (Bătrâncea et.al., 2009) [13].

![Figure 1. The Cash Capital Cycle](image)

For each enterprise there are usually three main financial cash cycles:

1. operating cash cycle;
2. investment cash cycle, and
3. financing cash cycle.

In the capital cycles, the enterprise draws the line between physical assets, financial assets and currency, in order to ensure its own functioning and development.
The operating cash cycle may be characterized by the goods and/or services flows during a given period of time, not taking into account their method of evaluation.

The operating cycle is based on the exchanges between the enterprise and the other economic companies in cash and illustrates how the company used cash to produce more cash. In this case cash is used to purchase raw materials, to produce and to sell goods and services (figure 2):

![Figure 2. The Business (Operational) Cash Conversion Cycle](image)

Note: Authors illustration

Thus, any business begins with a certain amount of money. The acquisitions of goods (merchandise, raw material etc) and services together with the production process itself transform the available cash into stocks.

Every sale operation transforms finished stocks into receivables, which, thorough cashing, become cash. If this system functions normally, the process repeats continuously. The financial resources of a firm may be increased both by external financing and by self-financing.

On the other hand, financial resources may be reduced in the case of an acquisition of fixed assets, dividend payments, as well as paying taxes.

Short-term creditors (like suppliers for instance) must somehow measure the entity’s ability to meet its current obligations which in its turn depends on one hand upon the cash resources available at the time when financial statements are drawn up and on the other hand on the operating cash flow to be generated (Bătrâncea et.al., 2009) [13].

At the same time, if we refer strictly to the cycle of the business unfolding, we notice that an increase in the inventory turnover and in receivables turnover generates additional financial resources. A slow down of these indicators may endanger the normal unfolding of the respective business.

From the diagram above it results the functioning modality of the enterprise during a certain period of time. Cash flows (cash inflows and outflows), counterpart of the exchanges of goods and services, are altered in time, in comparison with real flows. The result is the financial assets (receivables) and short term debts, or suppliers.

3. Method and Results

The informational system needs to ensure also the evaluation of the company’s liquidity, which is necessary in order for the suppliers (generally, short-term creditors) to evaluate the company’s ability to pay off its current obligations. This ability depends on the cash-on-hand resources which are available on the date of the balance sheet elaboration and on the cash-on-hand which will be generated by the operational cycle of the company (Bătrâncea et al., 2010) [14].

Short-term creditors (for example suppliers) have to evaluate the capacity of the entity to pay its current obligations. This capacity depends on the cash resources available at the date of drawing up the financial situations and the cash that is to be generated by the entity’s operational cycle (Bătrâncea et al., 2010) [15]. In this sense they must constantly analyze operational cycle trading partners.

Operational cycle of a company is equal to the number of days required for the manufacture and sale of finished products and goods and the number of days that receivables from the sale of products are transforming in cash.

The cash operating cycle length variation is dependent by the trade credit firm. If we subtract the number of days from the operational cycle in which commercial debts are not honored we get the cash conversion cycle, i.e. the number of days the cash a company is in the current operating cycle.

For each phase it was calculated number of days between each element of cash conversion cycle and turnover, value that would enable us to analyze to which extent the treasury of 20 Romanian companies are balanced on each level.
The methodology used is based calculation of indicators aimed term storage, the term of collection of invoices, payment term of invoices received and on the correlation index of receivables and payables to suppliers, and index correlation between inflows and exit.

In order to analyze the cash conversion cycle, there has been made a phase analysis. The cash conversion cycle has been divided in the following phases:

► Firstly we determine the cash inventory supply like the inverse function of yield stocks (turnover / stocks), expressed in days.

► Sale of inventories determine receivables, which as soon as they are in-cashed, are used to pay suppliers so that the productive cycle can continue. The ability to ‘replicate’ this cycle depends upon the entities’ short-term liquidity and on their ability to generate cash flow or equivalents of this (Bătrâncea et al., 2010) [16].

Figure 3. The inventory turnover evolution during 2006 – 2015 periods in Romanian companies analyzed

Note: Authors computation.

So as we can see from the above figure, during storage ranged between 12.75 days and 47.26 days in the Romanian enterprises. This leads to increased working capital and cash flow implicitly from operating activities through cash funds was sufficient to purchase stocks of raw materials and to get finished products.

2. Secondly, we determine the cash inflow by selling, according with accrual accounting, which is an inverse function of efficiency claims.
As we see in the figure above the average term of collection grew over the period, which led on the one hand a slowdown in the collection of claims and secondly to ensure increased operational cycle and hence the cash inflows.

3. The third component of the Cash Conversion Cycle relates to payments to be made by third parties.

From the data analyzed we observe that an increase in the indicator reflects on the one hand an increase in trade credit received from third parties, and on the other hand a reduction in the cash cycle as a result of payments that enterprises have made to suppliers.
The data presented above that the cash conversion cycle is calculated in days and only relates to inflows and outflows of days calculated as follows:

- inflows comprise one hand number of inventory supply: raw materials, goods, finished products, and on the other hand number of days in selling to clients;
- outflows include the number of days between two successive payments of invoices received from suppliers.

Based on the components from above presented the cash conversion cycle is calculated as follows:

$$CCC = \text{Total inflows } [\text{Days in inventory supply (DI) + Days in selling (DS)}] - \text{Total outflows } [\text{Days in paying (DP)}]$$

Figure 6. The evolution of cash conversion cycle phases during 2006 – 2015 periods in Romanian companies analyzed

*Note: Authors computation.*

All three stages show the total amount of cash in the different moments of cash conversion cycle, based on turnover. From a practical point of view, it is interesting to notice to what extent each phase influences the equilibrium of the next phase. The following succession regarding the study of the interaction between phases was determined as follow:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>DI</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Payables turnover</td>
<td>38.03</td>
<td>49.98</td>
<td>81.11</td>
<td>74.95</td>
<td>39.41</td>
<td>72.86</td>
<td>187.72</td>
<td>206.93</td>
<td>128.15</td>
</tr>
<tr>
<td>Receivables turnover</td>
<td>45.26</td>
<td>43.40</td>
<td>40.95</td>
<td>39.01</td>
<td>47.15</td>
<td>78.48</td>
<td>183.11</td>
<td>187.39</td>
<td>120.03</td>
</tr>
<tr>
<td>Inventory turnover</td>
<td>12.75</td>
<td>14.71</td>
<td>47.26</td>
<td>37.35</td>
<td>32.10</td>
<td>38.60</td>
<td>21.12</td>
<td>15.15</td>
<td>24.79</td>
</tr>
<tr>
<td>Cash conversion cycle</td>
<td>20.68</td>
<td>8.22</td>
<td>7.10</td>
<td>1.41</td>
<td>30.84</td>
<td>44.22</td>
<td>16.52</td>
<td>5.80</td>
<td>18.65</td>
</tr>
</tbody>
</table>

From a practical point of view, it is interesting to notice to what extent each phase influences the equilibrium of the next phase. The following succession regarding the study of the interaction between phases was determined as follow:

| DI | → | DS | → | DP |

It is therefore apparent that an increase in the Cash Conversion Cycle will cause an increase in working capital which will have beneficial consequences in financing operational activity.
From the data above we saw that the high number of days of Cash Conversion Cycle provided a constant self-financing operational activity of enterprises analyzed. To identify the factors and the causes we calculate indices of Cash Conversion Cycle developments.
Analyzing the data in the figure above, we note that claims fully cover debt only partly what leads us to conclude that companies analyzed recorded a goal of working capital (Index <1) from the sale, which is offset in inflows site from inventories.

The total inflow of cash is another indicator which highlights the operational cycle length throughout the fiscal year. Its length entity highlights the capacity of self current assets without recourse to short-term bank loans.

Figure 8. The receivables to payables index evolution during 2006 – 2015 periods in Romanian companies analyzed

Note: Authors computation.

Figure 9. The Evolution of the operational cycle length during 2006 – 2015 periods in Romanian enterprises

Note: Authors computation.

From the data analysis above notes that throughout the period the companies had own resources for finance the business more than 58 days. This aspect is positive for the productive activity companies analyzed.
Figure 10. The Evolution of Inflow to Outflow Cash Index during 2006 – 2015 periods in Romanian companies analyzed

Note: Authors computation.

The evolution of Inflow to Outflow Cash Index shows that the cash cycle time is higher than one, which means a surplus working capital than necessary.

4. Conclusions

The analysis of cash conversion cycle on phases led to the following conclusions:

● the closer we get to the final phase of the total cycle, the lower is the effect produced by the equilibrium of the current phase on the next one;

● the equilibrium per total cycle is little influenced by the equilibrium from the cashing phase, since partial equilibrium on phases refer to, on the one hand, the material flows in a direct way and, on the other the payments forming cash flow in a backward way, payments that depend little on the final cashing of the previous circuit;

● there has to be taken into account the tendency of the effect produced by the equilibrium of each phase on the next phase;

● the reason for being in business is to generate more cash at the end of the cycle than there was the beginning through the added value of purchasing a product for which there is a market demand. The challenge of all managers of companies is to run the cycle as quickly as possible on a continuing basis.

The process analysis helps to determinate:

● whether a company can fulfill its obligations to everybody that is involved in the business cycle;

How efficiently the company is using its assets to generate sales and profits (the company ability to achieve the maximum results with a minimum of resources invested in current and fixed assets).

● efficiency is obtaining the maximum return from the investment in assets. With regard to current assets, this means maintaining them at the lowest possible level which will allow the achievement of the desired level of sales. For current assets, the main concern is quality, or in other words, liquidity: how quickly a current asset can be turned into cash. In evaluating fixed assets, it is important to examine the efficiency with which the firm’s plant and machinery convert raw materials to finished goods.

● Generally, the less money a company ties up in the assets it needs to produce a given level of goods and services and generate sales revenues and profit, the more efficiently it is managing its investment in assets.
However, the nature of the company’s business and asset conversion cycle determines to some extent its investment in assets. Therefore, any measurement of efficiency in the use of assets is meaningful only in terms of the requirements of the particular business or industry.

In conclusion, we conclude that the strong dependence between equilibriums on phases does not require a study regarding the overall influence of the phases over the equilibrium per total operational cycle.

References