# CASH CYCLE MANAGEMENT, PREMISE FOR SURVIVAL AND DEVELOPMENT

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**ABSTRACT**

The development of the economic activity of the companies has shown in time the need to pay more attention to the cash conversion cycle. To measure the positive or negative effects of the indicators defining the cash conversion cycle, a descriptive statistical analysis and a correlation and regression analysis were performed. The study period was 5 years, and the analysis produced the direct or inverse relationship developed by each indicator as well as its intensity. At the same time, this study also measured the negative impact of the components of the cash conversion cycle on the gross operating result.

**Keywords**: The cash conversion cycle, profitability, performance, and risk.

**JEL classification**: C40, D22, D81.

## 1. Introduction

Any company irrespective of the field of activity is interested in developing in time own systems that allow it to assess and control the risks it exposes to avoid unfavourable situations of doing business. Among these risks, the risk of insolvency is considered to be a major risk that can create a real imbalance. Most economic and financial specialists consider that this risk can be avoided if the company is permanently monitored, ie if the information system allows simultaneous financial analyses or scenarios on processes and activities that confirm or invalidate the viability of the action being taken or to be achieved (Smith, 1980). The detail and tracking of current operations during the course of the business, as well as the analysis of past events through the company's financial statements, allows the management to outline an image of the organization's future and of the consequences for its decisions or actions. The company's liquidity analysis is important because it allows the measurement of short-term payment capacity. By permanently monitoring the cash conversion cycle, you can see the duration in days that a firm has to sell, stock, or pay off debts. The postponement of supplier payment plays an important role in the cash conversion cycle, which reduces cash conversion and the lower pay out period will extend the cash conversion cycle (Lazaridis & Tryfonidis, 2006). All actions taken to defer current payments at no extra cost are beneficial for the firm to allow re-establishment or creation of surplus availability (Moss & Stine, 1993). Accelerating revenue collection and slowing payments is the basic principle of efficient cashing and payroll management, and this Hong Kong (2008) asset-backed recovery principle is called the cash conversion cycle that makes it possible to efficiently manage assets short-term and company liabilities, providing the necessary liquidity. The use of commercial credit by companies to speed up sales is a way that many companies use, which has the effect of increasing their receivables and profits. Recent studies show that in the European countries up to 25% of total assets are receivables (Giannetti, 2003) and other studies explain why there are commercial credit and the advantages offered (Elliehausen and Wolken, 1993; Long et al. 1993, Deloof and Jeger, 1996).

The cash conversion cycle, in the opinion of many specialists, measures the amount of time that current assets (stocks and receivables) are converted into liquidity, being a financial policy management tool, and the positive result of these management actions and policies can be appreciated in terms of (Uyar, 2009; Garcia-Teruel & Martinez-Solano, 2007). It is considered that the cash conversion cycle can be analyzed in three distinct periods: (1) the collection period of the receivables due to the products sold or the services rendered, (2) the period of stock conversion (inputs of raw materials or materials and outputs of finished products, semi-finished products, etc.), and (3) the postponement of payments to suppliers of goods and services (Dong & Su, 2010). According to the conclusions of some specialists, the profitability of firms is often correlated with the debt collection period, as it is considered that it is not enough to produce or sell, but there must be concerns about their purpose, ie when they are transformed into liquidities, and the mode and timing of the collection play a decisive role (Gill, Biger and Matur, 2010). The inventory conversion period has an effect on the cash flow cycle, which may lead to additional costs with direct effects on profitability, thus supporting the theory of safety stocks and supporters of the "no stock" theory (Raheman & Nasr, 2007; Garcia -Teruel & Martinez-Solano, 2007, and DELOOF, 2003). Inventory policy is strongly debated, influenced by its specific field of activity, but also by management actions and decisions (Lazaridis & Tryfonidis, 2006).

Empirical studies examining the association between company profitability and liquidity have shown a direct relationship with a positive or negative effect between profitability and the duration of the cash conversion cycle (Eljelly, 2004, Jose, 1996, Hutchison, 2007). So, if the period of the cash conversion cycle is shorter (fast transformation processes), we have a high return on assets, improving the efficiency of the debt, inventory and debt account, and when it is longer, the effect is negative. These efficient transformation and management processes aim at

decreasing the duration of the conversion of receivables (receivables and receivables) and inventories (material and products) in cash and the slowdown in payments for debt accounts (debts and payment effects), which together to improve the company's profitability (Gentry, 1990; Peel & Wilson, 1996; Filbeck & Krueger, 2005). DELOOF (2003) suggested that the number of days of receivables and receivables accounts, payables (suppliers of goods and services) and inventories are the main components of the cash conversion cycle and this indicator of profitability the efficient management of circulating assets is a measure of the actions taken by management. Vishnani and Shah (2007) examined the impact of current assets and current liabilities on performance and the result of the study confirms the negative relationship between the debt collection period and the company performance, while the deferred payment period has positive relationships with the company performance. Other authors have measured the impact of company size and current assets and current liabilities on company performance and the result shows that efficient debt, stock, and debt management creates higher profits (Gill et all, 2011).

In this paper, a study was conducted on the influence of the cash conversion cycle (debt collection period, storage period and debt deferral period) on net profit, using simple regression analysis. For the influence to be noticed, the indicator of the net profit in net sales was calculated, which was then compared with the indicators of the cash conversion cycle, considering that this indicator mirrors the best recovery of the net profit on account of net sales.

## 2. Materials and methods

In the first part of the study, we started with the practical needs of managing the items that significantly influence working capital: receivables, stocks, and debts. For this, an analysis of the evolution of these indicators has been carried out for ten years. The management of items (receivables, stocks, and debts) that make it possible to convert cash is important because it allows us to find out what the cash conversion cycle is, namely, the appreciation of working capital (collections and payments) and sources of origin.

The main measures for liquidity optimization are presented in the Table 1.

***Table 1. Types of liquidity optimization measures***

| Receivables | Stocks | Liability |
|---|---|---|
| - establishment of credit limits;<br>- standardizing credit periods and differentiation criteria;<br>- permanent monitoring of clients for checking their creditworthiness;<br>- the specific notice procedure;<br>- application of external financial instruments (factoring);<br>- improving the complaint handling process; | - reducing order processing time;<br>- reducing the production time;<br>- optimization of sales and planning;<br>- optimization of the storage network;<br>- application of specific sales accelerating mechanisms (stock liquidation, trade or financial discounts etc.) | - discount possibilities at small payment terms;<br>- renegotiation of prices;<br>- rescheduling payments;<br>- obtaining an extension of the payment terms;<br>- using the Barter. |

Knowing the financial difficulties that can be caused by the failure of a client to pay, the impossibility to pay the suppliers or the uninterrupted stocks that can lead to financial blockade, a comparative analysis has been carried out which aimed at identifying the component of each type of receivable, stock or debt and evolution in time.

For the comparative analysis, the data presented in Table 2 was used.

***Table 2. Internal state of customers, stocks and suppliers***

| Accounting data | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Receivable, from which:** | **31.645** | **37.479** | **44.403** | **50.020** | **52.224** | **53.022** | **60.688** | **63.697** | **66.131** | **60.477** |
| - Commercial receivables, from which: | 21.409 | 25.910 | 27.950 | 33.033 | 36.328 | 34.569 | 39.453 | 41.239 | 42.535 | 40.056 |
| -Internal customers | 19.259 | 23.561 | 25.459 | 27.897 | 31.356 | 30.518 | 34.126 | 36.513 | 37.575 | 35.224 |
| -External customers | 1.569 | 1.785 | 1.750 | 2.598 | 2.569 | 1.798 | 1.526 | 1.715 | 2.389 | 2.596 |
| - Clients are uncertain | 1.152 | 3.569 | 2.723 | 1.896 | 1.896 | 1.896 | 2.236 | 2.236 | 2.236 | 2.236 |
| -Depreciation adjustments receivables-clients | -1.152 | -3.569 | -1.982 | 642 | 0 | 0 | 1.033 | 250 | 335 | 0 |
| -Other fixed debts | 581 | 564 | 0 | 0 | 507 | 357 | 532 | 525 | 0 | 0 |
| - Other claims | 10.236 | 11.569 | 16.453 | 16.987 | 15.896 | 18.453 | 21.235 | 22.458 | 23.596 | 20.421 |
| **Inventory, from which:** | **50.535** | **62.435** | **70.230** | **68.563** | **79.843** | **82.562** | **81.546** | **89.542** | **87.985** | **85.436** |
| - Stocks of raw materials and materials | 11.807 | 23.988 | 25.202 | 15.902 | 18.798 | 17.510 | 14.507 | 19.930 | 15.843 | 13.889 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| - Production under execution | 5.897 | 6.852 | 6.923 | 7.136 | 5.697 | 7.536 | 7.896 | 8.520 | 8.456 | 9.513 |
| - Products | 31.269 | 29.856 | 35.569 | 43.156 | 52.897 | 55.621 | 56.987 | 58.741 | 61.235 | 59.451 |
| - Goods | 1.562 | 1.739 | 2.536 | 2.369 | 2.451 | 1.895 | 2.156 | 2.351 | 2.451 | 2.583 |
| **Payables, from which** | **40.901** | **49.412** | **57.344** | **54.482** | **58.562** | **59.820** | **69.673** | **66.260** | **69.251** | **67.211** |
| - Advance payments on client account | 1.589 | 2.587 | 2.935 | 3.361 | 3.891 | 4.512 | 2.587 | 3.569 | 3.812 | 4.125 |
| - Commercial payables, from which: | 20.453 | 24.256 | 29.453 | 27.226 | 33.859 | 31.852 | 38.495 | 36.232 | 39.452 | 35.235 |
| -Domestic suppliers | 15.884 | 14.100 | 27.914 | 14.066 | 29.290 | 15.971 | 29.431 | 29.657 | 30.330 | 26.343 |
| -External suppliers | 0 | 0 | 0 | 11.501 | 4.569 | 13.925 | 7.895 | 6.125 | 8.135 | 8.269 |
| -Suppliers - non-billed invoices | 0 | 0 | 1.539 | 0 | 0 | 0 | 0 | 450 | 987 | 623 |
| -Providers of immobilizations | 4.569 | 10.156 | 0 | 1.659 | 0 | 1.956 | 1.169 | 0 | 0 | 0 |
| - Other debts | 18.859 | 22.569 | 24.956 | 23.895 | 20.812 | 23.456 | 28.591 | 26.459 | 25.987 | 27.851 |

Only receivables and debts were selected from receivables and debts as commercial receivables (65 ÷ 70%) can cause non-payment losses and unpaid commercial debts (49 ÷ 58%) may lead to default.

Knowing the net profit, net sales, and turnover, we calculated the annual average of trade receivables, inventories and trade payables, and then the cash conversion cycle indicators. The annual average was calculated as the average arithmetic average obtained by adding the initial balance to the final balance within each calendar year. The results obtained and the indicators used are shown in Table 3.

***Table 3. Annual distribution of indicators***

| Years/ Indicators | Net profit | Net sales | Sales turnover | Average receivable | Average inventory | Average payables |
|---|---|---|---|---|---|---|
| 2008 | 153.489,00 | 553.683,00 | 575.983,00 | 20.930,50 | 45.885,50 | 43.428 |
| 2009 | 157.456,00 | 580.952,00 | 592.346,00 | 23.659,50 | 56.485,00 | 64.730 |
| 2010 | 165.423,00 | 575.264,00 | 585.432,00 | 26.930,00 | 66.332,50 | 59.483 |
| 2011 | 167.845,00 | 592.453,00 | 635.899,00 | 30.491,50 | 69.396,50 | 51.845 |
| 2012 | 162.472,00 | 615.435,00 | 650.894,00 | 34.680,50 | 74.203,00 | 49.239 |
| 2013 | 159.123,00 | 633.843,00 | 746.897,00 | 35.448,50 | 81.202,50 | 61.253 |
| 2014 | 168.652,00 | 695.469,00 | 815.567,00 | 37.011,00 | 82.054,00 | 56.789 |
| 2015 | 153.785,00 | 687.253,00 | 795.446,00 | 40.346,00 | 85.544,00 | 62.745 |
| 2016 | 245.764,00 | 1.145.236,00 | 1.192.358,00 | 41.887,00 | 88.763,50 | 60.549 |
| 2017 | 255.238,00 | 1.257.649,00 | 1.280.541,00 | 41.295,50 | 86.710,50 | 65.564 |

Table 2 shows that net sales are different from turnover as net sales have taken into account the financial cuts granted.

Subsequently, the indicators of the cash conversion cycle and the share of net profit in net sales were calculated using the calculation formulas presented in Table 4.

The SNPINS indicator (the percentage of net profit in net sales) was chosen because it was considered important to know its level and whether this indicator depends on the cash conversion cycle indicators.

Data were analysed using regression analysis using the Statistics program (v. Soft, USA). Statistical analysis has attempted to find out whether there is a relationship or relationship of dependence between the indicators taken in the study (see Table 3) considering the SNPINS dependent variable and the other independent variable indicators (RCP, ICP, PDP, CCC).

***Table 4. Indicators taken into the study***

| Abb. | Name indicator | Equation |
|---|---|---|
| SNPINS | The share of net profit in net sales | Net profit/net sales |
| RCP | Receivables collection period | Average receivables*365/sales turnover |
| ICP | Days inventories outstanding | Average inventory x 365/sales turnover |
| PDP | Payment deferral period | Average payables x 365/sales turnover |
| CCC | Cash conversion cycle | RCP + ICP - PDP |

## 3. Results and discussion

The analysis of receivables involved identifying the types of receivables owned by the company, which are presented in Figure 1. Figure 2 shows the evolution of trade receivables over the 10 years studied.

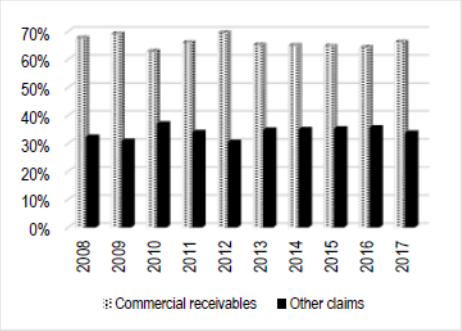


***Figure 1. Evolution of receivables***

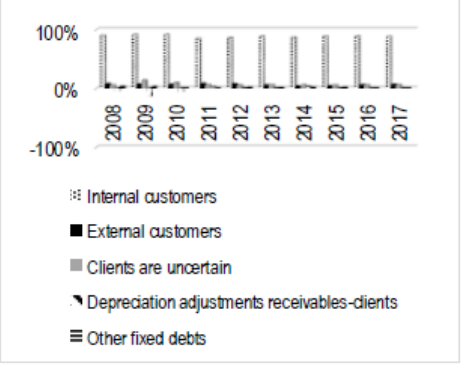


***Figure 2. Evolution of commercial receivables***

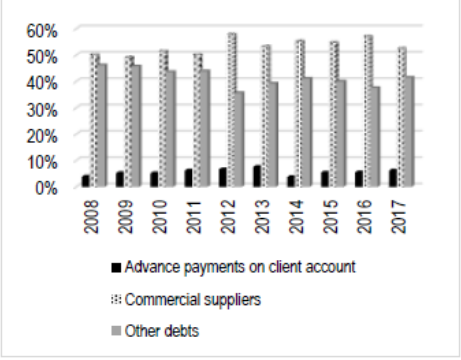


***Figure 3. Evolution of debts***

From the analysis of Figure 1 it can be noticed that the largest share holds commercial receivables. As commercial receivables have an impact on working capital, we have identified the weights of each type of commercial debt (Figure 2).

Figure 3 shows the evolution of debts by current debt types. Figure 4 shows the situation of the four types of commercial debt.

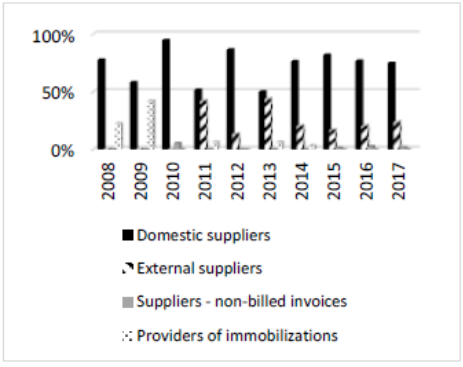


***Figure 4. Evolution of commercial debt***

The analysis of Figure 3 shows that the largest share is held by commercial debts, which show a downward trend. From the analysis of Figure 4 it can be noticed that the commercial debts are made up of 4 types of debts, of which the internal debts are predominant over the whole period (84 ÷ 91%).

Figure 5 shows the evolution of inventories by stock type.

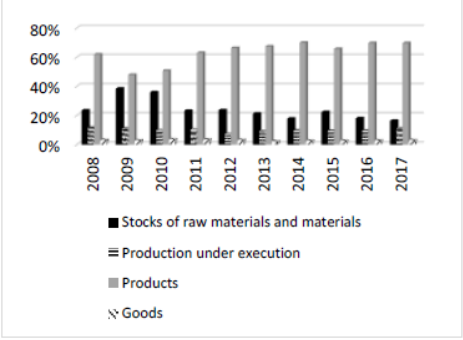


***Figure 5. Evolution of stocks by stock type***

The analysis of Figure 5 shows that the product stocks occupy the highest share (48 ÷ 70%) over the period under review, followed by stocks of raw materials and consumables (16 ÷ 36%).

Table 5 shows the indicators taken in the study, according to the formulas presented in Table 2.

To calculate the RCP indicator, only the commercial receivables presented in Table 2 were taken into account. For the PDP indicator, account was taken of the values recorded in Table 2, ie advances received on customer accounts and debts to suppliers. Table 1 also took stock information.

In this study, a multiple regression analysis was performed using the Statistics program (v. Soft, USA) using the data. Following the statistical analysis, the values presented in Table 6 were obtained, considering the SNPINS dependent

variable and the independent variables RCP, ICP, PDP, CCC.

***Table 5. State of indicators***

| Variable | SNPINS | RCP | ICP | PDP | CCC |
|---|---|---|---|---|---|
| 2008 | 0,28 | 13,26 | 29,08 | 27,52 | 14,82 |
| 2009 | 0,27 | 14,58 | 34,81 | 39,89 | 9,5 |
| 2010 | 0,29 | 16,79 | 41,36 | 37,09 | 21,06 |
| 2011 | 0,28 | 17,5 | 39,83 | 29,76 | 27,58 |
| 2012 | 0,26 | 19,45 | 41,61 | 27,61 | 33,45 |
| 2013 | 0,25 | 17,32 | 39,68 | 29,93 | 27,07 |
| 2014 | 0,24 | 16,56 | 36,72 | 25,42 | 27,87 |
| 2015 | 0,22 | 18,51 | 39,25 | 28,79 | 28,97 |
| 2016 | 0,21 | 12,82 | 27,17 | 18,54 | 21,46 |
| 2017 | 0,2 | 11,77 | 24,72 | 18,69 | 17,8 |

***Table 6. Summary Statistic***

| Statistic/ Value | RCP | ICP | PDP | CCC |
|---|---|---|---|---|
| Multiple R | 0,9173 | 0,7476 | 0,5199 | 0,9031 |
| Multiple $R^2$ | 0,8415 | 0,5590 | 0,2703 | 0,8156 |
| Adjusted $R^2$ | 0,8217 | 0,5038 | 0,1791 | 0,7926 |
| F(1,8) | 42,4796 | 10,1391 | 2,9633 | 35,3915 |
| p | 0,0002 | 0,0129 | 0,1235 | 0,0003 |
| Std.Err. of Estimate | 0,0134 | 0,0223 | 0,0287 | 0,0144 |

Analyzing the results obtained in Table 5 we can see the strongest linear relation of association is when R2 has values close to 1. This was obtained by comparing SNPINS (dependent variable = DV) with each independent variables (IV). It can be seen that SNPINS comparison with RCP resulted in the best association with regression line data (R2 = 0.84), followed by SNPINS comparison with CCC (R2 = 0.82).

In Table 7 we obtained the values of the regression analysis related to the statistical indicators.

***Table 7. Regression Summary for Dependent Variable: SNPINS***

| Variable | N=5 | Beta | Std. Err. of Beta | B | Std. Err. of B | t | p-level |
|---|---|---|---|---|---|---|---|
| RCP | Intercept | | | 0,0960 | 0,0240 | 4,0020 | 0,0039 |
| | RCP | 0,9173 | 0,1407 | 0,0048 | 0,0007 | 6,5176 | 0,0002 |
| ICP | Intercept | | | 0,0853 | 0,0522 | 1,6328 | 0,1412 |
| | ICP | 0,7476 | 0,2348 | 0,0112 | 0,0035 | 3,1842 | 0,0129 |
| PDP | Intercept | | | 0,1456 | 0,0613 | 2,3746 | 0,0449 |
| | PDP | 0,5199 | 0,3020 | 0,0070 | 0,0041 | 1,7214 | 0,1235 |
| CCC | Intercept | | | 0,1107 | 0,0239 | 4,6398 | 0,0017 |
| | CCC | 0,9031 | 0,1518 | 0,0044 | 0,0007 | 5,9491 | 0,0003 |

From the analysis of Table 7, it is observed that the output from the regression is given by the intercept and the coefficient is also called the slope of the regression line. The greatest influence of the independent variables (RCP, ICP, PDP) over the dependent variable (SNPINS) is observed in the RCP indicator. Coefficient B has positive values, meaning that there is a direct correlation between the variables. By computing the default error value, the standard regression error is calculated to show the normal estimate of the smallest squares of the standard deviation of the adjacent errors.

Table 8 presents the independent variables (IV) along with the dependency variable (DV).

***Table 8. Variables currently in the Equation (DV: SNPINS)***

| Independent variable | Beta | Partial Cor. | Semi partial Cor. | Tolerance | R-square | t (8) | p-level |
|---|---|---|---|---|---|---|---|
| RCP | 0,917344 | 0,917344 | 0,917344 | 1,000000 | 0,00 | 6,517635 | 0,000185 |
| ICP | 0,747640 | 0,747640 | 0,747640 | 1,000000 | 0,00 | 3,184203 | 0,012916 |
| PDP | 0,519896 | 0,519896 | 0,519896 | 1,000000 | 0,00 | 1,721420 | 0,123479 |
| CCC | 0,903124 | 0,903124 | 0,903124 | 1,000000 | 0,00 | 5,949076 | 0,000342 |

From this analysis we can see that the best probability of "p" is also at the RCP indicator. Partial and semipartial correlations have the same values, and the tolerance level is "1" for all variables.

Table 9 presents the analysis of the ANOVA variant for the variables taken into study.

***Table 9. Analysis of Variance***

| Independent variable | Effect | Sums of squares | df | Mean squares | F | p-level |
|---|---|---|---|---|---|---|
| RCP | Regress. | 0,0076 | 1,0000 | 0,0076 | 42,4796 | 0,0002 |
| | Residual | 0,0014 | 8,0000 | 0,0002 | | |
| | Total | 0,0090 | | | | |
| ICP | Regress. | 0,0050 | 1,0000 | 0,0050 | 10,1391 | 0,0129 |
| | Residual | 0,0040 | 8,0000 | 0,0005 | | |
| | Total | 0,0090 | | | | |
| PDP | Regress. | 0,0024 | 1,0000 | 0,0024 | 2,9633 | 0,1235 |
| | Residual | 0,0066 | 8,0000 | 0,0008 | | |
| | Total | 0,0090 | | | | |
| CCC | Regress. | 0,0073 | 1,0000 | 0,0073 | 35,3915 | 0,0003 |
| | Residual | 0,0017 | 8,0000 | 0,0002 | | |
| | Total | 0,0090 | | | | |

From the analysis of variance, we can see that the indicators taken in the study recorded values below 0.05. It is also noticed that there is only one degree of freedom inside the group and eight outside it, at each of the four independent variables.

## 4. Conclusions

By simple regression analysis, the shape, meaning, and intensity of the relationship between the dependent variable and the independent variables were established. It was found that the strongest link is between the "net profit ratio in net sales" indicator as compared to the "debt collection period" indicator. This conclusion was somewhat predictable because being a production company, the profit is obtained from the exploitation activity.

In the survey, all indicators of the conversion cycle show a direct, positive relationship with the indicator "net profit share in net sales".

The cash conversion cycle indicators that express the period of return of the working capital have a profound influence on the profit, allowing it to be increased as a result of a faster transformation or to reduce it as a result of a slower transformation.

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