

MANAGEMENT OF THE WORKING CAPITAL AND FIRM PERFORMANCE IN THE ROMANIAN PHARMACEUTICAL SECTOR

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Abstract:

The objective of the study is to reveal the connection between working capital and firm performance, in the case of some selected Romanian pharmaceutical companies, listed on Bucharest Stock Exchange. Regression analysis was performed in order to check our hypothesis. The main conclusion of our study is that there is a negative, but weak relationship between working capital and firm performance. In other words, the shorter the period between production and sale of products, the larger firm's profitability.

Key words: *working capital, performance, pharmaceutical sector*

JEL: *G30, G31*

1. Introduction

Many firms invest a lot in their working capital while others use trade credit and inventories to increase their sales. The management of the working capital is one of the most important policies of the firm, and deals with maintaining the right balance between inventories, accounts payable and accounts receivable, consequently with the short-term financing decision.

For the Romanian pharmaceutical sector, the working capital policy has become an even more important issue considering the fact that their arrears became significant in the last years. They rose once with the increase of the receivables period established by the National House of Health Insurance from 60 to 210 days for general medicines and for the medicines included in the Health National Programme from 30 days to 120 days. In practice, the pharmaceutical companies have become the biggest creditor of the Romanian government, with a granted receivables period of more than 300 days.

Moreover, the Romanian pharmaceutical companies have struggled in the last years with the clawback tax, introduced by the Romanian government in 2011, meant to contribute to financing the public health system with a variable amount, in function of their sales. Although it was expected that the introduction of this tax would influence positively the health budget deficit, it has not solved the problem. Instead, it led to a decrease in the local production, it delayed the research and development investments and had even created cutbacks in the pharmaceutical system. In order to cope with the growing outstanding debts, the Romanian pharmaceutical companies listed on Bucharest Stock Exchange (Antibiotice Iasi, Biofarm, Zentiva) have changed their market strategies and oriented their businesses outside the Romanian borders. This policy proved to be successful, considering that the increase of their exports led to an upward trend registered in their profitability.

The pharmaceutical industry is one of the most regulated industries in the world, considering the fact that the prices of the medicines on the basis of prescription is established by the public authorities. Consequently, the objective of testing the influence exercised by the working capital on the performance of the companies operating in this sector is highly important. Our study aims at bringing new empirical evidence, by testing the connection between working capital and performance of the Romanian companies operating in the pharmaceutical sector. The remainder of the paper is organized as follows: section 2 briefly reviews the main empirical-based literature, section 3 presents the data and methodology, the research hypothesis and summarizes the results, section 4 concludes.

2. Theoretical background

Although the majority of the literature has focused on the long-term financing decision and the financial structure of the company (Corduneanu and Miloș, 2009; Corduneanu and Milos, 2010; Corduneanu et. al., 2010), there is a wide empirical literature that has investigated the relationship between the working capital and the profitability of the firms, consequently on the short-term financing decision consequences on the profitability of the firm. These

studies have applications on both European Union and non-European Union countries, but with a special focus on the latter ones (Table no.1). The majority of these studies found a negative relation between working capital management and profitability.

However, the case of the Romanian companies has been somehow neglected. Danuletiu (2010) analyses with the help of Pearson correlation the efficiency of the working capital management on the case of 20 Alba county companies for the period 2004-2008. Botoc (2013) is confirming the hypotheses that working capital profitability is negatively related with working capital and positively with cash holdings in the case of 67 companies listed on Bucharest Stock Exchange for the period 2001-2011. Still, a sectorial analysis on this issue, in the case of the Romanian companies, has not been performed so far. In our opinion, it is important to have a sectorial view, since there are fundamental differences of the working capital management among companies operating in different sectors. The pharmaceutical sector has specific payment practices, inventory policies and more lately outsourcing strategies which might impact in a particular way the working capital management and consequently its profitability.

Shin and Soenen (1998) made an analysis over the relationship between working capital management and value creation for shareholders. Correlation and regression analysis were performed in the case of an almost 60000 American firms sample, for a period of approximately 20 years, in order to prove the strong negative relation between the two variables.

Deloof (2003) uses a smaller, but still significant sample of 1009 Belgian firms for testing the negative relationship between accounts payable, inventories, accounts receivables and the gross operating profit. Lazaridis and Tryfonidis (2006) tested on a sample of traded Greek firms that the profitability of the firms can be increased by maintaining the components of the cash conversion cycle at optimum levels.

Eljelly (2004) is one of the authors that tried to analyse the connection between working capital and profitability across industries, to notice any sectorial differences, in the case of 929 Saudi firms. He gets to the conclusion that the connection remains negative, no matter the industry and that size of the company matters when managing the working capital.

Garcia-Teruel and Martinez-Solano (2007) have performed regression analysis in order to find that there can be created value to the company by reducing the inventory period and the receivables period. They considered in this respect a sample of small to medium sized Spanish companies.

Samiloglu and Demirgunes (2008) as well as Uyar (2009) use multiple regression analysis and Pearson correlation in order to verify the negative relationship between working capital and profitability for Turkish samples of firms.

Chatterjee (2010) analysed the connection between the working capital and profitability of 30 listed firms on the London Stock Exchange and confirms the existence of a significantly negative relationship between the variables. He also suggests that a higher level of indebtedness of the company creates problems whereas increases in sales generates more profitability for the company. Of the same opinion is Charitou (2010) which examines the same problem in the case of Cyprus listed firms for the period 1998-2007.

Dong and Su (2010) also use a sample of listed firms, this time on Vietnamese stock market, to examine the relationship between working capital components and firm profitability. They found a negative relation only in the case of inventory and receivables days, while their findings seem to indicate an increase of the profitability once with the increase of the payable period.

Gill et al. (2010), on the other hand, find no relevant connection between profitability and inventories or payables period for the American firms, however they confirm the negative relationship between accounts receivables and firm profitability.

Table no.1 presents a chronological review of the main empirical-based studies that have focused on the connection between working capital and firm performance.

Table no. 1. Review of empirical-based studies

<i>Authors</i>	<i>Sample</i>	<i>Period</i>	<i>Methodology</i>	<i>Results</i>
Botoc (2013)	Romanian firms	2001-2011	Panel data, regression analysis	Negative relation
Charitou et al. (2010)	Cyprus firms	1998-2007	Multiple regression analysis	Negative relation
Chatterjee (2010)	British firms	2006-2008	Pearson correlation	Strong negative relation
Danuletiu (2010)	Romanian firms	2004-2008	Pearson correlation	Weak negative relation
Dong and Su (2010)	Vietnamese firms	2006-2008	Pool data, regression analysis	Negative relation
Gill et al. (2010)	American firms	2005-2007	Pearson correlation	Positive relation
Mathuva (2009)	Kenyan firms	1993+2008	Panel data	Negative relation
Uyar (2009)	Turkish firms	2007	Anova, Pearson correlation	Negative relation
Samiloglu and Demirgunes (2008)	Turkish firms	1998-2007	Multiple regression analysis	Negative relation
Garcia-Teruel and Martinez-Solano (2007)	Spanish firms	1996-2002	Panel data, fixed and random effect models	Negative relation
Raheman and Nasr (2007)	Pakistani firms	1999-2004	Regression analysis	Negative relation
Lazaridis and Tryfonidis (2006)	Greek firms	2001-2004	Pearson correlation	Negative relation
Eljelly (2004)	Saudi firms		Regression analysis	Negative relation
Deloof (2003)	Belgian firms	1992-1996	Pearson correlation	Negative relation
Shin and Soenen (1998)	American firms	1975-1994	Correlation and regression analysis	Strong negative relation

Source: realized by author

3. Data and methodology

In order to be consistent with the previous empirical literature, we have used similar proxy variables in order to quantify the influence of working capital on firm profitability. The table below summarizes the independent and dependent variables, alongside their formulas and abbreviations (Table no.2). Current ratio, debt ratio and firm size were used as control variables.

Table no.2. Proxy variables computation

Proxy variables	Computation	Abbreviation	Type of variable
Return	Net income/total assets	ROA	Dependent
Cash conversion cycle	Number of days accounts receivable(DRC) + Number of days inventory(DRS) – Number of days account payable (DRD)	CCN	Independent
Number of days accounts receivable	Total receivables/Sales*360	DRC	Independent
Number of days inventory	Inventories/Sales*360	DRS	Independent
Number of days accounts payable	Total debt/Sales*360	DRD	
Current ratio	Current assets/Current liabilities	RC	Independent
Debt ratio	Total debt/Total assets	GI	Independent
Firm size	Ln (Sales)	LNV	Independent

Source: realized by authors

Our sample of analysis consists of three pharmaceutical companies (Zentiva, Biofarm and Antibiotice Iasi), listed on the first tiers of the regulated market of Bucharest Stock Exchange. Data was made available from their financial reports, and we have computed the final proxy variables. The period of analysis was 2002-2012.

In our approach, we have used the following regression equation:

$$ROA = \alpha + \beta_1 \cdot CCN + \beta_2 \cdot DRC + \beta_3 \cdot DRS + \beta_4 \cdot RC + \beta_5 \cdot GI + \beta_6 \cdot LNV \quad (1)$$

The equation specified above was estimated with Pooled EGLS, alongside White diagonal standard errors & covariance. The results can be depicted in the table below (Table no.3).

Table no.3. Results of the multifactorial regression

Dependent variable: ROA				
Method: Pooled EGLS (Cross-section weights)				
Total observations: 31				
Linear estimation after one-step weighting matrix				
White diagonal standard errors & covariance (d.f. corrected)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.415519	0.399529	-1.040022	0.3096
CCN	-0.001228	0.000364	-3.373816	0.0027
DRC	-0.001330	0.000373	-3.565222	0.0017
DRS	-0.002980	0.000576	-5.168678	0.0000
RC	0.005780	0.007883	0.733276	0.4711
GI	1.050486	0.280397	3.746419	0.0011
LNV	0.042273	0.030311	1.394641	0.1770
Fixed Effects (Cross)				
ATB--C	-0.051805			
BIO--C	0.082793			
SCD--C	-0.015935			

Weighted Statistics			
R-squared	0.702865	Mean dependent var	0.116556
Adjusted R-squared	0.594815	S.D. dependent var	0.087930
S.E. of regression	0.040678	Sum squared resid	0.036403
F-statistic	6.505039	Durbin-Watson stat	2.752639
Prob(F-statistic)	0.000224		

Source: author's computation

The results show a negative relationship between the number of days account receivable, number of days inventory, cash conversion cycle and the profitability of the firm (consistent with other empirical papers); however the connection is pretty weak. This can suggest the fact that as far as concerns the pharmaceutical sector, reducing the period of holding inventories may lead to an increased profitability of the firm. In the same time, the negative relationship between the number of days accounts receivables and the profitability suggests the fact that the managers from these firms can create value by reducing the number of days receivable.

The results also show that a larger cash conversion cycle can lead to a decrease of the profitability of the firm. The firm debt ratio seems to influence in a positive way the profitability of the firm, probably because of the fiscal deductions that the borrowed capital brings within.

4. Conclusions

Our results are consistent with the previous empirical literature, which predicted the negative relation between the working capital and the profitability of the firms. In other words, the shorter the period between production and sale of products, the larger firm's profitability. Future research will have in mind a generalization of the sample, including more companies from the pharmaceutical sector, a panel data analysis approach and not at least, a sectorial analysis, beyond the pharmaceutical sector.

5. References

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