

The Effect of Working Capital Management and Financial Factors on the Competitiveness of the Company

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ABSTRACT

The present study examines the effect of working capital management and financial factors (such as company size, sales growth, profitability indicators, financial leverage, and the ratio of fixed assets to total assets) on the competitiveness of the company. In this study, cash conversion cycle has been used to measure the working capital management. To measure competitiveness, we have used the ratio of annual firm level sales to the industry's annual sum of sales for 96 accepted companies in Tehran stock Market from 2006 and 2010. The present study analyzes the relationship between working capital management and competitiveness of firms. Reducing the cash conversion cycle is a desirable objective that every company aims to achieve; however, the findings of this research show that shortening this period reduces the competitiveness of the company. It seems that due to not considering the cash balance, cash conversion cycle measure is not capable of describing company's cash liquidity sufficiently. Finally, whereas cash conversion cycle does not take account of cash remains, we suggest that people who use the results consider advantages and disadvantages of this criterion simultaneously.

Keywords: Liquidity Management, Working Capital Management, Competitiveness, Cash Conversion Cycle.

1. INTRODUCTION

A new aspect of success that has been introduced in the recent century is competitiveness. Competitiveness is defined as company's ability to predict changes in the internal and external environment and its capability to adapt to these changes to an extent that the profit stream is guaranteed in company's long-term operations (Brancoveanu, 2008). Competitiveness is a relative concept of the ability and performance of the company in supplying and selling goods or services in a given market. Companies compete to guarantee payback, consolidate their position among competitors, and also to have a command over the market. In the current challenging economic environment, companies are always looking for ways to improve and enhance their performance. On the other hand, working capital is one of the matters that are commonly considered by financial managers.

Its importance arises from the fact that if a company does not have sufficient working capital, it cannot continue its activities. So, through proper planning and management of the working capital, a company can enjoy significant progress and success (Talebi, 1996). Deloof (2003) discussed that most firms had a large amount of cash invested in working capital. It can therefore be expected that the way in which working capital is managed will have a significant impact on profitability of those firms. Using correlation and regression tests he found a significant negative relationship between gross operating income and the number of days accounts receivable, inventories and accounts payable of Belgian firms. On basis of these results he suggested that managers could create value for their shareholders by reducing the number of days' accounts receivable and inventories to a reasonable minimum. The negative relationship between accounts payable and profitability is consistent with the view that less profitable firms wait longer to pay their bills. Working capital management is defined as the optimum combination of working capital items, meaning current assets and current debts, in a way that would ensure maximum profit for shareholders (Schilling, 1996). Filbeck et al. (2005) believe that an efficient management of working capital serves as a key to achieving a healthy cash flow, and companies with weak capital management strategies will lose their competitiveness and flexibility over time. Due to economic conditions, it seems that working capital resources and their management play a significant role in the competitiveness of companies. So, this article aimed at studying the relationship between the working capital management and the competitiveness of the companies. Moreover, the effect of other variables that are expected to affect competitiveness of companies (such as company size, sales growth, profitability indicators, financial leverage, and the ratio of fixed assets to total assets) are discussed below.

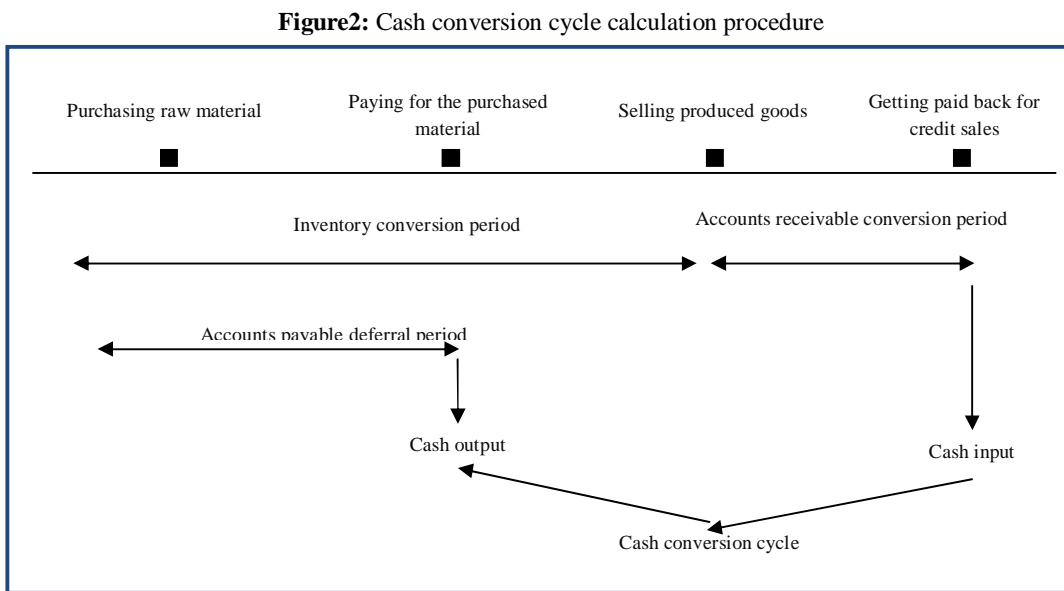
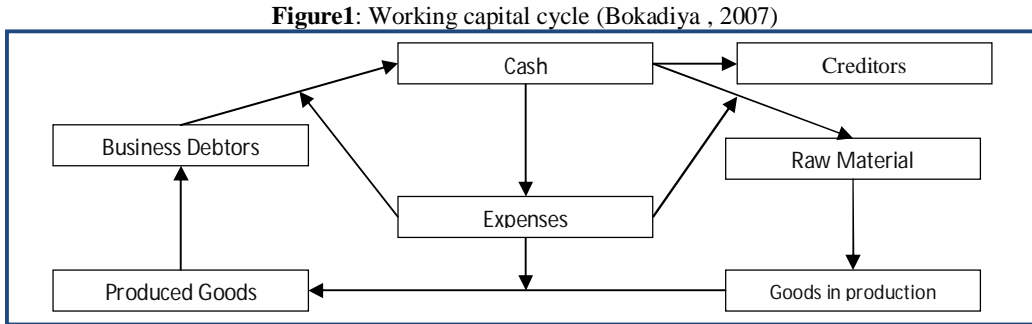
2. REVIEW OF THE THEORETICAL LITERATURE

2.1. Working Capital Management

Prior empirical literature on working capital management has focused primarily on its effects on firm profitability which influences corporate valuations. For example, Soenen (1993), Shin and Soenen (1998), Deloof

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(2003), and Garcia-Teruel and Martinez-Solano (2007) provide evidence that the profitability of a firm, measured by either return on assets or return on equity, is improved as the firm improves its management of its work capital (i.e. the profitability of a firm is inversely related to its cash conversion). The funds needed to continue everyday activities of a firm are called the working capital. This term is used because current assets change from one form to another (Bokadiya, 2007). Figure 1 show the working capital cycle:



The objectives of working capital management policies are short-term (obtaining raw material, giving credit to the customers and collecting accounts that have reached maturity, giving credit advantages, cash management, etc.) and these factors help facilitating daily operations of the firm.

There are always various measures to assess and analyze working capital management. Probably the earliest integrated working capital concept is the cash conversion cycle – the time lag between the expenditure for the purchase of raw materials and the collection from the sale of finished goods – which is often viewed as the key measure of working capital management performance (Gitman , 1974). Cash conversion cycle represents the time period that the company’s working capital resources are involved and engaged in covering the costs of production process (Meysami, 2009). Cash conversion cycle consists of three components:

- Inventory conversion period which refers to the time period required for the purchase of resources, production and sale of products.
- Creditor’s deferral period which refers to the time period between purchase of raw materials in credit and payment in cash which results in creation of accounts payable.
- Debtors’ conversion period which refers to the time period required for getting paid back for the credit sales to customers.

Based on existing theory, shortening the cash conversion cycle is a desirable objective that companies should aims for because prolonging this cycle would require considerable expenses to finance the external environment (Meysami, 2009).Therefore, by shortening cash involvement cycle, a company can perform better. Cash conversion cycle can be shortened by reducing the inventory conversion period through faster processing and selling of products, reducing the time period for collecting receivables through accelerating collecting procedures, or by prolonging the time period needed to settle payables through extending the procedure for paying the creditors.

2. 2. Competitiveness

Previous studies show that the nature of competitiveness is in direct relationship with the company's success and also plays a critical role in excellent performance of the company (Brancoveanu, 2008). There are various writings on the significance of competitiveness by different authors. Countries will be able to compete only if their firms can compete and Competitiveness of a country, an industry or a company indicates its economic strength in the face of its competitors in global markets in whole geographic area (Blair, 2004). National competitiveness usually relates to the competitiveness of active companies in the country.

Companies' competitiveness also depends on their ability to offer better products and services (compared to those of other present companies) to the market. This calls for using resources and ideas in creating products or services in a way that customers' satisfaction is achieved and their needs are met (Kudrle, 1996). An industry is comprised of various companies, and if all the companies present in that industry enjoy growing shares in the market and also satisfactory profits, then that body of industry can be considered to have competitiveness (Hayward, 1998).

2. 3. Background of the Study

Robert Kieschnick et al. (2011) attempted to examine the relationship between working capital management and the wealth of shareholders. Their findings demonstrate that the value of investing one dollar in net working capital has a significant impact on the expected future sales, financial restrictions, and debt pressure of the company. Furthermore, compared to investing more in inventory, investing more in increasing the limit of credit given to customers has a greater effect on the wealth of shareholders. Michalski(2010) studied the levels of investing in operational cash. He maintains that cash assets management is a complex process. On the one hand, when surplus cash is invested in working capital, the companies face high cost of its maintenance, and on the other hand, this can help increasing sales revenue.

By investigating the effect of working capital management on the profitability of small- and medium-sized Spanish companies, Solano and Teruel (2007) found out that shortening the cash conversion cycle can improve profitability. Lazaridis and Tryfonidis (2006) studied the relationship between working capital management and profitability of companies allowed into Stock Exchange in Athens.

Their study shows that there is significant inverse relationship between cash conversion cycle and profitability of the company. Furthermore, managers can make profit by properly managing cash conversion cycle and keeping its different components (receivables, payables, and inventory) at optimum level. (Smith et al., 2012) examined the relationship between the capital structure and competitiveness of New Zealand companies. The results demonstrated that when the sale of one industry increases compared to other industries, the use of long-term debt also increases.

3. METHODOLOGY

Regarding the type of research, this is an applied research, and regarding the methodology, it is a descriptive one. Since the collected data relates to past events, this research is classified as retrospective. Due to the nature of the topic which tries to examine the relation between two or more quantitative variables, correlation methods were adopted. Among the correlation methods, according to the hypotheses type, correlation analysis was used for the first hypothesis and regression analysis for the second.

3.1. Data Collection

Since the research method of this paper is a field method and deals with real data, and also to provide the information about companies with respect to research variables that are related to financial information, various sources have been used including library studies of Tehran Stock Exchange, Tadbirpardaz software, and the official website of Tehran stock exchange¹. For data processing, Excel and SPSS softwares are invoked.

3.2. Population and Statistical Sample

The population of this study includes all companies listed in Tehran Stock Exchange. For sampling purposes, those companies have been selected that: 1. They are not a member of investment firms and financial intermediaries, 2. Information of the company is available, 3. Fiscal year ends in March, 4. They are active in Stock Exchange before 2004. After applying these limitations, 96 companies for 5 years were selected (That equals 480 year-company).

4. Research Hypothesis

The following main and sub-hypothesis were formed:

Main hypotheses:

H1- There is a significant relationship between working capital management and competitiveness.

H2- There is a significant relationship between other financial factors and competitiveness.

In this research a number of variables were considered as effective financial factors, so the following hypotheses were formed based on their relationship to competitiveness.

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Sub-hypotheses:

- 1- There is a significant relationship between company size and competitiveness.
- 2- There is a significant relationship between the ratio of fixed assets to the total assets of the firm and competitiveness.
- 3- There is a significant relationship between profitability ratio and competitiveness.
- 4- There is a significant relationship between company's sales growth and competitiveness.
- 5- There is a significant relationship between financial leverage and competitiveness.

4.1. Variables**4.1.1. Dependent Variables**

Competitiveness: To measure competitiveness of the company, Smith et al. index (2012) was adopted. Based on this model, firm's competitiveness index is calculated as follows:

$$\text{competitiveness index} = \frac{\text{Company sales}}{\text{Sum of the sales of companies present in the given industry}}$$

4.1.2. Independent Variables

Working capital management: To assess working capital management, cash conversion cycle was used. Cash conversion cycle consists of three components and is calculated as follows:

$$\text{Cash conversion cycle} = \text{Creditors deferral period} - \text{Inventory conversion period} + \text{Debtors conversion period}$$

Each component of cash conversion cycle is calculated using the following equations:

$$\text{Debtors conversion period} = 365 \times \text{total sales} / \text{the average accounts receivable}$$

$$\text{Inventory conversion period} = 365 \times \text{cost of goods sold} / \text{the average inventory}$$

$$\text{Creditors deferral period} = 365 \times \text{cost of goods sold} / \text{the average accounts payable}$$

Company size: To measure company size, logarithm of the sum of total assets at the end of the time period is used.

Sales growth index: To measure sales growth, the differences between the current year's sales and previous year's sales are divided by the previous year's sales.

Profitability ratio: To measure profitability ratio, profit before reduction of interest and taxes is divided by the sum of company's assets.

Financial leverage: Financial leverage is the quotient of the division of long-term debts by shareholders' salaries.

4.2. Research Model

To study the relationship between working capital management and competitiveness of companies allowed into Tehran Stock Exchange, the following model(1) was assumed:

$$\text{LNCOM}_{i,t} = \beta_0 + \beta_1 \text{CCC}_{i,t} + \beta_2 \text{SIZE}_{i,t} + \beta_3 \text{PRO}_{i,t} + \beta_4 \text{FAR}_{i,t} + \beta_5 \text{SG}_{i,t} + \beta_6 \text{LEV}_{i,t} + \varepsilon_{i,t} \quad (1)$$

In this mode, $\text{COM}_{i,t}$ stands for competitiveness and $\text{CCC}_{i,t}$ stands for cash conversion cycle which is the index measure for working capital management. To study the relationship between other financial factors and competitiveness of companies allowed into Tehran Stock Exchange, the following formula (2) was used:

$$\text{LNCOM}_{i,t} = \beta_0 + \beta_1 \text{CCC}_{i,t} + \beta_2 \text{SIZE}_{i,t} + \beta_3 \text{PRO}_{i,t} + \beta_4 \text{FAR}_{i,t} + \beta_5 \text{SG}_{i,t} + \beta_6 \text{LEV}_{i,t} + \varepsilon_{i,t} \quad (2)$$

Where;

$\text{CCC}_{i,t}$ = the cash conversion cycle,

$\text{COM}_{i,t}$ = competitiveness

$\text{SIZE}_{i,t}$ = company size

$\text{PRO}_{i,t}$ = profitability index

$\text{FAR}_{i,t}$ = ratio of fixed assets to total assets

$\text{SG}_{i,t}$ = sales growth

$\text{LEV}_{i,t}$ = financial leverage

5. RESULTS

5.1. Descriptive Statistics The mean and the median of the competitiveness variable, estimated based on Smith's model (Smith, Chen et al.) are 0.13542 and 0.08667, respectively. On the other hand, for the cash conversion cycle, the mean and the median are 215.89 and 199.68, respectively. The cash conversion cycle, financial leverage, and the annual competitiveness are skewed to the right. The skewness of firm's size and annual competitiveness logarithm

is approximately equal to zero; which means that these variables have a *normal* distribution, and none of the variables have skewness to the left/right. Before applying the regression model and calculating the final model of the study, necessary presupposition tests were applied using the information based on the independent and dependent variables.

The results are shown in table 1

5.2. Results of Default Regression Tests Table 1: Results of default regression analysis

Default	Type of test	Result
Residuals are normal	Kolmogorov-Smirnov	Values 0/05 for significant level of competitiveness from 2006 to 2010 is lower than 0/05.
Homogeneity of variance	The graphs of residual values versus	Scattered in almost all random graphs and not pattern.
Their lack of correlation between residuals	Durbin-Watson	1.68 values close to 2 indicate a correlation of their residuals.
Linear relationship and lack of off and influential points	Distribution curves	In some, linear relationship was good, in others there is no significant relationship.
Lack of linearity among independent variables	VIF statistics	These values for estimating model are calculated and in all cases less than 5.1

Since the distribution of annual competitiveness is positive skew, the condition of normality (symmetry) of dependent variable distribution is not confirmed. To solve this problem, the log of competitiveness variable was calculated, and it was shown, after analysis, that in all the years included in the research the competitiveness log variable has a normal distribution.

5.3. Results of the Tests of Hypotheses

Table 2 shows the results of the regression analyses.

Table 2: Coefficients of the model

Model	Coefficient		Level of significance	
Variable	β	Std. Error	t-Statistic	Prob.
C	-9.605	0.564	-17.021	0.000
CCC	0.002	0.000	4.851	0.000
SIZE	1.100	0.094	11.650	0.000
PRO	0.818	0.398	2.056	0.040
FAR	0.447	0.330	1.358	0.175
SG	0.475	0.133	3.578	0.000
LEV	-0.030	0.107	-0.279	0.781
R-squared	Adjusted R-squared		F-statistic	Prob(F-statistic)
0.260	0.251		27.522	0.000
Durbin-Watson			1.673	

According to table 2, we can conclude that the main independent variable, *cash convention cycle*; besides to *profitability*, *size* and the sales' growth variables -among the control variables- show a *significant* level. All variables are significant at a 95% confidence level. Table 3 shows the results of regression for determining the appropriate model.

Table3: Results of regression.

Model	Coefficient		Level of significance	
Variable	β	Std. Error	t-Statistic	Prob.
C	-9.509	0.556	-17.102	0.000
CCC	0.002	0.000	4.851	0.000
SIZE	1.105	0.094	11.650	0.000
PRO	0.759	0.380	2.056	0.046
SG	0.475	0.131	3.578	0.000
R-squared	Adjusted R-squared		F-statistic	Prob(F-statistic)
0.258	0.252		41.395	0.000
Durbin-Watson			1.8	

6. DISCUSSION AND RESULTS

Regarding the theoretic basis, reducing the cash conversion cycle is a desired situation that companies are seeking, and it will increase the competitiveness. Results show that there is a meaningful positive relationship between the logarithm of competitiveness and cash conversion cycle, which means that a reduction in cash

conversion cycle results in a decrease in competitiveness (*against theoretic bases*) which can be due to any of the following reasons:

1. Reducing receivables' conversion period means that the company gives the debtors less time to liquidate their debts; consequently, customers feel more pressure for paying off more quickly. The reason to be this hard could be the company's exquisite need for money. Definitely, a relative prolix period to liquidate receivable accounts is *not* a negative incident cause because being strict about the payoff time could lead to lower sales.

2. A reduction of inventories' conversion period could also happen because of the shortage in cash in companies, which will make the company buy raw materials on credit and to sell goods in cash in order to handle the commitments. On the other hand, a reduction of inventories' conversion period could mean the inventories' level are being kept low and insufficient, which may result in using up the inventories and losing the customers; and finally, it may lead to a decrease in competitiveness.

3. Prolongation in the payable deferral period is a guideline to reduce cash conversion cycle. Apparently, it represents a good situation; however, retarding the payoff time for paying debts expresses a malfunctioning in cash system. Retardation in debts' liquidation could affect a firm's creditability in an industry among material and goods sellers; and as a result, it can decrease competitiveness. In short, considering the results one could say that to manage working capital, reducing cash conversion cycle is not always desired and we should consider advantages and disadvantages simultaneously. Although in theoretic basis, the reduction of the cash conversion cycle will always have a desired effect, in practice it can be the other way around.

The results also show that increasing company size will increase competitiveness. Due to lack of relationship between fixed assets and competitiveness, remaining assets, i.e. current assets, can affect competitiveness of the company. Furthermore, the results show that companies with greater sales growths, have greater competitiveness and a company can surpass its competitors by selling more. Compared to its competitors, the stronger a company is, the more probable it is that it has experienced a growth in its sales.

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