

The Impact of Company Characteristics on Working Capital Management

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Abstract

This research studies the effect of company characteristics on the working capital management. The company characteristics include profitability, operating cash flow, company size, sale growth, current ratio, quick ratio and debt ratio. The sample consists of 83 firms listed in Tehran Stock Exchange for the period of 2001 to 2010. This study is based on a correlation approach and multiple regressions and Pearson's correlation were employed to test the hypothesis. Testing the hypothesis was conducted in two stages: in this first stage the relationship between the company characteristics with cash conversion cycle were assessed in all companies and the result indicated that profitability, operating cash flow, company size, sale growth and debt ratio affect the company's working

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Article Info: *Received : December 1, 2011. Revised : December 31, 2011*
Published online : February 28, 2012

capital management. In the second stage, the companies were divided into 3 categories: great, average and small. Then the relationship between company characteristics with cash conversion cycle was assessed separately. The results indicated that the effective factors in great levels were profitability, operating cash flow, debt ratio and sale growth, in the average level, the effective factors were profitability, company size, sale growth and debt ratio, and small levels were affected by profitability, sale growth, current ratio, quick ratio and debt ratio.

JEL classification numbers: G39

Keywords: working capital management, cash conversion cycle, profitability, operating cash flow, company size, sale growth, current ratio, quick ratio and debt ratio

1 Introduction

The world economy is rapidly changing. Rapid technological changes along with the increasing global competition give managers more responsibility for conducting their activities. One of the most controversial management decisions is profit and working capital management which plays a significant role in the growth and survival of profit. The issue of decision making can be seen in all areas of finance, and working capital management is not an exception.

The management of working capital is divided into two groups: asset management implementation and management of the debt. Balance in current assets and current liabilities is so important that decisions about one greatly influences the other (Rodposhti Rahnama & Kiayee, 2010. p.24)

Much of the reason for the failure of the bankrupt companies is the unsatisfactory situation and the inadequate working capital. Although these companies have good long-term financial situation, due to inadequate working

capital they lose their ability to compete and come out (Nikomaram, et al. 2005, p.16). The current economic depression has challenged many individuals and companies. Companies face recession when market conditions change, for example high costs and banking limitations cause greater risks for companies which are doing business. In fact, these challenges make companies look for ways to improve their internal operations and to understand the importance of the effective Working capital management.

The concept of management of the Working capital refers to the managers' skills in handling short term investments and the aim of capital management is to increase the liquidity, profitability and the value of shareholders (Nilsson, et al., 2010. p.4). Therefore, in order to have an efficient Working capital management, we should analyze the effect of numerous factors and features on money management in our study.

Among the features of the company and cash conversion cycle which are considered as the criterion of evaluating management of Working capital management in this study, there is a significant relationship, which inevitably impacts the Working capital management. The result of the study done by Nilsson, et al. (2010) is in line with our findings. Based on their research results, it was suggested that profitability, operating cash flow, company size, sale growth and debt ratio are factors which can influence working capital management. Many managers in Iranian companies are always looking for information regarding the factors influencing working capital management to know at any moment how much cash is at their disposal, because cash flow in and out of the company's main issue for investment, buying assets, not investing and refining the assets (Saghafi and Hashemi. 2005).

The point that should be considered in relationship to Working capital is that although Working capital may indicate liquidity increase and profitability of the company it cannot show its success, therefore proper Working capital management is important. Because if this is not done properly, in the worst case, it

may lead to the collapse of the company. Due to the importance of Working capital management in this study we follow the company's characteristics such as company size, sale growth, profitability, cash flow, debt ratio, current ratio, and quick ratio as Nilsson, et al. (2010) did. The study also follows Nilsson, et al.'s (2010) cash cycle as a criterion to assess the company's liquidity and effective Working capital management. Shorter cash conversion cycle represents an effective Working capital managed.

The study consists of two stages; in the first stage the effects of the company's characteristics on Working capital management in all companies is analyzed and then the companies are divided into three categories according to their size: large, medium and small. The effects of these characteristics on the Working capital management is studied separately. This study can develop the existing literature on working capital. The results of the study can also provide new evidence regarding the impact of working capital management flexibility and features influencing the size of the company. Because many factors can affect the management of working capital in companies with various sizes.

2 Literature Review

Kim, et al. (1998) conducted a study in industrial companies in America during 1975-1996 and found that sale growth had a negative significant impact on the cash conversion cycle.

Chiou and Chang (2006) reviewed the impact of Working Capital Management Company within 19180 America companies for the period 1996-2004. The result of this study indicated that debt ratio and operating cash flow had negative impact on Working capital management, whereas company size had a positive impact on it. However, business cycle, the industry and sale growth dose not affect the Working capital management.

Jeng – Ren (2006) could identify some factors affecting Working capital management in a study done on Taiwanese companies. The results indicated that profitability, operating cash flow, company size, sale growth and debt ratio are factors affecting Working capital management. He also stated that larger companies can make more working capital management than smaller companies.

Laplante and Moussawi (2006) did his research on large companies in the United States for the period of 1990 to 2004 and the analysis has been done using panel data. The results of this study suggest that the company's size and sale growth had significant positive impact on their Working capital management.

Rahman and Naser (2007) carried out their research on the relationship between profitability and cash conversion cycle in Pakistani companies. In this study, 94 companies between 1999 and 2004 were examined. In this study, cash conversion cycle, inventory turnover period, the bank creditors, the claims the current ratio, not operating earning, company size, debt ratio and the ratio of the financial assets were used. The survey results based on the Pearson coefficient and regression analysis suggested that profitability and company size had a negative significant effect on conversion cycle. Further more, there was a significant positive relation between company size and profitability.

Uyar (2009) examined profitability and size of companies on Working capital management in Taiwanese companies. The data in this study was analyzed using the Pearson and ANOVA correlation coefficient. The results of this study suggested that the relationship between company size and profitability and cash conversion cycle was negative.

Wilson (2009) has put so much attention to the financial managers and factors of impact on Working capital management. Therefore managers are always looking for ways to balance the assets and liabilities, the study of factors affecting the management of the looking capital in Brazilian companies were identified and examined. The statistical sample of the study was 2976 companies and the sample period was 2001 to 2008. The results indicated that debt ratio, size and growth are

the factors affecting the management of Working capital.

Nilsson, et al. (2010) has an article featuring the company's impact on Working capital management in the Swedish companies in which he compared the effects of these characteristics on cash conversion cycle, which is a measure for the assessment of Working capital management. The characteristics of the company included profitability, operating cash flow, company size, sale growth, and current ratio, and quick ratio, debt ratio and Pearson correlation and multiple regressions were used for data analysis and hypotheses testing. The results suggest that profitability, operating cash flow, company size, and sale growth had an impact on Working capital management, the first results is that there is a positive relationship between profitability and cash conversion cycle and the second is a negative correlation between the size of the company's cash conversion cycle with sampling size, sale growth and operating cash flow.

Zariyawati, et al. (2010) stated that Working capital management is part of the financial decisions and inefficient decisions had a negative effect on company value. Therefore, managers should consider all the factors affecting Working capital management. Their research was carried out on Malaysian companies in the period 2000-2006 and identified some of these factors. In their study, cash conversion cycle was used as a measure of Working capital management. The results indicated that company size, debt ratio and sale growth are factors affecting the Working capital management.

3 Theoretical Research Hypotheses

3.1 Profitability

Many theoreticians believe that the two main sections which can lead to the power can be capital structure and Working capital management, In many cases these two cases has been changed in order to achieve profitability. Both liquidity

and profitability of a company's management is of primary concern and it is expected that profitability significantly affects cash conversion cycle. Depending on the company's profitability cash conversion cycle may be positive or negative. In their study Nilsson, et al. (2010) concluded that there is a positive relationship between profitability and cash conversion cycle.

H1: Profitability is negatively related to CCC.

3.2 Operating cash flow

Operating cash flow represents the company's ability to generate cash and working capital management policy. Excess operating cash flow is achieved through an effective working capital management and shorter period of cash conversion (Nilsson, et al, 2010, p.29). Operating cash flow is calculated by dividing cash flow from operation by the accumulated assets.

In their studies, Nilsson, et al, (2010), Chiou and Cheng (2006) found that operating cash has a negative impact on working capital is management.

H2: Operating cash flow is negatively related to CCC.

3.4 Company size

Company size is also effective on the management of working capital. Large companies have more bargaining power with suppliers and customers compared to small companies. For example, a large company can easier negotiate with suppliers and pay them off in longer term. Company size is determined by the natural logarithm of sales (Deloof, 2003).

According to studies and the regression analysis, the survey results show that (Nilsson, et al., 2010) there is negative relationship between company size and

cash conversion cycle. Chiou and Chang (2006) research results also indicate that company size has a positive impact on working capital management.

H3: Company size is negatively related to CCC.

3.4 Sale growth

Companies with a higher percentage of sales tend to pay more attention to working capital management through payment and a larger off period and attract customers efficiently and speed up their working capital management. The payment period will be longer term and their sales growth will be more (Jeng-Ren, 2006). Mousavi, et al. (2006) concluded that sale growth has a positive impact on working capital management. Nilsson (2010) concluded that sales growth has a negative impact on cash conversion cycle.

H4: Sale growth is negatively related to CCC.

3.5 Current ratio and Quick ratio

Current ratio and quick ratio are general financial ratios. Current ratio is the ratio of current assets to current liabilities. Quick ratio is similar to current ratio, except inventory is excluded from the amount of total current assets. These two ratios are used as solvency measures to determine whether the company has enough current assets to cover its current liabilities. They show the company's working capital position at the period of time, for instance the date as of balance sheet date.(Nilsson, et al, 2010, p.29). Results of research conducted by the Moss and Stick in year 1993 shows that proportion of temporary cash conversion cycle are positively related, companies that have a longer cash conversion cycle need to save more cash and short-term investments are better for operation. Unlike Moss

and Stick results, Nilsson's (2010) research suggests that there is no significant relationship between the cash conversion cycle.

H_{5a}: Current ratio is positively related to CCC.

H_{5b}: Quick ratio is positively related to CCC.

3.6 Debt Ratio

Debt ratio shows the ratio of total debt to total assets. When this ratio is high, it indicates that implies that internal investment is low and companies need to finance their operations. Studies done by Jeng-Ren (2006) show that there is a negative association between debt and conversion cycle. In other words, a company that is low for working capital needs to finance its fiscal activities. Nilsson also had a similar conclusion in 2010.

H₆: Debt ratio is positively related to CCC.

4 Research Methodology

This is an applied research, since the relationship between the variables are considered in this study, correlation method and multiple variable regression method are used to examine and test the hypotheses. Based on the assumption made, the following models will be presented and analyzed.

5 Research Variables

5.1 dependent variables

Measurement criteria for the management of the working capital cash conversion cycle are used.

The formula for the cash conversion cycle is

Cash conversion cycle = (Average number of days accounts receivable+ Average number of days inventory) - Average number of days accounts payable

Average number of days inventory= (Average inventory/Cast of goods sold)*365

Average number of days accounts receivable= (Average accounts receivable /Net Sales)*365

Average number of days accounts payable= (Average accounts payable / Cast of goods sold)*365

5.2 Independent variables

ROA = Earnings before tax and interest/ Total assets

Operating cash flow = cash flow from Operating activities/ Total assets

Revenue sales are used to measure company size. A natural logarithm of total revenue is

Used as a proxy of company size.

Sales growth = (Current year s sales – previous year s sales)/ previous year s sales

Current ratio = Current assets / Current liabilities

Quick ratio = (Current assets – Inventories)/ Current liabilities

6 Statistical Population, Sampling Method and Sample Size

Statistical population of this study was companies listed in Tehran stock Exchange. The sample size had to first be reviewed to determine the extent to which the company information was available. After sampling, in the best condition for a period of 10 years (1999-2000) 83 companies were selected as an example. The primary requirement was the availability of the corporate financial statement information. Then following conditions were applied:

- 1) They were accepted in Tehran Stock Exchange since 1999.
- 2) End of their fiscal year is March 29.
- 3) Their intended data was available through various resources.

These companies are evaluated according to these terms so that they have more reliable criteria, are available in more and sampling method is used considering these conditions.

7 Data Collection

In the present study for the development of research literature and history research library research method is used. Data needed to test the model was gathered using new technology data banks, and collecting data from Tehran stock Exchange archive.

8 Research Findings

To examine the relationship between company characteristics and cash conversion cycle, first descriptive statistics and then correlations between variables and the estimated model are calculated. These results are presented in two stages. First, the theories of all companies will be tested, and in the second phase companies will be divided to three categories: small, medium and large, and the characteristics of the different levels of impact on the cash conversion cycle will be determined.

9 Descriptive Statistics

In this section, the descriptive statistics of the dependent and independent variables is presented in the overall model and each level.

Table 1: Descriptive statistics of variables for all companies

	N	Minimum	Maximum	Mean	Std. Deviation
CCC	830	.23	455.19	189.77	93.99416
PRPOFIT	830	-.08	1.14	.2327	.13116
CFO	830	.00	1.83	.1571	.15540
SIZE	830	4.04	6.88	5.3017	.47004
GROWTH	830	-1.22	.88	.1095	.19837
CR	830	.31	3.53	1.1871	.42471
QR	830	.31	3.53	1.1846	.42346
DEBT	830	.25	2.36	.6683	.17773
Valid N (listwise)	830				

According to Table 1, the average cash conversion cycle, which is used as the dependent variable, lasted 189.77 and the minimum and maximum order in 23 and 455.19. This means that it takes 189.77 days for the cash to return.

According to Table 2, the average cash conversion cycle, which is used as the dependent variable, in large companies takes 160.26 days. This means that it takes 160.26 days for the cash to return.

Table 2: Descriptive variables for the companies with the large size

	N	Minimum	Maximum	Mean	Std. Deviation
CCC	230	.23	427.12	160.26	82.85450
PRPOFIT	230	.01	.72	.2475	.11431
CFO	230	.00	1.64	.1604	.15031
SIZE	230	4.74	32.00	5.9413	1.77146
GROWTH	230	-.52	.88	.1402	.16120
CR	230	.35	3.53	1.1208	.40877
QR	230	.35	3.53	1.1201	.40854
DEBT	230	.28	1.03	.6678	.13815
Valid N (leastwise)	230				

Table 3: Descriptive variables for companies with medium size

	N	Minimum	Maximum	Mean	Std. Deviation
CCC	330	7.37	455.19	198.16	102.79310
PRPOFIT	330	-.07	.70	.2264	.14095
CFO	330	.00	1.83	.1801	.20287
SIZE	330	4.70	6.08	5.2928	.21762
GROWTH	330	-.88	.59	.1022	.19732
CR	330	.31	3.51	1.1855	.44075
QR	330	.31	3.51	1.1836	.43995
DEBT	330	.25	1.06	.6582	.13643
Valid N (leastwise)	330				

View this table is the average cash conversion cycle, which is used as the dependent variable, average level lasts 198.16 days. This means that from time, cash out takes 198.16 days.

Table 4: Descriptive variables for companies with small size

		Minimum	Maximum	Mean	Std. Deviation
CCC	270	37.49	420.98	205.68	85.24951
PRPOFIT	270	-.08	1.14	.2239	.12683
CFO	270	.00	.90	.1413	.12194
SIZE	270	4.04	5.75	4.8796	.28310
GROWTH	270	-1.22	.78	.0935	.22421
CR	270	.39	3.07	1.2473	.40497
QR	270	.39	3.06	1.2425	.40285
DEBT	270	.28	2.36	.6845	.24061
Valid N (listwise)	270				

According to this table, the average cash conversion cycle which is used as the dependent variable, in small companies is 205.68 days with the minimum of 37.49 and maximum of 420.97 days. This level also takes on average 205.68 days for the cash of companies to return. This amount is more than large and medium companies. Note that in the table, company size has a negative impact on cash conversion cycle, because the surface is greater than other two levels.

Table 5: The Pearson correlation measures the relationship between the variables are as follows:

	Jeneral modle	Great level	Average level	Small level
Constant	11.767(0.000)	15.306(0.000)	5.985(0.000)	9.323(0.000)
PROFIT	-5.801(0.000)	- 0.200(0.002)	-6.952(0.000)	-3.327(0.001)
CFO	-20.076(0.000)	-1.15(0.119)	-----	-----
SIZE	-7.426(0.000)	-----	4.970(0.000)	-----
GRO	1.540(0.124)	-4.970(0.000)	-1.295(0.197)	-0.905(0.366)
CR	-----	-----	-----	-0.723(0.470)
QR	-----	-----	-----	-0.706(0.481)
DEBT	3.174(0.000)	1.799(0.000)	2.613(0.000)	1.975(0.049)
R	0.404	0.200	0.466	0.296
R Square	0.163	0.040	0.217	0.087
Adjusted R Square	0.159	0.036	0.210	0.081
F-Statistics	40.176	9.498	30.108	12.789
Sig	0.000	0.002	0.000	0.000
Durbin Watson	1.527	1.583	1.599	1.541

Note: This table shows the effect of company characteristics on the cash conversion cycle in Cross-section fixed (dummy variables) regressions. The t-statistics of coefficients are reported in parentheses. Significance at the 1%, 5%, and 10% level is denoted by ***, **, and * respectively.

In the general model: As seen in table, because the significance level is less than 0/05 in variable such as profitability, operating cash flow, size, growth and debt ratio, therefore there is a significant relationship between these variables and the cash conversion cycle, and for quick ratio and current ratio, because the

significance level is greater than 0/05, there is no significant relationship between these variables and the cash conversion cycle.

At large scale: At this level because the significance level of profitability, operating cash flow, size, growth and debt ratio is less than 0/05, there is a significant relationship between these variables and the cash conversion cycle, and for variable such as size, current ratio and quick ratio, the significance level is greater than 0/05, so there is no significant relationship between these variables and the cash conversion cycle.

At average level: The significance level of variables such as profitability, size, sale growth and debt ratio is less than 0/05, so there is a significant relationship between these variables and the cash conversion cycle. The significance level of operating cash flow for the variables, current ratio and quick ratio is higher than 0/05, therefore there is no significant relationship between these variables and the cash conversion cycle.

In small level

Also in small size companies the significance level of profitability, sale growth, current ratio, quick ratio and debt ratio variables is lees than 0/05, so there is a significant relationship between theses variables and the cash conversion cycle, for variables such as operating cash flow the significance level is higher than 0/05 and there is no significant relationship between these variables and the cash conversion cycle.

The results presented in table (5) consider the analysis of each of the hypotheses which is mentioned and discussed below.

The top part of the table shows variables that enter the model in terms of the overall model and each of the levels found and the variables that are out of the content. As it can be seen, in the overall model profitability, operating cash flow, size, debt ratio are included in the model and sale growth is excluded. In greater levels, profitability, sales growth and debt ratio are included in the model and operating cash flow is excluded from model. In average level, the variables of

profitability and debt ratio are included in the model and sales growth has been excluded from the model and finally in small levels, the variables of profitability and debt ratio and growth are included in the model, and sales growth, current ration and quick ratio are excluded in from the model.

Other points to be noted in this table

Results from the regression analysis are presented in table (5) shows that according to the estimated models and the determining factor in the overall model, considering the ratio of 0.404, operating cash flow provides the most relevant information to estimate cash conversion cycle.

In large levels, considering the estimated model and the determining coefficient of the model, the coefficient of profitability of 0.200 provides the most relevant information to estimate cash conversion cycle.

In medium level, considering the estimated models and the coefficient of each of these models, the debt ratio of a determining factor of 0.046 provides the most relevant data to estimate cash conversion cycle.

In small levels, regarding the estimated models and the coefficient of each of these models, the debt ratio of 0.296 provides the most relevant data to estimate cash conversion cycle.

10 Conclusion

10.1 Results of the first hypothesis

In this study the effect of the company characteristics on the working capital management were examined. The cash conversion cycle was used to measure working capital management. Hypothesis about the results of the first phase indicated that the relationship between profitability and cash conversion cycle is negative and significant. Secondly the results indicated a significant negative relationship between the three levels of profitability in the cash conversion cycle.

The results of this study were in line with those of Shane and Swan (2004), Rahman and Naser (2007) Uyar (2009) Deloof (2003), Eljili (2004). The negative relationship between these two variables is an indication of an efficient working capital management. This result is inconsistent with what we had expected on theoretical grounds. Thus, when profitability increases, cash flow cycle is shorter; to increase profitability, there must be more sales which can be done by extending the payment period and accelerate attracting customers.

10.2 Results of the second hypothesis

First stage results of the second hypothesis suggest that there is a significant relationship between the operating cash flow and cash conversion cycle, and secondly the same result was concluded as in large companies. This result is consistent with Chiou and Cheng (2006), Jng-Ren (2006) Nilsson, et al. (2010). Results obtained from this hypothesis are consistent with what we had expected on the recital grounds. But there is no significant relationship between medium and small levels. Thus, the high operating cash flow reflects the company's ability and policy to generate cash and working capital management and to shorten cash conversion cycle.

10.3 Results of the third hypothesis

The results of the third hypothesis in the first stage shows a negative relationship between company size and cash conversion cycle, and in the second stage it shows a negative relation between company size and cash conversion cycle only in medium-sized companies. The results of this research conform to those of Uyar (2009), Nilsson, et al, (2010), and Jng-Ren (2006). It is also consistent with what we had expected on theoretical grounds. So the smaller the

size of the company is, the longer cash conversion cycle will be. Larger companies have greater bargaining power with suppliers and customers than smaller companies and can easily sit and negotiate with suppliers to get discounts from them and can also extend the payment period. Mr.Jeng- Ren has also noted in his study that larger companies have more bargaining power and more working capital compared to smaller companies.

10.4 Results of the fourth hypothesis

The results of the fourth hypothesis in the first place showed a negative relationship between sales growth and cash conversion cycle and in the second phase it suggested a significant negative relationship in all three levels of companies. The results conform to those by Kim, et al. (1998) and Nilsson, et al. (2010) and are also in line with what we expected on theoretical grounds. This result contradicts that of Jeng-Ren (2006); he acknowledged that companies with higher sales growth are more willing to increase their working capital. Companies that tend to have high sale growth pay more attention to the management of working capital. In so doing, they extend the payment period and accelerate attracting customers. In other word, the longer the pay period is, the more sales there will be, which in turn results in an increased profitability.

10.5 Results of the fifth hypothesis

Results of the fifth hypothesis in the first phase suggest no significant relationship between the cash conversion cycle and quick or current ratio. This result is in line with that of Nilsson, et al. (2010) and with what we had expected on theoretical grounds. In the second phase, the results indicate a significant negative correlation between conversion cycle and quick or current ratio in small-sized companies. The high value of these two ratios indicates that the

company has good liquidity, short-time cash conversion cycle and efficient working capital management. The results of research conducted by the Moss and Stick done in the year 1993 showed that the current and quick ratios are positively related with conversion cycle. Companies that have a longer cash conversion cycle need to save more cash and have more short- term investments for their operation.

10.6 Results of the sixth hypothesis

The results from the sixth hypothesis in the first stage suggest that there is a significant positive relationship between debt ratio and cash conversion cycle, and in the second phase the same result was obtained in all the three levels. The results conform to those by Jeng-Ren (2006) and Nilsson, et al. (2010) and are consistent with what we had expected on theoretical grounds. Results show that companies that have a low debt ratio tend to have a shorter period to keep their inventory which results in a shorter cash conversion cycle.

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