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Reza Tehrani, and Gholamreza Rahimi

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RESEARCH ARTICLE

THE SURVEY OF THE RELATIONSHIP BETWEEN CASH CONVERSION CYCLE AND THE STOCK RETURN OF THE COMPANIES ACCEPTED IN TEHRAN'S EXCHANGE MARKET

Reza Tehrani*, and Gholamreza Rahimi

Department of Financial management, Tehran University, Tehran, Iran

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ABSTRACT

In the current study we dealt with the survey of the relationship between cash conversion cycle, its components, and the stock return. Based on the results obtained from the regressions the stock return has a significant relationship with the cash conversion cycle and its constituents. Based on this, the relationship between the cash conversion cycle and the debt collection period is of a significant and inverse relationship with the inventory turnover period and debt repayment period is of a significant and positive relationship with the return in stocks.

INTRODUCTION

Investment is one of the critical factors of development in the present century. From one hand, investment brings about the attraction of the people's capital and leads it to the economy-generating sectors and, from the other, according to the investors inclinations (based on the risks and returns, it will be led towards the industries having higher profitability and lower risks and this per se causes the optimum allocation of the resources. According to the evolutions taking place in today's world, countries, particularly developing countries which are facing numerous threats, require finding appropriate strategies for better utilization of the facilities and available riches in order to be able to resolve their economical problems. In this line, one of the most vital tasks is the development and the expansion of the investment (Khajavi, 2005).

Capital is the fundamental premise of the finance management discussions and it can be claimed that all of the current activities require capital, capital is defined as all of the financial resources which are used by the company and along with this, finance management determines the relationship framework between capital and the firm which is expressive of the capital standpoint in the organizational processes and it is regarded as one of the five vital resources for the survival and the growth of the organization.

According to the position and the significance of the capital in the organizational processes, its management is of a great importance. Amongst these, working capital, generally in all of the organizations and particularly in the small size enterprises, accounts for a great deal of the organization capital, and its management based on the management mechanisms of the supply chain components is crucially important as well. Working capital of a firm is the sum of the money invested in the current assets and the working capital management is also expressed as the determination of the volume and the combination of the resources and the working capital usability in a manner that it leads to the increase in the investors' wealth.

Study background

Lazaridis and Terry Founidis (2006), Truel and Solano (2007), Ran Chiu and Wang (2006) dealt with the survey of the working capital management effect on the profitability and then the stock return. They took advantage of the cash conversion cycles in order to evaluate the working capital management and various profitability ratios such as operating profit, gross operating profit, the asset return to equity return ratio, the profit

Corresponding author:* **Reza Tehrani
Department of Financial management(phd), Tehran University, Tehran, Iran

margin to investment output ratio. The result of their studies showed that there is a negative and significant relationship between cash conversion cycle and profit creation and the working capital management exerts a great influence on the firms' profitability via which the managers influence the value creation for the shareholders and the profitability increases through reducing the cash conversion cycle period. [19]

Lambrix and Singvi (1979) through adopting the method of working capital cycle for the working capital management came to this conclusion that investment in the working capital should be optimized and the cash flow can be improved through the reduction in the physical cycle period from receiving raw material to the sale of the finished and final goods, i.e. inventory management. [18] Copeland and Khoury (1980) used CAPM for the development of the credit expansion theory. They concluded that the credit should be developed only at a state that the expected rate of the credit return is determined more than or equal to the market return rate. Also, they made use of the CAPM for the determination of the required return rate for the company due to the credit expansion. [12]

In the literature the interest rate has been reminded of as the index for the survey of the costs required for retaining the inventory. This factor has been well illustrated in the studies performed by Hilton (1976) and Irwin (1981).Agrawal (1983) studied the working capital management on the basis of a sample of 34 top manufacturing factories in the period between 1966-67 and 1976-77. In his study, he used techniques such as ratio analysis and also he took advantage of the questionnaires and personal interviews and in the end he came to this conclusion that although working capital per every rupee sale is indicative of a tendency reduction in consecutive years, still there exists an appropriate prospect for investment in almost the entire various parts of working capital. [11] Gupta (1987) identified the investment determinant factors in the public enterprises present in the field of aluminium. The data was collected from the securities exchange market in a 9-year period from 1988 to 1996. [14]

Verma (1989) evaluated the working capital management in the iron and steel industry by sampling from the selected units in both private and publis enterprises in the time period 1978-79 to 1985-86. By making use of the ratio analysis technique, growth rate and linear regression analysis of the samples the study came to this finding that the private companies comparing to public companies perform a little more better in working capital management. [15]

Porters (2004) and Phil Black (2007) performed studies regarding the relationship between working capital and the cash and value qualifications of the companies. The results of their studies showed that there is a significant relationship between the cash conversion cycle and cash qualification with the firm market value. The results indicate that the reduction in the cash conversion cycle is one of the important key factors for increasing the profitability and therefore the enhancement of the firm market value. [14] Shevin Bacher (2006) has performed studies concerning the financing strategies. In his studies he takes two types of financing strategies into consideration. In the business entities conservative strategy the main operation is delayed until sufficient cash is provided for the project completion, on the contrary, in the imprudent strategy, while the resources are constrained some of the main operations of the main project are completed even before exogenous financing, therefore, the type of the strategy is effective in the project selection. [18]

Ramor *et al* (2000) surveyed the existence of the nonlinear relationship between the financial ratios and the return excess rate. They sampled the American and Japanese markets as their study subjects. At first, they chose their sample from among 10 American firms and 5 Japanese firms from various industries in 1995 and tabulated the data in a table by industry and then calculated the financial ratios of the above samples and termed them as their independent variable and the return excess rate was considered as the dependent variable. This study was tested through the regression and non-regression relationships between the dependent and independent variables. The results of this study confirm this hypothesis that there exists a mostly nonlinear relationship between the return excess rate and the financial ratios. Based on the present study the current and prospective ratio of their behavior is more or less similar and it is recognized as the repayment ability rate and there exists a nonlinear relationship between the return excess rate and these ratios, and , of course, the type of the relationship between the countries are independent of each other. [20]

Lazarisis *et al* (2006) dealt with the survey of the relationship between the firms' profitability and the capital management of 131 companies in the Aten's securities exchange market (ASE) during the years between 2001 and 2004. The objective of the current study is the survey of the statistically significant relationship between profitability and the cash conversion cycleand its constituents. The results of the study indicated that there is a significant relationship between the profitability (net operating profit) and the cash conversion cycle. Moreover, the managers can create an appropriate profit for the company through the cash conversion correct management in an optimum level of its constituents (that is accounts receivable, accounts payable, and inventory). [19] Amriasrami (2001) dealt with the survey of the profit informational content, the operating cash flow and working capital. In this study 198 companies of the securities exchange market were studied and the type of study was demographic and for the hypothesis test the regression and R^2 coefficient and correlation coefficient r and the variance analysis (ANOVA) were taken into consideration. The results of the study indicated that a) the income before the extraordinary items and the working capital resultant from the operation of each by itself is important for the creation of the current ratio. But, the cash flow subsequent to the operations is not a determining factor in the current ratio variations. B) Each of the three accounting variable alone play a determining role in the quick ratio variations.

Study hypotheses

Main hypothesis: there is a significant relationship between the cash flow period and the stock return in various manufacturing

industries. The study hypothesis can be expressed via four separated hypotheses

1. There is a significant relationship between the debt collection and stock return.
2. There is a significant relationship between the inventory turnover and stock return.
3. There is a significant relationship between the debt payment period and stock return.
4. There is a significant relationship between the cash flow period and stock return.

STUDY METHODOLOGY

The current study is an applied research from the objective point of view and it is surveying-exploratory from its implementation method and the correlation and the linear regression were taken advantage of to test the hypotheses. And the study hypotheses are compiled based on the comparative inferences and they have been tested through the use of the deductive research. The study statistical tests also include correlation analysis (Pierson correlation test) and multiple linear regressions between the study variables which are referred to in the section concerning the data analysis tools.

The study sample and subjects

The study population of the current study is all of the companies accepted in Tehran's securities exchange market financial data of which are qualified for the following conditions in the time period between 2004 and 2010

The study sample was chosen from the above population and regarding the following conditions

1. Companies accepted in the stock market before 2004.
2. Their fiscal year had been ended before they were accepted in the stock exchange market.
3. Their fiscal year had not been changed during the study time period.
4. Their information and the required data are available.
5. They had not had an operating intermission for more than 30 days.

According to the above conditions 777 year-company was chosen as the study population. To do the study, the study population was chosen from among those companies which were accepted in Tehran's securities exchange market. In order for the statistical sample to be determined, and in order to reduce the estimation error rate the screening method was used.

The variables and the models used in the study

Stock return: the difference in the price of each share at the end of the fiscal year and the price of each share at the beginning of the fiscal year plus the modifications resulting from the stock gains (including profit, bonus shares, etc.) divided by the shares price at the beginning of the fiscal period.

The current ratio

the current asset to current debts ratio is termed as the current ratio

Quick (instant) ratio

It is obtained from the quick ratio of the instant asset divided by the current debts.

Debt ratio

It is calculated from through dividing the total debts by the total assets.

The debt to equity of shareholders ratio

the debt to equity of shareholders ratio is obtained via dividing the total debts by the total equity of the shareholders. The following variables are proposed based on the definitions cited in a study performed by Lazaridis and Founodis (2006)

Debt collection period

it is calculated by the following relation Debt collection period=(account receivable/sales)*365

The inventory turnover period it is calculated via the following relation

The inventory turnover period=(the current inventory/finished price of the sold goods)*365

The cash conversion cycle cash conversion cycle is calculated as follows

Debt collection period + the inventory turnover period-the debt repayment period

STUDY METHODOLOGY

In the current study, in order to test the four sub-hypotheses of the main hypothesis we survey the existence of the relationship between the stock return and the cash conversion cycle and its components (the debt collection period, the cash flow period, liability payment period) by making use of the linear regression

The significance test of the entire regression model

In order to test the significance of the regression model and the significant coefficient tests in each of the hypotheses which signify the significance of the relationships between the independent variables and the dependent variables, the FValue was used. The FValue was tested in all of the eight models and the results obtained showed the significance of each of the models

The independent variable significance test

In oreder to test the independent variables coefficients significance in each of the models the T Value was used. All of the entire variables in every model is significant.

The variables collinearity

One of the other problems that can be found in the multivariate

regressions is the collinearity problem. Based on the tests performed, there is no collinearity problem between the independent variables.

Dourbin/Watson test

According to the calculated amounts for Dourbin/Watson d Value, in all of the tests the d Value is located at the autocorrelation zone and the patterns are not found with the autocorrelation problems.

The Hypothesis Test Method

To test the study, the linear regression test was utilized to survey the presence or the absence of the significant linear relationship between the dependent and independent variables. To do so, we study the stock return relationship in four stages with four variables. Of course, in all of the stages, there exist control variables for the current ratio, quick ratio, debt and the investment ratio.

Findings analysis

Table 1 indicates the means, standard deviation, maximum, minimum and median for the regression model variables.

Table 1 The descriptive values of the regression model variables in respect to the assets at the incept of the period

Variable	Number	Mean	Median	Standard deviation	Minimum	Maximum
Return	777	12.31608	10.99000	20.070725	-56.280	68.960
AR	777	88.33	87.05	42.428	8	175
INV	777	137.20	131.04	61.859	2	333
AP	777	147.45	147.99	49.503	8	289
CCC	777	78.08	77.28	35.305	2	181
LOS	777	12.7658	12.6900	1.31640	8.67	16.34
CR	777	1.0896	1.0600	.37851	.15	2.42
DR	777	.6969	.6800	.18927	.16	1.37
FATA	777	.4730	.4600	.14897	0.06	.99

Also, the following table illustrates the correlation coefficient between the study variables by making use of the two types of Pierson and Spearman correlations. The figures above the main diagonal of the table illustrate the Pierson correlation coefficient and the figures below the

Table 2 The correlation coefficient and Pierson (Spearman) significance level below (above) the main diagonal.

Row	Variable	1	2	3	4	5
1	*Return*		-0.073*	0.063	.379**	-.517**
			0.041	0.078	0.000	0.000
2	*AR*	-0.090*		0.043	.473**	.517**
		0.012		.231	0.000	0.000
3	*INV*	0.082*	-0.012		.786**	.649**
		0.023	.734		0.000	0.000
4	*AP*	.414**	.473**	.781**		.546**
		0.000	0.000	0.000		0.000
5	*CCC*	-.546**	.517**	.643**	.534**	
		0.000	0.000	0.000	0.000	

In the present study, firstly the data normality was tested by making use of KS test. The results of the study showed that all of the variables being used are normal.

Table 12-4 Kolmogorov-Smirnov test

	FATA	DR	CR	LOS	CCC	AP	INVENTORY	AR	RETURN
Number	777	777	777	777	777	777	777	777	777
Mean	0.473	0.69	10.08	12.76	780	147.	137.20	88.3	12.316
parameters	0.148	0.18	0.37	1.316	35.3	49.5	61.859	42.4	200.07
Normal standard									
Maximum absolute	0.045	0.04	0.039	0.048	0.03	0.02	0.045	0.04	0.047
Discrepancy positive	0.048	0.04	0.038	0.048	0.02	0.01	0.045	0.04	0.047
Negative	-0.037	-0.04	-0.029	-0.032	-0.030	-0.028	-0.029	-0.04	-0.033
Significance	1.335	1.31	10.062	1.338	.827	.781	1.256	1.347	1.322
	0.057	0.06	0.192	0.056	.500	.575	0.085	0.053	0.061

In the current study, firstly the data normality was tested by making use o the KS test. The results of the study indicated that all of the used variables are normal. Then, by making use of the Pierson correlation coefficient (below) and Spearman correlation coefficient (above) the existence of the correlation between the study variables and the results summary is as follows

Table 5 1 Relationships significance

Variable	Return	AR	INV	AP	CCC
Return	Significance Direction	Significant Negative		Significant Positive	Significant Negative
AR	Significance Direction	Significant Negative	Significant Positive		Significant Positive
INV	Significance Direction	Significant Positive			
AP	Significance Direction	Significant Positive	Significant Positive	Significant Positive	Significant Positive
CCC	Significance Direction	Significant Negative	Significant Positive	Significant Positive	Significant Positive

Then, the proposed tests were performed and the following results were obtained

the study findings in relation to the existence of the significant relationship between the cash flow period and the stock return in various manufacturing industries In the face of the study hypotheses, we dealt with the presence of the relationship between the cash flow period (and its constituents) and the stock return by making use of the regression model. In this section, we express the study hypothesis in four separate sub-hypotheses

There is a significant relationship between the debt collection period and stock return.
There is a significant relationship between the inventory turnover and stock return.
There is a significant relationship between the debt collection period and stock return.
There is a significant relationship between the liability payment period and stock return.
There is a significant relationship between the cash flow period and stock return.

In fact, the first three variables are the constituting components of the fourth variable. The results obtained from the sub-hypotheses regressions of the main hypothesis are as blow

In the above table, the coefficients related to the variables are illustrated. Below each of the coefficient, the amount of the P-Value for each of them is inserted.

$RETit = \beta 0 + \beta 1 * ARit + \beta 2 * INVit + \beta 3 * CCCit + \beta 4 * APit + \beta 5 * LoSit + \beta 6 * CRit + \beta 7 * DRit + \beta 8 * FATAit + \varepsilon$

	First hypothesis	Second hypothesis	Third hypothesis	Fourth hypothesis
β 0	-23.268	-33.133		22.25
	-2.646	-3.767		2.905
β1	-0.036			
	-2.132			
β2		0.025	0.175	
		2.247	130.078	
β3				
			4.298	-0.316
β4			8.922	-18.142
	2.841	3.332	16.222	0.133
β5	5.295	6.283	3.253	0.285
	26.817	25.331	-14.229	23.673
β6	4.919	4.656	-3.559	5.185
	-10.234	-11.752	-37.104	-20.01
β7	-2.306	-2.67	-2.839	-0.539
	-41.485	-42.26	0.53	-240.069
β8	-2.881	-2.935	0.281	-1.985
R	0.356	0.357	0.276	0.62
R2	0.127	0.127	1.932	0.384
Adj R2	0.121	0.121		0.38
DW	1.892	1.899		1.914

CONCLUSION

The results of the study showed that there is a significant relationship between stock return and cash conversion cycle and its constituents. Therefore,

- There is a negative and significant relationship between the debt collection and stock return.
- there is a positive and significant relationship between the inventory turnover and stock return
- There is a positive and significant relationship between the debt repayment period and stock return.
- There is a negative and significant relationship between the cash conversion cycle and stock return.

Based on this, with a decrease in the debt collection period and cash conversion cycle there would be an increase in the stock return. In this respect, it can be reasoned that the shorter the debt collection period and cash conversion cycle the business purchasers will be less inclined to buy, since the quick liquidation of the liability is not so much favorable. In other words, if the working capital policies can be aligned in line with the faster entrance of cash to the firm there can be observed a negative effect on the stock return. From the other hand, the inventory turnover and the liability payment period have a positive relationship with the stock return. Regarding this saying, it can be justified that the longer the debt repayment period the more cash can be retained in the company and this can influence the stock return positively. Put it differently, if the working capita policies are along the slower exit of the cash there would be a positive effect on the stock return.

Suggestions for further research

It is recommended that in future studies the following relations be surveyed

- the relationship between the working capital policies and stock return through quantifying the working capital policies
- the relationship between the existence of JIT system in the working capital management
- the relationship between the accrual quality components and cash components of the profit with the working capital constituents

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