

Effect of Working Capital Management and Changes in Cash Conversion Cycle on Financial Performance of Firms

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ABSTRACT

Working capital management deals with current assets and liabilities, and since current assets of a company form a significant part of its total assets, the excessive amount of current assets could lead to less than normal return on investment. However, companies with lower current assets will have shortcomings and problems in the normal operation process. The main objective of this study is to evaluate the effect of working capital management and changes in cash conversion cycle on financial performance. In this research, the data of 5 years (2007 to 2011) of 470 companies accepted in Tehran Stock Exchange were collected and analyzed. The research hypotheses were tested by regression. This research has two hypotheses. The results of the research showed that shortening the changes in the cash conversion cycle and the period duration of collection of claims did not affect the company's performance.

KEYWORDS

Working capital management, Financial Performance, Cash Conversion Cycle, Current Assets

INTRODUCTION

Capital markets in the world today have become the heart of the economy of most countries, and as an economic temperature, they are responsible for collecting and equipping small individuals in projects with good returns in the economy (Sepasi et al., 2017). Today, managers of organizations are immediately aware of the successes and failures of other organizations. Therefore, they evaluate the secret of the success of the developed organizations so that they can take advantage of their

progress. The successful experience of developed industries has created this attitude among economic scholars, which by choosing the right strategy, productivity in organizations increases. This is important to ensure the survival of the organization in domestic and international competition.

Working capital is considered to be a major asset item of a unit and an enterprise that plays a significant role in financial decisions. Quantitative and qualitative development of business activities has led to quantitative and qualitative development of the realm of financial management, which has complicated financial management. The continuity of business activities depends to a large extent on its short-term resource management, since operating activities in a normal period, usually annual, relate to the recognition of working capital and its optimal management, in this way, the expected results of the realization and long-term sustainability can be provided (Rahnama Roodposhti, 2008)

Today, working capital includes a part of the company's capital, which plays an important role in the company's continued activity. By definition, working capital is the investment of a unit in current assets such as cash, securities, accounts receivable and inventory, and if we deduct the remaining current debt, net operating cash flow is obtained and working capital management is to determine the volume and composition of resources and circulating capital expenditures in such a way as to increase shareholders' wealth. (P.Neveu.)

Working capital is influenced by the financial policies of the company. How much cash is held, how to settle with customers and suppliers, how much to invest in securities and commodity inventories, and how much current and long-term debt is settled from current assets is in the field of financial policies. Unsurprisingly, the above decisions affect the performance and cash flows, the flexibility and sustainability of activity of the business unit.

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IMPORTANCE AND NECESSITY OF RESEARCH

For each running company, one of the most important issues is to maintain a balance between current assets and current liabilities, as well as maintain a balance between profitability and liquidity (Eizadi Nia). In fact, a business entity needs a good level of cash and inventory for repaying debts and timely delivery of inventories to meet customers' needs.

Working capital consists of four main components. Cash, inventory and accounts receivable and accounts payable. Current assets are essential for corporate governance and the maintenance of large amounts of current assets by the company reduces the risk of asset shortages and reduces the operational risk of the company. However, if the inventory is kept to a large extent, since maintenance of working capital is costly, maintenance costs and losses must be increased. Of course, companies should have the capital needed to buy current assets, such as inventory, and, on the other hand, current assets held by companies can have zero or negative returns. So companies as far as possible try to reduce the amount of additional inventory. Therefore, it is recommended that the companies keep working capital at an optimal level.

Considering the direct effect of working capital on company performance and the amount of accounting profit, despite previous extensive researches in this field, as well as with the above mentioned vacuum in the same researches, further research and study on working capital continues to be of importance to researchers.

- **A Review of Theoretical Foundations and Research Background Theoretical Foundations:**

In a challenging economic environment, international organizations are looking for new ways to grow and improve financial performance and reduce risk. Working capital is considered as an important source for financial performance. In this regard, active working Capital management is a fundamental requirement for the organization's ability to adapt in challenging economy (Bahar Moghadam, Mohammad Rezakhani, Hooshmand Zafaranyeh, 2012)

- **Working Capital:**

The working capital refers to the part of the capital that is immediately available to the company. The method of managing corporate capital flows will affect its liquidity and profitability. In fact, many companies invest large amounts of their resources in receivable accounts and inventories, considering the amount of short-term debts as a source of re-financing (Deloof, 2003).

Large amounts of inventory and credit selling policies may result in large volumes of sales. Excess inventory may reduce the risk of shortage of goods and, with the possibility of using inventory for customers before they are paid, they can be encouraged to buy from the company (Mohammed Younes et al., 2018). There are two types of working capital, gross and net working capital. Gross working capital consists of investing in current assets. Net working capital is the surplus of current assets on current debt (Subhi 2018).

"Net working capital" represents the portion of current assets that are increasing on current debt and are supported through long-term borrowings and equity. Net working capital is a measure of liquidity that is defined as the cash flow to manage the business unit's liabilities. The goal of working capital management is to maintain a critical balance between maintaining liquidity to support day-to-day operations and maximizing short-term investment opportunities. The need for working capital is largely linked to the company's operational cycle. The company's operating cycle is the time to start supplying goods and raw materials and the end of sales. Working capital management is stages and strategies required to combine working capital (Subhi 2018).

- **Cash Conversion Cycle:**

A common criterion to measure working capital management is the cash conversion cycle. Cash conversion cycle is the number of days spent before the cash receipt from the sale payable from the actual payday for inventories. (Ross, Westerfield, and Jordan, 2002). And a dynamic measure to measure the time gap between cash payments for purchasing raw materials and collecting cash from claims (Nobanee, Abdullatif and Al Hajjar, 2011) In other words, there is a time gap between the cost of purchasing raw materials and the collection of sales of goods (Jacobnezhad, Vakilifar, Babaei; 2010). An appropriate assessment of the company's liquidity is critical because delayed liquidity will lead to bankruptcy risk (Campbell, Jones, 2003). In assessing the company's liquidity; the most commonly used indicator is the current ratio and other types such as instantaneous ratio. Although these indicators provide an indicator of liquidity described in accounting standards, in the sense that the word "current" usually this refers to assets must be converted to cash in the ordinary cycle of operations of business entity, or to be consumed and debts cannot be settled using current assets or creating other current debts. However, in the accounting literature, the focus of liquidity assessment is on these two indicators. In traditional liquidity indices, the main emphasis is on the fact that the current assets are more than current liabilities; the liquidity situation of the company is more favorable. In other words, current assets, regardless of their composition, reflect the company's ability to pay and current liabilities, regardless of its composition, reflect the cash needs of the company (Mahdavi, Ghorbani, 2012) Significantly, the lack of cash conversion cycle as a liquidity assessment approach that considers the element of time is felt in the accounting literature, while the use of the cash conversion cycle along with the traditional liquidity indices will leads to a more complete evaluation of liquidity status of the company.

BACKGROUND RESEARCH

In a study commissioned by Nastit and others in 2019, "The effect of working capital management on company profits and the effect of this relationship on sustained growth" was tested. In this research, information from 136 Indonesian stock exchanges from 2010 to 2017 has been

used. The results show that working capital management has an important effect on the profitability of companies, although working capital management does not have a significant direct effect on sustainable growth, but there is a significant indirect effect on the profitability of the company. Therefore, the research suggests that the company needs to manage working capital to increase profits and thus to achieve sustainable growth.

Hasan Subhi Al-Abass (2018) has been investigated "the effect of working capital management on the profitability of bourse companies in the cement industry". The purpose of this study is to assess the dependency between stock returns as an indicator of profitability and return on assets as working capital components, including debt repayment period, receivables collection period, inventory conversion period, and cash conversion cycles. The results of the research show that the effect of stock returns is a symbol of the profitability of return on assets as a symbol of working capital.

Erza and Saifi (2018) evaluated "the relationship between some important policies for managing working capital with the performance of companies". In this research, using the generalized torques regression (GMM), the effect of working capital management on increasing and decreasing the efficiency of firms over time was investigated. And the results show that the demands collection period has a significant and negative effect on efficiency, and sales growth and current ratio also have a significant and positive effect on efficiency.

Guyon Moonne and Jang (2015) investigated the "shape between the working capital management and (U)" in a study on "The Effect of the Working Capital Management Strategy on Profitability, Emphasizing Cash Holdings in Restaurant Companies." The results of the research indicate the relationship between profitability of companies. Also, the results of his research showed that the level of cash holdings is an important factor in the effect of working capital management on the company's profitability and turnover.

Sepasi, Hassani and Soleimani (2017) investigated the "relationship between working capital management and corporate performance and the effect of financing constraints in this regard. "In this study to measure the working capital of the company's net business cycle and to measure the financial performance of the QT ratio, the three KZ, KZir and WW indicators have been used to determine the companies with financial constraints and companies with no financial constraints. A total of 1568 years of company from 2006 to 2014 were investigated through multi-variable linear regression analysis. And the results of the test show that there is a negative and significant relationship between pure business cycle and corporate performance. According to the results, working capital management plays an important role in improving the performance of companies and, as far as possible, companies can value by reducing their business cycle. These results show that firms with a financial constraint have less investment in working capital than companies that are without financial constraints, and as

a result, corporate finance constraints are an important factor in the level of investment in their working capital.

Abouzid (2014) investigated the management of working capital and the performance of companies in emerging markets in Jordan. In his research, he used the cash conversion cycle as well as its components as a criterion for skills of working capital management. The results of his research showed that positive profitability was observed after the cash conversion cycle, and that companies have less profitability for working capital management.

Nasser and Rahman, in a 2007 survey of 94 companies present in the Karachi Stock Exchange, concluded that a strong relationship exists between the variables of working capital management and company profits. The results of their research show that increasing the cash conversion cycle leads to a reduction in the company's profitability and management can create value by reducing this cycle to its shareholders. Also, the results of this research show that there is a positive relationship between firm size and profitability and a negative relationship between liquidity and profitability.

Taqizadeh Khanghah et al. (2012) evaluated the relationship between working capital management and the performance of companies admitted to the Tehran Stock Exchange. They selected 11 manufacturing companies for the financial period of 2006-2009. The findings showed that the increase in the acquisition cycle, the payment period, and the net exchange cycle, reduced the company's profitability. In other words, managers can increase the profitability of the company by reducing the receivables period, inventory turnover and payment period.

Olinka (2012) evaluates in the study the relationship between working capital management of companies with the status of private and public companies. Research findings show that private companies have weaker working capital management than state-owned companies. The results also show that the Cash Conversion Cycle has a relatively strong effect on the profitability of private companies compared to government firms which illustrates the efficiency of working capital management for companies at more representation cost.

Zeinali and Dadashzadeh (2106) focused on the effect of the strategy of working capital management on economic performance with emphasis on capital productivity management in companies accepted in Tehran Stock Exchange. The results of their research showed that there is a negative and significant relation between the net equity ratio of the company and the net economic value of the company, and the net equity ratio has a positive and significant effect on the market value added and the value of the company. On the other hand, the results of the research showed that the effect of working capital strategy on economic added value and adjusted economic value added in firms with higher capital productivity is high, but capital productivity does not affect the relationship between the working capital strategy and the value added of the market and the company's value.

Sarraf and Salehi (2015) evaluated the cash flow management and financial performance of listed companies in Tehran Stock Exchange. The results of this study showed that there is significant relationships between DDO, DPO, Cash Conversion Cycle (CCC) and Cash Operating Cycle (OCC) with financial performance, but between earnings period demand (DSO) and financial performance of the company have no meaningful relationship.

Rostami et al. (2014) investigated the relationship between working capital management and the cost of representing in Tehran Stock Exchange. The statistical population includes 127 companies listed in Tehran Stock Exchange during the period from 2008 to 2013. The results of his research showed that there is a positive and significant relationship between the average period of inventory turnover and the cost of representation, and there is no significant relationship between the period of receipt of claims and the cost of representation. There is also a reverse and significant relationship between the debt repayment period and the cost of representation.

Hajiha and Feizabadi (2011) evaluated the relationship between cash conversion cycle and liquidity ratios in listed companies in Tehran Stock Exchange. The results of this study indicate that there is a positive significant relationship between the Cash Conversion Cycle and the Rapid Ratio while the current ratio does not correlate with the Cash Conversion Cycle. There is also a significant negative relationship between the product conversion period and the Cash Conversion Cycle. These results indicate that the immediate ratio is a strong representative of the company's liquidity and inventory has a negative effect on liquidity.

RESEARCH HYPOTHESES

- First hypothesis: Shortening the changes in the cash conversion cycle has an effect on company performance.
- Second hypothesis: shortening the changes in the time period for collecting claims has effect on the performance of the company.

RESEARCH MODEL

The relationship between the periods of "cash conversion", "collection of claims with "performance "of the company is determined using the following model:

$$\text{oisit} = \alpha + \beta_1 \text{oisit}_{t-1} + \beta_2 \text{qrit} + \beta_3 \text{ltdeit} + \beta_4 \text{sgit} + \beta_5 \text{rcpit} + \beta_6 \text{icpit} + \beta_7 \text{pdpit} + \beta_8 \text{cccit} + \varepsilon_{it}$$

The components of the model are as follows:

ois = The first difference in operating profit to sell

rcp = The first difference in the receivables collection period, the average number of days for collecting claims, calculated as follows:

Receivables collection period

$$= \frac{\text{Average receivable of accounts}}{\text{Sale}} \times 365$$

icp= The first difference in inventory conversion, the average time needed to convert the raw material into a product and to sell it is calculated as follows:

Inventory conversion period

$$= \frac{\text{Inventory}}{\text{The cost of the saled goods}} \times 365$$

pdp= The first difference of the debt deferral period, the average time required for the purchase of the goods (materials) and the payment for them calculated as follows:

$$\text{Debt deferral period} = \frac{\text{Average paid accounts}}{\text{The cost of the saled goods}} \times 365$$

Ccc= The first difference in the cash conversion cycle is calculated as follows:

Cash conversion cycle= Receivables collection period+ Inventory conversion period_ Deferred debt period

qr= Current ratio

ltde= Long-term debt ratio to stockholders equity

sg= Sales growth calculated as follows:

$$\text{Sales growth} = \frac{\text{Sales last year} - \text{sales last year}}{\text{Sale last year}}$$

STATISTICAL POPULATION, STATISTICAL SAMPLE AND METHODOLOGY

The statistical population of this research is the companies listed in Tehran Stock Exchange. Because in this study operating profit and operating cash flow are required as one of the required data and access to reliable information for out-of-stock companies is not possible. Meanwhile, access to information about listed companies admitted to the stock exchange through stock exchanges, Internet databases and various software package databases is easily available.

Due to the fact that the information needed in this research should be collected from the cash flows of the companies under study in the bourse, therefore, companies that have provided cash flow during the period of the research between 2007 and 2011 were selected as samples. Meanwhile, companies that had a negative equity value over the period mentioned above were excluded from the case study. Thus, 2518 year\company were selected from all companies listed on Tehran Stock Exchange. After the deletion of missing data and compliance with the research requirements, 470 year\company were selected as the sample.

The list of these companies has been provided in Attachment No.

METHODOLOGY

This research is in applied research in terms of purpose and is a post-event research methodology. In each scientific research, the researcher has to give a hypothetical answer to his research question, and to formulate an idea of how matters are in his mind. Therefore, in this research hypotheses have been formulated to investigate the effect of circulating capital management on financial performance and changes in cash conversion cycle and collection period.

COLLECTION METHOD AND DATA RESOURCES

In this research, library and field methods have been used to collect information and data. In the library section, the theoretical foundations and background of the research are mainly collected from numerous articles from the Internet, as well as Persian and Latin specialized books and journals. In the field, in order to collect the required data, such as information reflected in the financial statements, the

software database of Tadbir Pardaz and the Rahavarde Novin and financial statement disclosed in written form were used.

DESCRIPTIVE STATISTICS

In Table 1, central indices such as mean and median and dispersion indices such as standard deviation, elongation, and inequality have been calculated for different variables. The large mean than median shows the existence of large points in the data, since the average is affected by these values. In these cases, the data is distributed to the right, and in the opposite of the distribution, the chute will be left. If the mean and median variables are close together, the distribution of variables is symmetric. This feature is very important because symmetry is one of the characteristics of normal distribution, which will be discussed in the next section. (The normal distribution slope is zero).

In general, if the slip and elongation are not in the interval (2, -2); the data are not normal distribution. It should also be noted that in the column, the number of data observations after detecting and deleting the irrelevant data is computed.

Tab.1. Descriptive statistics of the variables used in the research model

Model variables	Ois	Ois t-1	rcp	icp	pdp	ccc	qr	ltde	sg
Number of samples	470	470	470	470	470	470	470	470	470
The range of changes	6.3**	4.1**	186.8	357.5	336.0	571.0	9.7	8.6	3.2
Maximum Domain	3.3**	2.4**	190.3	357.5	336.0	464.2	9.9	8.6	2.5
Minimum Domain	-3.0**	-1.7**	3.5	0.0	0.0	-106.8	0.2	0.0	-0.7
Average	4.0*	12.6*	96.209	112.300	59.085	149.424	1.464	.442	.213
Standard deviation	7.8***	3.9***	0.2*	0.9*	0.5*	1.0*	1.292	.672	.145
Stretch coefficient	78.794	73.130	-1.122	-.536	2.189	.091	19.779	32.257	9.171
Skew coefficient	-1.149	-0.163	-.102	.753	1.654	.419	3.836	4.942	2.285
Middle	14.8*	13.4*	99.421	87.007	26.137	140.612	1.209	.179	.146
scope	-3.0**	-1.7**	3.5	0.0	0.0	-106.8	0.2	0.0	0.0
Quartet	25%	6.0*	6.2*	24.066	5.222	81.096	0.867	0.086	0.010
	50%	14.8*	13.4*	87.007	26.137	140.612	1.209	0.179	0.146
	75%	29.9*	24.6*	184.537	86.848	208.885	1.582	0.431	0.323

- *The figures are multiplied by 10 to power 4.
- **The figures are multiplied by 10 to power 7.
- ***The figures are multiplied by 10 to power 12.

TEST OF RESEARCH HYPOTHESES

The results of the regression analysis of the research model are presented in Table (2).

$$\text{oisit} = \alpha + \beta_1 \text{oisit} + \beta_2 \text{qr} + \beta_3 \text{ltde} + \beta_4 \text{sg} + \beta_5 \text{rcp} + \beta_6 \text{icp} + \beta_7 \text{pdp} + \beta_8 \text{ccc} + \epsilon$$

Tab.2. Results of estimation of research model

Explanatory variables	Modified variable coefficient	Predicted sign	statistics t	Sign
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α	-	-	-1.408	0.160
$\beta 1_{oisit-1}$	0.315	-	7.137	0.000
$\beta 5_{rcpit}$	-0.023	Negative	-0.515	0.607
$\beta 6_{icpit}$	0.070	Negative	1.431	0.153
$\beta 7_{pdpit}$	0.086	Positive	1.712	0.088
$\beta 8_{cccit}$	-	Negative	-	-
$\beta 2_{qrit}$	0.030	-	0.673	0.501
$\beta 3_{ltdeit}$	0.018	-	0.403	0.687
$\beta 4_{sgit}$	0.035	-	0.797	0.426
Sign in the whole model	0.000		10.054 statistics F	
Watson Camera	1.805			
Correlation Coefficient:	0.364			
Determination coefficient:	0.132			
Modified determination coefficient:	0.119			

RESULTS SUMMARY OF RESEARCH HYPOTHESES TEST

The research hypotheses have been analyzed using regression analysis. Abstract the results are presented in Table 3 according to the zero hypotheses of the research.

Tab.3. Results summary of hypotheses test

Research hypotheses	Result	Research Finding
Changes in the cash conversion cycle affect the performance of the company.	Rejections	Changes in the cash conversion cycle do not affect the performance of the company.
Changes in the time period for collecting claims affect the performance of the company.	Rejections	Changes in the time period for collecting claims do not affect the performance of the company.
Changes in inventory conversion period affect the performance of the company.	Rejections	Changes in inventory conversion period do not affect the performance of the company.
Changes in the duration of the deferred debt period affect the performance of the company.	Rejections	Changes in the duration of the deferred debt period do not affect the performance of the company.

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