

THE EFFECT OF WORKING CAPITAL MANAGEMENT ON FINANCIAL PERFORMANCE AND OPERATIONAL CASH FLOWS OF COMPANIES ACCEPTED IN TEHRAN SECURITIES EXCHANGE

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Article History: Received on 04th October 2019, Revised on 30th November 2019, Published on 11th December 2019

Abstract

Purposes: Working capital management can have a huge impact on financial performance and operational cash flows. In this research, the effect of working capital management components on financial performance and operating cash flows have been investigated.

Methodology: The data used in this study are financial statements of companies listed in Tehran securities exchange for the period 2007 to 2011.

Results: The difference between sales and operating profit as a benchmark for measuring performance and the difference between operating cash flow and operating profit as a measure of operating cash flow has been used. Regression results show that there is no meaningful relationship between the components of working capital management with financial performance and operating cash flow.

Implications/Applications: Net income represents the change in a business's financial circumstances incurred through that business choosing to run its revenue-producing operations for one specific time period. Because the business cannot choose to run its revenue-producing operations without incurring expenses while doing so, net income is equal to revenues minus expenses. Expenses are often divided up into additional categories for ease of comprehension. Revenues minus cost of sales is equal to gross profit; gross profit minus operating expenses is equal to operating profit.

Novelty/Originality: The novelty of this study is a balance between current assets and current liabilities, as well as maintaining a balance between profitability and liquidity which can serve a great purpose in the economy.

Keywords: *Working Capital, Working Capital Management, Financial Performance, Operating Cash Flow, Cash Conversion Cycle.*

INTRODUCTION

It is always a fundamental question for corporate executives whether the financial funds provided are efficiently invested. One of these types of investment is an investment in working capital ([Ben Nasr, 2016](#)). Working capital involves essential and very important capital in any industry ([Sobhi et al., 2018](#)).

Management of work capital is among the most important decisions that always challenges managers in the optimal balance of current assets and liabilities. The importance of managing the working capital is due to its continued existence in daily business activities.

Hence, one of the important factors determining the value of the company is considered. The beginning of the continuity of business and the continuity of any business requires investment in working capital. Optimal management of working capital is the guarantor of providing competitive products and, subsequently, the company's desirable performance from profit on the one hand, and a reduction in the cost of capital on the other ([Do Luo & Mahmoudi, 2016](#)). Management of working capital is aimed at choosing a mix of current assets and short-term liability for the company ([Noren et al., 2009](#)). Today, working capital management, which is the management of current resources and expenditures, is important for maximizing shareholder wealth as part of financial management tasks.

STATEMENT OF THE PROBLEM

For each company operating, one of the most important issues is to maintain a balance between current assets and current liabilities, as well as maintaining a balance between profitability and liquidity ([Isadinia & Takai, 2010](#)). In fact, a business unit for repaying liabilities and timely supply of inventories to meet customers' needs requires a decent level of cash and inventory. The main objective of management of working capital is to ensure that positive and sufficient working capital (especially in cash) from continuing business activities is provided to supply permanent cash payments to pay off liabilities and operational costs.

This research seeks to examine the relationship between working capital and company performance. But the business performance due to accounting constraints is changeable by management. Accrued profit means identifying some financial events that, if not identified by management or excessive identification, can have a significant effect on accounting profit. This is an indication of the lack of attention, in other words, the cautious approach of investors to the profits of companies. The most recent article in financial literature is called "profit management".

In contrast to accounting profit, there is a cash flow that management cannot affect it. Influencing here means managing and manipulating the amount. As a result, investors face less cautious cash-flow profits than accounting profit. Meanwhile, from the past one of the criteria for assessing the quality of accounting profit is the cash flow operating.

Theoretical Fundamentals and Research Background

Today's work capital is part of the company's capital, which plays an important role in the company's continued operations. By definition, working capital is the investment of a business unit in current assets such as cash, securities, accounts receivable and inventory, and if we deduct the remaining current liabilities, net operating capital is obtained and management of the working capital to determine the amount and composition of resources and expenses of working capital in such a way as to increase the shareholder's wealth.

Working capital is influenced by the company's financial policies. How much cash is held, how to settle with customers and suppliers, how much to invest in securities and inventory, and how much current and long-term liability is to be settled from current assets in the field of financial policies. The above said these decisions affect the performance and cash flow, flexibility and sustainability of the business unit.

On the other hand, investing in current assets will also eliminate opportunities for profit for the company. Capital generating and generating wealth is part of the company's investment, which is a fixed asset. Given the limited resources, management has to decide how much to invest in its productive sector in the current situation, and what extracts the value from the generating part. Therefore maintaining the balance between profitability and liquidity and working capital and fixed capital are the most important issues facing a business unit.

The purpose of working capital management is to increase the profitability and simultaneous payment of maturity of liabilities through the guarantee of liquidity ([Pass & Pike, 1987](#)). Therefore, it is imperative that business units balance their goals in their activities. Management of working capital is heavily influenced by the decisions of combining the assets and current liabilities of the business unit that affect its profitability.

[Hill et al., \(2010\)](#), estimated the requirements for determinants of working capital and showed that growing companies, companies with external financing and companies with financing problems all of them invest less in working capital. In contrast to companies with a domestic financing capability, and companies with a good business reputation in working capital, more invest.

[Deloof, \(2003\)](#), [Baños-Caballero et al. \(2014\)](#), investigated the relationship between working capital management and company performance, showing that both low and high levels of working capital have a negative effect on the company's performance and there is an optimal level for working capital.

[Mann and John \(2015\)](#), evaluated the relationship between working capital, cash, and profitability. The main objective of this research is to investigate the influence of effective working capital management on overcoming the critical financial situation and economic ambiguity. This paper studies the effect of working capital management on the profitability of the foundation. On the other hand, the effect of the level of cash kept on the relationship between working capital and profitability has been tested.

Researchers reviewed data from 298 US companies during the years 1963 to 2012. The results showed that there is a negative and strong U-shaped relationship between working capital and profitability of companies, which indicates the optimal level of working capital for foundations. From other results, the foundation's cash position is an important factor for efficient management of working capital and has a moderating effect in this regard. The findings also show that there is a dynamic relationship between working capital, cash and profitability of the foundation.

Authors reviewed the working capital management and the performance of foundations in terms of foundations' finance constraints. They investigated the relationship between working capital management and foundation performance with respect to a sample of non-financial foundations in England and re-inversed the U-shaped relationship between working capital and foundation performance. Moreover, the findings show that foundations with their working capital at their optimal level have achieved their maximum and optimal performance. On the other hand, with further studies was found that this optimal point for foundations with financial constraints is at a lower level.

[Baños-Caballero et al., \(2013\)](#), have tested their relationship between working capital management and the performance of British non-financial companies. Contrary to previous research, the results of this research provide a strong confirmation of the inverse U-shaped relationship between investment in working capital and the performance of a business unit. It is an interest in the existence of an optimal level of investment in working capital, which creates a balance between costs and profits and maximizes the value of a business unit. In this study, they used a quadratic model and regression between the net business cycle as a measurement criterion of management of working capital and unit performance, as well as control variables of size, financial leverage, growth opportunity and internal rate of return.

[Aktas, N., Croci, E., & Petmezaz, D. \(2015\)](#). in his paper reviewed the relationship between working capital management, company performance, and operational cash flow. This relationship has been tested using dynamic table data analysis. The analysis was based on 5802 American companies (except credit institutions), the New York securities

exchange, the NASDAQ securities market, and several other markets in the period of 1990 to 2004. The results of this study show that managers can increase their company's profitability and operating cash flow by reducing of cash flow cycle and reducing the receivable turnover ratio. Also, the results show that reducing the inventory conversion period and increasing the deferral of liabilities, instead of increasing the profitability and operating cash flows, reduces it.

Do Luo and Mahmoudi (2016) examined the management of working capital, company performance, and financing constraints. Using various criteria of financial constraints, it was shown that these limitations had a significant effect on the relationship between working capital management and its financial performance, and the optimal level of working capital is lower for companies that are more financially limited. The results suggest that managers pay attention to the optimal level of working capital due to the costs of moving away from them.

Sarraf, F., & Salehi, M. (2015) examined the working capital management and its components in the profitability of small and medium-sized non-exchangeable members of economic foundation based on hybrid variables. The results of the research show that there is a reverse and significant relationship between the indicators of working capital management and its components in the profitability of small and medium-sized non-exchangeable members of the economic foundation. Companies can have an optimal level of working capital that maximizes their value. Abundant inventory and generous credit policy can lead to increased sales. The excessive risk reduces inventory shortages and can increase sales by allowing them to evaluate product quality before paying for customers.

Zeinali & Dadashzadeh, (2016) focused on the impact of the working capital management strategy on economic performance, with emphasis on managing capital productivity in companies accepted in exchange for Tehran securities exchange. The results of the research hypothesis test show that the net capital ratio of working capital has a negative and significant effect on the economic value-added and economic value of the company refined, and the networking capital 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 the working capital strategy on the economic value-added and the economic value-added refined in companies with higher capital productivity is high, but the capital productivity on the relationship between the strategy of working capital and the market value-added and the value of the company has no effect.

Mashayekh et al., (2016) examined the effect of the level of cash kept on the relationship between returns and working capital. The findings of the research show that there is a significant relationship between working capital and companies' return. This reflects investors' attention to the number of working capital companies employed when making their decisions. Also, the research findings confirm the ineffectiveness of cash on the relationship between working capital and returns of companies accepted in exchange of Tehran securities, and the non-establishment of a U-shaped relationship between working capital and their profitability examined "the effects of working capital management on the profitability of accepted companies in exchange for Tehran's securities". To this end, working capital management was divided into four components (mean receivable turnover ratio, inventory turnover period, mean liability payment period, and conversion cash flow cycle), and then the effect of each of these components on profitability in the presence of two variables of liquidity control and size companies reviewed. The findings of the research indicate that in the sample, there is a positive and significant relationship between operational efficiency in capital management and profitability. Regarding control, liquidity and company variables, a positive and significant relationship between these two variables was found with profitability.

Sarraf and Salehi (2015) reviewed the management of cash flow and the financial performance of accepted companies in exchange for Tehran securities. The results of this study showed that the relationship between inventory periods (DOO), receivable turnover ratio (DPO), conversion cash flow cycle (CCC), and cash flow operating cycle (OCC) with financial performance have significant relationship, but between period receivables (DSO) and financial performance of the company have no significant relationship.

Authors studied the effects of working capital management on the profitability of companies accepted in the Tehran securities exchange. The findings of this study suggest that there is a positive and significant relationship between the operational efficiency of working capital management and profitability in the sample. Regarding the variables of control, liquidity and size of the company, a positive and significant relationship was found between these two variables with profitability.

Authors have investigated the relationship between working capital management and profitability of 86 companies accepted in exchange for Tehran securities exchange during the years of 2002 to 2007. In this study, the effect of different variables of working capital management, including the mean receivable turnover ratio, inventory turnover period, mean period of deferral of liabilities and cash flow conversion cycle on net operating profit of companies, was studied using Pearson correlation and regression analysis. The results of the research show that there is a correlation between the variables of working capital management and profitability, and if the receivable turnover ratio, deferral of liabilities period, inventory turnover period and cash flow cycle increases, it will reduce the profitability of the companies, and managers can reduce each one to the minimum possible level creates a positive value for shareholders.

RESEARCH HYPOTHESES

The main objective of this research is to determine the effective variables of working capital management with performance and operating cash flow and measure the extent of this effect. For performance evaluation, a different criterion is chosen for profitability. To avoid distortion and manipulation of the first dependent variable, the second dependent variable is tested separately. The second variable is designed to cover the weaknesses of the first variable. The second variable is a cash flow that does not have accounting profit margins.

First hypothesis: The cash conversion cycle changes have an effect on the company's performance.

Second hypothesis: changes in the receivable turnover ratio have an effect on the company's performance.

Third hypothesis: Changes in the period of inventory conversion have an effect on the company's performance.

Fourth hypothesis: Changes in the duration of the deferral of liabilities period have an effect on the company's performance.

Fifth hypothesis: The changes in the cash conversion cycle have an effect on the company's operating cash flow.

Sixth hypothesis: Changes in receivable turnover ratio have an effect on the company's operating cash flow.

Seventh hypothesis: Changes in the duration of the inventory conversion period affect the company's operating cash flow.

Eighth hypothesis: Changes in the duration of the deferral of liabilities period effect on operating cash flow.

RESEARCH MODEL

Using the following model, the relationship between the periods of "cash conversion", "receivable turnover", "conversion of inventory" and "deferral of liabilities" with the "performance" of the company is determined:

$$oisit = \alpha + \beta_1oisit-1 + \beta_2qrit + \beta_3ltdeit + \beta_4sgit + \beta_5rcpit + \beta_6icpit + \beta_7pdpit + \beta_8cccit + \epsilon it$$

Using the following model, the relationship between the periods of "cash conversion", "receivable turnover", "conversion of inventories" and "deferred liabilities" is determined by "operating cash flow":

$$ocftsit = \alpha + \beta_1ocftsit-1 + \beta_2qrit + \beta_3ltdeit + \beta_4sgit + \beta_5rcpit + \beta_6icpit + \beta_7pdpit + \beta_8cccit + \epsilon i$$

A. Dependent variables:

ois = The first difference in operating profit to sell

ocft = The first difference in operating cash flow to sales

B. Independent variables:

rcp = The first difference in the receivable turnover ratio, the mean number of days for receivable turnover, calculated as follows:

$$\text{Receivable turnover ratio} = (\text{Mean accounts} / \text{sales}) \times 365$$

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

$$\text{Inventory conversion period} = (\text{Inventory} / \text{total cost of goods sold}) \times 365$$

pdp = The first difference in the liabilities deferral period, the mean time required to purchase the goods (materials) and the payment for them as calculated as follows:

$$\text{Liabilities deferral period} = (\text{Mean accounting payable} / \text{total cost of goods sold}) \times 365$$

Ccc = The first difference in the cash conversion cycle that

Calculated as follows:

$$\text{Cash conversion cycle} = \text{Receivable turnover ratio} + \text{Inventory conversion period} - \text{Liabilities deferral period}$$

C. Control variables:

qr = Current ratio

ltde = Ratio of long-term liability to equity

sg = Sales growth, that calculated as follows:

$$\text{Sales growth} = (\text{current year sales} - \text{past year sales}) / \text{past year sales}$$

STATISTICAL POPULATION, STATISTICAL SAMPLE AND RESEARCH METHOD

Companies that did not provide the information needed to calculate the variables of research were excluded from the research community and finally, 470 companies were selected as a sample of research in a targeted and ommissive study for a period of 6 years from 2007 to 2011. Therefore, the final volume of the sample is a 2518 year-company that has been used as a compilation of data in the hypothesis test.

This research is in applied research in terms of its purpose and is a post-event causal research methodology. In any scientific research, the researcher has to answer a research question, to make a hypothetical answer, and to formulate an idea of how matters are in his mind. Therefore, in this paper, hypotheses have been developed to examine the effect of working capital management on financial performance and changes in the cash flow and turnover ratio.

The variables of this research were categorized into two independent and dependent variables depending on their relationship. The data and variables required for the research model are presented in the following table.

Table 1: Data required for the research model

Calculation method	Variable Description	Abbreviation	Variable type
Operating profit-sales	Sales minus operating profit, equivalent to the total cost of goods sold and other operational costs	ois	Dependent
Cash flow operations - sales	Sales minus operating cash flow, equivalent to pay for operational costs	ocft	Dependent
[(Mean accounts receivable)/ sales] ×365	receivable turnover ratio equals the meantime it takes to receive receivables.	rcp	Independent
[(Inventory / total cost of goods sold)] ×365	The inventory conversion period, the meantime needed to convert the raw material into a product and sell it	icp	Independent
(Accounting payable/ total cost of goods sold) ×365	Deferred liability period, mean time required for the purchase of goods (materials) and payment for them	pdp	Independent
Icp- pdp+ rcp	Cash conversion cycle	ccc	Independent
Operating profit-sales	Sales last year, minus operating profit last year, equivalent to the total cost of goods sold and other operating expenses	oisit-1	Independent
Cash flow operations - sales	Sales last year, minus the operating cash flow last year, equivalent to funds paid for operating expenses	ocftsit-1	Independent
Current assets / current liability	The current ratio is the result of dividing current assets into the current liability	qr	Control
Long-term liability / equity	Ratio long-term liability to equity	ltde	Control
(current year sales - past year sales) / past year sales	Sales growth	sg	Control

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

DESCRIPTIVE STATISTICS

In Table 2, central indices such as mean and median and dispersion indices such as standard deviation, Stretch and skewness are calculated for different variables. The large mean of the median shows the existence of large points in the data. Because the mean is affected by these values. In these cases, the distribution of data is skewness to the right, and in the opposite of the distribution, skewness 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 the normal distribution, which will be discussed in the next section. (The amount of normal distribution skewness is zero).

In general, if skewness and elongation are not in the range (2, -2), data are not normally distributed. It should also be noted that in the column, the number of data observations after calculating and deleting data is computed.

Table 2: Descriptive statistics of variables used in research models

sg	ltde	Qr	ccc	pdp	icp	Rcp	Ocft t-1	Ocft	Ois t-1	Ois	Model variables
470	470	470	470	470	470	470	470	470	470	470	Number of samples
3.2	8.6	9.7	571.0	336.0	357.5	186.8	1.9**	2.6**	4.1**	6.3**	The range of changes
2.5	8.6	9.9	464.2	336.0	357.5	190.3	1.9**	2.5**	2.4**	3.3**	Maximum Domain
-0.7	0.0	0.2	-106.8	0.0	0.0	3.5	-0.03**	-0.1**	-	-	Minimum Domain
.213	.442	1.464	149.42 4	59.08 5	112.30 0	96.20 9	37.5*	42.4*	12.6*	4.0*	Mean
.145	.672	1.292	1.0*	0.5*	0.9*	0.2*	1.3***	1.7***	3.9** *	7.8** *	Standard deviation
9.171	32.25 7	19.77 9	.091	2.189	-.536	- 1.122	172.25 5	239.96 0	73.13 0	78.79 4	Stretch coefficient
2.285	4.942	3.836	.419	1.654	.753	-.102	11.674	13.848	- 0.163	- 1.149	Skew coefficient
.146	.179	1.209	140.61 2	26.13 7	87.007	99.42 1	15.4*	18.3*	13.4*	14.8*	Median
0.0	0.0	0.2	-106.8	0.0	0.0	3.5	-3.6*	-0.1**	- 1.7**	- 3.0**	Fashion
0.010	0.086	0.867	81.096	5.222	24.066	48.62 7	8.0*	9.2*	6.2*	6.0*	%25 Quart et
0.146	0.179	1.209	140.61 2	26.13 7	87.007	99.42 1	15.4*	18.3*	13.4*	14.8*	%50
0.323	0.431	1.582	208.88 5	86.84 8	184.53 7	139.3 96	28.3*	35.0*	24.6*	29.9*	%75

TEST OF RESEARCH HYPOTHESES

The results of the regression analysis of the model (1) are presented in Table (3).

$$ois_{it} = \alpha + \beta_1 ois_{it-1} + \beta_2 qr_{it} + \beta_3 ltde_{it} + \beta_4 sg_{it} + \beta_5 rcp_{it} + \beta_6 icp_{it} + \beta_7 pdp_{it} + \beta_8 ccc_{it} + \epsilon_{it}$$

Table 3: Results of model estimation (1)

Sign	Statistic	Predicted sign	Variable coefficient of model Justified	The explanatory variables
0.160	-1.408	-	-	A
0.000	7.137	-	0.315	$\beta_{1ois_{it-1}}$
0.607	-0.515	negative	-0.023	$\beta_{5rcp_{it}}$
0.153	1.431	negative	0.070	$\beta_{6icp_{it}}$
0.088	1.712	positive	0.086	$\beta_{7pdp_{it}}$
-	-	negative	-	$\beta_{8ccc_{it}}$
0.501	0.673	-	0.030	$\beta_{2qr_{it}}$
0.687	0.403	-	0.018	$\beta_{3ltde_{it}}$
0.426	0.797	-	0.035	$\beta_{4sg_{it}}$
Statistics F10.054		Sign in the whole model 0.000		
		Watson Camera 1.805		
Correlation coefficient: 0.364				
Coefficient of determination: 0.132				
Adjustment coefficient:0.119				

The results of the regression analysis of the model (2) are presented in Table (4).

$$cfts_{it} = \alpha + \beta_1 ocfts_{it-1} + \beta_2 qrit + \beta_3 ltde_{it} + \beta_4 sg_{it} + \beta_5 rcp_{it} + \beta_6 icp_{it} + \beta_7 pdp_{it} + \beta_8 ccc_{it} + \epsilon_{it}$$

Table 4: The results of model (2) estimation

Sign	Statistics t	Predicted sign	Modified coefficient	variable	Explanatory variables
0.758	-0.309	-	-		α
0.000	53.205	-	0.315		$\beta_{1ocftsit-1}$
0.458	-0.743	negative	-0.023		$\beta_{5rcp_{it}}$
0.555	0.591	negative	0.070		$\beta_{6icp_{it}}$
0.272	1.100	positive	0.086		$\beta_{7pdp_{it}}$
-	-	negative	-		$\beta_{8ccc_{it}}$
0.570	0.568	-	0.030		$\beta_{2qr_{it}}$
0.738	-0.335	-	0.018		$\beta_{3ltde_{it}}$
0.092	1.689	-	0.035		$\beta_{4sg_{it}}$
Statistics F420.191		Sign in the whole model 0.000 Watson Camera 2009			
Correlation coefficient:0.930					
Coefficient of determination: 0.864					
Adjustment coefficient: 0.862					

SUMMARY OF RESEARCH RESULTS OF TEST HYPOTHESES

The research hypotheses were analyzed using regression analysis. The results of the research are presented in Table 5, according to the zero research hypotheses.

Table 5: Summary of test results of hypotheses

Findings of the research	result	Research hypothesis
Changes in the cash conversion cycle do not affect the performance of the company.	Reject	Changes in the cycle of cash conversion affect the performance of the company.
Changes in the duration of the receivable turnover ratio do not affect the performance of the company.	Reject	Changes in the duration of the receivable turnover ratio affect the performance of the company.
Changes in the inventory conversion period do not affect the performance of the company.	Reject	Changes in the inventory conversion period affect the performance of the company.
Changes in the duration of the deferred liability period do not affect the company's performance.	Reject	Changes in the duration of the deferred liability period affect the company's performance.
Changes in the cash inventory cycle do not affect the operating cash flow of the company.	Reject	Changes in the cash flow inventory cycle affect the operating cash flow of the company.
Changes in the duration of the receivable turnover ratio do not affect the operating cash flow of the company.	Reject	Changes in the duration of the receivable turnover ratio affect the operating cash flow of the company.
Changes in the duration of the inventory conversion period do not affect the operating cash flow of the company.	Reject	Changes in the duration of the inventory conversion period affect the operating cash flow of the company.
Changes in the duration of the deferred liability period do not affect the operating cash flow.	Reject	Changes in the duration of the deferred liability period affect the operating cash flow.

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