Study of the Effect of Working Capital on Net Operating Profit in Companies of Stock Exchange

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Abstract: The purpose of this study is to investigate the effect of working capital on net operating profit of companies. This study is an applied research in terms of objective and is a quasi-experimental, post-event in terms of implementation method. On the other hand, this study is in scope of positive accounting researches and based on real information. Statistical population of this study includes all listed companies in Stock Exchange during 2009-2014 (652 companies). Sample size obtained to 350 companies using Cochran formula and then sample of study was chosen using simple random sampling method. The required data were collected through referring to Tehran Stock Exchange Organization and Company and using databases of accounting software (Rah Avarad Novin Software, Sahra Software and Tadbir Pardaz Software) and database of Stock Exchange Organization then hypotheses were examined through statistical analysis software SPSS and regression test.

Key words: Debt payment period, inventory turnover period, cash conversion cycle, net trade cycle, working capital, net operating profit

INTRODUCTION

Several proficient executive managers spend all of their time and energy in large companies to manage working capital of company because of the importance of working capital. Companies can perform some required and basic actions through appropriate and correct use of working capital and making proper policies in relation with it in order to improve liquidity situation and maintaining initial investments (Abzari, 2013).

The most important subject of working capital and its management includes short-term financial and operating activities of company including purchasing raw materials, cash payment for raw materials, production and sale of products and collecting cash revenues from sales of products.

Hence, researches have indicated that working capital is an important assessment of financial health of the company might have been hidden in other analyses due to used principles (Ashig, 2014).

On the other hand, analysis of working capital can be an appropriate criterion to evaluate performance of managers within their relevant duties to investment in order to fulfill the expected results of research and to prepare filed for long-term activity (Nikoomaram, 2013).

It has been proved that managers can increase company profitability through increasing cash flow shortening period of cash conversion cycle and receivable collection.

In general, the amount of current assets provided from long-term financial sources is called working capital. Gross working capital is defined as the ratio of total current assets and net working capital as surplus of current asset to current debt. The amount of working capital is an index to determine liquidity and solvency of a company especially applied to be compared with other financial ratios and indexes. Working capital is an important issue within financial decision-making process so that it can be assumed as a part of investment in assets. This decision-making process can be known as an origin of decisions about investment in assets (Bavaghar, 2010).

Usually, there is an extensive relation between revenues, costs, current assets and current debts and this principle is inevitably related to the commitment method in which, any change in each of these factors can effect on other factors.

Accordingly, changes in working capital during time will be important from the management perspective because the used methods by a company in application of working capital and cash is a good sign of assets

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management in the company that determines investment choices and lack of daily investment by mangers of company so that these choices can help manger to have an insight in relation with management and control of his responsibilities. Working capital is an important item of assets of economic entities with a considerable role in financial decisions so that this subject has changed to a specialized major of financial management (Nikoomaram, 2013).

Maintenance of optimal level of cash for debt payment is related to use of sudden opportunities for investment that is a sign of flexibility of business entity and access to raw materials for production so that company can meet demands of customers indicating importance of working capital in business entities. Any made decision by managers of business entity about mentioned options have intense effects of net operating profit of business entities leading to change in company value and wealth of shareholders so that this point would lead to net profit per share of exchange companies.

This study has been conducted to investigate the effect of working capital of companies on net operating profit of them in companies listed in Stock Exchange.

Accordingly, this would be a question whether working capital can effect on net operating profit of companies or not.

Literature review: Mohebbizade (2012) conducted a research under the title of "the relation between working capital management and profitability" that included 86 listed companies in Tehran Stock Exchange during 2004-2010. The obtained results of this study indicated that there was a reverse relation between variables of working capital and profitability. On the other hand, an increase the receivable collection period, debt payment period, inventory turnover period and cash conversion cycle would lead to reduction in profitability of companies.

Zolghadri and Naeeni carried out a study under the title of "the relation between working capital management and profitability of companies" that included 58 listed chemical and industrial companies in Stock Exchange during 2007-2010. The obtained results indicated that there is a reverse and significant relationship between cash cycle, its components except payable accounts period and profitability.

Mohammadi (2009) conducted a study under the title of "the effect of working capital management on profitability of companies" including 92 listed companies in Tehran Stock Exchange during 1996-2005. According to the obtained results of this study, there is a reverse significant relationship between profitability of companies

and receivable collection period, inventory turnover period, payment period for creditors and cash conversion cycle. On the other hand, the obtained results of this study in relation with creditors' payment period indicated that companies with high profitability has short period of payment for creditors.

Rezvani concluded in their study that working capital management is an important matter because of its considerable effect on profitability and risk as well as effect on company value. The also observed that working capital management faces some relevant problems to current assets, current debts management and their relationship.

Asrami (2011) conducted a study under the title of "the relation between working capital management and profitability" to examine the relationship between working capital management and profitability of companies in Vietnam. The obtained results of this study indicated a strong negative relation between working capital management and profitability of company. Profitability of company was assessed through operating profit in this study and cash conversion cycle was efficacy criterion for working capital management. The obtained results of this study suggested managers to create value for their beneficiaries reducing cash conversion cycle to an acceptable period.

Research goals
Main goal: Study of the effect of working capital of companies on net operating profit of them in companies of Stock Exchange.

Secondary goals:
- Study of the effect of average receivable collection period on net operating profit of listed companies in Stock Exchange
- Study of the effect of average period of inventory turnover on net operating profit of listed companies in Stock Exchange
- Study of the effect of average period of debt payment on net operating profit of listed companies in Stock Exchange
- Study of the effect of cash conversion cycle on net operating profit of listed companies in Stock Exchange
- Study of effect of net trade cycle on net operating profit of listed companies in Stock Exchange

Research questions
The main question of research: It has working capital effect on net operating profit of companies?

Secondary questions of research:
- Has average period of receivable collection effect on net operating profit of companies?
- Has average period of inventory turnover effect on net operating profit of companies?
- Has average period of debt payment effect on net operating profit of companies?
- Has cash conversion cycle effect on net operating profit of companies?
- Has net trade cycle effect on net operating profit of companies?

Research hypotheses
- Main hypothesis: working capital of companies can effect on net operating profit

Secondary hypotheses:
- Average period of receivable collection can effect on net operating profit of companies
- Average period of inventory turnover can effect on net operating profit of companies
- Average period of debt payment can effect on net operating profit of companies
- Cash conversion cycle can effect on net operating profit of companies
- Net trade cycle can effect on net operating profit of companies

MATERIALS AND METHODS

This study is a quasi-experimental and post-event research in terms of methodology with scope of positive counting researches based on real information. The researcher aims to discover and study the relationships between specific conditions or factors and or behavior type had occurred before as well as study the obtained results of it.

On the other hand, this is an applied research in terms of objective. The researcher of this study is to find the effect of working capital on net operating profit of listed companies in Tehran Stock Exchange during 2009-2005. Statistical population of this study includes all companies (652 companies) in Stock Exchange from 2009-2005 that sample size obtained to 350 companies using Cochran formula due to large number of statistical population.

Data collection tool and method: Data of this study have been based on real figures and information of stock market and financial statements of companies. Library method has been applied in this study for data collection. Theoretical bases of research have been collected from specialized Persian and Latin Books and Articles and required data were collected through referring to Tehran Stock Exchange Company and Organization using databases such as accounting software (Rah Avard Novin Software, Sahra Software and Tadbir Pardaz Software) and database Stock Exchange Organization.

Data analysis method: Multiple regression method has been used to analyze collected data in order to accept or reject hypotheses. To test significance of regression model, Smirnov-Kolmogorov test was used. SPSS Software has been applied in this research as statistical software.

RESULTS AND DISCUSSION

Test of first hypothesis of study:
- Hypothesis: working capital can effect on net operating profit of companies

Regression test was applied to test this hypothesis. The obtained results are as follows: according to Table 1 (regression ANOVA), the effectiveness level (Sig.) is equal to 0/490. Since, this level is >0/05, the H_0 (equality of coefficients of independent variables to 0) is accepted at confidence level of 95% indicating that there is not a linear relation between independent variables and dependent variable.

According to Table 2 (coefficients of model), the Sig. level is above 0/05 indicating that H_0 (equality of coefficient of this variable to 0) has been accepted; hence, working capital has no effect on net operating profit.

Test of second hypothesis of study
- Hypothesis: average period of receivable collection can effect on net operating profit of companies

Regression test was applied to test this hypothesis. The obtained results are as follows: according to Table 3 (regression ANOVA), the effectiveness level (Sig.) is equal to 0/001. Since this level is <0/05, the H_0 (equality of coefficients of independent variables to 0) is rejected at confidence level of 95% indicating that there is a linear relation between independent variables and dependent variable. In other words, there is effectiveness in model.

Table 1: Analysis of Variance (ANOVA) of hypothesis 1

Model	Sum of squares	df	Mean squares	F-value	Sig. level
1					
Regression	7/490	1	14/895	0/476	0/490
Residual	5/470	348	10/984		
Total	5/4789	349			

Table 2: Regression coefficients of hypothesis 1

Model	Non-standardized coefficients (B)	Standard error	Standardized coefficients (β)	t-values	Sig. level
1					
Working capital level	756	217		3/425	0/001
Net operating profit	0/23	0/033	0/037	0/690	0/490

Table 3: Analysis of Variance (ANOVA) of hypothesis 2

Model	Sum of squares	df	Mean squares	F-value	Sig. level
1					
Regression	4/156	1	8/264	10/387	0/001
Residual	1/392	348	4		
Total	1/434	349			

Table 4: Regression coefficients of hypothesis 2

Model	Non-standardized coefficients (B)	Standard error	Standardized coefficients (β)	t-values	Sig. level
1					
Average period of receivable collection	347	109		3/409	0/001
Net operating profit	0/053	0/017	0/170	3/223	0/001

Table 5: Analysis of Variance (ANOVA) of hypothesis 3

Model	Sum of squares	df	Mean squares	F-value	Sig. level
1					
Regression	9/574	1	18/657	0/473	0/000
Residual	6/922	342	2/349		
Total	1/650	343			

Table 6: Regression coefficients of hypothesis 3

Model	Non-standardized coefficients (B)	Standard error	Standardized coefficients (β)	t-values	Sig. level
1					
Average period of inventory turnover	406	7/139		0/515	0/007
Net operating profit	0/257	0/012	0/762	21/749	0/000

Table 7: Analysis of Variance (ANOVA) of hypothesis 4

Model	Sum of squares	df	Mean squares	F-value	Sig. level
1					
Regression	3/315	1	6/267	16/595	0/000
Residual	6/952	348	1/998		
Total	7/283	349			

According to Table 4 (coefficients of model), the Sig. level is lower 0/05 indicating that H_0 (equality of coefficient of this variable to 0) has been rejected at confidence level of 99%; hence, average period of receivable collection can effect on net operating profit of companies.

Test of third hypothesis of study:

- Hypothesis: average period of inventory turnover can effect on net operating profit of companies

Regression test was applied to test this hypothesis. The obtained results are as follows: according to Table 5 (regression ANOVA), the effectiveness level (Sig.) is equal to 0/000. Since, this level is <0/05, the H_0 (equality of coefficients of independent variables to 0) is rejected at confidence level of 95% indicating that there is a linear relation between independent variables and dependent variable. In other words, there is effectiveness

in model and hypothesis can be tested using regression model of this study. The obtained results of hypothesis testing and obtained values of t tests are as follows:

According to Table 6 (coefficients of model), the Sig. level is lower 0/05 indicating that H_0 (equality of coefficient of this variable to 0) has been rejected at confidence level of 99%; hence, average period of inventory turnover have had effect on net operating profit of companies. Positive amount of this value indicates the direct relation between variable in this hypothesis.

Test of fourth hypothesis of study:

- Hypothesis: average period of debt payment can effect on net operating profit of companies

Regression test was applied to test this hypothesis. The obtained results are as follows: according to Table 7 (regression ANOVA), the effectiveness level (Sig.) is equal to 0/000. Since, this level is <0/05, the H_0 (equality of coefficients of independent variables to 0) is rejected at

Table 8: Regression coefficients of hypothesis 4

Model	Non-standardized coefficients (B)	Standard error	Standardized coefficients (β)	t-values	Sig. level
1					
Average period of debt payment	706/741	249/354		2/837	0/004
Net operating profit	0/151	0/037	0/213	4/074	0/000

Table 9: Analysis of Variance (ANOVA) of hypothesis 5

Model	Sum of squares	df	Mean squares	F-value	Sig. level
1					
Regression	1/573	1	2/167	3/167	0/076
Residual	1/729	348	4/969		
Total	3/745	349			

Table 10: Regression coefficients of hypothesis 5

Model	Non-standardized coefficients (B)	Standard error	Standardized coefficients (β)	t-values	Sig. level
1					
Cash conversion cycle	306/864	122/455		2/501	0/073
Net operating profit	0/033	0/018	0/595	1/779	0/076

Table 11: Analysis of Variance (ANOVA) of hypothesis 6

Model	Sum of squares	df	Mean squares	F-value	Sig. level
1					
Regression	1/716	1	1/945	1/126	0/001
Residual	1/297	348	3/478		
Total	3/013	349			

Table 12: Regression coefficients of hypothesis 6

Model	Non-standardized coefficients (B)	Standard error	Standardized coefficients (β)	t-values	Sig. level
1					
Net trade cycle	5/2671	1/458		2/114	0/001
Net operating profit	0/746	0/755	0/602	1/758	0/001

confidence level of 95% indicating that there is a linear relation between independent variables and dependent variable. In other words, there is effectiveness in model and hypothesis can be tested using regression model of this study.

The obtained results of hypothesis testing and obtained values of t tests are as follows: according to Table 8 (coefficients of model), the Sig. level is lower 0/05 indicating that H_0 (equality of coefficient of this variable to 0) has been rejected at confidence level of 99%; hence, average period of debt payment have had effect on net operating profit of companies. Positive amount of this value indicates the direct relation between variable in this hypothesis.

Test of fifth hypothesis of study:
- Hypothesis: cash conversion cycle can effect on net operating profit of companies

Regression test was applied to test this hypothesis. The obtained results are as follows: according to Table 9 (regression ANOVA), the effectiveness level (Sig.) is equal to 0/076. Since, this level is >0/05, the H_0 (equality of coefficients of independent variables to 0) is accepted at confidence level of 95% indicating that there is not a linear relation between independent variables and dependent variable. In other words, there is not effectiveness in model.

The obtained results of hypothesis testing and obtained values of t tests are as follows: according to Table 10 (coefficients of model), the sig level is above 0/05 indicating that H_0 (equality of coefficient of this variable to 0) has been accepted at confidence level of 99%; hence, cash conversion cycle has no effect on net operating profit of companies. Positive amount of this value indicates the direct relation between variable in this hypothesis.

Test of sixth hypothesis of study:
- Hypothesis: net trade cycle can effect on net operating profit of companies

Regression test was applied to test this hypothesis. The obtained results are as follows: according to Table 11 (regression ANOVA), the effectiveness level (Sig.) is equal to 0/001. Since, this level is <0/05, the H_0 (equality of coefficients of independent variables to 0) is rejected at confidence level of 95% indicating that there is a linear relation between independent variables and dependent variable. In other words, there is effectiveness in model.

The obtained results of hypothesis testing and obtained values of t tests are as follows: according to Table 12 (coefficients of model), the sig level is lower 0/05 indicating that H_0 (equality of coefficient of this variable

to 0) has been rejected at confidence level of 99%; hence, net trade cycle have had effect on net operating profit of companies. Positive amount of this value indicates the direct relation between variable in this hypothesis.

CONCLUSION

According to the obtained results, working capital of companies has not effect on their net operating profits; the average collection (of receivables) period has effect on net operating profits of companies; the average period of inventory turnover can effect on net operating profit of company; the average period of debt payment can effect on net operating profits of listed companies in stock exchange; the cash conversion cycle has no effect on net operating profits of companies; net trade cycle can impact on net operating profit of company.

LIMITATIONS

- Shortage or lack of available and usable scientific sources
- Lack of information and data of cash flows of companies before relevant year to this study
- Lack of complete and central database in this subject has limited the size and volume of tested collection
- The effects of inflation in capital market of Iran might have had effect on information of financial reports and results of study

SUGGESTIONS

According to the obtained results of this study, it is suggested that responsible institutes for financial legislation such as Audit Organization to direct rules and standards in order to increase the effect of working capital. On the other hand, Stock Exchange Organization should more accurately consider smaller companies with higher debts because such companies have more return fluctuations. It is recommended that investors to invest in shares of companies with higher net operating profit in order to avoid from higher risk.

Choosing appropriate solutions and strategies to analyze working capital in listed companies in Stock Exchange can be a good criterion to evaluate performance of managers within their relevant duties to investment.

According to the effect of information environment of company on return, it is recommended for concerned organizations and authorities to enact some extra regulations of disclosure in order to prepare transparent information environment, to reduce cost of capital providing form other sources such as shares and to obtain an optimal combination of structure of net operating profit in companies.

Responsible persons of capital market should improve time of the financial reports enacting more strict rules and regulations. Moreover, audit institutions can estimate working capital and net operating profit level in accordance with obtained results of this study.

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