

# **DETERMINING WORKING CAPITAL SOLVENCY LEVEL AND ITS EFFECT ON PROFITABILITY IN SELECTED INDIAN MANUFACTURING FIRMS**

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## **ABSTRACT**

A well designed and implemented working capital management has a significant contribution for firms' profitability as well as to maintain liquidity powers. The purpose of this study is to assess working capital adequacy and its impact on profitability; to investigate the relationship between profitability and liquidity of firms. Natural logarithm of total current liabilities and Relative Solvency Ratio (RSR) are taken as dependent variables to measure the required size of current liabilities and firm's solvency level respectively. Independent variables are sales, return on assets, current ratio, and cash conversion cycles. These are included in the panel data regression to assess for 250 firms for the period of 10 years. The regression result indicated that sales and cash conversion cycle have highly positive significant effect to determine required current liabilities (short term debt) whereas return on assets and current ratio have highly negative significant effect to determine required current liabilities. The result of negative association between profitability and liquidity is statistically insignificant. With the help of student t-test, the study also revealed that firms with adequate working capital achieved better performance than those firms which have less working capital in relation to their operational sizes. Therefore, the null hypothesis that there is no difference between firms which have adequate working capital and less working capital in relation to their operational size on profitability is rejected as the  $p$  value is less than 0.05.

**Key words:** working capital solvency, relative solvency ratio, profitably, liquidity, current ratio, cash conversion cycle, current liabilities

## INTRODUCTION

Working capital management is an important component of management of corporate finance; since it directly influences firm's profitability as well as liquidity in everyday activities. In any business organization, it is obvious that there must be sufficient working capital to run day to day operation. Therefore, to operate the business activities smoothly, working capital of firm's must be sufficient. Then, the concern of working capital management is setting sufficient (optimal level) of working capital and managing short term assets and liabilities of firms within a specified period of time, usually one year. It is obvious that, the importance of efficient working capital management is unquestionable to all business activities. Because, business capability relies on its ability to effectively use (manage) receivables, inventories and payables, Filbeck and Kruger (2005).

Management of short-term assets and liabilities implies the settlement of current assets and current liabilities. These, current assets and current liabilities are the two major components of working capital of firms. The overall current assets are considered as gross working capital of firms. Such working capital or liquidities of firms are measured by the existing current assets which are using for current operation as well as for settlement of short term obligations. In some concerns, these assets sometimes account for half of the total assets. Actually, too high or too short current assets will affect the long-run return on assets (investments) as theoretical concept explained in different financial management text books. If current assets of firms are too low, it will affect the ability to settle short term obligation or if it is too high current assets, it will affect the profitability of the business. This too high or too low working capital may exist due to inefficient management of working capital of firms. Inefficient working capital management not only reduces the profitability of business but also ultimately lead to financial crises, Chowdhury and Amin (2007). For survival of firms in the long run, efficient working capital management is an important factor. Sometimes, even a profitable business may fail, if it does not have adequate cash flow to meet its liabilities when request come from suppliers.

A positive working capital indicates that a business organization ability to pay off its short term obligations at most when request come from suppliers but a negative working capital on the other hand indicates that the inability of business organization to pay short term obligation.

Therefore, working capital should neither too high nor too low. Excessive working capital indicates an accumulation of idle current assets (resources) which don't contribute in generating income (profit) for the firm during the operating period. On the other side, inadequate working capital harms the credit worthiness and the day to day activities of firms and this may lead to insolvency (bankruptcy).

## LITERATURE REVIEW

Profit maximization is the ultimate objective of firms as well as protecting liquidity is an important objective too. The difficulty of working capital management is to achieve the two objectives optimally within an operating period if profit increases at the cost of liquidity and this may create serious problem to firms. Therefore, to solve such problem, there must be some compromise between these two objectives of firms. One objective will not achieve at the cost of other as both objectives have their own importance to firms. If firms do not care about profitability, they may not survive for a longer period. On the other hand, if firms do not care about liquidity, they may face problem of insolvency or bankruptcy.

Amit, Mallik, Debashish and Debdas (2005) in their study regarding the relationship between working capital and profitability of Indian pharmaceutical industry found and concluded that no definite relationship could be established between liquidity and profitability. Vishanani and Shah (2007) studied the impact of working capital management policies on corporate performance of Indian consumer electronic industry by implemented simple correlation and regression models. They found that no established relationship between liquidity and profitability exist for the industry as a whole; but various companies of the industry depicted different types of relationship between liquidity and profitability, although majority of the companies revealed positive association between liquidity and profitability. Reheman and Naser (2007) found in their study negative relationship between profitability and liquidity of firms and also Ganesan (2007) studied working capital management efficiency in Telecommunication equipment industry and the study revealed significant statistical evidence and negative relationship between profitability and liquidity.

Lyrودي and Lazardis (2000) investigated the cash conversion cycle and liquidity position of the food industry in Greece. They used cash conversion cycle as a liquidity level indicator of the food industry in Greece and tried to determine its relationship with the traditional liquidity measurement and profitability measurement of return on investment, return on equity and net profit margin. They found significant positive relationship between cash conversion cycle and current ratio, quick ratio, receivables conversion period and inventory conversion period and negative relationship between cash conversion cycle and payable deferred period. The relationship between liquidity measurement variable and profitability measurement variables were not statistically significant and there was no relationship between cash conversion cycle and leverage ratio.

To determine the solvency level of firms according to existing obligation of firms', different techniques may apply as measurement of liquidity. Current ratio, quick ratio and cash ratio are among the most traditional liquidity measurement techniques and the most recent dynamic technique, cash conversion cycle is applied for measurement of liquidity level of firms. The relationship of these traditional and modern liquidity measurement techniques are studied by Lyrودي and McCarty (1993) for small US companies for the period of 1984-1988 and they found that cash conversion cycle was negatively related with current ratio but positively related with quick ratio. In addition the study revealed differences between the concept of cash conversion cycle in manufacturing, retail, wholesale and service industries. The advantage of using modern liquidity measurement

technique is that it will help to evaluate working capital change and it facilitates the monitoring and controlling of its components, receivables, inventories and payables.

The smaller value of cash conversion cycle shows that, the quicker the firms can recover cash from sales of finished products and the more cash will have hence, this will lead to have more liquid assets of firms. If cash conversion cycle is high, it will take longer time to recover cash. Thus, high cash conversion cycle implies an existence of problem in liquidity, Lyroudis and Lazardis (2000). Mukhopadhyay (2004) stated that firms are badly constrained to smoothly run the day to day operations if there is negative working capital and also difficult to settle short term obligations; Singh (2004) the liquidity position of any firm mainly depends upon accounts receivable collection and payables deferred policy as well as inventories conversion period of firms.

Kim, Mauer and Sherman (1998) examined the determinants of corporate liquidity of 915 US industrial firms for the period of 1975 to 1994 by using panel data and different model. They found that firms with large market to book ratio have significantly larger position in liquid assets. In addition firm size tends to be negatively related to liquidity. Their finding revealed that positive relationship between liquidity and cost of external financing to the extent that market to book ratio and firm size are reasonable proxies for the cost of external financing. They also found that firms with more volatile earnings and lower return on physical assets relative to those on liquid assets lead to have significantly larger position in liquid assets.

Mehar (2001) studied the impact of equity financing on liquidity of 225 firms listed in Karachi stock exchange for the period 1980 to 1994 by using a pooled data. The finding of the study depicted that equity financing plays an important role in determining the liquidity position of firms. From this finding it is concluded that equity and fixed assets have positive relationship with working capital, in the long term, however, the liquidity position will be deteriorated with the increase in paid up capital. Hsiao and Tahmiscioglu (1997) in their study revealed that liquidity may be affected by substantial differences across firms in their investment behavior and firms characteristics,

Enyi (2005) studied the relative solvency level of 25 sample firms. The finding of the study revealed that the gap created by the inability of traditional liquidity measurement of solvency level, like current ratio, quick ratio and other solvency ratio to effectively determine the proper size or volume of working capital is fulfilled by the relative solvency level model. In addition the study revealed that firms with adequate working capital related to their operational size have performed better than firms which have less working capital in related with their operational size.

Bhunja (2007) studied liquidity management of public sector Iron and Steel enterprise in India. He has found that the actual values of working capital lower than the estimated value of working capital for both companies under study and poor liquidity position in case of both companies.

## **OBJECTIVES OF THE STUDY**

It is known that inefficient management of working capital will lead firms to under performance, decreasing profitability, insolvency and bankruptcy. Thus this empirical study designed

- a. To determine different factors which affect size of short term debt (current liabilities) of firms.
- b. To measure the relative solvency level in relation to operational size of firms.
- c. To investigate the effect of working capital of firms relative solvency ratio on profitability.
- d. To investigate whether there is a negative relationship between profitability and liquidity of firms

### **Hypothesis of the study**

This research focused on the working capital solvency level of firms and its effect on profitability. Hence, the empirical study addressed the following hypothesis.

Hypothesis 1. There is no significance difference in solvency level of companies within industry

Hypothesis 2. There is no significance effect on profitability between firms which have adequate relative solvency level and less than minimum relative solvency level in relation to their operational size.

Hypothesis 3. There are no significant factors which affects the short term debt (current liabilities) need of firms.

Hypothesis 4. There is significance negative relationship between profitability and liquidity of firms

## **RESEARCH METHODOLOGY**

The purpose of this research is to identify some important factors which will enhance the performance of firms and to contribute some aspects to working capital management process with reference to India. The study emphasized on the determinants of working capital solvency level and its impact on profitability of manufacturing firms.

### **Data Collection**

Since the study is based on secondary data, the main source of data is Indian data base of PROWESS. The total population of the study is all manufacturing industry listed in the data bases of PROWESS. Firms which have full data for the whole study period of 1999-2008 and in their operation are included in the population. 250 Samples of firms from the population are selected on a random sampling method from selected industries based on their proportion from different companies within the same industry.

## Variables definitions

In testing of association, differences and/or impact of working capital on firms' performance, there are two major kinds of variables. These major variables are dependent and independent/explanatory/ variables. A dependent variable is the presumed effect, whereas, an independent variables are the supposed to be cause, Pedharzur and Schmelkin (1991). So, the following dependent and explanatory variables are employed in the study.

This study examined the solvency level of working capital of firms in relation to their operational size and its effect on firm's profitability, the relationship between profitability and liquidity and factors which determine size of short term debt (current liabilities). Therefore, profitability, liquidity and size of current liabilities are the dependent variables for the study. Different scholars used different measurement variables for profitability and liquidity. Then, in this study for profitability measurement, ROA (Return on Assets) is used as dependent variables. For liquidity measurement, CCC (Cash conversion Cycle), and CR (Current Ratio) are applied as dependent variables and for size of short term liabilities natural logarithm of current liabilities is used as dependent variable. The descriptions of the variables are as follows:-

ROA = Return on assets is the ratio of net income divided by total assets

RSR= relative solvency ratio is the ratio of available working capital divided by required working capital

To calculate required working capital adequacy formula is given by Enyi (2005) is as follows:

$$WC = [A(n-1)(1+m)] / 2m$$

Where,

A = Cost of one production trial, which is assumed the same for all trial levels.

$$A = \frac{\text{Turnover} - \text{profit before tax}}{\text{number of months/years}}$$

$$M = \frac{\text{Profit before tax}}{(\text{Turn over} - \text{profit before tax})}$$

N = number of activities/years

Lntcl= Size of short term liabilities is the natural logarithm of total current liabilities

CCC = is the result of number of days inventory plus number of days receivable minus number of days payable. CCC is a dynamic measure of ongoing liquidity management since it combines both balance sheet and income statement data to create a measure with a time dimension, Jose, Lancaster and Stevens (1996)

CR = is the result of total current assets divided by total current liabilities

NDR = number of day's receivable is the ratio of account receivable divided by sales multiplied by 365 days

NDP = number of days payable is the ratio of account payables divided by cost of goods sold multiplied by 365 days

NDI = number of days inventory is the ratio of inventory divided by cost of goods sold multiplied by 365 days

Lnsales = Size of firm is the natural logarithm of sales

DR = Debt ratio is the result of total debt to total assets to normalize the effect of firm size effect

### Model Specification

Most empirical studies in economics, finance and other social science try to determine whether a change in one variable causes a change in another variable, Wooldridge (2001). The goal of a linear regression model is to model a linear relationship between one dependent variable and one or more independent variables. The dependent variable is therefore a linear function of a series of independent variables. In this study a panel data regression model is applied.

Panel data regression model helps to examine the time and space dimension of data. These two dimensions have not really been combined extensively in the previous Indian empirical studies. In this study, we tried to cope up with the time as well as space dimensions and examine these dimensions simultaneously. Panel data regression will help to investigate issues, which cannot be study in either of cross sectional or time series regression alone. Therefore, the combination of time series with cross sections can enhance the quality and quantity of data in ways that cannot be possible by using only one of these two dimensions, Gujarati and Sangeetha (2003).

Moreover, the number of observation will increase and so does the degree of freedom. This allows obtaining better results than single time series or cross sections. In addition pooling data allow to control the effects of exogenous (outside variables effect unexplained by the model) shocks common to all cross sections (by controlling for time effects) and to reduce the omitted variables bias (by controlling for cross section effects), Hausman (1978).

The following regression model applied in the study.

$$Y_{it} = \alpha + \beta'X_{it} + u_{it}, \quad \text{for } i = 1, 2, \dots, n \text{ and} \\ t = 1, 2, \dots, T$$

Where:-  $n$  - is the number of the cross sections and

$t$  - is the number of time period.

Specifically, when we converted the above general model into specific equation with the appropriate variables according to the hypothesis, the model is as follows:-

$$\text{Lntcl}_{it} = \alpha + \beta_1 \text{Lnsales}_{it} + \beta_2 \text{roa}_{it} + \beta_3 \text{dr}_{it} + \beta_4 \text{ccc}_{it} + \beta_5 \text{ndp}_{it} + \beta_6 \text{ndi}_{it} + \\ \beta_7 \text{ndr}_{it} + \beta_8 \text{cr}_{it} + \epsilon_{it}$$

- To test the existence of significant difference in solvency level of firms within industry a one-way ANOVA is used to the set of 10 years average ratio of means. .
- For further examine the strength of differences between industries value, Tukey's HSD test is applied to compare the industry means on a paired sample basis.
- To test existence of significant difference between firms that have working capital adequacy level below 1 and firms which have above and equal to 1, Independent t-test is used.
- To determine the relationship between profitability and liquidity objectives of firms Pearson correlation coefficient is used.

## DATA ANALYSIS AND INTERPRETATION

### Descriptive Analysis

Descriptive analysis shows that the average, standard deviation, minimum and maximum value of variables included in the study. This descriptive analysis helps to get some picture of working capital adequacy level of firms.

**TABLE 1**

### Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Dev.
Variables	Statistic	Statistic	Statistic	Statistic	Statistic
RSR	250	-7.43	16.48	0.45	1.90
Lnsales	250	-0.43	8.28	3.90	1.65
CR	250	0.15	4.96	2.46	0.97
ROA	250	-0.08	0.15	0.04	0.05
CCC	250	-10.1	241.79	115	49.93
NDIV	250	2.95	99.94	53	21.08
NDR	250	9.29	207.49	98	41.11
NDP	250	2.10	99.84	41	21.75
Lntcl	250	-2.21	6.75	2.25	1.73

As shown in table 1 the average relative solvency ratio level (RSR) of firms is 0.45. The mean value of firms deviate from the overall solvency level is about 1.9. The average value of current ratio (CR) is 2.46 of which is somewhat above the accepted value of 2:1 ratio. The minimum and maximum values of current ratio are 0.15 and 4.96 respectively. If firm current ratio is less than mean value, that may indicate the existence of more current obligation than existing current assets. The cash conversion cycle (CCC) average days are 115 and the minimum and maximum numbers of days of cash conversion cycle are -10 and 241 respectively. Relatively shorter cash conversion cycle has indicated the efficiency of working capital management of firms.

The coefficient of variation represents the ratio of the standard deviation to the mean, and it is a useful statistic for comparing the degree of variation from one

data series to another, even if the means are drastically different from each other. This coefficient of variation allows to conclude how much volatility (risk) of one variable in comparison to the other variables coefficient variance value. The lower the ratio of standard deviation to mean value of variable is the better. Among the existing variables CCC has high coefficient of variance value which indicates that highly volatility of the cash conversion cycle of firms within industry.

In order to investigate whether there is significant difference among companies within the same industry in terms of the relative solvency ratio, one-way ANOVA with Post-Hoc tests is conducted as shown in table 2. The result showed that  $F$ -ratio and  $p$  value are  $F = 33.405$  and  $p = 0.00$  respectively. It revealed that there is significant difference among companies within the same industry.

**TABLE 2**  
**One way ANOVA analysis of relative solvency ratio of companies**

RSR					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	27.659	7	3.951	33.405	0.000
Within Groups	52.519	444	0.118		
Total	80.178	451			

Tukey HSD test is used to find which means are significantly different from one another. The test compares the means of every treatment to the means of every other treatment. That is, it applies simultaneously to the set of all pair wise comparisons and the result in table 3 indicated that only company one has significant difference with other companies within the industry.

**TABLE 3**  
**Tukey HSD paired wise analysis of companies within manufacturing industry**

Tukey HSD Multiple Comparisons						
Dependent Variable: RSR						
(i) firm	(j) firm	Mean dif. (i-j)	std. error	sig.	95% conf. interval	
					Lower Bound	Upper Bound
1	2	0.57*	0.05	0.00	0.40	0.73
	3	0.46*	0.05	0.00	0.28	0.63
	4	0.61*	0.05	0.00	0.43	0.77
	5	0.61*	0.06	0.00	0.42	0.81
	6	0.49*	0.07	0.00	0.26	0.72
	7	0.60*	0.05	0.00	0.45	0.76
	8	0.53*	0.06	0.00	0.32	0.74

\* $p < 0.05$

Independent t-test is used to test whether there is a significant difference between the mean value of firms which have below 1 relative solvency ratio and greater or equal to 1 relative solvency ratio on profitability. The result of independent t-test as indicated in table 4 that Levene's test for equality of variances ( $p = 0.264$ ) is greater than 0.05, so we can read the test statistics in table row labeled equal variance assumed as the assumption of homogeneity of variance is met.

**TABLE 4**  
**Independent t –test of relative solvency ratio**

Independent Samples Test						
		Levene's Test for Equality of Variances		t-test for Equality of Means		
		F	Sig.	t	df	Sig.
ROA	Equal variances assumed	1.25	0.26	<b>-4.61</b>	295	0.00
	Equal variances not assumed			-6.01	278.84	0.00

$P < 0.05$

As we have seen from the table, the t value of independent t-test which is less than 0.05 ( $p = 0.00$ ), so we can conclude that there is a significant difference between firms which have less than one and greater or equal to one relative solvency ratio in relation to their operational size of firms. Then the study finding revealed that firms with adequate working capital in relation to their operational size have performed better than those firms which have less working capital in relation to their operational sizes. Therefore, the null hypothesis, there is no difference between firms which have adequate relative solvency level and less than adequate relative solvency level in relation to their operational size on profitability is rejected as the  $p$  value is less than 0.05, ( $p = 0.00$ ). The studies also found that majority of firms which have had less working capital than the required in relation to their operational size during the study period. This finding is supported the finding of Bhunia (2007) which is actual working capital lower than the estimated working capital of Iron and steel enterprise in India.

To run panel data regression, either fixed effect or random effect, first Hausman specification test is conducted. As indicated in the table 5 the Husman specification test  $p$  value ( $p = 0.000$ ) which showed that the unobservable variables are correlated with the explanatory variables of the model. Therefore, the null hypothesis is rejected and then, fixed effect panel regression model is appropriate. This fixed effect panel regression analysis is used to determine simultaneous effect of determinants of need of current liabilities during an operating period.

**TABLE 5****Hausman specification test**

	Coefficients		b-B (Difference)	sqrt(diag(V _b-V_B))
	(b) fixed_group	(B)		S.E.
Lnsales	1.004585	1.000631	.0039548	.0049476
ROA	-1.164705	-1.08371	-.0809887	.0099282
CCC	.0011041	.0012995	-.0001954	.0000448
CR	-.015548	-.01781	.0022639	.0005673

b = consistent under Ho and Ha; obtained from xtreg

B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

$$\begin{aligned} \text{chi2}(4) &= (b-B)'[(V_b-V_B)^{-1}](b-B) \\ &= 862.87 \end{aligned}$$

$$\text{Prob}>\text{chi2} = 0.0000$$

(V\_b-V\_B is not positive definite)

Fixed effect regression is used to capture the effect of independent variables on the required current liabilities of firms. The result shown in the table 6 the overall effect jointly is highly significant at  $p < 0.05$  as well as independent variables are highly significant at  $p < 0.05$  individually. The joint effect of all independent variables is significant ( $F = 2780.65$ , at  $p < 0.005$ ) and independent variables explained the dependent variable overall by 83.6% which indicated that those variables have strong explanatory power. This implies that the variables, Lnsales (natural logarithm of sales), ROA (return on assets), CCC (cash conversion cycle) and CR (current ratio) have explained the need of short term credit (current liabilities) of firms.

**TABLE 6****Fixed-effects (within) regression Analysis**

Intcl	Coef	Std.err	T	p>/t/	95%conf Interval	
Lnsales	1.01	.009	101.7	0.00	.985	1.023
ROA	-1.16	.111	-10.42	0.00	-1.38	-.945
CCC	.01	.001	7.58	0.00	.001	.001
CR	-.01	.001	-14.25	0.00	-.017	-.013
Cons	-1.79	.053	-33.35	0.00	-1.91	-1.691

R-sq: within = 0.7324

between = 0.8582

overall = 0.8358

F = 2780.65

P = 0.000

Individual independent variables have different effect on required current liabilities. Return on assets (ROA) and current ratio (CR) have a negative effect on current need of short term debts (liabilities). When return on assets increases, the required current liabilities of a firm will decrease as firm can use the return

into its day to day activities which reduce the need of short term debts. Whereas size of firm's (Lnsales) and cash conversion cycle (CCC) have a significant positive effect on firm's required current liabilities. If volume of sales increase, firms need more and more inventories for their customers to satisfied the existing demand. Therefore, firms may need short term credit purchase or short term debt to run smoothly the day to day operation and this lead to increase current liabilities need. Cash conversion cycle indicates the period from purchase of inventories to the period of conversion of receivables in to cash. So, if the cash conversion cycle is shorter, the required current liabilities for firms will be small as firms can use the opportunities to purchase for cash as well as the ability to pay with short period of time and get good discount from early payments from suppliers. The smaller the cash conversion cycle the shorter to convert sales product into cash and the more cash will have the firm, so firm needs less credit purchase as long as there is enough cash for daily operation. The shorter the cash conversion cycle the more will be the firm profitable and this might increase as well solvency level of firms.

**TABLE 7**  
**Pearson correlation of profitability and liquidity variables**

	ROA	CR	CCC	LNSALSE
ROA	1			
CR	0.06 (-0.302)	1		
CCC	-0.083 (0.136)	0.462* (0.000)	1 .	
Lnsales	0.312* (0.000)	-0.053 (-0.329)	-0.181* (0.000)	1

\*correlation is significant at the 0.05 level (2-tailed) ( $p < 0.05$ )

To measure the relationship between profitability and liquidity, ROA is used as measurement of profitability whereas CCC and CR are measurement of liquidity. For this purpose Pearson correlation analysis is conducted. The result indicated on table 7 the existence of a negative relationship between profitability and liquidity of firms. But this inverse relationship of profitability and liquidity is not statistically significant in both liquidity measurements, CCC and CR with ROA. But between the two liquidity measurement variables, CCC and CR have a significant positive relationship.

### SUMMARY AND CONCLUSION

Working capital management is an important component of management of corporate finance; since it directly influences firm's profitability as well as liquidity in everyday activities. Management of short-term assets and liabilities implies the settlement of current assets and current liabilities. Actually, too high or too short current assets will affect the long-run return on assets (investments) as theoretical concept explained in different financial management text books. Therefore, working capital should neither too high nor too low. Excessive working

capital indicates an accumulation of idle current assets (resources) which don't contribute in generating income (profit) for the firm during the operating period. On the other side, inadequate working capital harms the credit worthiness and the day to day activities of firms and this may lead to insolvency (bankruptcy).

We examined the determinants of solvency level of firms and its impact on firm's profitability as well as the relationship of profitability and liquidity of firm's by using 250 sample firms of Indian manufacturing industry for the period 1999 to 2008.

With respect to the first hypothesis, there is no significance difference in solvency level of companies within industry, we found that a significant differences among companies within manufacturing industry. The paired wise Tukey HSD revealed that only one company has significant difference with the rest of companies within the same industry.

Regarding the second assumption, there is no significance effect on profitability of firms that have adequate working capital and less than adequate working capital in relation to their operational size, the study revealed that there is statistically strong significant effect on profitability of firms. We conclude that firms which have adequate working capital in ration to their operational size are performed better than those firms which have less than the required working capital in relation to their operational size and our conclusion is in confirmation with Enyi (2005). If firms actual working capital is below the required working capital in relation to their operational size, firms are forced to produce below their optimal scale and this create problem to run day to day activities smoothly, so this lead firms to generate low return on their investment.

With respect to the third hypothesis, there is no significant factor which affects the short term debt need of firms; we found that size of firms (Lnsales) and cash conversion cycle (CCC) have statistically significant positive impact on firms short term debt need and return on assets (ROA) and Current ratio (CR) have significant negative impact on firms short term debt (current liabilities) need. When firm sales volume increase, firm needs more inventories at stock and this lead to increase short term debt; if firm has no enough cash for purchase of inventories to satisfy its current customers demand. In case of cash conversion cycle, our conclusion is coincide with Lyroudis and Lazardis (2000), the smaller the cash conversion cycle, the shorter to convert sales of products into cash and this makes firms to have more cash. So firms need less credit purchase as long as there is enough cash to acquire inventories and run the day to day activities.

Regarding the final assumption, that there is significance negative relationship between profitability and liquidity of firms; we found a negative relationship between profitability and liquidity. This finding is in confirmation with Reheman and Naser (2007), and Ganesan (2007) that the existence of a negative relationship between profitability and liquidity. But this existing negative relationship between profitability and liquidity measurement variables of firms is not statistically significant.

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