

**Impact of Working Capital Management on Profitability:****A Case Study of Manufacturing Companies in India**

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**ABSTRACT:**

Present study empirically examines the impact of working capital management on firms' profitability by using data of 158 companies in manufacturing industry in India. The study is primarily based on secondary data collected from financial reports which is listed in Bombay Stock Exchange for the period of five years from 2008- 2013. The data has been analyzed using the correlation coefficient and multiple regression models. All the results were tested at 0.01 and 0.05 level of significance. The study concludes that there is a moderate relationship between working capital management and profitability in the specific context of manufacturing industry in India.

**Keywords:** Working Capital, Profitability, Financial Ratios, Multiple Regression, Manufacturing Industry, India.

**Introduction**

Successful entrepreneurs have always given a lot of attention on working capital management. Interestingly, financial literature states that top Indian manufacturing companies belonging to auto sector with high return on capital employed (ROCE) shows that most of the companies have run on negative working capital and these companies have given good returns to their shareholders, both in forms of dividends and capital gains. This new kind of working capital strategy is emerging nowadays which pushes to rethink upon the existing literature on the working capital management from another point of view. Now the question is raised how the tradeoff between liquidity and profitability maximizes the value of firm? Need to answer this question initiate me to make a study on this topic.

**Objectives of the Study**

Present study is an empirical study of manufacturing industry of India for evaluating the impact of working capital on profitability during the period of 2008 to 2013. The more specific objectives are:

- To analyze the impact of working capital on the profitability of the firm.
- To discover the combined effect of the ratios rating with working capital management and profitability

### Data Source and Methodological Framework

Present study is descriptive in nature which is based on secondary data taken from BSE official websites, a company's reports and other financial web portals which provides the data of various companies. Study period is 5-year ranging from 2008 to 2013. A sample of 158 manufacturing companies of India has been taken on the basis of purposive sampling. Various ratios –Current ratio, Quick ratio, current assets to total assets ratio, current assets to sales ratio, cash turnover, inventory turnover, debtors turnover ratio and creditors' turnover ratio, have been taken to measure their impact on working capital and profitability as well. Pearson's correlation and regression model have been used to analyze the data and validity of the model's results has been tested with various robustness tests. Following regression equation has been used

$$Y_{it} = \beta_0 + \beta_1 CR_{it} + \beta_2 LR_{it} + \beta_3 CATAR_{it} + \beta_4 CASR_{it} + \beta_5 CTR_{it} + \beta_6 DTR_{it} + \beta_7 X_{7it} + \beta_8 CRTR_{it} + U_{it} \quad (1)$$

Where

$\beta_0$  = intercept

$\beta_1, \beta_2, \beta_3, \dots$  variability factors of the stated independent variables

"  $i = 1$  to 158 firms

"  $t = 2008-2013$

"  $U_{it}$  = Error term.

It is a valid process where the association between the variables is constant across cross-section units. Therefore, we believed in a cross sectional analysis applying pooled OLS estimation method.

### Results and Discussion

This table1 depicts the descriptive statistics along with the dispersion of the variables in terms of standard deviation.

**Table 1. :** Descriptive Statistics

(N=158)

Variables	Mean	Std. Deviation
ROI	0.0722	0.1282
CR	1.0375	0.6980
LR	0.9410	0.6696
CATAR	0.3117	0.1521
CASR	0.7345	2.4645
CATR	56.0554	98.611
DTR	4.5739	3.0562
ITR	35.3757	47.356
CTR	1.4413	1.146

**Table 2** provides the Pearson correlation for the variables that which has been used in the regression model. Pearson's correlation analysis has been used to establish the relationship between working capital management and profitability. Study found that the return on investment is negatively associated with the current assets to sales ratio (CASR) and cash turnover ratio (CTR). While, ROI is positively interrelated with the current ratio (CR), liquid Ratio (LR), current assets to total assets ratio (CATAR), debtors' turnover ratio (DTR), inventory turnover ratio (ITR) and credit turnover ratio (CTR). However, ITR has a very weak association with ROI.

**Table 2.: Pearson Correlation matrix**

	CR	LR	CATAR	CASR	CTR	DTR	ITR	CTR	ROI
CR	1.000								
LR	.979**	1.000							
CATAR	.687**	.574**	1.000						
CASR	-.039	-.025	-.064	1.000					
CATR	-.257*	-.284**	-.198	-.063	1.000				
DTR	-.024	-.061	.089	-.179	.547**	1.000			
ITR	-.083	-.032	-.062	-.087	.055	.025	1.000		
CTR	.496**	.416**	.366**	-.247*	-.24	.25*	.0611	1.000	
ROI	.313**	.308**	.400**	-.128	-.304**	.342**	.063	.4820**	1.000

Note: \* and \*\* indicates correlation is significant at the 0.05 and 0.01 level (2-tailed)..

The model for the working capital management and firm's profitability is selected on the basis of strong diagnostics and high value for the R-squared. The results are represented in Table 4.

**Table 3. Pooled Least Square. Dependent variable = Return on Investment**

Financial Variables	Coefficients
Constant	-12.79*
CR	0.610*
LR	0.684*
CATAR	0.248**
CASR	-0.104
CTR	-0.352*
DTR	0.817*
ITR	0.143
CTR	0.491*
R-square	0.582
Adjusted R-squared	0.542
F-statistics	13.321*

Note: \* and \*\* indicate significance at the 0.01 and 0.05 level.

The value for the R-squared in the model is 0.588 which endorses that 58.8% of the variation in the dependent variable is explained by the independent variables of the model. The 41.2% variation in the dependent variable remains unexplained by the independent variables of the study. The value for the F-statistic is 13.321 validates the result of the study. The results of other investigative variables recommend that the CR, LR, CATAR, DTR and CTR have a significant positive association with ROI. This positive association indicates that all variables of working capital management except ITR have significant positive impact on profitability of the Indian manufacturing companies.

To identify multi-co linearity i.e. variance inflation factor (VIF) is also used to hold up the validity of the regression outcome. If VIF is lower than 10 and Tolerance near to zero advocate no multi-co linearity (Guajarati, 2003). In Table 5 results of VIF and tolerance factor is moderate. The values of variance inflation factor for the variables in the model ranges from 1.122 to 2.324 for CTR to CASR which confirms that there is no multi-co linearity in the model used in the study.

**Table 4.** Values of Tolerance and Variance Inflation Factor (VIF)

Variables	Tolerance	Variance Inflation Factor
CR	0.711	1.562
LR	0.815	1.672
CATAR	0.739	2.324
CASR	0.744	2.781
CTR	0.853	1.122
DTR	0.754	1.349
ITR	0.832	1.656
CTR	0.840	1.217

#### **Robustness Test: Incremental Regression**

The incremental regression has been used in which individual independent variable has been removed from the model and by examining the cause on the value of R-squared. Among all the variables removed, DTR has changed the value of R-squared to a highest degree (29% decreases in the portion of the dependent variable determined by independent variables as the value for the R-squared varies from 57.1% to 23.8%. This considerable decrease in the value of the R-squared indicates the DTR is important in model. This significance demonstrated in the regression outcome as the value of coefficient of the variable (0.817) is highest among all the variables. The result is presented in Table 5.

**Table 5: Results of Incremental Regression removing DTR**

Models	R-value
R-squared (Original)	0.571
R-squared (after the removal )	0.239

## Summary and Conclusion

This paper examined the relationship between working capital management and firm's profitability of 158 firms listed at Bombay Stock Exchange. The main purpose of the study was to discover whether financial ratios influence the performance of the Indian manufacturing companies. The result explored that there is a reasonable relationship between working capital management and company's profitability measuring it with the help of Pearson's coefficient of correlation and regression model and testing the validity of results with f-statistic and robust and endogeneity tests. Further study should look into generalization of the findings beyond the Indian manufacturing sector which can be extended to include the various other variables of working capital not covered in this study like cash, marketable securities, receivables, and inventory management.

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