

Evaluating the Impact of Working Capital Management Components on Corporate Profitability: Evidence from Indian Manufacturing Firms

by

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Abstract: Working capital management is a vital issue in financial decision making since it is a part of investment in asset and it directly affects the liquidity and profitability of the company. The study tries to investigate the relationship between working capital management components and the profitability of a sample of Indian manufacturing firms using a sample of 311 Indian manufacturing firms for a period of 14 years from 1996-97 to 2009-10 and have studied the effect of different variables of working capital management including the average collection period, inventory turnover in days, average payment period, cash conversion cycle and current ratio, debt ratio, size of the firm and financial assets to total assets ratio on the net operating profitability of Indian firms. The result suggests a strong negative relationship between the measures of working capital management including the number of days accounts receivable and cash conversion cycle, financial debt ratio with corporate profitability. Previous studies regarding the average days of accounts payable reported negative correlation of this variable and the profitability of the firm. But, we have not found any statistically significant relationship between these variables. Finally, we found insignificant negative relationship between firm size and its net operating profit ratio.

Key words: Working capital management, corporate profitability, Indian manufacturing.

JEL Classification: L60, G11, G30, G31, G32.

1 Introduction

Working capital management is a vital issue in financial decision making since it is a part of investment in asset and it directly affects the liquidity and profitability of the company. However, working capital always is disregarded in financial decision making since it involves investment and financing in short term period. Further, it also act as a restrain in financial performance, since it does not contribute to return on equity (Sanger, 2001).

Working capital management involves planning and controlling current assets and current liabilities in a manner that eliminates the risk of inability to meet short term obligations on the one hand and avoid excessive investment in these assets on the other hand (Eljelly, 2004). Efficient management of working capital plays an important role of overall corporate strategy in order to create shareholder value. Working capital is regarded as the result of the time lag between the expenditure for the purchase of raw material and the collection for the sale of the finished good. The way of managing working capital can have a significant impact on both the liquidity and profitability of

the company (Shin and Soenen, 1998). The main purpose of any firm is to maximize profit. But, maintaining liquidity of the firm also is an important objective. The problem is that increasing profits at the cost of liquidity can bring serious problems to the firm. Thus, strategy of firm must maintain a balance between these two objectives of the firms. Dilemma in working capital management is to achieve desired trade off between liquidity and profitability (Smith, 1980; Raheman & Nasr, 2007). Referring to theory of risk and return, investment with more risk will result to more return. Thus, firms with high liquidity of working capital may have low risk, then low profitability. Conversely, firm that has low liquidity of working capital faces high risk which results to high profitability.

In this paper, we have tried to investigate the relation between working capital management components and corporate profitability for a sample of 311 Indian manufacturing firms for the period, 1996-97 to 2009-10.

2 Brief review of existing literature

Management of working capital management was found to have a significant impact on both

profitability and liquidity in studies in different countries. Many previous researchers have indicated the relationship between working capital management and profitability of firm which are briefly overviewed in the following section.

Shin and Soenen (1998) used a sample of 58,985 firm's years covering the period 1975-1994 in order to investigate the relationship between net-trade cycle that was used to measured efficiency of working capital management and corporate profitability and found a strong negative relationship between lengths of the firm's net trading Cycle and its profitability. In addition, shorter net trade cycles were associated with higher risk adjusted stock returns.

Deloof (2003) using a sample of 1,009 large Belgian non-financial firms for a period of 1992-1996 found significant negative relationship between gross operating income and the number of days accounts receivable, inventories, and accounts payable of Belgian firms. Based on the study results, he suggests that managers can increase corporate profitability by reducing the number of day's accounts receivable and inventories.

Ghosh and Maji(2003) in this paper made an attempt to examine the efficiency of working capital management of the Indian cement companies during 1992 – 1993 to 2001 – 2002. For measuring the efficiency of working capital management, performance, utilization, and overall efficiency indices were calculated instead of using some common working capital management ratios. Setting industry norms as target-efficiency levels of the individual firms, this paper also tested the speed of achieving that target level of efficiency by an individual firm during the period of study. Findings of the study indicated that the Indian Cement Industry as a whole did not perform remarkably well during this period.

Lazaridis and Tryfonidis (2006)conducted a cross sectional study by using a sample of 131 firms listed on the Athens Stock Exchange for the period of 2001 - 2004 and found statistically significant relationship between profitability, measured through gross operating profit, and the cash conversion cycle and its components

(accounts receivables, accounts payables, and inventory). Based on the results analysis of annual data by using correlation and regression tests, they suggest that managers can create profits for their companies by correctly handling the cash conversion cycle and by keeping each component of the conversion cycle (accounts receivables, accounts payables, and inventory) at an optimal level.

Raheman and Nasr (2007) investigated the effect of different variables of working capital management including average collection period, inventory turnover in days, average payment period, cash conversion cycle, and current ratio on the net operating profitability of Pakistani firms by selecting a sample of 94 Pakistani firms listed on Karachi Stock Exchange for a period of 6 years from 1999-2004 to study the effect of different variables of working capital management on the net operating profitability. From result of study, they showed that there was a negative relationship between variables of working capital management including the average collection period, inventory turnover in days, average collection period, cash conversion cycle and profitability. Besides, they also indicated that size of the firm, measured by natural logarithm of sales, and profitability had a positive relationship.

Singh and Pandey (2008) studied the working capital components and the impact of working capital management on profitability of Hindalco Industries Limited for period from 1990 to 2007. Results of the study showed that current ratio, liquid ratio, receivables turnover ratio and working capital to total assets ratio had statistically significant impact on the profitability of Hindalco Industries Limited.

Falope and Ajilore (2009), using a sample of 50 Nigerian quoted non-financial firms for the period 1996 -2005, found a significant negative relationship between net operating profitability and the average collection period, inventory turnover in days, average payment period and cash conversion cycle for a sample of fifty Nigerian firms listed on the Nigerian Stock Exchange. Furthermore, they found no significant variations in the effects of working

capital management between large and small firms.

Mathuva (2009) examined the influence of working capital management components on corporate profitability by using a sample of 30 firms listed on the Nairobi Stock Exchange (NSE) for the periods 1993 to 2008. The key findings of his study were that: i) there exists a highly significant negative relationship between the time it takes for firms to collect cash from their customers (accounts collection period) and profitability, ii) there exists a highly significant positive relationship between the period taken to convert inventories into sales (the inventory conversion period) and profitability, and iii) there exists a highly significant positive relationship between the time it takes the firm to pay its creditors (average payment period) and profitability.

Afza and Nazir (2009) made an attempt in order to investigate the traditional relationship between working capital management policies and a firm's profitability for a sample of 204 non-financial firms listed on Karachi Stock Exchange (KSE) for the period 1998-2005. The study found significant difference among their working capital requirements and financing policies across different industries. Moreover, regression result found a negative relationship between the profitability of firms and degree of aggressiveness of working capital investment and financing policies. They suggested that managers could create value if they adopt a conservative approach towards working capital investment and working capital financing policies.

In view of the literature surveyed above, we found that there still is indistinctness regarding the appropriate variables that might serve as proxies for working capital management and no significant study was conducted in India on the issue regarding impact of working capital management components on corporate profitability.

The present study is an attempt to fill the gap existed in the previous literature and tries to investigate the relationship between a set of such variables and the profitability of a sample of Indian manufacturing firms. Thus, this study contributes to the literature on the relationship

between the working capital management and the firm's profitability and adds substance to the existing theory developed by previous authors.

The structure of the article is as follows: Section 2 depicts the overview of literature, section 3 presents methodology, analysis of result is outlined in section 4 and finally section 5 summarizes the results.

3 Methodology

3.1. Database & definition of variables:

The sample is based on a secondary database provided by *Industry: Financial Aggregates & Ratios, Centre for Monitoring Indian Economy (CMIE)*, and *CMIE Prowess* that consists of financial statements of most important Indian manufacturing firms over the period of 14 years, 1996-97 to 2009-10. For the purpose of this research, firms in financial sector, banking and finance, insurance, leasing, business service, renting, and other service are excluded from the sample. For the purpose of conducting the study, certain manufacturing firms are excluded due to lack of complete information for analysis. The sample is based on financial statements of 311 for a period of 14 years implying 4354 observations as a whole.

A variety of variables related to working capital management that might potentially be associated or 'responsible' for the profitability of manufacturing firms can be found in the literature. In this study, the choice of explanatory variables is based on alternative theories related to working capital management and profitability and additional variables that were studied in reported empirical work. The variables used in this study are based on the line as applied in previous researches regarding the relationship between working capital management and profitability.

Net Operating Profitability (NOP) which is a measure of Profitability of the firm is used as dependant variable. It is defined as Operating Income plus depreciation and amortization and divided by total assets minus financial assets. For a number of firms in the sample, financial assets, which are mainly shares in other firms, are a significant part of total assets. That is also

the reason why return on assets is not considered as a measure of profitability: when a firm has mainly financial assets on its balance sheet, its operating activities will contribute little to the overall return on assets. Hence, that is the reason why return on assets is not considered as a measure of profitability.

Number of days accounts receivable(ACR)has been used as proxy for the collection policy is an independent variable. It is calculated as (accounts receivable x 365)/sales.

Number of days inventories(INVT) has been used as proxy for the inventory policy is an independent variable. It is calculated as (inventories x 365)/ cost of goods sold.

Number of days accounts payable(ACP) has been used as proxy for the payment policy is an independent variable. It is calculated as (accounts payable x 365)/ cost of goods sold.

The cash conversion cycle(CCC) has been used as a comprehensive measure of working capital management is another independent variable. It is calculated as (number of days accounts receivable + number of days inventory – number of days accounts payable).

Current Ratio (CR) which is a traditional measure of liquidity is calculated by dividing current assets by current liabilities.

Various studies have utilized the control variables along with the main variables of working capital in order to have an opposite analysis of working capital management on the firm's profitability (Deloof, 2003; Lazaridis and Tryfonidis, 2006). The logarithm of sales used to measure size of firm is a control variable.

In addition, financial debt ratio(FDR) used as proxy for leverage, calculated by dividing total debt by total assets, and ratio of fixed financial assets to total assets(FFAR) are also control variable in the regressions.

Fixed financial assets are the shares in other firms, intended to contribute to the activities of the firm holding them by establishing a lasting and specific relationship and loans that were granted for the same purpose. For some firms such assets are a significant part of their total assets. According to Deloof (2003) fixed financial assets are mainly shares in affiliated firms, intended to contribute to the activities of the firm that holds them, by establishing a lasting and specific relation and loans that were granted with the same purpose.

Table:1 Definition of explained and explanatory variables and their predicted sign condition

Variables	Explanation	Predicted sign
NOP	(Operating Income+ depreciation and amortization) / (Total Assets - Financial Assets)	+/-
ACP	(Accounts Receivables/Sales) x 365	+/-
APP	(Accounts Payables/Cost of Goods Sold) x 365	+/-
INVT	(Inventory/Cost of Goods Sold) x 365	+/-
CCC	(No. of Days A/R + No. of Days Inventory) – No. of Days A/P	+/-
CR	Current assets/Current liabilities	+/-
LnS	Natural Logarithm of Sales	+/-
FDR	(Short-Term Loans + Long-Term Loans)/Total Assets	+/-

FFAR	Fixed Assets/Total assets	Financial	+/-
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3.2. Model Specifications:

The basic empirical framework employed in this study is based on a simple model :

$$NOP_{it} = \alpha' + \sum \beta_i X_{it} + \mu_t$$

Where NOP refers to Net Operating Profitability of firm i at time t; i = 1, 2, ..., 311 firms.

X_{it} refers to the vector of determinants of working capital Management which represents different independent variables for working capital Management of firm i at time t and μ is the error term.

α' is the intercept of equation.

- β_i is the Coefficients of X_{it} variables.
- t is the time = 1, 2, ..., 14 years.

In order to understand the impact of working capital management component on corporate profitability more precisely, the above equation is elaborated as follows:

$$NOP_{it} = \alpha' + \beta_1 (ACR_{it}) + \beta_2 (ACP_{it}) + \beta_3 (CCC_{it}) + \beta_4 (CR_{it}) + \beta_5 (FDR_{it}) + \beta_6 (FFAR_{it}) + \beta_7 (INVT_{it}) + \beta_8 (LnS_{it}) + \mu_t$$

Table:2: Descriptive Statistics(N=4354)

	ACR	ACP	CCC	CR	FDR	FFAR	INVT	LnS	NOP
Mean	73.93	54.39	84.07	1.98	0.376	0.356	64.53	13.92	0.1499
Median	68.36	53.12	76.34	1.92	0.377	0.357	63.04	13.79	0.1500
Maximum	109.05	67.54	124.71	2.35	0.442	0.406	83.22	14.81	0.1873
Minimum	50.78	44.14	60.18	1.76	0.309	0.296	53.54	13.10	0.1115
Std. Dev.	21.92	8.55	24.22	0.1747	0.049	0.0374	10.93	0.6277	0.0207
Skewness	0.342	0.253	0.509	0.648	-0.0338	-0.3412	0.6342	0.1663	0.0702
Kurtosis	1.50	1.53	1.68	2.48	1.455	1.836	1.937	1.563	2.3975
Jarque-Bera	1.58	1.42	1.63	1.14	1.39	1.061	1.597	1.269	0.2232
Probability	0.45	0.49	0.44	0.57	0.50	0.59	0.45	0.53	0.89
Observations	4354	4354	4354	4354	4354	4354	4354	4354	4354

N = Number of observations

All variables were calculated using balance sheet (book) values. The book value was used because the companies did not make available any market value related to the variables . In addition, the measurement of profitability could only be based on income statement values, not

Where

- ACR = Accounts receivables.
- ACP = Accounts payables.
- CCC = Cash conversion cycle.
- CR = Current Ratio.
- FDR = Financial debt ratio
- FFAR =Fixed financial asset ratio.
- INVT = Inventory.
- LnS = Firm size.
- NOP =Net Operating Profit.

4 Analysis of Result

Table 2 gives descriptive statistics for 311 Indian manufacturing firms for a period of 14 years from 1996-97 to2009-10 and for a total 4354 firms- year observations. Descriptive analysis shows the average, and standard deviation of the different variables of interest in the study. It also presents the minimum and maximum values of the variables which help in getting a picture about the maximum and minimum values a variable can achieve.

on so-called market values. The explanatory variables are all firm specific quantities and there is no way to measure these variables in terms of their 'market value.'

Furthermore, when market values are considered in such studies, there is always a rather legitimate question of the date for which

the 'market values' refer. This is rather arbitrary. Hence, we relied on 'book values' as of the date of the financial reports.

Total observations come to $311 \times 14 = 4354$. The credit period granted by companies to their clients ranged at 73.93 days which means that firms receive payment against sales after an average of 73.93 days and standard deviation is 21.92 days while they paid their creditors in 54.39 days on average. Minimum time taken by a company to collect cash from receivables is 51 day while the maximum time for this purpose is 109 days. Inventory took on an average 54.63 days to be sold. Information from descriptive statistics also indicates that the mean of cash conversion cycle that used as a proxy to check the efficiency in managing working capital is on average 84.07 days and standard deviation is 24.22 days. To check the size of the firm and its relationship with profitability, natural logarithm of sales is used as a control variable. The average firm size measured by logarithm of sales came to 13.92 million while the standard deviation is 0.6277. The maximum value of log of sales for a company in a year is 14.81 and the minimum is 13.10.

Following the same line in checking the liquidity of the companies, a traditional measure of liquidity (current ratio) is used. The average current ratio for Indian manufacturing firms is 1.98 with a standard deviation of 0.1747. The highest current ratio for a company in a particular year is 2.35 times and in the same way the minimum ratio for a company in a year is 1.76.

The mean value of net operating profitability is 14.99% of total assets, and standard deviation is 7.02%. It means that value of the profitability can deviate from mean to both sides by 7.02%. The maximum value for the net operating profitability is 18.73% for a company in a year while the minimum is 11.15%. To check the debt financing and its relationship with the profitability the debt ratio (obtained by dividing the total debt of the company by the total assets) is used as a control variable. The average financial debt ratio came to 37.6 percent. The maximum debt ratio financing used by a firm is 44.2% which is quite usual because of debt lesser than asset. While the minimum of debt

ratio is 30.9%, this means that there is a company that uses a little debt in its operation. Finally, the fixed financial assets to total assets ratio is used to check the ratio of fixed financial assets to the total assets of Indian manufacturing firms that is also utilized as a control variable. The mean value for this ratio is 35.6% with a standard deviation of 3.74%. The maximum value of financial assets to total assets is 40.6% and the minimum value for this purpose is nearly 29.6%.

The result shows negative skewness for financial fixed asset ratio and financial debt ratio which indicates the flatter tails than the normal distribution. All independent variables show platykurtic (kurtosis < 3) which means that platykurtosis is associated with probability density function that are simultaneously less peaked and have thinner tails.

The Jarque-Bera test, a type of Lagrange multiplier test, was developed to test normality of regression residuals. The Jarque-Bera statistic is computed from skewness and kurtosis and asymptotically follows the chi-squared distribution with two degrees of freedom. Jarque-Bera test statistics is used for testing whether the data series is normally distributed. The high probability value estimated above accepts null hypothesis that the data series is normally distributed. The outcome were supported by the small figure of JB test (Jarque-Bera probability test), where the null hypothesis (that the data are normally distributed) cannot be rejected.

Prior to estimation, we examined the correlation among trade variables and we find that different trade variables are weakly correlated with each other. Also, we have tested multicollinearity.

When independent variables are highly correlated in a multiple regression analysis, it is difficult to identify the unique contribution of each variable in predicting the dependent variable because the highly correlated variables are predicting the same variance in the dependent variable. Some statisticians says correlations above 0.70 indicate multicollinearity and others say that correlations above 0.90 indicate multicollinearity.

Multicollinearity is assessed by examining tolerance and the Variance Inflation Factor

(VIF) which are two collinearity diagnostic factors that can help to identify multicollinearity. If a low tolerance value is accompanied by large standard errors and no significance, multicollinearity may be an issue. The variable's tolerance is indicated by $1-R^2$. A small tolerance value indicates that the variable under consideration is almost a perfect linear combination of the independent variables already in the equation and that it should not be added to the regression equation. The Variance Inflation Factor (VIF) measures the impact of collinearity among the variables in a regression model. The Variance Inflation Factor (VIF) is $1/\text{Tolerance}$, it is always greater than or equal to 1. There is no formal VIF value for determining presence of multicollinearity. A commonly given rule of thumb is that multicollinearity exists when Tolerance is below 0.1 and values of VIF that exceed 10 are often regarded as indicating multicollinearity. When those R^2 and VIF values are high for any of the variables in regression model, multicollinearity is probably an issue.

Sometimes, eigen values, condition index and condition number will be referred to when examining multicollinearity. We take into consideration the condition number which is equal to condition index with highest value which is also equal to square root of the largest eigen value divided by lowest eigen value. An informal rule of thumb is that if the condition number is 15 or more, multicollinearity is a concern and if it is greater than 30, multicollinearity is very serious concern.

From our analysis to test whether there exists multicollinearity, it is found that correlations among independent variables are moderate which do not exceed the general rule of thumb. Moreover tolerance for these variables are moderately high which also are beyond the specified minimum ceiling (0.10) and VIFs do not exceed the specified rule of thumb of 10. The condition number is 12.763 which is also within the range. This indicates that multicollinearity is not at a issue of concern in this study.

Table:3: Pearson Bivariate Correlation Analysis

	NOP	ACR	ACP	INVT	CCC	CR	LnS	FDR	FFAR
NOP	1.000	-0.427	-0.405	-0.461	-0.452	-0.263	0.208	-0.380	0.139
ACP		1.000	0.970	0.951	0.992	0.907	-0.913	0.910	0.480
APP			1.000	0.956	0.957	0.830	-0.866	0.833	0.424
INVT				1.000	0.975	0.882	-0.816	0.798	0.280
CCC					1.000	0.926	-0.889	0.890	0.411
CR						1.000	-0.838	0.806	0.333
LnS							1.000	-0.966	-0.731
FDR								1.000	0.716
FFAR									1.000

Pearson's Correlation analysis is used for data to examine the relationship between working capital management components and corporate profitability. Table 3 provides the Pearson correlation for the variables that we used in the regression model. Pearson's correlation analysis is used for data to find the relationship between working capital management and net operating profit. We found that the net operating profit is negatively correlated with the accounts receivables. The negative correlation between accounts receivables and net operating profit

indicates that if the average collection period increases it will have a negative impact on the profitability. Correlation result between number of days accounts payable (AP) and the net operating profitability is a negative. The correlations coefficient is 0.405 which shows that the more profitable firms not wait longer to pay their bills. Correlation result between inventory turnover in days (INVT) and the operating profitability also indicate the same type of result. The correlation coefficient is -0.461 shows that more the time firm takes in

selling inventory, more will be the adverse effect on its profitability. The cash conversion cycle that is used as a comprehensive measure of working capital management also has a negative correlation with the net operating profitability with coefficient -0.452 which demonstrates that paying suppliers longer and collecting payments from customers earlier, and keeping products in stock less time, are all associated with an increase in the firm's profitability. Result from analysis also shows a positive correlation between natural logarithm of sales that is used to measure the size of firm and the operating profitability. Its coefficient correlation is 0.208 which shows that as size of the firm increases, it will increase its profitability and vice versa. Current ratio is a

traditional measure of checking liquidity of the firm. In this analysis the current ratio has a significant negative relationship with profitability (measured by net operating profitability). Correlation between net operating profit and current ratio is negative indicating that high current ratio involving greater current asset than current liability will reduce the profitability of the firms. It indicates that the two objectives of liquidity and profitability have inverse relationships. So, the Indian manufacturing firms need to maintain a balance or tradeoff between these two measures. We examined the extent to which the use of alternative proxies for working capital management might provide different results for which we have used three alternative models.

Table: 4. Regression Result

Model-1	Unstandardized Coefficient		Standardized Coefficient		Sig.	Collinearity Statistics	
	B	Std. Error	Beta	t		Tolerance	VIF
(Constant)	0.998	0.002	-	0.996	0.352	-	-
ACR	-3.743E-04	0.004	-0.396	-0.184	0.859	0.376	2.659
ACP	-5.655E-04	0.095	-0.233	-0.161	0.876	0.551	1.814
CR	9.054E-02	0.042	0.763	0.952	0.373	0.348	2.873
LnS	-5.249E-02	0.475	-1.589	-1.238	0.256	0.792	1.262
FDR	-1.090	0.233	-2.602	-2.295	0.055	0.595	1.681
FFAR	0.485	0.002	0.876	2.085	0.076	0.489	2.044

Dependent Variable: Net Operating Profit

Independent Variables: ACR, ACP, CR, LnS, FDR, and FFAR

In model 1, we have used financial debt ratio as a proxy for leverage; it shows a significant negative relationship with the dependent variable, which means that, when leverage of the firm increases, it will adversely affect its profitability. The result also indicates that there

is a positive relationship between fixed financial assets to total assets and profitability. It implies that with the increase in components of fixed financial assets in the total assets of the firm, profitability enhances.

Table: 5. Regression Result

Model-2	Unstandardized Coefficient		Standardized Coefficient		Sig.	Collinearity Statistics	
	B	Std. Error	Beta	t		Tolerance	VIF
(Constant)	0.862	0.511	-	1.688	0.130	-	-
ACR	-6.904E-04	0.001	-0.730	-1.369	0.208	0.398	2.513

CR	0.103	0.048	0.872	2.151	0.064	0.587	1.704
LnS	-4.728E-02	0.026	-1.431	-1.834	0.104	0.761	1.314
FDR	-1.027	0.250	-2.451	-4.104	0.003	0.549	1.821
FFAR	0.503	0.192	0.908	2.620	0.031	0.496	2.016

Dependent Variable: Net Operating Profit

Independent Variables: ACR, CR, LnS, FDR, and FFAR.

In the model 2, there are net operating profit as the dependent variable and the same independent variables as the model 1 equation. The only difference is that number of days accounts payable has been deleted. The result of this regression indicates that the coefficient of account receivable is negative with -0.730. This implies that the increase or decrease in accounts receivable will significantly affect profitability

of firm. The size of the firm has a negative impact on profitability implying that with the increase in size, profitability declines, and the current ratio has a positive impact on profitability; while other control variables like debt ratio has significant negative impact on corporate profitability and financial assets to total assets have a significant positive effect on profitability of the firm.

Table: 6. Regression Result

Model-3	Unstandardized Coefficient		Standardized Coefficient		Sig.	Collinearity Statistics	
	B	Std. Error	Beta	t		Tolerance	VIF
(Constant)	0.697	0.520	-	1.340	0.213	0.328	3.052
CCC	-8.517E-02	0.048	-0.718	-2.759	0.112	0.781	1.280
LnS	-3.549E-02	0.025	-1.074	-1.395	0.197	0.592	1.688
FDR	-1.171	0.238	-2.795	-4.927	0.001	0.472	2.120
FFAR	0.618	0.181	1.116	3.423	0.008	0.588	1.700

Dependent Variable: Net Operating Profit

Independent Variables: CR, LnS, FDR, and FFAR

Model-3 has been constructed from model -2 by deleting only no. of days accounts receivable (ACR) and current ratio and incorporating cash conversion cycle into the model. The result shows similar replication of model 2. But, the cash conversion cycle is used to measure efficiency of working capital management. Result of regression indicates that there is a negative relationship between cash conversion cycle and operating profitability which implies that the increase or decrease in the cash conversion cycle significantly affects profitability of the firm.

In general, it can be said that if the firm can effectively manage its working capital, it can lead to increasing profitability. We can also interpret that liquidity and profitability move in opposite directions. And, there is a need to maintain a trade-off between these two

objectives of the firm. It is further interpreted that if the firm increases its debt financing, it will lead to decreasing profitability of the firm in terms of financial cost. Size of the firm has a direct negative relationship with its profitability. If the size (measured in terms of log of sales) increases, it will lead to decrease in profitability of the firm.

5 Conclusion

Working capital management is important part in firm financial management decision. The ability of the firm to continuously operate in longer period depends on how they deal with investment in working capital management. The optimal of working capital management could be achieved by firms that manage the tradeoff between profitability and liquidity.

In this study, we found a strong negative relationship between the measures of working capital management including the number of days accounts receivable and cash conversion cycle, financial debt ratio with corporate profitability. Earlier research predicts also negative relationship between accounts receivables and corporate profitability. Our results are in line with these findings. The finding indicates that longer the period of collection of accounts receivables is, the low is the profitability of the firms. The negative relationship between corporate profitability and cash conversion cycle shows that longer the cash conversion cycle is, smaller is the profitability. Previous studies regarding the average days of accounts payable reported negative correlation of this variable and the profitability of the firm. But, we have not found any statistically significant relationship between these variables. Finally, we found insignificant negative relationship between firm size and its net operating profit ratio.

The conclusions are in confirmation with (Deloof 2003), (Eljelly 2004), (Shin and Soenan 1998) who found a strong negative relationship between the measures of working capital management including the average collection period, average payment period and cash conversion cycle with corporate profitability. Thus, the findings of this paper suggest that managers can create value for their shareholders by reducing the number of days for accounts receivables. In addition, the negative relationship between accounts receivables and firm's profitability suggest that less profitable firms will pursue a decrease of their accounts receivables in an attempt to reduce their cash gap in the cash conversion cycle. On the basis of findings of this paper, we conclude that profitability can be enhanced if firms manage their working capital in a more efficient way. These results suggest that managers can create value for their shareholders by reducing the number of days accounts receivable to a reasonable minimum. The negative relationship between accounts payable and profitability is

consistent with the view that less profitable firms wait longer to pay their bills.

In conclusion, it is suggested that further research be conducted on the same topic with different companies and extending the years of the sample.

References

- Afza, T., & Nazir, M. (2009), Impact of aggressive working capital management policy on firms' profitability. *The IUP Journal of Applied Finance*, vol. 15(8), pp20-30.
- Deloof, M. (2003), Does Working Capital Management Affect Profitability of Belgian Firms? *Journal of Business Finance & Accounting*, vol. 30, no.(3&4), pp573-587.
- Eljelly, A. (2004), "Liquidity-Profitability Tradeoff: An empirical Investigation in An Emerging Market", *International Journal of Commerce & Management*, vol.14, no.2, pp48 – 61.
- Falope OI, Ajilore OT(2009), Working capital management and corporate profitability: evidence from panel data analysis of selected quoted companies in Nigeria. *Research Journal of Business Management*, vol.3: pp73-84.
- Ghosh, S. K. and Maji, S. G. (2003), "Working Capital Management Efficiency: A study on the Indian Cement Industry", *The Institute of Cost and Works Accountants of India*.
- Lazaridis, I., & Tryfonidis, D. (2006), "Relationship between working capital management and profitability of listed companies in the Athens stock exchange", *Journal of Financial Management and Analysis*, vol.19, no.1, pp26-35.
- Raheman, A. & Nasr, M. (2007), "Working capital management and profitability – case of Pakistani firms", *International Review of Business Research Papers*, vol. 3 ,no.1, pp279-300.
- Smith. (1980). "Profitability versus liquidity tradeoffs in working capital management, in readings on the management of working capital", New York, St. Paul: West Publishing Company.
- Shin, H. H., & Soenen, L. (1998), "Efficiency of working capital management and corporate profitability", *Financial Practice and Education*, vol8, no2, pp37-45.
- Singh, J. P., & Pandey, S. (2008), Impact of working Capital Management in the Profitability of Hindalco Industries Limited. *Icfai University Journal of Financial Economics*, vol.6, no.4, pp62-72.
- Sanger, J. S. (2001), Working capital: a modern approach. *Financial Executive*, 69.