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Determinants Of Profitability On Working Capital With Special Reference To Paper Industry In India

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Introduction

Working capital is considered as a significant issue in financial decision-making given that it is being a part of investment in asset which calls for appropriate financing investment. However, according to Sanger, working capital has always been ignored in financial decision-making because it involves investment and financing in short-term period and also acts as a restrain in financial performance, since it does not contribute to Return on Equity (ROE). Although, it ought to be critical for a firm to sustain their short-term investment as it will ensure the ability of a firm in longer period. The essential part in management of working capital lies in maintaining its liquidity in day-to-day operation to ensure smooth running of the business and meets its obligations. Nevertheless, this is not an effortless task because managers must ensure that the firm is running in efficient and profitable manner and also there are high possibilities of mismatch of current asset and current liability during this process. If this happens and firm's manager failed to manage it properly then it will affect firm's growth and profitability which will further escort to financial distress and finally firms can go bankrupt.

Review of Literature

Soenen (1993) investigated the relationship between the net trade cycle and return on investment in U.S firms. The study also checked inverse relationship between net trade cycle and return on assets was found different across industries depending on the type of industry. **Deloof (2003)** his study the opinion that most firms had a large amount of cash invested in working capital and it is expected that the way in which working capital is administered will have a significant impact on profitability of those firms. The study suggested that managers could create value for their shareholders by reducing the number of days' accounts receivable and

inventories 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. **EljellyGrablowsky (2004)** elucidate, found that the cash conversion cycle was of more importance as a measure of liquidity than the current ratio that affects profitability. **Raheman and Nasr (2007)** studied to determine the effect of working capital management on the net operating profitability and liquidity of selected a sample of 94 Pakistani firms listed on Karachi Stock Exchange for a period of 6 years. They found that there is a strong negative relationship between variables of working capital management and profitability of the firms. Their study also demonstrates a considerable negative relationship between liquidity and profitability, and that a positive relationship exists between size of the firm and its profitability. **ArindhamGhosh (2007)** in his article attempted to study the impact of working capital ratios on profitability viewed both positive and negative impacts. The study of the relationship between the profitability and working capital ratio confirm with accepted rule that larger the turnover, more the profitability of the company.**AzhagaiahRamachandran and MuralidharanJanakiraman (2009)** analyzing the relationship between Working Capital Management Efficiency and EBIT of the Paper Industry in India during 1997-1998 to 2005-2006. The study revealed that the Paper Industry had managed the working capital was satisfactory. The Paper Industry in India performs remarkably well during the period, however, less profitable firms wait longer to pay their bills, and pursue a decrease in cash conversion cycle.

TalatAfza and MianSajidNazir (2011) conducted a careful investigation since the working capital management played an important role for the firm's profitability and risk as well as its value. It required continuous management to maintain proper level in various components of working capital i.e. cash, receivables, inventory and payables etc. The present study was an attempt to

evaluate the efficiency of the working capital management of cement sector of Pakistan for the period 1988-2008. **Qazi et.al (2011)** also explored the impact of working capital on firms profitability in Pakistan using 20 companies in the automobile, oil and gas sectors, from 2004 – 2009. Hence, only NWC was positive and significant; NDAR and ITID were positive but insignificant; all other variables were negative and insignificant. "These results, therefore, showed positive movement of working capital on the profitability of firms".**Enqvist, Graham, Nikkinen (2012)**worked on the sample of Finland firms and studied the relationship of working capital management and profitability on different business cycles and concluded that there was a significant negative relationship between cash conversion cycle and profitability of firms. The results suggested that efficient management of inventory and accounts receivable days significantly affects the corporate profitability of the firms. **Khan et.al (2012)**analysed the effect of working capital management on firms' profitability in Pakistan between the period of 2004 and 2009 using textile, chemical, engineering and sugar & allied sectors i.e. the annual cross sectional data for those years were used. However, if the sectors should manage their working capital in a more efficient manner, their profitability would be strengthened. Hence, there was a significant, positive relationship between working capital and firms' profitability.**Bagchi and Khamrui (2012),** his study was to investigate the relationship between working capital management and firm profitability and to identify the variables that most affect profitability. As the CCC increases, profitability of the firm decreases, and managers can create a positive value for the shareholders by reducing the CCC to a possible minimum level. There is also a stumpy negative relationship between debt used by the firm and its profitability.**Ching*et al.*(2011)** conducted a study to find out the relationship between working capital management and profitability in Brazilian-listed companies. The independent variables used are cash conversion efficiency, debt ratio, days of working capital, days receivable and days of

inventory. Multiple linear regression used in their study identified that, there exists negative relationship between CCC (equal to days of working capital), debt ratio and profitability. **Muhammad FahadIftikhar (2013)** his study was conducted to determine the determinants of working capital management efficiency of automotive and engineering firms listed in Karachi Stock Exchange of Pakistan. This study concludes that an efficient factor for efficient cash conversion cycle and working capital management efficiency.

Statement of Problem

Various surveys have pointed out that manager's use up considerable time on day-to-day problems that involve working capital decisions. One major reason for this is that current assets are short-lived investments that are continually being converted into other asset types. As far as current liabilities are concerned, the firm is accountable for paying these obligations on a timely basis. Liquidity for the ongoing firm is not reliant on the liquidation value of its assets, but rather on the operating cash flows generated by those assets. Thus, when taken together, decisions on the level of different working capital components become frequent, repetitive, and time consuming. According to Joshi, working capital management is a very sensitive area in the field of financial management and it involves the decision of the amount and composition of current assets and the financing of these assets. The working capital management of a firm partly affects its profitability.

Firms have to maintain an optimal level of working capital that maximizes its value. Huge inventory base and a liberal trade credit policy may lead to lofty sales, whereas larger inventory reduces the risk of a stock-out. On the other hand, trade credit may stimulate sales because it allows customers to assess product quality before paying. One of the well-accepted measures of working capital is the

Cash Conversion Cycle (CCC), i.e., the time lag between the expenditure for the purchases of raw materials and the collection of sales of finished goods. The longer this time lag, the larger the investment in working capital. A longer CCC might increase profitability because it leads to higher sales. However, corporate profitability might also decrease with the CCC, if the costs of higher investment in working capital rise faster than the benefits of holding more inventories and/or granting more trade credit to customers. This discussion on the importance of working capital management, its various components and their impact on profitability leads us to the problem statement which we will be analyzing in this study. Moreover, this study validates some of the findings of previous authors by way of examining the relationship between working capital management and profitability of the sample Paper industries in India.

Objectives of the Study

1. To assess the impact on working capital on profitability of selected paper companies in India.
2. To identify the relationship between cash conversion cycle and profitability of selected paper companies in India.
3. To assess the relationship of size of the firm and it's influencing the profitability of selected paper companies in India.

Methodology

In the present study, the data used for secondary in nature and the required data were collected from the compilation made by the Centre for Monitoring Indian Economy (CMIE) for the period 2001 to 2011. Prowess database of CMIE is the most reliable and empowered corporate database. The annual published

financial reports of the companies have been used for random checking of the data.

Sample Design

The selection of Indian Paper Industry in total of 60 companies has been listed in Capita Line Database and the nature of industries has been considered for Paper and Pulp Manufacturing and production. Final sample constitutes 11 companies are included for the study. The selection of these companies based total assets value as on balance sheet of 2011and the requirement of data availability, different geographical regions are covered and continuous period of operations. Based on Total assets value, the selected sample companies have been classified into large scale and medium scale industries. The total assets of the company in last year balance sheet value is more than Rs.1000 crores considered as large scale companies whereas the value of total assets between Rs. 300 crores and Rs.1000 crores as considered Medium Scale companies. The large scale companies are Ballarpur Industries Limited (BIL), Tamil Nadu News Print and Papers Limited (TNPL), West Coast Paper Mills Limited (WCPML), JK Paper Limited (JKPL)and Andhra Pradesh Paper Mills Limited (APPML). The medium scale companies included as Emami Paper Mills Limited (EPML), Rama Newsprint and Paper Limited (RNPL), Mysore Paper Mills Limited (MPML), NR Agarwal Industries Limited(NRAIL), Pudamjee Pulp and Paper Mills Limited (PPPML) and Hindustan Newsprint Limited (HNPL).

Tools for Analysis

For the purpose of analyzing the operating and financial performance of selected paper companies in India, the study makes use of various accounting ratios extensively. Ratio analysis helps in comparison of performance of different companies, other than that of various statistical techniques have been applied. The

techniques such as Mean, Standard deviation, Co-efficient of variation, Growth rates and Indices are used. Based on the objectives of the study, the collected data is consolidated, tabulated and analyzed with the help of financial ratios and statistical techniques.

Limitations of the study

1. The study is limited to twelve years from 2000 to 2011 only and is purely related to the paper industries in India.
2. Analysis of the study is based on financial data collected from CMIE Prowess Package. The quality of the study depends purely upon the accuracy, reliability and quality of secondary data.
3. The firms chosen are restricted to 11 companies due to limitations such as lack of continuous listing, non-availability of data pertaining to those firms in the data source.

Variables selected using the Model

Based on the previous studies selection of variables is influenced by the previous studies on working capital management as conducted by various studies. All the variables stated below have been used to test the hypotheses of our study. The dependent variable is defined as the profitability of the sample firms. The independent variable is interpreted as the commonly used financial ratios. The ratios used are chosen from those utilized by Ching et al. and Padachi. An itemized listing of the variables is.

Independent Variables	**Dependent Variables**
Inventory Collection Period (ICP)	1. Return on Assets 2. Return on Equity
Average Receivable Period (ARP)	
Average Payable Period (APP)	
Cash Conversion Cycle (CCC)	

Log on Sales (LS)	

Data Analysis and Interpretation

Correlation Analysis

Correlation coefficient is computed from selected working capital management and profitability ratios derived from financial statements of the selected quoted companies. The coefficient gives an insight into the nature and extent of the relationship. Pearson's Correlation analysis has been used to see the relationship between working capital management and profitability. If efficient working capital management increases profitability, one should expect a negative relationship between the measures of working capital management and profitability variable and vice versa. However, care must be exercised while interpreting the Pearson correlation coefficients because they cannot provide a reliable indicator of association in a manner which controls for additional explanatory variables. Examining simple bivariate correlation in a conventional matrix does not take account of each variable's correlation with all other explanatory variables. Our main analysis will be derived from appropriate multivariate model, estimated using pooled OLS.

Large Scale Paper Companies

The correlation analysis of large scale paper companies are shown in Table 1.1. It depicts that inventory collection period have a negative relationship with profitability (both ROE and ROA) which insignificant relationship between these two variables. Average receivable period hasnegative relationship with profitability which is statistically insignificant. The average payable period is negative relationship with profitability which is statistically insignificant. The cash conversion cycle has positive relationship with profitability which is insignificant. Finally the log on sales has negative relationship with profitability which is

statistically insignificant. As profitability has an inverse relationship with the inventory collection period, Average receivable period average payable period, and log on sales on the same way cash conversion cycle has positive relationship with profitability of selected large scale paper companies.

Medium Scale Companies

It depict that inventory collection period have a positive relationship with profitability (both ROE and ROA) which insignificant relationship between these two variables. Average receivable period has negative relationship with profitability which is statistically insignificant. The average payable period is positive relationship with profitability which is statistically insignificant. The cash conversion cycle has positive relationship with profitability which is insignificant. Finally the log on sales has negative relationship with profitability which is statistically insignificant. As profitability has an inverse relationship with the, Average receivable period and log on sales on the same way inventory collection period, average payable period and cash conversion cycle has positive relationship with profitability of selected large scale paper companies.

Table 1.1
Pearson Correlation Coefficients of selected Paper Companies

Sl.No	Companies	Variables	Type	ICP	ARP	APP	CCC	LS
1	Large Scale	ROA	Correlation	-0.401	-0.395	-0.439	0.047	-.670*
			sig. 2 tailed	0.197	0.204	0.153	0.884	0.017
		ROE	Correlation	-0.489	-0.53	-0.553	0.047	-0.438
			sig. 2 tailed	0.107	0.076	0.062	0.885	0.155
2	Medium Scale	ROA	Correlation	0.328	-.588*	0.565	0.282	-0.05
			sig. 2 tailed	0.298	0.044	0.056	0.374	0.877
		ROE	Correlation	0.42	-0.201	0.516	0.01	-0.154
			sig. 2 tailed	0.174	0.531	0.086	0.976	0.633

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Regression Analysis

This study has used pooled ordinary least square (OLS) regression type of panel data analysis. The pooled OLS regression, also called the constant coefficients model is one where both intercepts and slopes are constant, where the cross-section firm data and time series data are pooled together in a single column assuming that there is no significant cross-section or temporal effects. In order to test this study proposition, the general form of the researcher model is as follows:

1. $ROA = a + \beta_1 ICP + \beta_2 ARP + \beta_3 APP + \beta_4 CCC + \beta_5 LS + e$
2. $ROE = a + \beta_1 ICP + \beta_2 ARP + \beta_3 APP + \beta_4 CCC + \beta_5 LS + e$

Regression Coefficient Relationship

Large Scale Paper Companies

An attempt has been made to examine the composite effect of working capital management on corporate profitability through multivariate regression analysis, and the regression coefficients have been tested with the help of the most popular 't' test. The determinants of corporate profitability were estimated using pooled OLS.The strength of the relationship between the dependent variables ROE and ROA and all the independent variables taken together of large scale paper companies and the impact of these independent variables on the profitability are given in Table 1.2. In model 1, It was observed that an increase in inventory conversion period by one unit; the ROA decreased by 0.056 units that were statistically insignificant and when creditors payable period increased by one unit, the ROA increased by 11.509 units which was significant. However, when receivable collection period increased by one unit; the ROA also decreased by -0.037 units which was insignificant. The Cash Conversion Cycle was increased by one unit, the ROA increased by 0.012 units which was statistically insignificant and the Log on sales was increased by one unit, the ROA decreased by -6.152 units which was statistically insignificant.In model 2, It was observed that an

increase in inventory conversion period by one unit; the ROE decreased by -009 units that were statistically insignificant and when creditors payable period increased by one unit, the ROE decreased by -29.142 units which was significant. However, when receivable collection period increased by one unit; the ROE also decreased by -0.169 units which was insignificant. The Cash Conversion Cycle was increased by one unit, the ROE increased by 0.063 units which was statistically insignificant and the Log on sales was increased by one unit, the ROE decreased by -3.115 units which was statistically insignificant.

Medium Scale Companies

The strength of the relationship between the dependent variables ROE and ROA and all the independent variables taken together of Medium scale paper companies and the impact of these independent variables on the profitability are given in Table 1.2. In model 1, It was observed that an increase in inventory conversion period by one unit; the ROA increased by 0.091 units that were statistically insignificant and when creditors payable period increased by one unit,

Table 1.2
Regression Co-efficient of Selected Paper Companies

		Large Scale Companies			Medium Scale Companies		
Model	**Independent Variable**	**Coefficients B**	**t**	**Sig.**	**Coefficients B**	**t**	**Sig.**
Model I - Dependent Variable: Return on Total Assets (ROA)	(Constant)	30.514	2.954	0.021	30.514	2.954	0.021
	Inventory Conversion Period	-0.056	-0.496	0.635	-0.056	-0.496	0.635
	Creditors Payable Period	11.509	0.092	0.001	11.509	0.092	0.001
	Receivables Collection Period	-0.037	-0.335	0.748	-0.037	-0.335	0.748
	Cash Conversion Cycle	0.012	0.224	0.829	0.012	0.224	0.829
	Log on Sales	-6.152	-2.174	0.036	-6.152	-2.174	0.036
Variable: Return	(Constant)	28.331	2.15	0.069	28.331	2.15	0.069

	Inventory Conversion Period	-0.009	-0.065	0.95	-0.009	-0.065	0.95
	Creditors Payable Period	-29.142	-0.218	0.001	-29.142	-0.218	0.004
	Receivables Collection Period	-0.169	-1.197	0.27	-0.169	-1.197	0.27
	Cash Conversion Cycle	0.063	0.937	0.38	0.063	0.937	0.38
	Log on Sales	-3.115	-0.863	0.417	-3.115	-0.863	0.417

Note: P value <0.05 - t- Value is Significant at 5% Level.

the ROA increased by 7.740 units which was insignificant. However, when receivable collection period increased by one unit; the ROA also decreased by-0.408 units which was insignificant. The Cash Conversion Cycle was increased by one unit, the ROA increased by 0.128 units which was statistically insignificant and the Log on sales was increased by one unit, the ROA increased by 1.357 units which was statistically insignificant.In model 2, It was observed that an increase in inventory conversion period by one unit; the ROE increased by 1.222 units that were statistically insignificant and when creditors payable period increased by one unit, the ROE increased by 11.682 units which was insignificant. However, when receivable collection period increased by one unit; the ROE also increased by 0.357 units which was insignificant. The Cash Conversion Cycle was increased by one unit, the ROE increased by 3.900 units which was statistically insignificant and the Log on sales was increased by one unit, the ROE increased by 127.348 units which was statistically insignificant.

Regression Analysis – Hypothesis Testing

Large Scale Companies

The multiple correlation coefficients between the dependent variable ROE and the independent variables taken together were 0.742. It indicates that the

profitability was highly responded by its capital structure indicators. It is also evident that from the table of R square that 55.1 per cent variation in ROE was accounted by the joint variation of independent variables. The Durbin-Watson value of 2.438 shows that there is presence of positive serial correlation among the variables.The multiple correlation coefficients between the dependent variable ROA and the independent variables taken together were 0.696. It indicates that the profitability was highly responded by its capital structure indicators. It is also evident that from the table of R square that 48.4 per cent variation in ROA was accounted by the joint variation of independent variables. The Durbin-Watson value of 2.217 shows that there is presence of positive serial correlation among the variables.

An examination of the model summary in conjunction with ANOVA (F-value) indicates that the model explains the most possible combination of predictor variables that could contribute to the relationship with the dependent variables. For model 1, F-value is 2.147 and respective p value is 0.178 which is statistically insignificant at 5 per cent level of significance. In model 2, F- value is 1.643 and respective p value is 0.265 which is statistically insignificant at 5 per cent level of significance.

Table 1.3 Statistics Summary

Sl.No	Type	Dependent Variable	Multiple R	R Square	Adjusted R Square	Std. Error Est.	Durbin-Watson	F-Value	P-Value
1	Large Scale	ROA	0.742	0.551	0.294	1.057	2.438	2.147	0.178
		ROE	0.696	0.484	0.19	1.348	2.217	1.643	0.265
2	Medium Scale	ROA	0.744	0.554	0.299	2.884	1.696	2.173	0.174
		ROE	0.572	0.327	-0.058	50.52	2.157	0.85	0.537

Note: P value <0.05 - F- Value is Significant at 5% Level.

Medium Scale Companies

The multiple correlation coefficients between the dependent variable ROE and the independent variables taken together were 0.744. It indicates that the profitability was highly responded by its capital structure indicators. It is also evident that from the table of R square that 55.4 per cent variation in ROE was accounted by the joint variation of independent variables. The Durbin-Watson value of 1.696 shows that there is presence of positive serial correlation among the variables.The multiple correlation coefficients between the dependent variable ROA and the independent variables taken together were 0.572. It indicates that the profitability was highly responded by its capital structure indicators. It is also evident that from the table of R square that 32.7 per cent variation in ROA was accounted by the joint variation of independent variables. The Durbin-Watson value of 2.157 shows that there is presence of positive serial correlation among the variables.In the statistics model summary in conjunction with ANOVA (F-value) indicates that the model explains the most possible combination of predictor variables that could contribute to the relationship with the dependent variables. For model 1, F-value is 2.171 and respective p value is 0.174 which is statistically insignificant at 5 per cent level of significance. In model 2, F- value is 0.850 and respective p value is 0.537 which is statistically insignificant at 5 per cent level of significance.

Conclusion

The analysis carried out with the key objective of analyzing the financial variables for enhancing the development of the growing paper industry in India. The Cash conversion cycle has strongest determinants of profitability for large and medium scale paper companies. Working capital management is important part in firm financial management decision. The optimal of working capital management is could be achieve by firm that manage the tradeoff between profitability and liquidity. Results of this study found that correlation and regression results are

significantly positive associated to the firm profitability. The Indian paper industry with the support from the Government has, therefore, a good future ahead and efforts are required by the industry to improve their competitive strengths with the support of government. Adoption of modern technology, innovation and R & D support to the industry will play a major role to address the various challenges faced by the industry.

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