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Working Capital Management and Profitability: A Study on Cement Industry in Bangladesh

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Abstract
Working capital management is the key to success for the manufacturing firm. As a manufacturing firm the profitability of cement industry mainly depends on the efficient management of working capital e.g. managing the current assets and current liabilities satisfactorily. This study is decorated to outline the profitability and working capital position of selected cement industries, correlation between them and whether the profitability is affected by working capital management. Ratio Analysis have been used to show Profitability position & Working Capital position, Correlation Matrix have been used to show correlation between them and Regression Analysis have been used to show the impact of Working Capital management on Profitability respectively. The study is mainly based on secondary data. The study reveals that Profitability position & Working Capital position over the study period is not satisfactory. From the study it is also found that there is significantly positive correlation between profitability and working capital components as well as impact of day sales outstanding (DSO) on profitability ratios is negatively significant. The study recommended that sample cement industries should reduce their day sales outstanding (DSO) for improving their profitability position.
Keywords: Profitability, Working capital management, Inventory conversion period, Day sales outstanding, Payable deferred period, cash conversion period, cement industry.

Introduction

In any organization a financial manager has to take three key decisions such as financing decision, investment decision and dividend decision. Among these the most important decision is financing decision. Here financing and investment decision includes both long-term and short-term decision. Basically short-term investment and financing is the working capital of an organization. In a narrow sense working capital is the difference between current assets and current liabilities of a firm. But in broad sense working capital is the firm's investment in the current assets such as cash, marketable securities, account receivable and inventory. That is working capital indicates the capital required to satisfy the day to day operation of an organization. Working capital is very from firm to firm and industry to industry. For better understanding in this study we conceptually isolate working capital between operational and financial. The operational working capital includes accounts receivable, inventories and accounts payable that affects the firm's operation. Firm's financial working capital includes cash, marketable securities, prepaid and all other current liabilities. This study basically focuses on operational working capital of the firm's. To effectively manage working capital the company needs to direct attention to four different short term assets: account receivable, inventories, cash and short-term securities (Brealey; Myres&Allen, 2006 pp 813). Working capital is most essential for manufacturing firms because they require to maintaining a balance between liquidity and profitability while conducting its day to day operations. That is working capital is the most crucial factor for maintaining liquidity, survival, solvency and profitability of business. The impact of working capital management on profitability is highly important, because, firms required a balance between risk and efficiency to achieve an optimal level of working capital. Optimization of working capital balance means minimizing the working capital requirement and realizing maximum possible revenues (Ganesan, 2007). There is a strong relationship between the firm's profitability and its working capital efficiency (Shin, 1998).

Profitability means generating sufficient amount of cash inflow to satisfy the entire stakeholder (employee, employer, worker etc) of an organization. When revenue of an organization is greater than cost then profit is generated. Profit is the absolute measure of the firm's performance where profitability is the relative

measure of the firm's performance. In this study we use profitability for measuring performance of the firm's. Gross profit margin, net profit margin, return on assets, return on equity etc are the measure of profitability of an organization. With the rapid growth of trade, commerce and industries, the number of publicly traded companies is considerably increasing in Bangladesh. For economic development these companies contribute significantly. Cement is the important manufacturing sector in this country. Its growth reflects the financial health of the country. The contribution of cement companies to Bangladesh economy is encouraging. The investment in this sector is increasing which indicates the potentiality of this sector. There are seven (7) cement industries which are enlisted in stock exchange of Bangladesh. Now a day's various evidences show that the performance of this sector is not satisfactory as compared to the performance of other manufacturing sectors. An attempt has been made to examine the reasons behind poor performance of cements sector and to explore whether the poor performance is the result of poor Working Capital Management.

The researcher has used correlation matrix and regression analysis to examine the relationship between profitability and working capital management. Some statistical tools like mean, standard deviation and co-efficient of variance were used to evaluate the performance.

Objectives of the study

The main objective of the present study is to examine and evaluate the correlation between working Capital Management and Profitability as well as to determine the impact of working capital components on profitability in selected cement industry over a period of three years from 2010 to 2012. In order to obtain main objective following are the specific objectives of the study:

1. To examine the profitability position of the selected cements industries.
2. To examine the working capital management position of selected Cements industries.
3. To assess the relationship between working capital management and profitability.
4. To assess the impact of working capital management on profitability.

Literature review

Profound research works have been conducted on working capital management in both private and public sectors industries in Bangladesh and abroad. Many researchers have recognized the effect of optimal management of working capital on corporate performance. The ensuing lines enclose some of the research findings of the previously done work on this and the related topics conducted in Bangladesh as well as other countries:

Cote and Latham **(**1999) study on the impact of working capital management on profitability. They discovered that management of inventory, receivables and payables had a direct influence on a company's Cash Flows which could ultimately affect its profitability. To measure the relationship between working capital management and corporate profitability, Deloof [5, p. 573] used a sample of 1,009large Belgian non-financial firms for a period of 1992-1996. By using correlation and regression tests, he 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. Lazaridis and Tryfonidis [1, p. 26] performed 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, accounts payables, and inventory) at an optimal level. Raheman and Nasr [2, p. 279] studied 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. They selected a sample of 94 Pakistani firms listed on Karachi Stock Exchange for a period of six years from 1999 - 2004 and found a strong negative relationship between variables of working capital management and profitability of the firm. They found that as the cash conversion cycle increases, it leads to decreasing profitability of the firm and managers can create a positive value for the shareholders by reducing the cash conversion cycle to a possible minimum level. Mathuva [11, p. 1] 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. Gill et al. (2010) studied on the Relationship between Working Capital Management and Profitability: Evidence from the United States. They found i) a negative relationship

between profitability (measured through gross operating profit) and average days of accounts receivable and ii) a positive relationship between cash conversion cycle and profitability. Therefore, it seems that operational profitability dictates how managers act in terms of managing accounts receivables. Thus, the findings of this paper suggest that managers can create value for their shareholders by reducing the number of days for accounts receivables. Rahman (2011) conducted a research work on Working Capital Management and Profitability: A Study on Textiles Industry. In his study he found that correlation exists between Working Capital Management and Profitability. The study also brings to fore that Working Capital Management has a positive impact on Profitability. Quayyum (2011**)** study on Effects of Working Capital Management and Liquidity: Evidence from the Cement Industry of Bangladesh. In her study she discovered that significant level of relationship between the profitability indices and various liquidity indices as well as working capital components. She also it also recommended that the firms should forecast their sales and hold cash enough as according to their projected sales level, so that they be able to take advantage of the bargaining position while making purchases and thus reduce cost. Nzioki et.al (2013**)** study on Management of working capital and its effect on profitability of manufacturing companies listed on Nairobi securities exchange (NSE), Kenya. In their study they revealed that gross operating profit was positively correlated with average collection period and average payment period but negatively correlated with cash conversion cycle. The relationship between inventory turnover in days and gross operating profit was insignificant. From this study, they recommended that managers focus on reducing cash conversion cycles and try to collect receivables as soon as possible. Islam & Rahman (1994) conducted a study on working capital trends of enterprises in Bangladesh. They find that optimum working capital enables a business to have its credit standing and permits the debts payments on maturity date and helps to keep itself fairly in liquid position which enables the business to attract borrowing from the banks. Nejad et.al (2013) preformed a research worked on the Effect of Working Capital Management on the Profitability of Listed Companies in Tehran Stock Exchange. The research results of this study indicate that, there is a significant inverse relationship between cash conversion cycle and its components, including the collection period, inventory turnover period and accounts payable turnover period, and profitability of the firms. Here it is also recommended that corporate managers can increase the profitability of their company desirably by reducing the collection period and inventory turnover period. In the article "Liquidity-Profitability Tradeoff: An Empirical Investigation in an Emerging Market**,"** Eljelly (2004) examined the relation between profitability and liquidity by using Correlation and regression analyses and found that the cash conversion cycle was of more importance as a measure of liquidity than the current ratio that affects profitability. A study with a view to analyzing the relationship between working capital management efficiency and corporate profitability in the Indian Cement Industry was conducted by Dr Santanu Kr. Ghosh and Santi Gopal Maji (2003). His results depicted a significant association between effective and efficient use of current assets and profitability. However, the study also revealed that the performance of the industry was not remarkable during that period. Chakraborty (2008) his article "Working Capital and Profitability: An Empirical Analysis of Their Relationship with Reference to Selected Companies in the Indian Pharmaceutical Industry‖. He observed that there were two different viewpoints: One was that there might exist a negative relationship between working capital and profitability and that the former does not play any role in improving the later. The second view was that Working Capital Management had a notable impact on Profitability and that without investment in working capital, the desired level of Sales could not be achieved. In a survey conducted by Ancuist et al (2012) the effect of working capital management on profitability during 1990 to 2008 in Finland stock Exchange was examined. The results showed that there is an inverse relationship between the cycles of cash, receivable accounts Collection period and inventory turnover period, and profitability; and there is a direct relationship between the cycles of cash, receivable accounts collection period and inventory turnover period, and accounts payable turnover period.

Methodology of the study

The population of study comprised all the cement industry in Bangladesh. The researchers select only listed cement industries as a sample for present study. There are seven listed cement industries in Bangladesh, due to the availability of information researchers only considered six listed cement industries as sample for the study. The study covered a period of three years from 2010 to 2012. The main objective of the study is to examine and evaluate the correlation between working capital management and profitability as well as to find out the impact of working capital management on profitability of selected cement industry in Bangladesh. So researchers use return on asset (ROA), net profit margin (NPM) as dependent variables and inventory conversion period, receivable collection period, payable deferred period, cash conversion cycle etc as independent variables. For this purpose secondary data is used. Secondary data has collected from periodical reports and other published documents of the sample cement industries. The researchers consult published articles, journals, books, research works etc. for the theoretical development of the study. The collected data were analyzed and interpreted with the help of different financial ratios, statistical tools like Mean, Standard Deviation (S.D.), Correlation Coefficient and Regression analysis as well as updated SPSS(20) .

Overview on Sample cements industries

Manufacturing firms especially have significant role in economic development of every developed and developing country. Now days cement industries contribute significantly for economic development of Bangladesh. Cement industry have a long journey in Bangladesh. In Bangladesh there are more than twenty three (23) cement industries whose are established by both local and foreign entrepreneur. Most of the cement company is able to export cement in various countries of the world. It is one of the growing manufacturing sectors in Bangladesh. Though there is a long history of cement industries in Bangladesh, only seven (7) cement industries are listed in the stock market in Bangladesh Whose are the sample of current study. Below table shows sample cement industries Incorporation Year and stock market enlistment Year:

Name of sample cement industries	Incorporation Year	Enlistment Year
Aramit cement Ltd.	1995	1998
Confidence cement Ltd.	1994	1995
Heidelberg cement Ltd.	1998(start operation in Bangladesh)	1989(listed in Dhaka stock Exchange)
Meghan Cement Ltd.	1992	1995
M.I. Cement Ltd.	1994	2011
Premier Cement Ltd.	2001	2013

Discussions and Findings

There are four parts in this section. The first part shows the profitability position of the sample cement industries. In the second part the position of working capital is analyzed. The third part focuses on correlation between profitability and working capital management and the last part showed the impact of working capital management on profitability.

Profitability position of selected cement industries

Profitability refers to the ability of a firm or an industry to generate sufficient amount of return after satisfying all other costs. In this study the researcher use Gross Profit Margin, Operating Profit Ratio, Net Profit Margin, Return on Capital Employed and Return on Assets as a determinant of profitability. The table-1 outlines various profitability ratios of the selected cement industries for the period under study.

Gross Profit Margin: When cost of goods sold deduct from total sales revenue then gross profit obtain. If gross profit divided by sale then we get Gross profit margin. Gross profit margin usually reflects the effectiveness of pricing policy and of production efficiency. From table-1, it is seen that the average gross profit ratios range from highest 19.53% in HCBL to lowest 9.52% in MCL. In present study it is observed that the industry average gross profit ratio is 16.50% and the average gross profit ratio of all but two samples (CCL & MCL) is below industry average. Except two sample cement industries Variation in Co-efficient of variance of gross profit over the years is negligible, which indicates the stability of gross profit margin of this sector.

Operating Profit Ratio: Operating profit ratio shows the overall earning efficiency of an organization. From this ratio one can get clear idea about the overall earning efficiency of a firm. The larger the ratio, the better is the overall efficiency of the enterprise. From the table-1, it is also observed that the average operating profit ratio of the sample cement industries ranges from the highest 15.03% in PCL to the lowest 5.98% in MCL. The industry average of operating profit ratio is 12.35% and most of the cement industries (4 out of 6) able to attain the average but Operating profit ratio of two cement industries (MCL& CCL) is less than industry average. Variation in Co-efficient of variance among sample industries is insignificant that represents expected stable position.

Net Profit Margin: This ratio represents overall profitability of an industry. So this ratio is very crucial to shareholders and investors. It also indicates management efficiency in manufacturing, administrating and selling of the products. The table-01 shows that the net profit ratios range from highest 10.89% in HCBL to lowest 3.02% in MCL. From the table-1, we see that industry average of net profit margin is 7.85% and except one (MCL) remaining are close to industry average. Most of the sample industry near to industry average which indicates the efficiency of the samples is desired level. The co-efficient of variation of net profit ratios of the samples reveals that the variation of net profit over the years is negligible which speaks about the consistency of net profit earning of this sector.

Table-01: profitability Ratios of selected cements Industries

Ratios	HCBL	CCL	MICL	MCL	PCL	ACL	Years
Gross Profit Margin	23.71	13.78	22.43	9.11	21.67	18.77	**2010**
	15.75	14.03	19.10	9.51	18.54	19.22	**2011**
	19.13	17.17	13.19	9.94	12.39	19.47	**2012**
	19.53	15	18.24	9.52	17.53	19.15	**Mean**
	16.50	16.50	16.50	16.50	16.50	16.50	**Industry Average**
	3.26	1.54	3.82	0.33	3.85	0.28	**S.D.**
	0.17	0.10	0.21	0.04	0.22	0.02	**C.V.**
Net Profit Margin	12	8.25	10.62	3.57	9.51	9.32	**2010**
	8.80	8.85	10.84	3.11	9.52	5.19	**2011**
	11.86	8.57	10	2.38	4.06	4.79	**2012**
	10.89	8.56	10.49	3.02	7.7	6.43	**Mean**
	7.85	7.85	7.85	7.85	7.85	7.85	**Industry Average**
	1.48	0.25	0.36	0.49	2.57	2.05	**S.D.**
	0.14	0.03	0.03	0.16	0.33	0.32	**C.V.**
Operating Profit Ratio	17.93	9.52	18.26	6.36	18.84	13.33	**2010**
	10.18	9.82	15.07	5.65	14.99	14.14	**2011**
	14.3	11.73	10.16	5.94	11.26	14.80	**2012**
	14.13	10.36	14.5	5.98	15.03	14.09	**Mean**
	12.35	12.35	12.35	12.35	12.35	12.35	**Industry Average**
	3.17	0.98	3.33	0.29	3.09	0.60	**S.D.**
	0.22	0.09	0.23	0.05	0.21	0.04	**C.V.**
Return on Capital Employed	20	11.33	24.86	16.41	18.07	15.95	**2010**
	13	6.77	8.67	15	15.94	27.96	**2011**
	18	9.50	10.47	12.95	7.72	22.84	**2012**
	17	9.2	14.67	14.78	13.91	22.25	**Mean**
	15.30	15.30	15.30	15.30	15.30	15.30	**Industry Average**
	2.94	1.87	7.24	1.42	4.46	4.92	**S.D.**
	0.17	0.21	0.49	0.10	0.32	0.22	**C.V.**
Return on Assets	14	7.45	14.55	3.05	9.43	7.87	**2010**
	9	5.31	6.22	2.47	7.91	3.98	**2011**
	14	6.87	5.70	2.42	2.64	3.42	**2012**
	12.33	6.54	8.82	2.65	6.66	5.09	Mean
	7.00	7.00	7.00	7.00	7.00	7.00	Industry Average
	2.35	0.90	4.05	0.29	2.91	1.98	S.D.
	0.19	0.14	0.46	0.11	0.44	0.39	C.V.

Return on Capital Employed: This ratio indicates how industry efficiently utilized their capital for producing benefit. The table-01 shows that the average returns on capital employed ranges from 9.2% in CCL to 22.25% in ACL and the industry average ratio is 15.30% Except two (HCBL & ACL) all are below industry average. It also appears from the table-1, that variation in co-efficient of variance among sample industries is insignificant which indicates management efficiency in using the long term fund of owners and creditors.

Return on Total Assets: This ratio indicates whether industries are being utilized their assets efficiently or not. Table-1shows that the average return on total assets ranges from 2.65% in MCL to 12.33% in HCBL and the industry average return on total assets is 7%. It is seen from the table that the average returns on total assets of two sample cement industries are more industry average but remaining four sample industries less than industry average which cannot be considered as satisfactory and desirable. The calculated ratios show a decreasing trend for most of the cement industries during the period of study and the lower ratios indicate the assets were not being utilized efficiently during the period. From the view point of co-efficient of variance over the study period, it is found that the variation is almost stable.

From the profitability ratios it is observed that the performance of the sample cement industries is not reached satisfactory level.

Working Capital Management position of the selected cement industries:

The management of short term assets and liabilities refers to management of Working Capital (Khan, 2002). For manufacturing firm working capital management is crucial because if firms do not manage their working capital efficiently they become bankrupt. For assessing Working Capital position of sample cement industries the researcher use current ratio, Quick Ratio, Net Working Capital Turnover, Inventory Turnover, Debtors Turnover, Current Assets Turnover and Cash conversion cycle. Table-02 shows the working capital position of the selected cement industries:

Current Ratio: This ratio indicates firm's short term solvency. That is current ratio refers to a firm's ability to cover their short-term liabilities by short-term assets. Some authors consider 2:1 as standard norm for current ratio. Table -2 shows that average current ratio range from 0.89 (PCL) to 3.90(MICL) and industry average is 1.85 which indicates that the industry is able to meet its current obligations from its current assets. From table-2, it is also found that except one (PCL) remaining cement industries is close to standard norm for current ratio which means they able to meet their current obligation by current assets over study period. From the coefficient of variation it is observed that the variation of current ratio over time is negligible.

Quick or Acid Test Ratio: This ratio determines the firm's ability to meet short term obligations from its most liquid assets. Table-02 shows that the average liquid ratio ranges from 0.70 in CCL and in MICL to 3.34 and industry average is 1.50. From the table-2, it is also observed that average quick ratio of CCL (0.70), MCL (0.85), PCL (0.64) & ACL (1.15) are less than the industry average and HCBL (2.35) & MICL (3.34) are more than industry average. It indicates that except two remaining sample industries are financially weak and have little ability to pay its most immediate liabilities which is the dangerous signal for the industry. In the context of variation of this ratio over the years, it is seen that the variation is almost stable.

Net Working Capital Turnover: It refers how much time firm utilize their net working capital for target level of sale for a particular period. Table -2 shows that average net working capital ratio range from (1.17) times in PCL to 8.85times in CCL and industry average is 3.47. From the table-2, it is also found that average net working capital turnover of CCL (8.85), MICL 3.49), MCL (7.53) & ACL (5.31) are more than the industry average and HCBL (3.10) & PCL (-1.17) are less than industry average which indicates high level management efficiency of selected cement industries. In context of co-efficient of variance, except PCL (-58.77) variation among other industries is stable which represents good signal for the industry.

Inventory Turnover: Inventory turnover ratio refers to the firm's ability to utilize their inventory optimally for target level of sale within a particular period. Generally a low inventory turnover indicates an excessive investment in inventories and a high ratio often indicates the firm is running short of stock, resulting in poor service to customers. The Higher the inventory turnover ratio the better it is because it shows that the stock is quickly turned over. Table-2 shows that Inventory turnover ratios range from 4.49 times in MCL to 9.50 times in MICL and industry average is 7.42 times. Table-2 also reveals except MCL (4.49) all other sample industries Inventory turnover ratio are close to the industry average that says management efficiency to optimally use their inventory. It is positive signal for the industry that variation in co-efficient of variance among sample industries is insignificant.

Debtors Turnover: Accounts receivable turnover ratio also known as debtors' turnover ratio. This ratio indicates the number of times the debtors are turned within a year. The larger the debtors' turnover ratio the more efficient is the management of debtors. In the same way, low debtors turnover ratio refers inefficient management of debtors. Table-2 represents that average debtors turnover ratios include between 3.80 times in ACL &11.54 times in HBCL and industry average is 7.91 times. From table-2, it is seen that all selected sample are close to industry average without ACL (3.80). In case of co-efficient of variance the variation among sample industry is negligible.

Table: 02 Working Capital Position of Selected cements Industries

Ratios	HCBL	CCL	MICL	MCL	PCL	ACL	Years
Current Ratio	2.38 2.14 2.64	1.36 1.23 1.30	1.71 6.28 3.72	1.20 1.19 1.23	1.03 0.98 0.68	1.41 1.55 1.22	2010 2011 2012
	2.38 1.85 0.21 0.09	1.30 1.85 0.05 0.04	3.90 1.85 1.87 0.48	1.21 1.85 0.02 0.01	0.89 1.85 0.20 0.22	1.39 1.85 0.14 0.10	Mean Industry Average S.D. C.V.
Quick Ratio	2.40 2.21 2.44	0.63 0.86 0.62	1.07 5.50 3.44	0.81 0.86 0.89	0.78 0.62 0.52	1.14 1.28 1.03	2010 2011 2012
	2.35 1.50 0.10 0.04	0.70 1.50 0.11 0.16	3.34 1.50 1.81 0.54	0.85 1.50 0.03 0.04	0.64 1.50 0.11 0.17	1.15 1.50 0.10 0.08	Mean Industry Average S.D. C.V.
Net Working Capital Turnover	3.22 2.98 3.10	6.92 10.37 9.27	8.07 1.06 1.34	7.91 6.97 7.72	84.53 (83.82) (4.23)	5.34 3.83 6.77	2010 2011 2012
	3.1 3.47 0.10 0.03	8.85 3.47 1.44 0.16	3.49 3.47 3.24 0.93	7.53 3.47 0.41 0.05	(1.17) 3.47 68.76 (58.77)	5.31 3.47 1.20 0.23	Mean Industry Average S.D. C.V.
Inventory Turnover	9.04 8.30 9.16	4.15 6.9 9.08	8.87 6.84 12.8	4.07 4.08 5.33	8.76 6.18 6.13	8.17 7.98 7.82	2010 2011 2012
	8.83 7.42 0.38 0.04	6.71 7.42 2.01 0.30	9.50 7.42 2.47 0.26	4.49 7.42 0.59 0.13	7.02 7.42 1.23 0.17	7.99 7.42 0.14 0.02	Mean Industry Average S.D. C.V.
Debtors Turnover	11.87 10.89 11.86	13.24 9.67 7.34	9.89 11.72 7.50	7.12 4.11 6.92	5.40 7.00 6.43	3.93 3.79 3.68	2010 2011 2012
	11.54 7.91 0.46 0.04	10.08 7.91 2.43 0.24	9.70 7.91 1.73 0.18	6.05 7.91 1.37 0.23	6.28 7.91 0.66 0.11	3.80 7.91 0.10 0.03	Mean Industry Average S.D. C.V.
Current Assets Turnover	1.9 1.74 1.93	2.03 1.98 2.12	3.32 0.85 0.98	1.34 1.13 1.47	2.12 1.80 1.95	1.54 1.36 1.25	2010 2011 2012
	1.86 1.71 0.08 0.04	2.04 1.71 0.06 0.03	1.72 1.71 1.13 0.66	1.31 1.71 0.14 0.11	1.96 1.71 0.13 0.07	1.38 1.71 0.12 0.09	Mean Industry Average S.D. C.V.
Cash conversion cycle	27.94 29.72 30.83	93.09 49.80 65.48	23.68 71.07 65.21	92.91 142 86.88	84.01 86.64 80.97	1.97 1.56 (48.13)	2010 2011 2012
	29.49 54.75 1.40 0.05	69.46 54.75 17.89 0.26	53.32 54.75 21.09 0.39	107.26 54.75 24.68 0.23	83.87 54.75 2.32 0.03	(14.87) 54.75 23.52 (1.58)	Mean Industry Average S.D. C.V.

Current Assets Turnover: This ratio also indicates the management efficiency of using industry's current assets. Table-2 shows that average current assets turnover ratios of sample industries range from 1.31times in MCL to 2.04 in CCL and industry average is 1.71 times. It is also observed that the entire sample industries average ratio is close to the industry average which indicates management efficiency in utilizing current assets. In the context of co-efficient of variance, sample industries variation is insignificant.

Cash conversion cycle: Cash conversion cycle measures days industry takes from the purchase of inventory to collecting receivables of the finished product. The lower the cash conversion cycles the better for the industry. Table-2 revels that average cash conversion cycle lies between (14.87) days in ACL to 107.26 days in MCL and industry average is 54.75 days. In case of co-efficient of variance, sample industries variation is not significant.

Correlation Analysis: The relationship between Working Capital Management and Profitability of the selected cement industries can be measured through Pearson's Correlation Coefficient.

Table 3: Pearson's correlation

	Current Ratio	Quick Ratio	Gross Profit Margin	Operating Profit ratio	Net Profit Margin	Return on Assets	Cash conversion Cycle
Current Ratio	1						
Quick Ratio	.984**	1					
Gross profit Margin	.211	.230	1				
Operating profit Ratio	.193	.208	.966**	1			
Net profit Margin	.488*	.489*	.709**	.670**	1		
Return on Assets	.193	.212	.736**	.686**	.845**	1	
Cash conversion Cycle	-.046	-.106	-.607**	-.510*	-.253	-.287	1

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

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

Table-3 shows the Pearson's correlation between working capital management and profitability of sample cement industries over the study period. In the above table current ratio, quick ratio & cash conversion cycle measure the efficiency of working capital management and gross profit margin, operating profit ratio, net profit margin return on assets represent profitability of sample cement industries. Here we see both current ratio & quick ratio are positively correlated with profitability ratios such as Gross profit margin, Operating profit ratio, Net profit margin and return on assets. All though there is relationship between working capital efficiency and the profitability ratios of sample industries, but these relationships are not statistically significant. This is partially similar with the analysis of Rahman (2011). Again we see cash conversion cycle is negatively Correlated with all profitability ratios such as Gross profit margin, Operating profit ratio, Net profit margin and return on assets which is as like as the analysis of Lazaridis and Tryfonidis (2006) and Quayyum(2011). This means that profitable industries either accelerate their receivables from debtors or delay their payment towards their creditors. Which is also as like as the analysis of Lazaridis and Tryfonidis (2006) and others.

Regression Analysis: In the following discussion the researcher has constructed multiple regression analysis for find out the dependency of profitability on working capital management of sample cement industries. Here the researcher deduct some variables whose are used in correlation section to avoid Multicollinearity. For that reason the researcher use NPM and ROA as dependent variables and CCC, ICP, DSO and CR as independent variables in regression analysis.

NPM

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.769[a]	.591	.465	2.28842

a. Dependent Variable: NPM

b. Predictors: (Constant), CR, CCC, DSO, ICP

The adjusted R-square of the above model indicates 46.5% variation in NPM of sample cement industry that can be explained by the regression model. That is all independent variables (CR, CCC, DSO, ICP) are contributed 46.5% for changing the dependent variable (NPM). The error term represents unexplained part of the model.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
		B	Std. Error	Beta			Zero-order	Partial	Part
1	(Constant)	14.384	2.793		5.151	.000			
	CCC	-.010	.017	-.142	-.591	.564	-.253	-.162	-.105
	ICP	-.062	.040	-.375	-1.562	.142	-.529	-.398	-.277
	DSO	-.064	.027	-.493	-2.420	.031	-.539	-.557	-.429
	CR	.438	.475	.185	.922	.373	.488	.248	.164

a. Dependent Variable: NPM

The above table indicates the coefficient of the regression equation. From the table it can observe that β coefficient of CCC, ICP, & DSO is negative and CR is positive. Here it is also seen that negative β coefficient of DSO is statistically significant at 5% level which means there exists negative relationship (-.493) between DSO and NPM. If DSO increases then NPM decreases and when DSO decreases then NPM increases. In the above model one of the crucial things is that the variables are free from Multicollinearity.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.700[a]	.490	.333	3.25321

a. Dependent Variable: ROA

b. Predictors: (Constant), CR, CCC, DSO, ICP

In the above table adjusted R square refers coefficient of determination which measure how well the variables explain the model. The adjusted R-square of the e model indicates 33.3% variation in ROA of sample cement industry that can be explained by the regression model. The error term represents unexplained part of the model.

ROA

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
		B	Std. Error	Beta			Zero-order	Partial	Part
1	(Constant)	17.913	3.970		4.512	.001			
	CCC	-.026	.024	-.288	-1.071	.304	-.287	-.285	-.212
	ICP	-.058	.057	-.274	-1.024	.324	-.432	-.273	-.203
	DSO	-.104	.038	-.626	-2.751	.017	-.505	-.607	-.545
	CR	-.419	.676	-.139	-.621	.546	.193	-.170	-.123

a. Dependent Variable: ROA

The above table shows the coefficient of the regression equation. From the table it can be seen that β coefficient of all independent variables (CCC, ICP, DSO& CR) are negative. Among these independent variables negative β coefficient of DSO is statistically significant at 5% level which means there exists negative relationship (-.626) between DSO and ROA. If DSO decreases then ROA increases and when DSO increases then ROA decreases. In the above model one of the important things is that the variables are free from Multicollinearity.

Conclusion

From the study it is found that profitability position and working capital management of the sample cement industries is not satisfactory. From the Pearson's correlation matrix it is also found that there exists positive correlation between working capital efficiency and profitability ratios of the sample cement industries over the study period with some exceptions where the correlation is negative. Regression analysis results indicated that independent variables (CCC, ICP, DSO & CR) of the models are statistically significant for explaining the variation of dependent variables (NPM & ROA) as well as coefficient of the regression equation shown that there exist negative β coefficient between dependent & independent variables of the model. Among the independent variables negative β coefficient of DSO with dependent variables (NPM & ROA) is statistically significant at 5% level which means that if DSO decreases then NPM & ROA increases and when DSO increases then NPM & ROA decreases. In this study it is recommended that sample cement industries should reduce their day sales outstanding (DSO) for improving their profitability position.

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