

Impact of Working Capital Management Components on Profitability: A Case Study of Shivam Cement Limited

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Abstract

The paper shows the impact of working capital management on the profitability position of the only listed cement industry of Nepal, i.e., Shivam Cement Limited (SHIVM). The paper has applied correlation coefficient and regression analysis to interpret the data defines as dependent and independent variables. The paper used net profit margin (NPM) as a dependent variable, while the receivable conversion period (RCP), payable deferral period (PDP), inventory conversion period (ICP), cash conversion cycle (CCC), current assets to total sales ratio (CASR), and current liabilities to total sales ratio (CLSR) are taken as independent variables to see an impact of working capital on profitability of the SHIVM. The paper found that SHIVM is efficient in generating revenue by utilising current assets and current liabilities. The paper also found that neither RCP nor ICP or CCC was seen as related to the profitability of the SHIVM. Nevertheless, only the PDP has a negative impact on the NPM of the SHIVM. This shows that an increase in the PDP for the SHIVM would not lead to an increase in its profitability. ICP of SHIVM is only highly correlated with the CCC, as the nature of the industry maintaining a bulk inventory also determined the relation.

INTRODUCTION AND STUDY OBJECTIVES

The smooth operation of an organisation takes place in the context of the smooth

management of working capital. Hence, one of the major functions of a financial manager is to manage the day-to-day finance-related activities of a firm. The day-to-day managing of the finance-

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related activities comes under the working capital management or short-term financial management.

Current assets, also known as working capital, are the portion of an investment that changes forms often during normal business operations. The cyclical movement of cash from cash to inventories to receivables and back to cash occurs. Likewise, current liabilities are represented by short-term funding, i.e., all debts that are due and must be paid in a year or less (Gitman, 2008).

The margin by which a company's current assets exceed its current liabilities is called net working capital. The change in net working capital is the difference between the change in current assets and the change in current liabilities. In general, as current assets grow more quickly than current liabilities, net working capital investment rises (Gitman, 2006).

Smith (1980) was the first to signal the significance of making trade-offs between the goal of liquidity and profitability under working capital management. Shin and Soenen (1998) investigated the relationship between a firm's net-trade cycle and profitability for the listed American firms; the study found a strong inverse relationship between a firm's net-trade cycle duration and profitability. Similarly, Deloof (2003) discovered a substantial inverse relationship between total operating income and the duration of inventory, accounts payable, and accounts receivable for over a thousand Belgian listed companies.

Richards and Laughlin (1980) for the first time highlighted an importance of Cash Conversion Cycle (CCC) under working capital management which begins from raw materials conversion to finished goods. Working capital is the essence for the better functioning of the manufacturing industry, as well as for proper generation of revenue. The length of the cash conversion cycle determines the profitability of the firm. The company can maximise the profitability through shortening the CCC, which enhance the firm's profitability by collecting more cash (Baños-Caballero et al., 2014). The manufacturing industry, on a large scale like a cement industry, invests a large sum of money in fixed assets, and the scale of operation for the cement industry is comparable low than for a trading industry. Hence, a low level of working capital could be justified for the cement industry.

A cement industry is completely based on natural resources available in a natural setting. The raw materials used in preparing a sack of cement are limestone, silicon oxide, iron core, magnesium oxide, aluminium oxide, slate, silica sand, clay, gypsum, and clinker. Among these ingredients, limestone is a major raw material for producing cement, and large quantities of certified as well as semi-certified quality are deposited in Nepal. Technically, 1.6 metric tons of limestone is used to produce one metric ton of clinker by the cement industry and the royalty and tax levied for extracting limestone by the government affect the cost price of a sack of cement. Hence, the cost and time involved in the manufacturing process and the level

of technology adopted by the cement industry also determine the necessity of current assets and management's devotion to managing the industry's working capital. In the context of the cement industry, [Ghosh and Maji \(2004\)](#) applied the performance index, utilisation index, and overall efficiency index to analyse the working capital utilisation in generating a better return for twenty large Indian cement industries and the paper found that the sampled industries were not properly utilising working capital in generating a better return. [Chandrabai and Rao \(2011\)](#) discovered a marginally positive link between working capital and profitability in the selected Indian cement industry.

[Oladipupo and Okafor \(2013\)](#) found working capital and profitability had no relation, while the dividend pay-out ratio was significantly affected by the working capital position of the Nigerian cement industries. [Almazari \(2013\)](#) found current ratio as the most essential liquidity factor affecting the profitability of the sampled eight Saudi cement industries. [Panigrahi \(2013\)](#) found that return on assets for the sampled five cement industries listed on the Bombay Stock Exchange was not correlated with the cash conversion cycle (CCC), while return on equity was related significantly to the cash conversion cycle of the sampled companies. The sampled industries were not under pressure to reduce receivable conversion period (RCP) and inventory conversion period (ICP) alongside the extension of payable deferral period (PDP) to increase profitability.

According to [Awan et al. \(2014\)](#), the cash conversion cycle, the current ratio, and inventory turnover in days all have a negative correlation with return on equity. Return on equity was correlated positively with the gross working capital turnover, quick ratio, payable deferral period, and size of firms in the context of listed cement industries in Pakistan. At the same time, the relationship of the current ratio was seen as insignificant with return on equity. For the cement industries listed on the Nigerian stock exchange, [Angahar and Alematu \(2014\)](#) discovered a substantial positive association between profitability and the CCC, as well as a significant negative relationship between the profitability and inventory turnover per day.

[Mazumder \(2015\)](#) revealed a positive impact of working capital management on the profitability of the sampled five cement industries operating in Bangladesh. [Hoque et al. \(2015\)](#) found that the number of days that sales were outstanding adversely impacted the profitability of Bangladeshi cement industries, while the profitability and working capital quality were interrelated.

[Gupta and Bhuttani \(2017\)](#) studied ten cement industries listed on the Bombay Stock Exchange where the CCC had no impact on the profitability of the sampled industries. Similarly, [Panigrahi \(2017\)](#) found a negative relationship between profitability and PDP and ICP, while a positive relationship between profitability and RCP for the sampled Indian cement industries listed on the Bombay Stock Exchange.

Mondal (2020) found that the current ratio, quick ratio, inventory turnover ratio, and debtor turnover ratio had a significant, joint impact on the return on capital employed for the selected cement industries listed on the Bombay Stock Exchange.

Rehman and Anjum (2013) found that an increment in working capital and liquidity among the sampled ten Karachi Stock Exchange-listed cement industries reduced their profitability. Yasir et al. (2014) found the increasing length of CCC reduced the profitability of the cement manufacturing industries listed within the All-Pakistan Cement Manufacturers Association during 2007-12. Similarly, the RCP and ICP of the sampled cement industries had a negative relationship with profitability. Shahzad et al. (2015) found that minimising inventory turnover and working capital turnover ratio leads to better profitability for the sampled 12 cement industries listed on Karachi Stock Exchange. Kafeel et al. (2020) studied working capital management and its impact on profitability among the 35 Pakistani cement industries. The paper found that the ICP and PDP had a positive relationship with return on assets, while the CCC had a negative effect on return on assets, and the RCP was positive but statistically insignificant. However, Suryavanshi and Biradar (2021) discovered a negative link between profitability with PDP and ICP but a positive connection between profitability and RCP for the selected Indian cement industries. Similarly, Qadri et al. (2021) found a negative association between the CCC and NPM

for the sample of Saudi Stock Exchange listed five cement industries.

Ajayi and Adegoke (2021) found that the CCC, RCP, and ICP negatively impacted profitability; while the PDP impacted significant positive, the profitability of the sampled three Nigerian cement manufacturing industries.

In the context of Nepal, Lamichhane (2019) revealed that the debt to asset ratio had a significant negative effect on profitability for sampled 13 listed manufacturing companies of Nepal. For the sampled non-financial listed companies in Nepal, Poudel and Maharjan (2020) discovered a negative correlation between profitability and days sales outstanding, whereas a positive correlation existed between profitability and current ratio. Similarly, Adhikari (2020) found that ICP, PDP, and CCC were inversely related to profitability, whereas RCP, debt ratio, and current ratio were related positively to five sampled listed manufacturing firms of Nepal. For Shivam Cement Limited, Neupane (2020) discovered a negligible correlation between net working capital and profitability. Since, the papers on working capital management of the Nepalese cement industry-focused relationship between net working capital and profitability of the sampled cement industry, the current paper further tries to examine a relationship with overall components of the CCC of the industry.

RESEARCH METHODS

The paper has adopted a correlation research design. Hence, the paper has used Karl Pearson's correlation matrix

to see the impact of working capital-related variables on the profitability of the sample cement industry. Similarly, the paper has also regressed the variables to determine the impact of working capital on the profitability of the sampled cement industry.

All the cement industry operating within Nepal is the population for the paper. Only one cement industry has gone public and is listed in the secondary market of Nepal. The listed cement industry, i.e., Shivam Cement Limited (SHIVM) is taken as a sample for the study. The paper has used the secondary data collected from the sample cement industry. Hence, the published financial data in annual reports of the sampled company from the fiscal year 2016-17 to the fiscal year 2020-21 is considered for the data analysis in the paper.

The paper has taken net profit margin (NPM), as a proxy for profitability as a dependent variable, while receivable conversion period (RCP), payable deferral period (PDP), inventory conversion period (ICP), cash conversion cycle (CCC), current assets to total sales ratio (CASR) and current liabilities to total sales ratio (CLSR) are taken as independent variables. Hence, the relationship has been illustrated as:

$$NPM=f(RCP, PDP, ICP, CCC, CASR, CLSR)$$

The length of time required to convert receivables into cash is called receivable conversion period (RC). The inventory conversion period (ICP) is the length of

time required to convert raw materials into finished goods and then to sell those goods. The payable deferral period (PDP) is the length of time between the purchase of raw materials and labour and the payment of cash for them. Finally, cash conversion cycle (CCC) is the length of time required to collect cash after making payment for the purchase of raw materials and labour. ICP, RCP, PDP and CCC are calculated using following formulas:

$$ICP = \frac{\text{Closing Stock}}{\text{Cost of Goods Sold per Day}}$$

$$RCP = \frac{\text{Receivables}}{\text{Total Sales}} \times 360$$

$$PDP = \frac{\text{Account Payable}}{\text{Cost of Goods Sold per Day}}$$

$$CCC=ICP+RCP-PDP$$

DATA ANALYSIS AND DISCUSSIONS

This section presents data analysis and discusses the results.

Correlation Analysis

Table 1 shows the relationship between the net profit margin and the working capital related variables of the sampled cement industry.

The financial data published in the annual reports (2016-17 to 2020-21) of the sample company, SHIVM, was used to extract the calculated variables.

Table 1
Correlation Analysis

Variable	Net Profit Margin	Inventory Conversion Period	Receivable Conversion Period	Payable Deferral Period	Cash Conversion Cycle	Current Assets to Sales	Current Liabilities to Sales
Net Profit Margin	+1.000						
Inventory Conversion Period	-0.342 (0.573)	+1.000					
Receivable Conversion Period	+0.397 (0.508)	-0.177 (0.776)	+1.000				
Payable Deferral Period	-0.886* (0.046)	+0.648 (0.237)	-0.435 (0.464)	+1.000			
Cash Conversion Cycle	-0.057 (0.927)	+0.951* (0.013)	-0.014 (0.982)	+0.382 (0.526)	+1.000		
Current Assets to Sales	+0.312 (0.610)	+0.213 (0.730)	+0.822 (0.088)	-0.325 (0.594)	+0.409 (0.495)	+1.000	
Current Liabilities to Sales	+0.304 (0.619)	+0.212 (0.732)	+0.810 (0.097)	-0.326 (0.593)	+0.407 (0.496)	+1.000** (0.000)	+1.000

Note. The value in parentheses is p-value.

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

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

Table 1 shows a perfect correlation (+1.000) between the current liabilities to sales ratio and the current asset to sales ratio of SHIVM. The relationship is seen statistically significant as well. This shows an efficiency of SHIVM in generating revenue using current assets and current liabilities. Similarly, the high degree of negative correlation (-0.886) was seen between PDP and NPM for SHIVM. This shows that an increase in the payment by SHIVM on cash would not lead to an improvement in profitability.

At the same time, there was a high degree of significant positive correlation (+0.951) of ICP with the CCC of SHIVM. Hence, the number of days SHIVM held its stock

is highly related to the CCC of SHIVM, therefore by lowering the number of ICP better will result in the SHIVM shortening its CCC. Since, the total inventory amount for the cement industry, SHIVM accommodates large volumes of natural resources, CCC and ICP are highly correlated. The relation again verifies that the faster the conversion of stock into the saleable product, i.e., a sack of cement by SHIVM, the better in the position of CCC for the company.

Normality Test

Table 2 shows the normality results for the variables. The payable deferral period (PDP) is only seen normally distributed as per the Kolmogorov-Smirnov Test

Table 2
Normality Test of Variables

Variables	Kolmogorov-Smirnov ^a	Sig.	Shapiro-Wilk	Sig.
Net Profit Margin	0.208	0.200*	0.881	0.312
Inventory Conversion Period	0.362	0.031	0.692	0.008
Receivable Conversion Period	0.222	0.200*	0.930	0.593
Payable Deferral Period	0.434	0.003	0.644	0.002
Cash Conversion Cycle	0.348	0.047	0.789	0.066
Current Assets to Sales	0.364	0.029	0.729	0.019
Current Liabilities to Sales	0.351	0.043	0.746	0.027

* This is a lower bound of true significance.

^a Lilliefors Significance Correction

Note. The financial data published in the annual reports (2016-17 to 2020-21) of the sample company, SHIVM, was used to extract the calculated variables.

and Shapiro-Wilk Test. The remaining variables are far away from normality as per the test results. The regression model for the paper is dealing with a small size of data; hence the assumption of normality plays a crucial role to go further for statistical significance of the regression model. Similarly, the normality of the data further eases to derive exact ordinary least square estimators.

Regression Analysis

Table 3 clearly shows the insignificant level of the excluded variables from the regression model. The t-value for the respective excluded variables is seen insignificant. Hence, the paper regressed for the remaining significant variable, i.e., payable deferral period (PDP).

Table 4 shows a model summary of the regressed variables. Among the predetermined variables related to working capital management, only

PDP was seen related with the net profit margin generated by the SHIVM. The remaining variables were dropped from the regression model using the stepwise regression technique. The dropped variables have significantly large probability of F-statistics, and the t-values for the respective excluded variables were insignificant. The result shows that 71.3 percent of variance on net profit margin of SHIVM is explained only by payable deferral period. Looking at F-statistics and T-statistics results, the model is statistically significant (0.046). Similarly, the result shows an inverse relationship between the net profit margin and payable deferral period for SHIVM.

The value of Durbin-Watson test (3.186) displays a negative autocorrelation between the tested variables. There is no problem of multicollinearity in the model, since variance inflation factor (VIF) values are perfectly unity.

Table 3
T-statistics of the Excluded Variables

Excluded Variables a	Beta	T-Statistics	P-value
Inventory Conversion Period	0.401b	1.233	0.343
Receivable Conversion Period	0.015b	0.040	0.972
Cash Conversion Period	0.329b	1.225	0.345
Current Assets to Sales	0.027b	0.078	0.945
Current Liabilities to Sales	0.017b	0.049	0.965

a. *Dependent Variable: Net Profit Margin*

b. *Predictors in the Model: (Constant), Payable Deferral Period*

Note. The financial data published in the annual reports (2016-17 to 2020-21) of the sample company, SHIVM, was used to extract the calculated variables.

Table 4
Regression Analysis

Model	Beta	T-Statistics	P-value	VIF
(Constant)	14.472	29.981	0.000	1.000
Payable Deferral Period	-0.007	-3.305	0.046	1.000
R-Square	0.785			
Adjusted R-Square	0.713			
F-Statistics	10.925 (0.046)			
DW Statistics	3.186			

Note. The financial data published in the annual reports (2016-17 to 2020-21) of the sample company, SHIVM, was used to extract the calculated variables. [Dependent Variable: Net Profit Margin]

CONCLUSION AND IMPLICATIONS

Abundant access to limestone in Nepal has given space to boost the cement industry in Nepal. Nevertheless, only one of the cement industries has gone public and listed in the secondary market of Nepal. The paper has gone through the impact of working capital management on the profitability of the 'only listed' cement industry, Shivam Cement Limited.

The management of the working capital highly affects the day-to-day functioning

of the company, especially in the context of the manufacturing industry. The production capacity enhancement or efficiency of the manufacturing industry depends highly on the quality management of the working capital.

The paper considers the cash conversion cycle, components of the cash conversion cycle, current assets to sales ratio, and current liabilities to sales ratio to see an impact on the profitability of the sampled cement industry. The ability of the finance manager to manage receivables, inventories, and payables of

the large-scale manufacturing company, like cement industry makes a significant impact on the company's profitability. The paper found that SHIVM is efficient in utilising its current assets and current liabilities to manage the receivables conversion period. Similarly, the ICP of the SHIVM is highly correlated with the CCC. Therefore, the better the inventory management by SHIVM better the CCC position is seen at SHIVM. Hence, in day-to-day operation, if SHIVM reduces the days of ICP and manages a better distribution channel for its product, the company could also maintain better CCC. Kafeel et al. (2020) in context to Pakistani listed cement industries had a positive relationship between profitability and payable deferral period (PDP) as well as Ajayi and Adegoke (2021) in context to the sampled listed Nigerian cement industries found all the variables of working capitals having a positive impact on the profitability, while the paper found that only the PDP hurts the profitability (Net Profit Margin-NPM) for the SHIVM. The outcome was more in line with Panigrahi's (2017) analysis of listed cement companies in India,

which discovered a negative correlation between profitability and payment deferral length. The paper reflects that if SHIVM improves PDP does not lead to an increment in the company's profitability. The point to be noted is PDP is a relative term, which is difficult to interpret accurately, as there are no other listed cement industries to set a benchmark. It depends on the bargaining power of the respective company with the creditors to manage the average time length for payment of credit purchases and accruals.

Working capital management is the essence of the overall management process for a manufacturing company like SHIVM. The proper combination of components of CCC directly or indirectly affects the overall financial performance of a manufacturing company. Nevertheless, as a current or potential investor in the cement industry, SHIVM, evaluating the company's total financial picture will be beneficial rather than focusing on minor issues such as payment days, receivable days, or stock conversion period of the respective company.

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