

## Effects of Working Capital Management on Profitability: A Case of Nepalese Manufacturing Firms

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### Abstract

The study deals with the relationship between firm characteristics of working capital management and firm profitability in Nepal. It examines if firm performance, return on assets is related to cash conversion cycle, days' sales outstanding, days' inventory outstanding and current ratio. The study is based on pooled cross-sectional data of 10 non-financial firms from 2071/72 to 2075/76 of listed firms in the Nepal Stock Exchange. The study employed descriptive and causal-comparative research design to attain the purpose of this study. The result reveals that the current ratio has a positively significant relationship with profitability and days' sale outstanding has negatively significant relationship with the financial performance of the firm.

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**Keywords:** : Return on Assets, firm performance, working capital management, days sales outstanding

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### Introduction

Working capital management, capital budgeting, and capital structures are the components of the corporate finance theory. Working capital management is one of the important components of corporate finance theory that deals with managing short-term financial and investment decisions of the firms (Sharma & Kumar, 2011) whereas capital budgeting and capital structures deal with managing long terms investment and their returns. Working capital management can affect firm profitability in two ways. On the one hand, working capital management influences firm sales and profits. Similarly, on the other hand, working capital management impacts the capital employed and thus the cost of capital. One of the important measures of working capital management (WCM) is the cash conversion cycle that deals with, the time period between the expenditure for the purchase of raw materials and the collection from sales of finished goods (Sharma & Kumar, 2011).

In layman's terms, it refers to the time taken by the company to convert its investment in inventory into cash flow. The longer the time, the larger the investment in working capital. Account receivable, inventory, accounts payable are also the components of working capital.(Sharma & Kumar, 2011) A longer cash conversion cycle might increase profitability because it leads to higher sales. Corporate profitability might also decrease with the cash conversion cycle, when the cost of investment in working capital increases faster than the benefits of holding inventory or granting more trade credit to customers.

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Many companies having excellent future growth and best-forecasted cash flow statement fail because of neglecting the financing of working capital (Richards & Laughlin, 1980). According to the past studies, inadequate working capital management and long-term financing cause failure in the business sector. In the past research papers, corporate finance has focused extensively on the study of long-term financial decisions, particularly along with investments, capital structure, or company valuation decisions. However, working capital management also directly affects the liquidity of the company as in layman's term. WCM deals running of a business unit and its growth. Likewise, in the past, many researchers like Garcia-Teruel & Martinez-Solano(2007), Samiloglu & Demirgunes(2008), (Tahir and Anuar 2015) have studied the cash conversion cycle and its components as the variable of the working capital management to identify its effects on profitability. However, the results of the studies are different from one another. Gitman (1974) deals with the fact that aggressive working capital policies i.e. minimum investment in current assets coupled with extensive use of short-term credit enhances profitability, however, sufficient investment in current assets is also important if permanent assets are financed by short-term financing source as it increases insolvency risk in an organization.

The efficiency in working capital management is important for the operation of the firm, especially for production firms as it accounts for over half of its total assets. For a trading or distribution company, they composite quite half of their total assets and which directly affect the profitability and liquidity of the company (Raheman & Nasr, 2007). The improper working capital management will be very expensive for the companies as it may cause the bankruptcy of the company even though their profitability is positive. The working capital management is important for maintaining liquidity in day-to-day operations to ensure smooth running and meeting the firm's obligations (Eljelly, 2004). Working capital management is not a simple and easy task. So, managers must make sure that business operation is both efficient as well as profitable. There is a chance of a mismatch in current assets and current liability during this process, which could affect the growth and profitability of the business.

Working capital management is important due to its effects on the firm's profitability and risk, and consequently its value (Smith, 1980). Specifically, working capital investment involves a tradeoff between profitability and risk. This means decisions that tend to increase in profitability tend to increase risk, and, conversely, decisions that focus on risk reduction will tend to decrease potential profitability. Gitman (1974) argued that the cash conversion cycle was a key factor in working capital management. Similarly, Shin and Soenen (1998) have highlighted the importance of shortening the cash conversion cycle (CCC), as managers reduce the cycle to a reasonable minimum, it increases the value of the shareholders. Actually, the cash conversion cycle deals with decisions about how much to invest in the customer and inventory accounts, and how much credit to accept from suppliers, which represents the average number

of days between the date when the firm must start paying its suppliers and the date when it begins to collect payments from its customer.

Shin and Soenen (1998) state that the relationship between efficient working capital management and a firm's profitability used net-trade cycle (NTC) as a measure of working capital management. The study found that there is strong negative relationship between the length of firm's net-trade cycle and its profitability. Iqbal & Wang(2018) empirically examined in their study that "paying full attention to the cash conversion cycle" has enormous effect on working capital. The findings of study suggest that managers can create value for their shareholder by minimizing their cash conversion cycle and reducing inventory days to the least minimum through effective management of working capital i.e. there is negative relation between profitability and working capital measured as cash conversion cycle and inventory days.

Prior studies have used measures based on the cash conversion cycle to analyze whether shortening this cycle has positive or negative effects on the firm's profitability. Many researchers support the fact that the profitability of the firm can be enhanced by reducing the net credit period however, there is no empirical evidence available regarding the relationship of working capital management and profitability of Nepalese companies. Thus, this study of working capital management occupies an important place in Nepalese non-financial firms. The study has been considered important as no studies have recently been conducted which would provide knowledge of working capital and firm performance in Nepalese non-financial sectors especially in manufacturing sectors. This study is guided with a notion relating to the effects of working capital management on profitability of companies in Nepal. The most of companies in the world fail because of the inadequate capital, cash flows management and inventory control. A survey conducted in the UK indicated that above 20% of firm failures was due to irrecoverable debts or poor receivable management (Padachi, 2006).

The paper is organized into five sections. Section I of this study deals with the introduction of the study, section II discusses about the review of literature, and the theoretical framework of this study while section III presents the research methodology. An Overall analysis has been presented in section IV and summary and conclusion are presented in section V.

## **Review of Literature**

The studies reviewed various variables to analyze the WCM and profitability relationship. Here are the major studies related to the effect of working capital management on profitability:

Garcia-Teruel and Martinez-Solano (2007) study the relationship between efficient working capital management and firm's profitability. The study shows that there is a negative significant relationship

between the days of inventory outstanding (DIO), days of sales outstanding (DSO), cash conversion cycle (CCC), and return on assets (ROA). The authors further added that SMEs have to be concerned with working capital management because they can also create value by reducing their cash conversion cycle to minimum, as far as that is reasonable. Further, Samiloglu and Demirgunes (2008) study of the effect of working capital management on profitability draws the same conclusion as Garcia-Teruel and Martinez-Solano i.e. there is a negative significant relationship between working capital management as days sales outstanding, days inventory outstanding, and profitability as return on assets.

Whereas, Sharma & Kumar (2011) examined that there is a positive relationship between working capital management and profitability in Indian companies. The study further reveals that the number of days' inventory is negatively correlated with a firm's profitability, whereas the number of days accounts receivables and cash conversion period show a positive relationship with corporate profitability. Moreover, in a study of working capital management evidenced, there is a negative relationship between working capital management measure as days inventory outstanding, days sales outstanding, and cash conversion cycle with the profitability measure as return on assets and return on invested capital (ROIC) (Lyngstadaas & Terje, 2016). Similarly, there is a negative relationship between the return of assets and cash conversion cycle of profitability and working capital management respectively (Nwude, Agbo, & Ibe, 2018). Likewise, there is a negative relationship between working capital management variable days' sales outstanding and profitability variable return on assets (Tahir & Anuar, 2015).

Similarly, there is negative relationship between working capital management and gross operating income (Girma, 2019). Likewise, there is negative relationship between working capital management as measured by days' inventory outstanding, days' sales outstanding, cash conversion cycle and profitability measure as gross operating income (Bhatia and Srivastava, 2016). Further the study examines that days sales outstanding and days inventory outstanding are not significant with the gross operating profit and there is negative relationship between net trade cycle (NTC) and CCC with the profitability. Similarly, there is negative relation between CCC measure as variable of working capital management and gross operating profit along with the days' sales outstanding (Adekola, Samy et al. 2017). Further, in study there is positive relationship between current ratio, days inventory outstanding and gross operating profit.

Sultan & Murtaza (2019) mention that there is also negative relationship between working capital management measured as cash conversion cycle and current ratio with the operating profit of firms whereas Madushanka & Jathurika (2018) on impact of liquidity ratios on profitability state that there is no significant relation of current ratio with the profitability measure as ROA and ROE but there is positive relationship between the quick ratio and profitability of the firms. There is negative relationship

between cash conversion cycle, days' inventory outstanding, days' sale outstanding, and the profitability as measure by net operating capital. In addition, there is positive relation between CR and net operating income/profit (Adekola, Samy et al. 2017).

## Conceptual Framework

Based on the previous overview of the study and hypothesis, following conceptual framework has been formed:

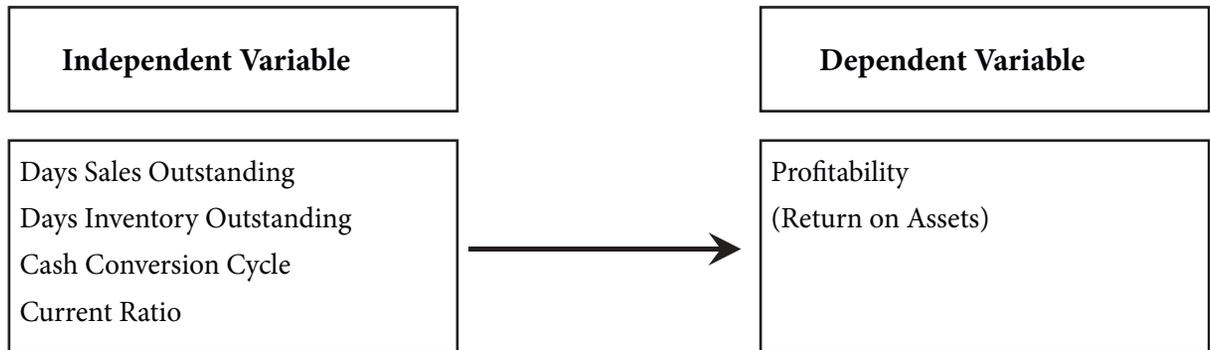


Figure 2.1 : Theoretical framework

On the basis of overall preliminary review of literature related to the present area of interest of the study, the present researcher has developed a conceptual framework to govern the research in a more systematic manner. Here ROA is used as a dependent variable because ROA has been used by Deloof (2003), Wang (2002), Elielly (2004), Samiloglu and Demirgunes (2008), Garcia-Teruel and Martinez-Solano (2007), Sharma and Kumar (2011), Iqbal and Wang (2018), Madushanka & M.Jathurika (2018) in their studies. The return on assets is a better measure since it relates the profitability of the company to the asset base (Padachi 2006). And Days inventory outstanding, days sales outstanding, cash conversion cycle and current ratio used as the independent variable or explanatory and is considered for measuring working capital.

(Hillergren and Björkman 2014) Days payable outstanding and size are used as a variable affecting the profitability in their research paper.

**Days sales outstanding (DSO):** It is also known as days account receivable. It expresses the number of days' worth of sales (or revenue) still outstanding in the balances (receivables). It can also define as average account receivable divided by sales or revenue multiply by total number of days in years. In layman term it denotes the number of days that the firm take to collect it payment from its debtors. It can

be improved by optimizing the collection process in a company. The lower value of DOS is considered as best which refers to, a company is able to collect receivable in short time. It is calculated as (Rehn 2012):

$$DSO = \frac{\text{Avg. Account Receivable}}{\text{sales}} \times 365$$

**Days inventory outstanding (DIO):** It is a financial and operational figure that estimates the value of inventory. It can also be defined as average inventory divided by cost of goods sold and multiply by no. of days in years. The value is given by days of inventory outstanding, in terms of cost of goods sold. The company prefers the lower value of DIO because it refers that the company is making sales rapidly and having good turnover in business. Numerically it is express as(Rehn 2012):

$$DIO = \frac{\text{Avg. Inventory}}{\text{COGS}} \times 365$$

**Cash conversion cycle (CCC):** It expresses the time that company takes for converting its investment in inventory and other resources into cash flow from sales or it can also be defined as how much time the company need to collect it receivable, sell its inventory and pay its bill without any penalties. In layman's term, it refers to the sum of days' inventory outstanding and days sales outstanding minus days payables outstanding. The cash conversion cycle can be negative when days' payable outstanding is greater than sum of days inventory outstanding and days sales outstanding. Numerically it is express as (Rehn 2012):

$$CCC = DIO + DSO - DPO$$

**Current ratio (CR):** It measures a company's ability to pay short-term obligation within one period. It is also known as liquidity ratio. It compares companies' current assets to its current liabilities. In lay man's term, it refers to current assets divided by the current liabilities. Current ratio deals with the company assets that are cash. It is calculate as(Rehn 2012):

$$CR = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

**Return on assets (ROA):** In layman's term, ROA is the profit indicator of company which deals with how much profit a company is able to generate from it assts. It is shown in percentage and higher the ROA higher the profit for the company and vice versa. The numerical formula of ROA is(Rehn 2012):

$$ROA = \frac{\text{Net income}}{\text{Total assets}}$$

## Hypotheses of the study

This research takes into consideration a proposition in the form of a null hypothesis (H0) to confirm the statistical significance of the association between different selected constructs of the study. In this case, as per above stated purpose, the level of overall impacts is to consider as the ultimate effects of working capital management in the profitability of companies. Considering these constructs, the following working hypotheses have been generated for empirical assessment:

**H1:** There is no significant relationship between days' sales outstanding and return on assets.

**H2:** There is no significant relationship between days' inventory outstanding and return on assets.

**H3:** There is no significant relationship between cash conversion cycle and return on assets.

**H4:** There is no significant relationship between the current ratio and return on assets.

## Research Methodology

This study is based on secondary data only. The required data and information have been extracted from the listed non-financial firms from NEPSE data base of 5 years period i.e. 2071/72 to 2075/76. There are 64 non-financial firms listed in the NEPSE which is regarded as the population of this study.

Table 1: Selection of firms, period of studies, and number of observations

S.N	Companies	Years	Observation
1	HDL	2071/72 to 2075/76	5
2	UNL	2071/72 to 2075/76	5
3	BNL	2071/72 to 2075/76	5
4	NTC	2071/72 to 2075/76	5
5	SHL	2071/72 to 2075/76	5
6	TRH	2071/72 to 2075/76	5
7	BPCL	2071/72 to 2075/76	5
8	CHCL	2071/72 to 2075/76	5
9	AKJCL	2071/72 to 2075/76	5
10	STC	2071/72 to 2075/76	5
Total Observations			50

This study does not cover all the non-financial firms because of unavailability data. Moreover, the study period begins only from 2071/2072. Based on convenient sampling, ten companies are selected as a sample of this study. To analyze the relationship among different variables, the study uses pooled cross section data of 10 firms as shown in table 1. Thus, the study is based on 50 observations. The non-financial

firms selected for the study can be considered as representative of manufacturing and processing, hotel, hydro, trading and other firms.

## Data Presentation and Analysis

These sections deal with the determinants of days' sales outstanding, days' inventory outstanding, cash conversion cycle, and current ratio on the return on assets of the portfolio of companies in Nepal.

## Descriptive Statistics

**Table 4.1: Descriptive statistics**

Table 4.1 displays the descriptive statistics of the variables used in the study from 2071/72 to 2075/76 years of Nepalese non-financial firms listed in the NEPSE database. The dependent variable is ROA, defined as the profit indicator of a company that deals with how much profit a company can generate from its assets. Independent variable such as DSO, defined as several days' worth of sales (or revenue) still outstanding in the balances (receivables), DIO, defined as the financial and operational figure that estimates the value of inventory, CCC, defined as the time that company takes for converting its investment in inventory and other resources into cash flow from sales and CR, defined as company's ability to pay short-term obligation within one period. The summary of data has been classified into three categories based on profitability ratio. they are, Panel A shows the result of description of sample firms less than 6 percent, panel B shows the result of description of the sample more than 6 percent and panel C shows the result of description of a sample of a combination of both panels. The firm's years' observation is classified into three groups i.e. 15 firms years in panel A, 35 firm years in panel B, and 50 firms years in Panel C i.e. in the full sample.

Panel A: Descriptive statistics of sample firms less than 6% profit					
	Mean	Median	Std. Deviation	Minimum	Maximum
DSO	87.00	43.55	92.72	10.65	280.89
DIO	78.11	54.53	76.45	0.00	177.52
CCC	-87.16	42.34	313.60	-601.59	252.74
CR	0.88	0.90	0.52	0.22	2.03
ROA	0.01	0.01	0.03	-0.04	0.06
Panel B: Descriptive statistics of sample firms more than 6% profit					
DSO	37.50	40.15	15.60	13.64	66.98
DIO	110.76	87.42	127.27	11.82	573.71
CCC	4.63	11.00	190.26	-369.19	490.46
CR	5.22	2.00	10.90	0.77	62.98
ROA	0.17	0.12	0.12	0.06	0.59
Panel C: Descriptive statistics of full sample					
DSO	52.35	40.24	56.13	10.65	280.89
DIO	100.96	81.45	114.62	0.00	573.71
CCC	-22.91	11.70	234.56	-601.59	490.46
CR	3.91	1.56	9.30	0.22	62.98
ROA	0.12	0.10	0.12	-0.04	0.59

Table 4.1 sorts out all the sample firms into three portfolios. The summary statistics for portfolios have been sorted out by profitability ratio shown in Panel A, Panel B and full sample in Panel C.

Panel A of Table 4.1, the portfolio sorted by return on assets has been presented. Here descriptive statistics show that the mean of DSO is 87.00 and the median is 43.55 with a standard deviation of 92.72 and a minimum value of 10.65 and a maximum value of 280.89. This implies the value of DSO can deviate on both sides by 92.72. The mean of DIO is 78.11 and the median is 54.53 with a standard deviation of 76.45 and a minimum value of 0.00 and a maximum value of 177.52. This implies values of DIO can deviation on both sides by 76.45. The mean of CCC is -87.16 and the median is 42.34 with a standard deviation of 313.60 and a minimum value of -601.59 and a maximum value of 252.74. This implies values of CCC can deviate on both sides by 313.60. The mean of CR is 0.88 and the median is 0.90 with a standard deviation of 0.52 and a minimum value of 0.22 and a maximum value of 2.03. This implies values of CR can deviate on both sides by 0.52. The mean of ROA is 0.01 and the median is 0.01 with a standard deviation of 0.03 and a minimum value of -0.04 and a maximum value of 0.06. This implies that values of ROA can deviate on both sides by 0.03.

Panel B of Table 4.1, the portfolio sorted by return on assets has been presented. Here in the above table, Days sales outstanding have a mean of 37.50 and median of 40.15 with a standard deviation of 15.60, which ranges from a minimum of 13.64 to a maximum of 66.98. This implies that the value of DSO can deviate on both sides by 15.60. Days' inventory outstanding has a mean of 110.76 and median of 87.42 with a standard deviation of 127.27 that ranges from 11.82 to 573.71. This implies that the value of DIO can deviation on both sides by 127.27. The Cash conversion cycle has a mean of 4.63 and a median of 11.00 with a standard deviation of 190.26 that ranges from -369.19 to 490.46. This implies that the value of CCC can deviate on both sides by 190.26. The Current ratio has a mean of 5.22 and a median of 2.00 with a standard deviation of 10.90 that ranges from 0.77 to 62.98. This implies that the value of CR can deviate on both sides by 10.90. The Return on Assets has a mean of 0.17 and a median of 0.12 with a standard deviation of 0.12 that ranges from 0.06 to 0.59 i.e. minimum to maximum. This implies that the value of ROA can deviate on both sides by 0.12.

Panel C of Table 4.1, the portfolio sorted by return on assets has been presented. Here descriptive statistics show that the mean of DSO is 52.35 and the median is 40.24 with a standard deviation of 56.13 and a minimum value of 10.65 and a maximum value of 280.89. This implies that the value of DSO can deviation on both sides by 56.13. The mean of DIO is 100.96 and the median is 81.45 with a standard deviation of 114.62 and a minimum value of 0.00 and a maximum value of 573.71. This implies that the values of DIO can deviate on both sides by 114.62. The mean of CCC is -22.91 and the median is 11.70

with a standard deviation of 234.56 and minimum value of -601.59 and a maximum value of 490.46. This implies that the values of CCC can deviate on both sides by 234.56. The mean of CR is 3.91 and the median is 1.56 with a standard deviation of 9.30 and a minimum value of 0.22 and a maximum value of 62.98. This implies that the values of CR can deviate on both sides by 9.30. The mean of ROA is 0.12 and the median is 0.10 with a standard deviation of 0.12 and a minimum value of -0.04 and a maximum value of 0.59. .

Therefore, DSO has an average days of 145.77, 40.31 and 145.77 which estimate their size of outstanding receivables in Panel A, B and C respectively. DIO has an average days of 88.76, 292.765 and 286.855 that a company holds inventory for before turning into sales in Panel A, B and C respectively. CCC has an average days of 292.765 to convert its investment in inventory or receivable from sales in panel B. But in panel A and C, CCC has a negative average value which studies that the company has less time to sell its inventory or receivable and receive cash from customers. CR has an average value of 1.125, 31.875 and 31.6 which deals with a company's ability to pay its short-term obligation within a year. Likewise, Panel A, B and C Company has a profitability of 1%, 32.5% and 27.5% respectively.

## The Correlation Analysis

**Table 4.2: Correlation analysis**

Table 4.2 displays the correlation analysis of the variables used in the study from 2071/72 to 2075/76 years of Nepalese non-financial firms listed in the NEPSE database. The dependent variable is ROA, defined as the profit indicator of a company that deals with how much profit a company is able to generate from its assets. Independent variable such as DSO, defined as a number of days' worth of sales (or revenue) still outstanding in the balances (receivables), DIO, defined as a financial and operational figure that estimates the value of inventory, CCC, defined as the time that company takes for converting its investment in inventory and other resources into cash flow from sales and CR, defined as company's ability to pay short-term obligation within one period.

	DSO	DIO	CCC	CR	ROA
DSO	1				
DIO	-.281*	1			
CCC	-.150	.709**	1		
CR	-.078	.344*	.275	1	
ROA	-.344*	.009	.123	.006	1

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

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

Table 4.2 explains the correlation of effects of working capital management on profitability of companies of Nepal. The major focus is given to Days sales outstanding (DSO), Days inventory outstanding (DIO), Cash conversion cycle (CCC), and Current ratio (CR). From the table, it can be implied that CCC is found to be a very weak positive correlation with ROA i.e. 0.123. Likewise, CR and ROA have also a very weak positive correlation with each other with 0.006. Similarly, DIO and ROA also have a very weak positive correlation with each other with 0.009. There is a very weak negative correlation between DSO and ROA with -0.344. Likewise, there is a weak correlation between CCC and DIO with CR i.e. 0.275 and 0.344 respectively. Moreover, there is a very weak negative correlation with DSO and CR i.e. -0.078 and with DSO and CCC i.e. -0.150. Similarly, there is a strong positive correlation between DIO and CCC i.e. 0.709. Higher the correlation higher would be the misinterpretation i.e. case of multicollinearity rise from 0.8 (Silwal, 2016). Finally, there is a weak negative correlation between DSO and DIO i.e. -0.281.

Therefore, CR, CCC and DIO is found have positive correlation with ROA whereas DSO is found to have negative correlation with ROA. CR increases liquidity due to which cash in hand is increased and short term opportunity can be grabbed which enhances profitability. CCC is found to have positive correlation as it increases receivable and inventory which decreases payables. This result in the increase of sales and so as the profitability. DIO is found to be positive correlation due to decrease in inventory and increase in sales which enhance the profitability. Similarly, DSO is negative correlation due to increase in receivable which increases bad debt. An increase in bad debt has negative correlation with ROA.

## Regression Analysis

**Table 4.3 Regression analysis**

Table 4.3 displays the results based on pooled cross section data of 2071/72 to 2075/76 years of Nepalese non-financial firms listed in the NEPSE database by using linear regression. The regression equation is:  $Y = a + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4$  where,  $Y$  is the dependent variable i.e. ROA, defined as the profit indicator of the company which deals with how much profit a company can generate from its assets and  $x_1, x_2, x_3$  and  $x_4$  are independent variables such as DSO, defined as the number of days' worth of sales (or revenue) still outstanding in the balances (receivables), DIO, defined as the financial and operational figure that estimates the value of inventory, CCC, defined as the time that company takes for converting its investment in inventory and other resources into cash flow from sales and CR, defined as company's ability to pay short-term obligation within one period respectively. Panel A shows the result of description of sample firms less than 6 percent, panel B shows the result of description of the sample more than 6 percent and panel C shows the result of description of a sample of a combination of both panels.

Panel A: Regression analysis of sample firms less than 6% profit							Adj R <sup>2</sup>	F- value	P- value/ sig
Model	Alpha	DSO	DIO	CCC	CR				
1	0.027 (2.704)	-0.44 (-1.767*)					0.132	3.121	0.101
2	0.011 (0.943)		0.126 (0.46)				-0.06	0.211	0.653
3	0.014 (1.763)			-0.009 (-0.033)			0.077	0.001	0.974
4	-0.02 (-1.742)				0.694 (3.476***)		0.442	12.08	0.004
5	0.051 (2.412)	-0.802 (-2.164**)	-0.479 (-1.293)				0.174	2.477	0.126
6	0.005 (0.296)		0.266 (0.663)	-0.197 (-0.492)			0.125	0.22	0.805
7	-0.03 (-2.435)			-0.343 (-1.682*)	0.832 (4.075***)		0.511	8.304	0.005
8	0.141 (3.455)	-1.876 (-3.488***)	-2.154 (-2.867***)	1.221 (2.449***)			0.417	4.339	0.03
9	-0.031 (-2.074)		0.044 (0.156)	-0.372 (-1.329)	0.825 (3.788***)		0.467	5.094	0.019
10	0.054 (0.877)	-0.991 (-1.413)	-1.154 (-1.297)	0.441 (0.695)	0.526 (1.769*)		0.512	4.666	0.022

*t* = Values are present in parenthesis, \* 10% significance level, \*\* 5% level of significance, \*\*\*1% level of significance

Panel A of Table 4.3 has been developed to display the overall impact of independent variables taken in the study with the dependent variable that is the ROA which further assists to analyze the significance of data in the study. The panel is developed into various models where individual variables are taken first and then comprised into different models to find comprehensive impact between independent and dependent variables. The regression model of independent variables DSO, DIO, CCC, and CR is presented in the given panel. The first four models include one of the four independent variables or explanatory variables at a time. Model 5 includes two variables i.e. DSO and DIO whereas model 6 includes DIO and CCC. Similarly, in model 7 two independent variables i.e. CCC and CR are explained. However, in model 8 and 9 three independent variables are included which is explained as follows DSO, DIO, and CCC whereas DIO, CCC, and CR respectively. Lastly, in model 10 all the four independent variables DSO, DIO, CCC, and CR are presented simultaneously. In Model 10 while all the variables are included CR is found to be significant. The result suggests that CR is more important than DSO, DIO, and CCC. Model

2 and 4 have a positive beta coefficient for DIO and CR. However, in models 1 and 3 beta coefficient for DSO and CCC is negative. In Model 10 while all the variables are included CR is found to be significant. The result suggests that CR is more important than DSO, DIO, and CCC.

Panel B: Regression analysis of sample firms more than 6% profit								
Model	Alpha	DSO	DIO	CCC	CR	Adj R <sup>2</sup>	F-value	P-value/ sig
1	0.254 (5.011)	-0.307 (-1.854*)				0.067	3.436	0.073
2	0.177 (6.602)		-0.098 (-0.567)			-0.02	0.322	0.574
3	0.167 (8.264)			0.036 (0.205)		-0.029	0.042	0.839
4	0.176 (7.92)				-0.155 (-0.901)	-0.006	0.811	0.374
5	0.262 (4.896)	-0.303 (-1.806*)	-0.084 (-0.498)			0.045	1.803	0.181
6	0.204 (5.735)		-0.365 (-1.249)	0.33 (1.13)		-0.012	0.801	0.458
7	0.178 (7.837)			0.101 (0.546)	-0.19 (-1.025)	-0.027	0.546	0.584
8	0.309 (5.084)	-0.347 (-2.077**)	-0.429 (-1.533)	0.431 (1.526)		0.083	2.028	0.13
9	0.21 (5.781)		-0.334 (-1.13)	0.362 (1.225)	-0.165 (-0.887)	-0.019	0.793	0.507
10	0.311 (5.084)	-0.337 (-2.003**)	-0.401 (-1.412)	0.455 (1.591)	-0.139 (-0.784)	0.072	1.656	0.186

*t* = Values are present in parenthesis, \* 10% significance level, \*\* 5% level of significance, \*\*\*1% level of significance

Panel B of Table 4.3 has been developed to display the overall impact of independent variables taken in the study with the dependent variable that is the ROA which further assists to analyze the significance of data in the study. The panel is developed into various models where individual variables are taken first and then comprised into different models to find comprehensive impact between independent and dependent variables. The regression model of independent variables DSO, DIO, CCC, and CR is presented in the given table. The first four models include one of the

four independent variables or explanatory variables at a time. Model 5 includes two variables i.e. DSO and DIO whereas model 6 include DIO and CCC. Similarly, in model 7 two independent variables i.e. CCC and CR are explained. However, in model 8 and 9 three independent variable is included which is explained as follows DSO, DIO, and CCC whereas DIO, CCC, and CR respectively. Lastly, in model 10 all the four independent variables DSO, DIO, CCC, and CR are presented simultaneously. In model 10 DSO is significant at a 1% significance level among other variables. Model 1, 2, and 4 have a negative beta coefficient for DSO, DIO, and CR. However, in model 2 beta coefficient for CCC is positive.

Panel C: Regression analysis of full sample								
Model	Alpha	DSO	DIO	CCC	CR	Adj R <sup>2</sup>	F-value	P-value/sig
1	0.161 (7.138)	-0.344 (-2.537***)				0.1	6.437	0.014
2	0.121 (5.162)		0.009 (0.062)			-0.021	0.004	0.95
3	0.123 (7.069)			0.123 (0.862)		-0.005	0.743	0.393
4	0.121 (6.393)				0.006 (0.043)	-0.021	0.002	0.966
5	0.174 (5.78)	-0.371 (-2.609***)	-0.095 (-0.67)			0.089	3.406	0.042
6	0.141 (4.805)		-0.158 (-0.773)	0.235 (1.154)		-0.014	0.668	0.518
7	0.125 (6.422)			0.132 (0.876)	-0.03 (-0.2)	-0.026	0.384	0.683
8	0.2 (5.722)	-0.385 (-2.733***)	-0.293 (-1.483)	0.273 (1.421)		0.109	2.997	0.04
9	0.141 (4.731)		-0.156 (-0.74)	0.236 (1.142)	-0.005 (-0.032)	-0.036	0.436	0.728
10	0.2 (5.644)	-0.385 (-2.703***)	-0.293 (-1.434)	0.273 (1.407)	0.002 (0.013)	0.089	2.199	0.084

*t* = Values are present in parenthesis, \* 10% significance level, \*\* 5% level of significance, \*\*\*1% level of significance

Panel C of Table 4.3 has been developed to display the overall impact of independent variables taken in the study with the dependent variable that is the ROA which further assists to analyze the significance of data in the study. The panel is developed into various models where individual variables are taken first and then comprised into different models to find comprehensive impact between independent and dependent variables. The regression model of independent variables DSO, DIO, CCC, and CR is presented

in the given table. The first four models include one of the four independent variables or explanatory variables at a time. Model 5 includes two variables i.e. DSO and DIO whereas model 6 includes DIO and CCC. Similarly, in model 7 two independent variables i.e. CCC and CR are explained. However, in model 8 and 9 three independent variables are included which is explained as follows DSO, DIO, and CCC whereas DIO, CCC, and CR respectively. Lastly, in model 10 all the four independent variables DSO, DIO, CCC, and CR are presented simultaneously. In Model 10 DSO is found to be significant at a 1% level of significance which indicates DSO is more important than other variables. Model 2, 3 and 4 have positive beta coefficient for DIO, CCC, and CR. However, in model 1 beta coefficient for DSO is negative.

Therefore, the results of the study show that CR has positive impact on ROA along with significant relationship with the Return on Assets. This indicates that increase in CR deals with increase in liquidity which increases cash in hand and helps to grab the short-term opportunity which enhances the positive impact on profitability. Similarly, CCC has positive impact on ROA but insignificant relationship. In the study, an increase in CCC deals with an increase in receivable and inventory and decrease in payable. This results in the higher sales and on the contrary positive impact on profitability. Likewise, DSO have a negative impact on profitability and has insignificant relationship with profitability (ROA) due to the increase in DSO which results an increase in receivable and increase in receivable increases bad debt. Therefore, Increase in bad debt results in the decrease of profitability. An increase in DIO results an increase of inventory and increase in inventory deals with the less sales. Less sales due to an increase in inventory results in the negative insignificant relationship with profitability. Hence, DIO has a negative impact on profitability and has insignificant relationship with ROA.

## Conclusion

The purpose of the study was to study the effect of working capital management on profitability of selected 10 companies of Nepal and to what extent the selected factors affect the profitability during the period. The research question was to find out the effect of DSO, DIO, CCC, and CR on profitability. Based on prior local and international studies, key explanatory variables were identified. By using descriptive, correlation, and regression analysis and by performing portfolio of companies based on profitability i.e. profitability has been categorized into the different group based on companies having profit less than six percent as per year, profit more than six percentage and combination of both. In the base of it, following result has been drawn respectively.

In companies having a profit of less than six percentage, there is a negative impact of DSO and DIO in ROA and a positive impact of CCC and CR in ROA. Here CR only has a significant relationship between

ROA at a 10% significant level i.e. higher the CR higher the ROA and vice versa. While other independent variables i.e. DSO, DIO and CCC are insignificant with ROA. The current ratio is seen to have a positive significant relationship with profitability this might have occurred because companies in this portfolio might have kept current assets for their daily performance, which might help in an increasing inventory of higher sales goods and increase profit.

Similarly, in companies having a profit of more than six percentage, there is a negative impact of DSO, DIO, and CR in ROA and a positive impact of CCC in ROA. Here independent variable DSO only has a negative significant relationship between ROA at a 5% negative significant level i.e. higher the DSO lower the ROA and vice versa. While other independent variables i.e. DIO, CCC, and CR are insignificant with ROA. Likewise, in a combination of companies having both profits more and less than six percentage, there is a negative impact of DSO and DIO in ROA and a positive impact of CCC and CR in ROA. Here independent variable DSO only has a negative significant relationship between ROA at 1% negative significant level i.e. higher the DSO lower the ROA and vice versa. While other independent variables i.e. DIO, CCC, and CR are insignificant with ROA. Days sales outstanding is seen to have a negative significant relationship with profitability in a sample of more than 6% profit portfolio and combination portfolio. This might have occurred because companies in this portfolio might have a high account receivable in their business, which might increase bad debt in business and decrease profit. Finally, the results of the study uncovered new evidence from a Nepalese perspective, which can be considered valuable in the non-financial firms. The study reveals the different factors which impact financial performance of profitability.

### **Recommendations for Future Research**

Based on learning insights gained through this research, I would like to suggest for this research initiative to be carried out by the researcher of future endeavors.

Studies should be done about working capital management in firm from specific sectors to be able to generalize the findings. Other categories of listed institutions also have a section of working capital management and a study should be done on the effect of working capital management on their profitability based on the findings of this study. Further, study on the effect of working capital management on profitability should be done with more firms including those not listed and include all the sectors and extend the period of study. Lastly, future researchers are advised to adopt other sets of WCM indicators to test how respective practices influence the companies' financial performance. This will significantly contribute towards establishing a comprehensive scholarly opinion relating to corporate finances and WCM modifications.

One aspect that might not be studied in this research that would be of interest i.e. is to study the listed companies in Nepal, such as a family-owned company that might not have great pressure on their profitability. These companies by much have room for working capital management that led to higher profitability.

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