

# THE IMPACT OF WORKING CAPITAL MANAGEMENT ON PROFITABILITY: THE EXPOLANKA CASE STUDY

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## Abstract

*Commercial Organizations operate with the motive of improving shareholder wealth. Organizations are expected to manage their long term and short term financial resources to achieve the objective of shareholder profit maximization which is in line with maximization of wealth. In the backdrop of competitive landscape and scarcity of financial resources, the effective and efficient management of working capital is of paramount importance. This leads to companies giving priority in managing their working capital. The purpose of this study is to examine the Impact of Working Capital Management (WCM) on Profitability. To unearth answers for this question, 183 firm year observations covering 4 industry segments of Expolanka subsidiaries were investigated. The study covered five financial years from 2009 to 2014. Days sales outstanding, days payables outstanding, days inventory outstanding and cash conversions cycle were used as independent variables to measure WCM while gross profit margin, net profit margin, return on total assets and return on total equity were used as dependent variables to measure profitability. Pearson's correlation analysis and regression analysis was used to analyses the relationship between these variables. According to results, it was evidenced that there is statistically significant positive relationship between Days sales outstanding and the Gross profit and Net Profit in Expolanka subsidiaries. Further there is statistically significant positive relationship between days payable outstanding and gross profit. Inventory days outstanding with gross profit has recorded statistically significant positive relationship. Cash conversion cycle has recorded significantly negative relationship with Gross profit and Net profit. Accordingly it was evidenced that shorter cash conversion cycle increases the profitability in Expolanka subsidiaries.*

**Keywords:** Working Capital Management, Profitability, Diversified Conglomerate, Cash Conversion Cycle

## 1 INTRODUCTION

The businesses are expected to manage their capital structure and increase shareholder wealth on a consistent basis. The decision makers such as Chief Executive Officers and Chief Financial Officers play a key role in driving business success. One of the key features of driving businesses to profitability is decided on how the capital structure of the business is managed (Gill, et al., 2011), (Roden & Lewllen, 1995) & (Chiang, et al., 2002) . This research will examine the short term capital structure .i.e. the working capital management of Expolanka Holdings PLC, a diversified conglomerate listed on the Colombo Stock Exchange.

Working Capital Management is an area of financial management which is in receipt of attention throughout the Globe. This is predominantly because of shortage of resources and the present condition of the world economy (KPMG, 2011). The rivalry amongst

organizations to grow their sales and enhance profitability is on the rise. It's of great importance to offer clients, goods and services at competitive prices whilst affording them more flexible trade credit terms. This is vital in drawing and retaining customers in a dynamic and extremely competitive commercial setting. On the other side higher negotiating power of providers of goods & services and competitive rivalry amongst related businesses affect adversely the trade credit terms extended towards an organisation. Amidst all these challenges, organizations are expected to manage their liquidity while enhancing the yields to the shareholder.

Working capital management is defined as "A managerial accounting strategy focusing on maintaining efficient levels of both components of working capital, current assets and current liabilities, in respect to each other (Anon., 2014)". Arnold (2008) defined working capital as, "the difference between current assets and current liabilities". The Working capital of an organization consists of current assets which comprises trade receivables, cash in hand and bank, monies invested in short term monetary instruments and inventory. The current liabilities mainly include trade and other payable, accrued expenses and short term loans (Brealey et al, 2006).

Management of working capital is a significant element in an organizations financial management strategy. This is mainly since management of working capital has both profitability and liquidity consequences. One of the ten unresolved issues in the area of finance is the value given to liquidity (Brealey & Myers, 1996) and more study has been done by many researchers to examine this phenomena. Organizations are in need to find a balance by sustaining profitability and liquidity simultaneously. This requires an effective working capital management approach in the forecasting and monitoring the cash, receivables, payable and short term loans. Harris (2005) was of the opinion that working capital management is a straightforward model of making sure the ability of an organization to arrange for the difference relating to the current assets and current liabilities.

Although it's imperative to sustain high profitability for an organization to be successful the significance of a well-managed working capital strategy cannot be unheeded. Overlooking management of working capital can result in the fall of an organization irrespective of it being highly profitable (Pass & Pike, 2007).

Hence with these in mind researchers have explored to understand the impact of working capital management on a corporates' profitability under different industry settings (Deloof, 2003), (García-Teruel & Martínez-Solano, 2007), (Samiloglu & Demirgunes, 2008),(Baveld, 2012).

## **1.1. Research Problem**

There have been many research studies conducted on the area of working capital management and its impact on profitability. One of the primary concerns of the decision makers of Organizations across the globe is to formulate a strategy to effectively and efficiently manage their day to day operation to meet their commitments while increasing profitability and therefore shareholder wealth.

The Expolanka Holdings PLC (annexure 05), studied in this case provides a unique mix of subsidiaries span across four main industry segments and in culturally diverse jurisdictions which demands diverse business practices. As per the knowledge of the author it can be concluded that there have been no identical research done which has the same mix of diversity of over 17 countries, 4 industries and 60 companies.

The study is confined to the diverse processes surrounding management of working capital and focused on some diverse performance measures to discover how company's performance can be bettered by managing working capital.

### **1.2. Objective of the study**

The primary objective of this study is to critically appraise the working capital management strategy of Expolanka's subsidiaries and to explore what is its impact on subsidiaries profitability.

The subsidiaries studied are characterised under diverse industry segments which have their set of dynamics and challenges applicable to the industry. The seventeen countries in which these subsidiaries function are also different in terms of the business practices, competition in the industry and market dynamics. The research would further work in establishing which working capital metrics and drivers affect profitability the most and in which country setting and industry sectors. The objective of the study is listed as,

- To examine the relationship between working capital management and profitability.

### **1.3. Research questions**

In conclusion the above research objective leads to the following research questions that the authors would attempt to address.

- Is there a relationship between days' sales outstanding and profitability in subsidiaries of Expolanka?
- Is there a relationship between days' payables outstanding and profitability in subsidiaries of Expolanka?
- Is there a relationship between cash conversion cycle and profitability in subsidiaries of Expolanka?

### **1.4. Significance of the study**

The study will benefit the corporate management of Expolanka Holdings PLC and the authors in determining which working capital management techniques to use in order to ensure profitability and also know the various factors that affect working capital management for subsidiaries and their industry sectors. Further the study would facilitate the process of managing working capital for organizations in similar industries.

Moreover most of the working capital researches were focused only for a sector including different scales of business organization while authors in this research mainly focus a group having more subsidiaries.

## **2 LITERATURE REVIEW**

Over the years as the concept of working capital management evolved, many authors have endeavoured to investigate the concept by breaking down the components under it so justice could be done on arriving at a comprehensive definition. This has resulted in the identification of qualitative and quantitative characteristics of working capital management to enable in depth working capital analysis to meet needs. This have furthered the possibility to approach

the study of working capital management in many spheres. The same has contributed in developing and facilitating the evolution of working capital techniques over the years.

Many authors have suggested the use of quantitative approach in defining working capital. Current assets assist in earning profits and effective management of finances needs to be given emphasis in the use of total current assets (Edward, 1993) (Kenneth, 1993) (J C Baker, 1946).

The view was expressed that, irrespective of the uncertainty in the quantitative concept of managing working capital, it provides a more objective criteria in determining the nature and quantum of financing (William & James, 1966). Bogen (1948) considered that working capital is the total current assets of a company which flows from one form to another .i.e. from cash to inventories, then from inventories to receivables and finally from receivables to cash. Thus total current assets of a firm equals to the capital that flows. Hence currents assets and working capital are interchangeable terms.

A more in-depth study done by Park & Gladson (1963) defined working capital as the excess of current assets of business which includes cash, accounts receivables and inventories over current items owed by an organization to its employees and others such as salaries, wages, accounts payables & tax owed to governments. Furthermore the National council for Applied Economics Research defines working capital as the total current assets or as the excess of current assets over current liabilities.

In theory, when it comes to implementing a working capital management strategy, it's discussed in light of risk and return trade off (Weinraub & Visscher, 1998). The classification of working capital management strategies are three fold, namely aggressive, moderate and conservative. Under an aggressive working capital management strategy, the investment and financing of working capital is characterized to be high in return and high in risk. A moderate strategy towards managing working capital will encompass a lesser risk and return compared to an aggressive strategy whilst a conservative working capital management strategy would have the appetite for the lowest risk and much lower return compared to the former two strategies.

The effective management of working capital necessitates a company to direct its focus to various short term assets and liabilities. These are primarily accounts receivables, inventories, cash and cash equivalents from the assets side and accounts payables from the liability side. (Brealey; Myers; & Allen, 2006 pp 813). The diverse short term assets and liabilities are deliberated in the below passage.

The management of Inventory is key especially for organizations in the manufacturing, trading and distributions sector. The type of inventory depends on the industry an organization operates in, namely raw materials, work in progress and finished goods. The management of inventory at optimal levels is quite a tedious activity which necessitates to have a balance between sales and capital tied up. The challenge for an organization when inventory levels are too low is that the organization is at the risk of losing out on possible sales opportunities when the demand for the product arises. Further a lower level of inventory also could delay deliveries for committed timelines where by impacting the organizations reputation as well.

On the contrary, having above average inventory locks up capital which can be better utilized in other investments more efficiently. One of the latest trends in Inventory management is to hold low and work on a Just in Time inventory management system. The Just in Time inventory management system emphasizes that inventories are retained to a minimum level

and measures are taken in enhancing the supply chain management processes to aid the demands of the organization hence the inventories never exhaust. (Brealey; Myers; & Allen, 2006 pp 821)

Management of cash is one of the priorities of an organization under the financial management scope. An organization, similar to inventories needs cash to run its day to day operations. Although in most cases for an organization, it is very comfortable to possess large amounts of idle cash to achieve liquidity or so that an organization does not have to be dependent on raising capital at a short notice. On the flip side the issue in holding above average cash at hand comes at a cost of capital and thus affects an organizations profitability. If this is the case an organization can devote some of its cash into income generating short term marketable securities, this will decrease its cost of capital and gain decent returns on their idle funds. However the problem is that the organization cannot invest all cash into these marketable securities, as this would result in increasing the transaction costs. For large companies the overall transaction costs remain at a bare minimal due to the quantum of transactions, this is also further due to the big investment values. Companies which have evolved in their cash management practices use notional pooling facilities with banks and other sweeping as a method to gain the maximum advantage from their cash balances. Notional pooling is where the company's cash balances are notionally pooled over a period time and where the gains are assessed at the end of the period. Cash sweeping on the other hand is the transfer of idle cash to an income generating account overnight.

The studies done by Richards and Laughlin (1980) revealed that the effects of working capital management can have a significant impact on an organization's liquidity. Although many organizations may perhaps have exceptional future prospects and cash flow forecasts, but miserably fail as a result of ignoring the financing of working capital. The cash conversion cycle is used as an effective measure of liquidity by Richards and Laughlin in the study, as opposite to the traditional balance sheet based liquidity ratios like current ratio or quick asset ratio. The argument laid by them is that by using the cash conversion cycle, the focus can be directed by the organization and by its financial analysts to the timing of cash inflows and outflows. They further argue that the traditional methods fail in capturing this very critical point of analysing liquidity where an organizations cash inflows and outflows hardly coincide. They finally conclude that the use of the cash conversion cycle, will assist in the managing of working capital and subsequently will ensure that enough capital is distributed to liquidity and funds are allocated effectively. The primary motive of the decisions makers of an organization is to maximize the future earnings potential. To achieve this an organization needs to finance in projects which earn them the highest net present value. This would mean that there is an optimal mix of the capital invested between working capital and capital investments, this is because working capital generally earns lesser return than capital investments. Schilling (1996) further argued that arriving at the optimal position of liquidity is the central activity under working capital management. To manage liquidity, schilling endorses that the cash conversion cycle is the most appropriate and dynamic tool. The relationship is that the longer the cash conversion cycle the minimum level of liquidity required for an organization rises. On the flipside a shorter cash conversion cycle will lead to a decrease in the minimum level of liquidity required for an organization.

It is also pointed out by the authors that the organization has to wisely evaluate if they should extend their credit period .i.e. in the case of new product launches or to achieve benchmarked credit periods in the industry an organization operates in. He further argued that the company should use an economic value added approach to these decisions which would attempt to maximize shareholder value.

On a more contrary note to the above, Fazzari and Petersen (1993) transcribe that working capital can be used to even out liquidity when companies attempt to keep a certain level of fixed investments. Their argument is that even firms which are troubled can use working capital to smooth out shocks of cash flows from fixed investments. They even argued that an organization can go as far as to setting the net working capital to negative levels. This meant that organizations can make short-term liquidity likely by altering their working capital without having to compromise on fixed investments.

Another research done by Moss and Stein (1993) on the effect of cash conversion cycle and the firm's size in the retail sector found that larger firms have shorter cash conversion cycles, and significantly positive correlation between the cash conversion cycle and the current and quick ratios. This meant that the conventional liquidity ratios such as current and quick ratio do not really capture the company's cash situation, as funds are being tied up in working capital. Therefore in principle, particularly smaller organizations need to try to concentrate on their cash conversion cycle in order to exploit short-term operational liquidity (Moss & Stein, 1993). Hence merely concentrating excessively on fixed, end of period figures might essentially deteriorate an organizations financial situation.

Deloof (2003) conducted a research to investigate the relationship between working capital management and profitability on a sample of 1009 Belgian firms out of 2000 important firms in the country. The study was conducted on the financial statements of these sampled firm for the five years from 1992 to 1996. The outcome of the study revealed that corporate profitability can be increased by reducing the number of days in receivables and inventory. It further went to expose that companies which are less profitable tend to take longer to pay their suppliers.

A study was conducted by Lazaridis and Tryfonidis (2006) on the relationship between working capital management and profitability. The study was conducted on listed companies on the Athens stock exchange. They used the cash conversion cycle to be the model for efficient management of working capital. Further gross operating profit was used to determine the profitability. It was concluded that their results coincided with of Shin and Soenen (1998) and Deloof (2003). Their research observed a negative relation between the cash conversion cycle and profitability. Erik Rehn (2012) carried out a research on how working capital management affects profitability in Finnish and Swedish companies. The statistical tests concluded that working capital management does in fact affect corporate profitability in these Finnish and Swedish companies.

Ani et al (2012) carried out a research on a larger scale targeting the top five brewery firms in the world. The study was to examine how working capital management affects profitability in the brewery business. The four world's largest breweries namely Anheuser-Busch InBev, SABMiller, Heineken and Carlsberg account for over 50 % of the global market beer production. These brewery companies are listed in stock exchanges worldwide and has operations across Europe, America and Asia. The financial data for the period of 12 years i.e. from 2000-2011 were examined. The findings show that the relationship between the brewery company's cash conversion cycle, sales growth rate and profitability is positive and hence, that cash conversion cycle and sales growth rate are effective determinants of the sector's profitability.

Ajanthan A (2012) conducted a research on listed companies on Sri Lanka's Colombo Stock Exchange. Ten companies from the three sectors namely Beverage Foods & Tobacco, Manufacturing and Chemical and Pharmaceuticals were selected. The study found a negative relation between cash conversion cycle, net profit margin, return on assets and return on

equity. The regression tests also affirmed that there is an insignificant relationship between the working capital management and corporate profitability.

In another research done by Aloy Niresh (2012) a sample of 30 manufacturing firms listed on the Colombo Stock Exchange were studied. The study found that there is no material relationship between the cash conversion cycle and profitability performance measures. It further came to a conclusion that Sri Lanka's manufacturing firm's policy towards management of working capital is conservative.

Lakshan and Bandara (2009) from Sri Lanka investigated the impact of working capital management on profitability which covered 30 listed manufacturing companies and 130 firm year observations. The study found a positive relationship among inventory days, accounts receivables, cash conversion cycle with profitability. It concluded that longer cash conversion cycles results in the increase of profitability of manufacturing companies in Sri Lanka.

### 3 METHODOLOGY

The research study conducted on the subsidiaries under the Expolanka Group was an exploratory type of research. The primary objective of the study was to investigate the relationship between working capital management and corporate profitability of these subsidiaries which span across four main industry segments and over seventeen countries worldwide. The research is quantitative in nature and the financial data for the period from 2009 to 2014 was chosen for the study.

The preliminary study found guidance from past research conducted on the area of working capital management and profitability. Many journal articles in the area of study was perused to understand different research conducted in different settings.

#### 3.1. Data and Variables

The financial data used in this research study was obtained from the Expolanka Group's Management Accountant who is involved in the preparation of consolidated financial statements for the group. The Expolanka Holdings PLC's financial statements are available on the corporate website, however the authors' analysis requires individual subsidiary level financial statements

**Independent variables: working capital management measures.**

- Days Sales Outstanding (DSO)
- Days Inventory Outstanding (DIO)
- Days Payables Outstanding (DPO)
- Cash Conversion Cycle (CCC)

**Dependent variables: Profitability of an organization. Profitability is measured by;**

- Gross Profit margin (GP)
- Net Profit margin (NP)
- Return on Assets (ROA)
- Return on Equity (ROE)

In the selection of subsidiaries to the study sample, all subsidiaries which didn't have financial data for any particular year were disqualified from the sample. The required financial data were extracted from the respective financial statements and replicated into an excel work sheet. The annual figures of sales, cost of sales, net profit after tax, current liabilities, current assets, trade receivables, trade payables, inventory and shareholder equity were laid on the excel sheet on organized columns. Then the respective ratios .i.e. days sales outstanding, days payables outstanding, days inventory outstanding, cash conversion cycle,

gross profit margin, net profit margin, return on total assets and return on total equity were calculated using a predefined formula. There were over 60 companies in the four major industry segments during these 5 years from 2009 to 2014, which gave a set of 243 firm years. The firms which were studied were namely from the Freight & Logistics sector, Travel & Leisure sector, Trading & Manufacturing sector and Investment services sector. The financial data was balanced by eliminating the outlying values in the days' sales outstanding, days' payables outstanding, days' inventory outstanding and cash conversion cycle. The final balanced set consists of 183 firm years. The outliers were defined as having less than -365 days or more than 365 days of each parameter.

### 3.2. Development of Hypothesis

The primary objective of the study will be to comprehend the relationship between the management of working capital and the subsidiaries profitability. In order to analyse and arrive at conclusions from the study and to find answers to the main research questions. The following testable hypotheses are formed for the study.

*H<sub>01</sub>: There is a negative relationship between the days sales outstanding and profitability*

*H<sub>02</sub>: There is a negative relationship between the days payables outstanding and profitability*

*H<sub>03</sub>: There is a negative relationship between the inventory days and profitability*

*H<sub>04</sub>: There is a negative relationship between the cash conversion cycle and profitability*

## 4 ANALYSIS AND DISCUSSION OF FINDINGS

### 4.1. Descriptive Statistics

The below descriptive analysis generated from SPSS depicts on the spread of firm years between the four key industry segments of Expolanka Group. The number of companies under the Freight and Logistics sector is the highest. The travel & leisure represents the minority in the group and have limited observations to be reliable and analysed individually.

	Frequency	Percent	Valid Percent	Cumulative Percent
Airline GSA & Strategic Investments	50	27.3	27.3	27.3
Freight & Logistics	76	41.5	41.5	68.9
Valid International Trading & Manufacturing	49	26.8	26.8	95.6
Travel & Leisure	8	4.4	4.4	100.0
Total	183	100.0	100.0	

**Table 1 - Sector which the subsidiary operate in**

The Table 2 indicates the descriptive statistics of the applicable variables of the observed outcomes. In this passage of the research descriptive statistics of the study will be compared with the descriptive statistics of other studies on the effect of working capital management on an organizations profitability.

**Descriptive Statistics**

	N	Minimum	Maximum	Mean	Std. Deviation
The Days Sales Outstanding	183	.00	363.00	79.6339	66.38095
The Days Payables Outstanding	183	.00	344.00	73.2077	68.17818
The Days inventories Outstanding	183	.00	209.00	11.2186	27.01738
The Cash Conversion Cycle	183	-304.00	211.00	-4.8087	72.07545
The Gross Profitable Margin	183	-.90	.71	.1810	.18102
The Net Profit Margin	183	-.92	.87	.0263	.17052
The Return Generated on Total Assets	183	-3.47	.91	.0457	.35223
The Return Generated on Total Equity	183	-2.14	11.06	.4740	1.09627
Valid N (listwise)	183				

**Table 2 - Descriptive statistics on key variables**

As depicted on Table 2, the average number of days' sales outstanding was 79.63. These results which are applicable to the subsidiaries of Expolanka are higher than findings of Deloof (2003) which was 54.64 days. In addition to Deloof, research done in similar lines by Gill et al. (2010), Dong & Su (2010) and Raheman and Nasr (2007) arrived at lower figures of 53.48 days, 51, 91 days and 54.79 days respectively. On the contrary the study conducted by Garcia-Teruel and Martinez-Solano (2007) resulted in 96.82 days sales outstanding which was higher in comparison to authors study. The other studies done by Sharma and Kumar (2011), Samiloglu and Demirgunes (2008) and Lazaridis and Tryfonidis (2006) also arrived at a higher average days sales outstanding of 96.82, 471.74 & 148.25 respectively.

The average days payables outstanding for the subsidiaries of Expolanka was 73.20 days. The other studies done over the years with a lower average days payable outstanding were Gill et al. (2010), Deloof (2003), Dong and Su (2010), Raheman and Nasr (2007) & Falope and Ajilore (2009), who found an average days payable outstanding of 49.5 day, 56.77 days, 45.4 days 59.85 days & 39.77 days respectively. Further higher average results were found respectively in the studies of Lazaridis and Tryfonidis (2006), Garcia-Teruel and Martinez-Solano (2007) and Sharma and Kumar (2011).The average days payables outstanding in these three studies were respectively 961 days, 97.8 days and 683 days.

As displayed on Table 3 outcomes of the study for the number of days of inventories was on average 41.24 days. The other equivalent results were found by Deloof (2003) which gave an average of 46.62 days The other studies which also studied the number of days inventory outstanding, such as Garcia-Teruel and Martinez-Solano (2007), Raheman and Nasr (2007) Dong and Su (2010), and Gill et al. (2010) found the average days inventory outstanding to be in the range of 80 days.

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
The Days inventories Outstanding	48	.00	209.00	41.2417	39.12503
Valid N (listwise)	48				

**Table 3 - Descriptive statistics for inventory days**

## 4.2. Correlation Analysis

This section would study the correlation between different components of working capital management against profitability. It is important to understand the industry dynamics that company operates as different companies have different working capital requirements and challenges. The authors will investigate the correlation of the subsidiaries of Expolanka as a whole and as separate industries.

### 4.2.1. Days Sales Outstanding Vs Profitability

#### (A) Return generated on assets & return generated on equity

As it appears the Pearson Correlation value generated to test the relationship between days sales outstanding and the return generated on assets is -0.035. This means that there is a negative relationship between the two variables. Hence we can say that when there is an increase on the sales days outstanding, the return generated on total assets reduces. However since the value is much closer to zero, the negative relationship between days sales outstanding and return generated on total assets is weak.

Further the Pearson Correlation value arrived at to test the relationship between days' sales outstanding and the return generated on equity is a positive .116. This indicates a positive relationship between the two, i.e. when the days sales outstanding increases the return on the total equity rises. However the positive correlation between the two is weak as per the value indicated. Further in the examination of Sig (2-tailed) test the two values generated for the relationship between days sales outstanding versus the return generated on total assets and the return generated on total equity are .636 & .119 respectively. This also adds stronger indication to our conclusion arrived before i.e. a statistically significant correlation doesn't exist between the variables.

#### (B) Gross profit margin and net profit margin

Further analysis on the relationship between days sales outstanding against gross profit and net profit margin shows that the Pearson Correlation value generated to test the relationship between days sales outstanding and the gross profit margin is .184 and the figure derived from the Sig 2-tailed test is .013. This means that there is significant positive relationship between days sales outstanding and gross profit margin at 95 % confidence level. Hence we can say that when there is an increase on the sales days outstanding, the gross profit margin also increases. On the contrary the Pearson Correlation score for the relationship between days sales outstanding and net profit margin is -.117. This signifies that when the days' sales outstanding increase the net profit margin will reduce. However the relationship between the two variables are weak due it being closer to zero.

#### **4.2.2. Days Payables Outstanding Vs Profitability**

##### **(A) Return generated on assets & return generated on equity**

The Pearson Correlation value generated to test the relationship between days payables outstanding and the return generated on assets is 0.004. This means that there is a positive relationship between days payables outstanding and return generated on assets. Hence it could be said that when there is an increase on the days' payables outstanding, the return generated on total assets increases. However since the value is much in proximate to zero, the positive relationship between days payables outstanding and return generated on total assets is weak. Further the Pearson Correlation value arrived at to test the relationship between days' payables outstanding and the return generated on equity is -0.025. This indicates a negative relationship between the two, i.e. when the days' payables outstanding increases the return on the total equity decreases. However the positive correlation between the two is weak as per the value indicated. Further in the examination of Sig (2-tailed) test the two values generated for the relationship between days payables outstanding versus the return generated on total assets and the return generated on total equity are .957 & .735 respectively. This also adds stronger indication to our conclusion arrived before .i.e. a statistically significant correlation doesn't exist between the variables.

##### **(B) Gross profit margin and net profit margin**

Further analysis on the relationship between days payables outstanding against gross profit and net profit margin appears that the Pearson Correlation value generated to test the relationship between days payables outstanding and the gross profit margin is .382 and the figure derived from the Sig 2-tailed test is .000. This means that there is significant positive relationship between days payables outstanding and gross profit margin at 99 % confidence level. Hence we can say that when there is an increase on the payables days outstanding, the gross profit margin also increases. On the contrary the Pearson Correlation score for the relationship between days payables outstanding and net profit margin is 0.145 which indicates a positive correlation. This signifies that when the days' payables outstanding increase the net profit margin will increase. However the relationship between the two variables are weak due as it is in close proximity to zero.

#### **4.2.3. Days Inventory Outstanding Vs Profitability**

##### **(A) Return generated on assets & return generated on equity**

The Pearson Correlation value was calculated to test the relationship between days' inventory outstanding and return generated on assets & return generated on equity. As it appears the Pearson Correlation value generated to test the relationship between days inventory outstanding and the return generated on assets is 0.125. This means that there is a positive relationship between days inventory outstanding and return generated on assets. Hence it could be said that when there is an increase on the days' inventory outstanding, the return generated on total assets increases. Since the value is much in proximate to zero, the positive relationship between days inventory outstanding and return generated on total assets is weak. Further the Pearson Correlation value arrived at to test the relationship between days' inventory outstanding and the return generated on equity is -0.151. This indicates a negative relationship between the two variables, i.e. when the days inventory outstanding increases the return on the total equity decreases. However the negative correlation between the two is weak as per the value indicated. Further in the examination of Sig (2-tailed) test the two values generated for the relationship between days inventory outstanding versus the return

generated on total assets and the return generated on total equity are .397 & .305 respectively. This also adds stronger indication to our conclusion arrived before .i.e. the statistically significant correlation doesn't exist between the variables.

#### **(B) Gross profit margin and net profit margin**

Correlation value generated to test the relationship between days' inventory outstanding and the gross profit margin is .403 and the figure derived from the Sig 2-tailed test is .005. This means that there is significant positive relationship between days inventory outstanding and gross profit margin at 99 % confidence level. Hence we can say that when there is an increase on the days' inventory outstanding, the gross profit margin also increases. On the contrary the Pearson Correlation score for the relationship between days inventory outstanding and net profit margin is 0.115 which again indicates a positive correlation. This signifies that when the days inventory outstanding increase the net profit margin will increase. However the relationship between the two variables are weak due as it is in close proximity to zero.

### **4.3. Cash Conversion Cycle Vs Profitability**

#### **(A) Return generated on assets & return generated on equity**

The Pearson Correlation value was calculated to test the association between cash conversion cycle and return generated on assets & return generated on equity. As it appears the Pearson Correlation value generated to test the relationship between cash conversion cycle and the return generated on assets is 0.023. This means that there is a positive relationship between cash conversion cycle and return generated on assets. Hence it could be said that when there is an increase on the cash conversion cycle, the return generated on total assets increases. Since the value is low and in proximity to zero, the positive relationship between cash conversion cycle and return generated on total assets is negligible.

Further the Pearson Correlation value arrived at to test the relationship between cash conversion cycle and the return generated on equity is 0.164. This shows a positive relationship between the two variables, i.e. when the cash conversion cycle increases the return on the total equity increases. The positive correlation between the two is significant in the examination of Sig (2-tailed) test at 95 % confidence level.

#### **(B) Gross profit margin and net profit margin**

It appears that the Pearson Correlation value generated to test the relationship between cash conversion cycle and the gross profit margin is -.233 and the figure derived from the Sig 2-tailed test is .002. This means that there is a significant negative relationship between cash conversion cycle and gross profit margin at 99% confidence level. Therefore we can come into a strong conclusion that when there is an increase on the cash conversion cycle, the gross profit margin decreases.

The Pearson Correlation score for the relationship between cash conversion cycle and net profit margin is -.181 which again indicates a negative correlation. This signifies that when the cash conversion cycle increase the net profit margin will decrease. Further since the value arrived from Sig 2-tailed test is .014, it could be concluded that there is a significantly strong relationship between the two variables at 95 % confidence level.

### **4.4. Regression Analysis**

In the preceding segment, analysis of the association between working capital management and profitability through analysis of correlation was conducted. The important question that arises subsequently is to realise the level of impact working capital management has on

profitability and to understand whether only working capital management which in isolation contributes to the increase or decrease of profitability or to see if there are other variables that make an impact on profitability. A regression analysis is done to understand the level of impact on profitability variables. Regression analysis involves detecting the link between a dependent variable and one or many independent variables. In order to detect this a model of the relationship is hypothesized. A regression equation is developed by using different parameters. Afterwards numerous tests are carried out to conclude if the model is acceptable. On concluding the model being satisfactory the regression equation can be used to calculate the value of the dependent variable using values for the independent variables.

The profitability variables were regressed along with other variables, i.e. trade receivables, trade payables, inventory days and cash conversion cycle. The impact of days sales outstanding (DSO), days payables outstanding (DPO), inventory outstanding (DIO) and cash conversion cycle (CCC) on the profitability variables i.e. gross profit margin (GPM), net profit margin (NPM), return on assets (ROA) and return on equity (ROE) were recognised. The control variables used for the model were total assets (TOAS), current liabilities (CULI), current assets (CUAS), receivables (AR) and payables (AP). The following findings were arrived at from the regression analysis.

#### **DSO Vs Profitability**

The regression for GPM showed a positive impact of 0.193 and significant (p value = 0.011) relationship with the days sales outstanding. The regression for NPM & ROA showed a negative but insignificant relationship with the days' sales outstanding. The regression for ROE showed a positive but insignificant relationship with the days' sales outstanding.

#### **DPO Vs Profitability**

The regression for GPM showed a positive impact of 0.388 and significant (p value = 0.000) relationship with the days payables outstanding. The regression for ROE & ROA showed a negative but insignificant relationship with the days' payables outstanding. The regression for NPM showed a positive but insignificant relationship with the days' payables outstanding.

#### **CCC Vs Profitability**

The regression for GPM and NPM showed a negative impact of -0.263 (p value = 0.001) & -0.172 (p value = 0.034) respectively and significant relationship with the cash conversion cycle. The regression for ROA showed a positive but insignificant relationship with the cash conversion cycle. The regression for ROE showed a positive impact of 0.165 and significant (p value = 0.043) relationship with the cash conversion cycle.

#### **DIO Vs Profitability**

The regression for GPM showed a positive impact of 0.376 and significant (p value = 0.008) relationship with the days inventory outstanding. The regression for NPM & ROA showed a positive but insignificant relationship with the days' inventory outstanding. The regression for ROE showed a negative and insignificant relationship with the days' inventory outstanding.

Based on the findings obtained through correlation analysis and regression analysis, it was observed that there is a statistically significant relationship between the variables of working capital management and gross profit margin. Mixed results were observed between the metrics of working capital management and net profit margin and return on total equity, where some of the working capital measures showed a strong relationship. However the

relationship observed between the variables of working capital management and return on total assets was weak. CCC had a strong statistically significant relationship with all profitability measures presented here except with return on total assets.

## **5. CONCLUSIONS AND RECOMMENDATIONS**

The authors would make conclusions based on these findings and make appropriate recommendations in the interest of the subsidiaries studied. Accordingly the objective of this study on Expolanka subsidiaries was to explore to find whether working capital management has an impact on the profitability of its subsidiaries. Having the objective in mind data was arranged on a tabular basis and correlation and regression tests were performed to explore the relationship. As revealed in the findings section, the authors found a strong relationship between working capital management and gross profitability in the subsidiaries of Expolanka. It was found that by increasing the days' sales outstanding, days' payables outstanding and days' inventory outstanding the company's gross profitability could be increased. It was also revealed that a shorter cash conversion cycle also contributes in increasing the gross profitability.

The days' sales outstanding increase would be as a result of extending longer credit terms to the customer. This also means that the customer would not be getting discounts as he takes time to pay. It also drives business volumes of the company where it would help leveraging on economies of scale and increased pricing levels. This results in the gross profit margins rising. According to results, H1 the negative relationship is rejected and it was evidenced that there is statistically significant positive relationship between DSO and the GP and also between DSO and the NP in Expolanka subsidiaries. Further there is statistically significant positive relationship between DPO and GP rejecting the H2. DIO with GP H3 has recorded statistically significant positive relationship. Furthermore, CCC has recorded significantly negative relationship with GP (H4) and NP.

An increase in the days' payables outstanding would be as an outcome of the companies being able to negotiate based on growth in revenue. This enables the companies to bargain for extended credit terms and preferential pricing. The advantages the companies get are far bigger than the discounts for paying early, which results in gross profit margins increasing. This also brings down the cost of working capital financing as companies leverage on the advantage received from extended credit periods.

The longer inventory days, which is applicable only to the international trading and manufacturing segment of the group shows strong positive relationship with the gross profitability. This could be due to the policy of purchasing in bulk to take advantage in pricing and thus increasing the gross profitability.

The most important working capital management measure is the cash conversion cycle, which embeds the above factors. As indicated in findings it shows a strong negative relationship with the gross profitability, net profitability and return on total assets. A longer cash conversion cycle is an indication of prolonged days' sales outstanding and shorter payable days. This decreases a company's efficiency in working capital management and increases the need for more working capital financing. This would reduce the profitability of the overall business operations and thus there is a negative relationship with profitability. Hence it can be concluded that a shorter cash conversion cycle would improve the subsidiaries overall profitability.

Accordingly it is recommended that subsidiaries improve the visibility on debtors ageing through an efficient and effective management information system. The visibility would give an idea on the company's debtor's position and raise the flag when it goes beyond approved limits. A dedicated team to focus on recovery of debtors. This team should be independent from the sales and finance teams. The team should adopt frequent reminding methods without antagonising the customer. On the invoicing side, timely invoicing could positively impact on the collection period as the practice in certain industries is to pay based on the invoiced date. The invoicing also shouldn't be cumulated, rather frequent invoicing practices would facilitate faster debt collection. A company can also negotiate credit terms with suppliers to extend their credit terms, which would improve the working capital position to increase sales growth. It could further use short term trade credit facilities by analyzing the cost and benefit of the same. As a final point subsidiaries need to adequately plan their liquidity through accurate forecasting methods. This can provide the all needed business intelligence for companies to be successful.

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