The Optimal Relationship of Cash Conversion Cycle with Firm Size and Profitability

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Abstract

Cash conversion cycle (CCC) has been considered a useful measure of firm’s effective working capital management and especially the cash management. This study was conducted with the aim to look into the association of the cash conversion cycle with the size and profitability of the firms in the four specific manufacturing sectors listed at Karachi Stock Exchange namely Automobile and Parts, Cement, Chemical, and Food Producers. The data was collected from the annual reports of 31 sampled firms out of the total firms in the related sectors i.e. 143 covering the period of 2006-2010. The data analysis was conducted by using One-Way ANOVA and Pearson correlation techniques. The lowest mean value of the CCC length is found in the cement industry, with an average of -52.38 days, and the highest mean value of the CCC is found in the Automobiles industry, with an average of 73.72 days. As was expected there was found a significant negative correlation between the CCC and the firm size in terms of total assets, and was found a negative correlation between CCC and profitability in terms of return on total assets with the values of -0.415 and -0.131 respectively. This study presents an update account of the investigation into the subject matter of cash management- an area which is not very much researched upon in the developing nations like Pakistan. Within the particular context of the liquidity management it is supposed to be valuable for setting up ideal threshold points in the related sectors. Despite having limited base for data analysis, the present study has a number of useful implications and is supposed to be insightful for the finance managers, industry planners, academics and researchers.

Key words: - Cash Management, liquidity, Profitability, Cash conversion cycle (CCC), ANOVA, Pearson Correlation.
1. Introduction

Background

Finance is considered the lifeblood of business. Effective financial management is vital for the business survival and ultimate growth. As such almost all the decisions regarding the cash management are considered much important as they relate to a much scarce and the most valuable resource of the business world. Almost all the decisions on the part of the finance managers pertaining to this valuable resource have much bearing upon the performance, risk and the market value of the firms. The financial management decisions of companies are basically concerned with three major areas: capital structure, capital budgeting, and working capital management. Among these major areas, the working capital management (WCM) is an area of great significance for every company as it virtually affects its overall profitability and liquidity (Appuhami, 2008). For many of the companies engaged in the production of goods, the current assets usually in the form of the cash, cash equivalents and the inventories make up almost half of the sum of the asset side of the balance sheet, whereas this proportion may be much higher in the case of companies engaged in the business of distribution. The excessive amount of investment in these assets may result in the blockade of the company’s precious cash resources and may eventually result in a decline of the return on the overall capital of the business. Therefore, the areas of WCM basically cover the planning and controlling activities of the companies regarding their current assets and current liabilities in a manner that guarantees their ability to meet their current obligations satisfactorily as well as a maximum return on their precious investment in these floating assets (Eljelly, 2004).

So the managers invariably have to devote a considerable amount of time and attention towards day to day and routine decisions regarding their current assets and liabilities due to their ever changing forms and nature in the business (Rao, 1989). Since the firm’s liquidity is very much dependant on the quantum and quality of the cash flows generated by its current assets, the WCM is considered a vital part of its managerial finance decisions about the volume, composition and financing of these strategic assets?

Funds represented by the current assets are a form of hidden cash or reserves that, if managed efficiently, can be utilized to finance the current and future expansion of the business. The cash used to finance the accounts receivable and inventories should be freed as soon as possible and in amount as much as possible, so that the available cash can be invested in other more profitable avenues and thereby gain and hold a competitive edge over other players in the industry. Since the decisions regarding the efficient WCM demands more time and managerial attention in the highly stressing business routines, expert finance managers have always serious concerns about finding the most efficient ways of handling the current assets and liabilities. Cash conversion cycle CCC length is considered among the fundamental ingredients of the working capital management (Appuhami, 2008; Keown et al., 2003; and Bodie and Merton, 2000). It is invariably useful as a comprehensive measure because it effectively takes into account the time lag between the expenditure for the acquisition or purchases of raw materials and the collections from the debtors on account of the of sales of finished goods (Padachi, 2006). It has been argued that an effective and efficient handling of short term assets and the
corresponding payables is really a question of life and death for the business enterprises and has much to do with the continued existence of the firms. (Jose et al., 1996).

**Definition**
Besley and Brigham (2005) describe cash conversion cycle as

“the length of time from the payment for the purchase of raw materials to manufacture a product until the collection of account receivable associated with the sale of the product.”

To account for the efficiency of the firm’s cash management, the practitioners and researchers use the cash conversion cycle (CCC) parameter by considering the variables of inventory turnover, debtors turnover and the payables turnover. The CCC days are calculated by taking into account the

1. Debtors turnover period,
2. Payables turnover period, and
3. Inventory turnover period.

The CCC length in days can be simply calculated as follows:

**CCC days = inventory turnover days + debtors turnover days − payables turnover days**

The major ingredients of the CCC turnover can be easily illustrated with the help of the following illustrated figure:

![Figure 1: The cash conversion cycle](image)

Adapted from Jordan (2003)

As such it is self evident from the above equation and figure that in order to meet the fundamental objective of the effective and efficient cash management, handling both the receivables side and the payable side is very crucial and must be taken care of. The CCC can be positive or negative. A positive CCC indicates the number of days the management of the business
must arrange/borrow funds or resort to its available liquid assets before it gets the collections from its accounts receivables(s). on the other hand a negative CCC can be regarded as highly beneficial implying that firm has already received cash from its debtors by the number of days before it has to discharge its current obligations towards its creditors (Hutchison et al., 2007; Uyar, 2009). It thus follows that for the efficient financial management, the firms must try to make or keep the CCC days as minimum or preferably in negative as it can ultimately relieve the firm owners/managers from many worries of cash bottlenecks and liquidity problems. There is always placed a heavy responsibility on the part of finance managers and decision makers if the CCC has to be kept at its minimum, or possibly at a negative level. In this regard the firm may opt any one or a combination of the working capital management strategies as follows (Bodie and Merton, 2000; Uyar, 2009):

- **Curtailing the firm’s stock turnover days:** In order to keep the stock turnover days as minimum as possible, the managers must ensure an effective and efficient inventory system for order placement, material handling, material requisition and issuing, and the regular stock checking and reporting. The efficient inventory management methods and approaches like Just In Time (JIT) approach, or the Quick Response Supply (QRS) can be commissioned for an effective system for ensuring most economical ordering and stock handling costs.

- **Quick collections from trade debtors:** If a firm has to ensure a strong and long term liquidity and solvency position business owners/managers must ensure an efficient and speedy procedure of collection of its accounts so that there occur no liquidity problems in the business.

- **Delaying the payment of current obligations, utility bills etc.**

  It has always been advisable to get as much delay, or relaxation in the payment of payment of the current obligations in such a way that it is able to avail as much days from its suppliers and creditors as possible before such obligations are actually paid out. According to Padachi, (2006), firm’s ability to realize the cash receipts from accounts receivables in advance and in excess of the cash disbursements is invariably a successful strategy for business survival and growth.

The firm’s liquidity management is considered best if based on the principle of collecting cash from debtors as early as possible and delaying the payments of current debts and obligations/liabilities as much as possible. When a business firm is not able to manage its liquidity position it will definitely face difficulty in paying its short term debts and therefore the business may be forced to resort to external financing to clear its short term debts. The term WCM means the management of current assets and current liabilities whereas the concept of liquidity management pertains to how the company manages its most liquid assets and its liabilities. An efficient working capital management (WCM), is the most crucial factor for maintaining liquidity, survival, solvency and profitability of business (Mukhopadhyay, 2004). The efficiency of liquidity management is based on the principle of expediting the collections from debtors’ as much as possible and delaying down the cash payments as much as possible. So the firm has to adopt an ideal and optimal combination of all the variables of interest relating to the concepts of debtors’ turnover days, stock turnover days and the payables turnover days. Conversely, an unduly larger CCC turnover period invariably results in the unprofitable use of the firm’s resources and eventually it hurts the firm’s profitability. In order to achieve the objective of minimizing the CCC length period, managers have to adopt
various policies of collection and discounts on the accounts receivables and thereby increasing the firm’s profitability. On the other side of the creditors’ payments, the firms have to strike a balance between the adequate solvency and the maximum delay in paying the trade creditors and suppliers for credit purchases. The firm failure in ensuring an improved CCC period may lead the firm towards financial distress. Hence, the firm may have to resort upon the external borrowings which, unfortunately, aren’t always forthcoming and that too not without a substantial cost of funds. The CCC is considered a dynamic measure of the firm’s liquidity taking into account the related elements of both balance sheet and income statement along the time dimension (Jose et al., 1996).

The changes in the CCC length are used for the firm’s liquidity analysis and the resulting improvements (Hutchison et al., 2007). Cash or finance is really considered the lifeblood of business and a proper cash management and the firm’s liquid resources is vital to the firm’s profitability, survival and the ultimate growth. One can never expect a smooth working of any business unit unless and until its precious resources are used in an optimal way. The firms which face the WCM management problems and liquidity shortages always find it extremely difficult to cope with the issues relating to their survival and eventual growth. So investigating the optimal combination of the components of WCM is of paramount academic as well as practical importance, and that especially in the context of the developed as well as the developing countries, in the context of the larger companies as well as the small and medium sized enterprises (SMEs). Especially, the meager resources available on the disposal of the SMEs compel them to seek external financial assistance and that too is not always available in the required magnitude as the financial markets in the developing countries are not well developed and the lenders as well as the financial institutions are usually found hesitant to finance their needs. So the topic of liquidity management is of great importance in the context of the developing countries like Pakistan.

Purpose of the Study
There are many researches regarding working capital management and its impact on the profitability of firms but only a few researches have been conducted in Pakistan regarding the working capital management and still a little is known regarding the cash conversion cycle relationship with the firm size and profitability. So the purpose of this study is to analyze the association of cash conversion cycle with the profitability as well as with the size of the firms from four industrial sectors of Pakistan. Thus the primary objective of the study is to examine the relationships between:

- the length of the CCC and the size of the firms, and
- the length of the CCC and profitability of the firms.

Research question  The formulated statement of the problem to be analyzed is:
Are the firm size and profitability are associated with the cash conversion cycle time period?

The specific research objectives are to:
- Investigate the existing literature on WCM and CCC to highlight trends.
- Understand the applicability CCC as a measure of working capital management.
• Understand the association between company profitability and management of CCC.

**Scope of the study** The study focuses on the sample of listed companies of Karachi Stock Exchange (KSE) across the four industries (i.e. cement, food, sugar and auto-mobiles) and the companies are randomly taken from each industry. The data used for analysis is for the period 2006 to 2010. Service firms are considered beyond the scope of this study and thus not sampled. For the purpose of the study, firm size is measured by total assets and sales revenue, and profitability is measured by return on assets and return on equity.

**Study Limitations**
In this study relatively a sample data has been used relating to the period 2006-2009. Secondly, the future longitudinal research may well focus on the related aspects of liquidity management to gain a deep insight into the determinants and impact of CCC on firm performance at large.

The rest of the paper follows as: section three provides literature review about the CCC; section four presents research methodology and design of the study; section five analyzes findings of the study, and the sixth and the last section provides the concluding remarks of study.

2. **Literature Review**

There has been a traditional focus in the field of corporate finance on the long term financial decisions including capital budgeting, capital structure, and dividends. There has been, however, an increasing researcher’s focus on the WCM practices for the last two decades. As a matter of efficiency, the crux of the WCM practices lies in reducing the CCC period by speeding up collections and slowing down disbursements, as much as possible. The idea of CCC was pioneered by Richards and Laughlin (1980) as a powerful tool for measuring how well a firm is employing its WCM practices. Gentry et al. (1990) concluded that a firm’s market worth was invariably associated with the CCC. The efficient cash management on the part of the firm invariably increases the net present value (NPV) of the cash flows, and eventually the market value of the company. Similarly, a shorter CCC period eventually results in a high profitability of the firm because due to the efficient WCM practices the cost of using the funds in decreased.

In other words, a shorter CCC period implies any one or all of the following situations:

1. A reduced inventory turnover period in days - quicker processing of materials.
2. A reduced receivables’ turnover in days - speedy collections from credit customers.
3. A reduced payables’ turnover in days - slow payments to creditors.

As a result, the efficiency of internal operations of the company eventually results in an increase in the firms’ returns on investment, a rise in the NPV of associated cash flows, and higher market value of a firm (Gentry et al, 1990). In the case of micro and small enterprises, managing the CCC is of vital importance as these firms usually operate with a low financial base. As a matter of fact, reduction the CCC period is invariably a valuable source of small firm finance. It can be safely argued that every firm whether having business operations over a micro scale, small scale, or medium size market, or over a large or even a global level, must maintain and ensure efficient cash management practices in order to get maximum return on its highly precious capital invested in
As for instance, the most appropriate WCM practices are considered and valued by Dell and Wal-Mart as an important competitive advantage (Ruback and Sesia 2000). Shin and Soenen (1998) have pointed out towards an important evidence of the impact of efficient management of CCC turnover. They show that in 1994, while the Wal-Mart and Kmart were almost similar with respect to their debt equity ratios, the CCC period of Kmart was of about sixty one days, and that of Wal-Mart forty days. This resulted in an additional annual financing cost of $198.3 million to Kmart and later on its inefficient WCM practices contributed to its bankruptcy (Moussawi et al, 2006). The WCM was found to have a significant impact on both the profitability and liquidity in previous studies in the context of different countries (Uyar, 2009). Uyar, (2009) examined the sample of 166 corporations from seven industries of merchandising and manufacturing sector listed in Istanbul Stock Exchange (ISE), Turkey, and concluded that the larger the firm size, the shorter the CCC or the smaller the firm size, the longer the CCC and the firms with shorter CCC were more likely to be more profitable than the firms with longer CCC.

Conversely, a poor cash management may well land the firm into troubles as it couldn’t be able to pay its current obligations on time and eventually the firm may have to face the technical insolvency in the short run, or even the ultimate bankruptcy if such state of poor cash management persists and remains unresolved for excessively long period of time. So it can be established that liquidity management is important to maintain adequate profitability as well as the survival of the firm (Uyar, 2009).

The Corporate liquidity can be assessed in the context of two different aspects: static or dynamic (Farris and Hutchison, 2002; Moss and Stine, 1993and Uyar, 2009). The first static aspect based view relates to the use of conventional ratios like working capital ratios and liquidity ratios. These various ratios are deployed to gauge or measure the liquidity of the firm at a specific point in time whereas the dynamic view takes into account the firm’s ongoing or concurrent liquidity position based on firm’s operations. So the CCC days is the very outcome of this dynamic view of cash management on the part of the firm. Moss and Stine (1993) found firm size to be an important factor towards the CCC days. They showed that the larger the size of the firms; the shorter is the CCC turnover in days. They also found a significant positive relationship of the CCC when compared to the working capital ratios.

The previous researchers have found a significant and negative relationship between profitability and the length of CCC (Jose et al., 1996; Eljelly, 2004; Uyar 2009).

Deloof (2003) studied the impact of WCM practices on earning efficiency of 1009 companies for a period of 5 years data using the CCC period as the efficiency tool for good WCM practices. He concluded with a strong negative association between the CCC period and profitability.

Samiloglu and Demirgunes (2008) analyzed the effect of WCM practices on firms’ profitability. They found a negative relationship between the profitability and the debtors’ turnover days, sock turnover days and the financial leverage, with the exception of sales growth which had a positive impact on firm’s earnings.

In another study, Karaduman and et al (2010) analyzed the impact of WCM practices on the firm’s earnings regarding a four years data of the listed firms in ISE, Turkey. On the basis of their strong evidence, they regarded the efficient WCM practices as a fundamental driver of firms market value.
thereby arguing the necessity to create a balance between the profitability and risk associated with the ultimate outcomes of the financial decision making.

Lyroudi and Lazaridis (2000) analyzed the food industry in Greece for the relationships and found the evidence of a significant positive relationship between the CCC and the current and quick ratios. Koumanakos (2008) and Padachi (2006) also found a negative association between the stock turnover days and the return on investment- that high level of inventories was associated with low profitability.

Singh and Pandey (2008) also analyzed association between WCM practices and performance in the context of the Hindalco Industries for an eighteen years data. Lazaridis and Tryfonidis (2006) also analyzed association between WCM practices and performance and found a strong relationship between the WCM ratios and firm performance, and their results from regression analysis showed strong association between profitability (gross operating profit) and CCC. It was also argued by them that an efficient and optimal CCC management was vital for increasing the shareholders worth. The research by Eljelly (2004) also found a strong negative association between the WCM measures and the firm performance.

Gill and Biger and Mathur, (2010) also reported a very strong relationship between slow recoveries and low profitability. Mathuva (2009) also analyzed the impact of working capital management practices with the same conclusion that there exist strong relationships between average collection period (ACP) and profitability, between the inventory turnover period and profitability, and between payables turnover period (APP) and the firm’s profitability.

In their studies on the same subject matter, Dong and Su (2010) and Hutchison et al. (2007) showed a strong relationship between CCC length and the company’s returns on investment. According to Schilling (1996), the decision to segregate the capital employed between the current assets and fixed assets and both the returns on investment in current assets and fixed assets are to be considered. He proves that if the CCC length/turnover days are increased, the minimum liquidity required in the business increases; and if the CCC turnover decreases, there also occurs a fall in the volume of cash needed by the business. He argues that as the return on total capital employed turns out to be lesser than the return on fixed assets, investment in current assets must be done very cautiously maintaining a minimum of liquidity.

In Pakistan’s context Raheman and Nasr, (2007) analyzed the effect of components of WCM on liquidity and profitability by selecting a sample of 94 Pakistani firms listed on Karachi Stock Exchange (KSE) for a period of 6 years from 1999 – 2004. They reported significant negative correlations between WCM components and profitability, and between liquidity and profitability.

Afza and Nazir (2009) studied relationship between WCM practices and a firm’s profitability by taking 204 non-financial companies listed on KSE for years 1998-2005. They used regression analysis and found a strong positive association of low profitability and aggressive WCM, and recommended a conservative approach towards WCM and related financing policies.

Noreen, Khan and Abbas, (2009) examined the international WCM of MNCs in Pakistan. They studied three major areas namely the international cash management operations, international sales and foreign exchange activities of one hundred and fifty companies of the banking, telecommunication, and related service providers. Their study is envisaged to be helpful to the
policy makers and decision making authorities to better consider and adopt efficient ways of WCM practices.

3. Research Methodology

The present study was basically conducted to investigate the hypothesized relationships through correlation analysis and One-Way ANOVA testing. The correlation analysis is to be used for seeking the exact relationships among the CCC length, profitability and the firm’s size. The One-Way ANOVA Testing is to be used for analyzing any of the differences across the industries studied in terms of the CCC turnover days.

Hypotheses
Since the aim of the study is to examine the relationship of the cash conversion cycle with the firm size and profitability so following hypothesis have been developed for empirical test.

H01: There is no relationship between cash conversion cycle and firm size.
H11: There exists a relationship between cash conversion cycle and the firm size.

H02: There is no relationship between cash conversion cycle and profitability.
H12: There is exists a relationship between CCC and profitability of the firm.

The Study Design - Methods and Procedures

Sampling
The sample contains KSE listed firms across the four industries (i.e. cement, food, sugar and automobiles) and the companies are randomly taken from each industry. The data used for analysis is for the period 2006 to 2010. Service firms are considered beyond the scope of this study and thus not sampled. For the purpose of the study, firm size is measured by total assets and sales revenue, and profitability is measured by return on assets and return on equity.

Data Collection
The data of Cement and Food Industry for the years 2006 to 2010 used in this study had been taken from secondary sources. The necessary secondary data have been collected from the financial statements published in the Annual Reports and financial statements were downloaded from the companies’ official websites.

Variables
The CCC length is measured by calculating accounts receivable, inventory and accounts payable. Firm size is measured in terms of values of total assets and total sales. Profitability is measured in terms of return on assets and return on equity.
Data Analysis

One-Way ANOVA analysis is to be conducted to investigate significant difference among industries in terms of length of CCC.

Pearson correlation analysis is envisaged to demonstrate the relationship of CCC with the firm size and profitability of the firm.

4. Data Analysis and results
Analysis of Means
The lowest mean value of the CCC is found in the cement industry, with an average of -52.38 days, and the highest mean value of the CCC is found in the Automobiles industry, with an average of 73.72 days.

Table 1 Mean values, by industry

<table>
<thead>
<tr>
<th>Industry Code</th>
<th>Mean</th>
<th>N</th>
<th>Std. Deviation</th>
<th>Mean</th>
<th>N</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sugar</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>21.02</td>
<td>50</td>
<td>60.236</td>
<td>-52.38</td>
<td>29</td>
<td>35.350</td>
</tr>
<tr>
<td>N</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Std. Deviation</td>
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<td></td>
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<tr>
<td>Cement</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>-52.38</td>
<td>29</td>
<td>35.350</td>
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<tr>
<td>N</td>
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<td></td>
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<tr>
<td>Std. Deviation</td>
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<td></td>
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<tr>
<td>Chemical</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>33.12</td>
<td>50</td>
<td>34.202</td>
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<td></td>
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<tr>
<td>N</td>
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<td></td>
<td></td>
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<tr>
<td>Std. Deviation</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Auto Mobiles Parts</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>73.72</td>
<td>25</td>
<td>27.032</td>
<td></td>
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<tr>
<td>N</td>
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<td></td>
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<tr>
<td>Std. Deviation</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>19.68</td>
<td>154</td>
<td>19.68</td>
<td></td>
<td></td>
<td>58.318</td>
</tr>
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<td>Std. Deviation</td>
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</tbody>
</table>

In order to investigate whether there is a significant difference among industries in terms of the CCC, one-way ANOVA analysis with Duncan test from Post-Hoc tests was conducted (see Table 3 and 2). The results show a highly significant F-value of 40.453 with respect to the CCC length across
the industries. Thus we reject the null hypothesis that the means are not equal across the industries studied and can conclude that there appear significant differences among the industries in terms of the CCC length. Also by Post-Hoc analysis we can further conclude that among all industries mean of Cement industry CCC is significantly different than those of the Food and Chemical industries.

Table 2 One-way ANOVA Analysis

<table>
<thead>
<tr>
<th>Cash Conversion Cycle Days</th>
<th>Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>232713.282</td>
<td>3</td>
<td>77571.094</td>
<td>40.453</td>
<td>.000</td>
</tr>
<tr>
<td>Within Groups</td>
<td>287636.128</td>
<td>150</td>
<td>1917.574</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>520349.409</td>
<td>153</td>
<td>1917.574</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3 Duncan a, b test Industry N Subset for alpha = .05

<table>
<thead>
<tr>
<th>Cash Conversion Cycle Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industry Code</td>
</tr>
<tr>
<td>-----------------</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Cement</td>
</tr>
<tr>
<td>Sugar</td>
</tr>
<tr>
<td>Chemical</td>
</tr>
<tr>
<td>Auto Mobiles and Parts</td>
</tr>
<tr>
<td>Sig.</td>
</tr>
</tbody>
</table>

Means for groups in homogeneous subsets are displayed.

a Uses Harmonic Mean Sample Size = 34.940.
b The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

Correlation analysis

CCC and Firm size Correlation

To analyze the association among the different variables of interest relating to the working capital management, Pearson correlation analysis was conducted (see Table 4). There is a significant negative correlation between the CCC and the firm size in terms of total assets (-0.415). This means the larger the firm size, the shorter is the CCC in terms of days.

As it is common finding that the smaller firms are usually confronted with the problems in the areas of WC management and the liquidity management. The smaller firms may well be cautioned to manage their inventory and receivable turnover in terms of days.
### Table 4: Correlation Matrix

<table>
<thead>
<tr>
<th></th>
<th>CCC</th>
<th>Total_Assets</th>
<th>Total_SALES</th>
<th>ROE</th>
<th>ROA</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCC</td>
<td>Pearson</td>
<td>-.418(**)</td>
<td>-.131</td>
<td>.109</td>
<td>.296(**)</td>
</tr>
<tr>
<td></td>
<td>Correlation</td>
<td>.000</td>
<td>.104</td>
<td>.179</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.000</td>
<td>.000</td>
<td>.725</td>
<td>.194</td>
</tr>
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**Notes:**
* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

### CCC and Profitability Correlation

Interestingly, here appears a significant positive relationship between the length of CCC and the profitability of firms in terms of return on total assets giving a strong indication to the firm managers/owners that longer the CCC turnover in days, lesser capital will be deployed in current assets and eventually there will be more capital investment leading towards a higher profitability of the firm. This rationale is also supported by the concept of optimum liquidity position.
promulgated by Schilling (1996). The cash conversion cycle in terms of days and profitability in terms of return on equity appears to be negatively correlated with the firm’s profitability (-0.131) revealing and supporting the previous research finding that the companies with shorter CCC turnover days are more profitable than the firms with longer CCC. This might be due to the fact that the firms having more investment blocked in current assets may have to resort to the alternate, but rather costly external sources of financing. So it appears that the firms which are not efficient in managing their working assets and the crucially important liquid assets are facing the high cost of financing as a result of which their profitability is decreased.

4. Conclusion

This study conducted on listed companies in the Karachi Stock Exchange, presents the mean values CCC for various industries comparatively. Moreover, the finding indicated a significant negative correlation between the length of CCC and the firm size, in terms of total assets. So the larger firms seem to manage their CCC turnover days efficiently whereas their smaller counterparts happen to be struggling with their cash management issues. This finding is in line with that of Moss and Stine (1993) and cautions the smaller firms to better manage their CCC turnover days.

Interestingly, here appears a significant positive relationship between the length of CCC and the profitability of firms in terms of return on total assets giving a strong indication to the firm managers/owners that longer the CCC turnover in days, lesser capital will be deployed in current assets and eventually there will be more capital investment leading towards a higher profitability of the firm. This rationale is also supported by the concept of optimum liquidity position promulgated by Schilling (1996). The cash conversion cycle in terms of days and profitability in terms of return on equity appears to be negatively correlated with the firm’s profitability (-0.131) revealing and supporting the previous research finding that the companies with shorter CCC turnover days are more profitable than the firms with longer CCC. The problem of longer CCC turnover days might be the outcome of longer inventory turnover and accounts receivable turnover in terms of days. The study is one of the unique researches about the subject conducted in Pakistan and also presents industry benchmarks to the firms to evaluate their CCC turnover performance in terms of days. The study has several implications and is supposed to be very beneficial for the industries, academics and analysts, as it describes the cash management performance of the selected sectors and its findings can help in setting some useful benchmarks in the related sectors.

Suggestions for Future Research

Further researchers could usefully test and verify the points raised in this study across a greater set of industries. In particular, in order to identify the various circumstances in which the firms could change their attitudes towards particular sources of working capital, and that in the different phases of growth cycle, the longitudinal studies utilizing preferably the panel or pooled data may prove more helpful. A good amount of research work may also be undertaken with the objective of proposing an ideal combination of WCM strategies and the financial policies which could be highly conducive to the growth of the firms.
References


