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Does Efficient Management of Working Capital have a Parallel Impact on the Profitability of Small and Large Firms?

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Abstract

Working Capital Management has an overriding impact on a firm's profit performance. However, the profitability of large firms, unlike small ones, might show a different degree of sensitivity to the efficient management of working capital. One wonders as to which category of firms (small or large) exhibit more escalation in their profitability as a result of a decent management of their working capital. Exploring the answer to this query is the foremost aim of the present work. To investigate, effect of working capital management was determined on profitability of small and large organizations separately and their results were compared. Findings from the comparison suggested that indicators of working capital management had a more perceptible impact on profitability of firms of relatively larger size. It is, thus, suggested for managers of large-sized corporations to redouble their thought on effective and vigilant management of their working capital so as to invigorate profitability.

Keywords: Working Capital Management, Cash Conversion Cycle, Inventory Conversion Period, Receivable Collection Period, Payable Deferral Period, Return on Assets

JEL Classification Codes: G30, L25

1. Introduction

Working Capital Management is one of the most imperative and crucial aspects of short-term financial matters of an organization. Firms of all sizes demonstrate sensitivity of their profit performance to the efficient management of their working capital. However, which category of firms (small or large) exhibit relatively more responsiveness to proficient working capital management is obscure. Presumably small firms and large firms are different from each other in that working capital management may affect more (or less) the profitability of one or the other. This paper is aimed at separately determining the effect of Working Capital Management on Profitability of *small* and *large* firms listed in Karachi Stock Exchange, and then comparing the results so derived to reveal the difference, if any, in the respective *response* of their profitability towards a skilful working capital management. Besides, an attempt is also made to discretely elucidate the influence of *Liquidity* on profitability of small and that of large companies both listed at Karachi Stock Exchange and then to compare the respective effects of the two distinct organization types.

It is expected that working capital management might have a more profound impact on profitability of small enterprises than on the performance of larger companies since a substantial proportion of the total assets of small and medium firms is constituted of the *Current Assets* and a sizeable fraction of their total liabilities is consisted of the *Current Liabilities*. And, of course, the management of working capital is all about the management of a firm's current assets and current liabilities. With this in mind, the hypotheses for the study are, thus, formulated as follows:

2. The Hypotheses

The first hypothesis developed for the study is:

$H_{0\text{-}1}$: *Working Capital Management has no relevance to Profitability of Small and Medium-sized corporations listed at Karachi Stock Exchange.*

$H_{1\text{-}1}$: *An efficient management of Working Capital may have a significant relationship with the Profitability of Small and Medium-sized corporations listed at Karachi Stock Exchange.*

The second hypothesis developed for the study was:

$H_{0\text{-}2}$: *Working Capital Management has no relevance to Profitability of Large Joint Stock Companies listed at Karachi Stock Exchange.*

$H_{1\text{-}2}$: *An efficient management of Working Capital may have a significant relationship with the Profitability of Large Corporations listed at Karachi Stock Exchange.*

The third hypothesis developed for the study is:

$H_{0\text{-}3}$: *There is no substantial distinction between the effect of Working Capital Management on the Profitability of Small and Large Corporations listed at Karachi Stock Exchange.*

$H_{1\text{-}3}$: *Working Capital Management has a significantly different effect on the Profitability of Small and Medium Enterprises than of Large Corporations listed at Karachi Stock Exchange.*

The fourth hypothesis developed for the study is:

$H_{0\text{-}4}$: *There is no substantial distinction between the impact of Liquidity on the Profitability of Small and Medium Enterprises, and that of Large Corporations listed in Karachi Stock Exchange.*

$H_{1\text{-}4}$: *Liquidity has a significantly different impact on the Profitability of Small and Medium Enterprises than of Large Corporations listed in Karachi Stock Exchange.*

3. Justification and Likely Benefits

Presumably this paper will add to the existing relevant literature as no study is so far known to have been conducted with the aim to determining and *comparing* the effects of Working Capital Management on the Profitability of Small-sized and Large-sized organizations, and that within the same region (where all other profit-determining factors are the same). The study will insistently offer a better illustration of whether Working Capital Management varies in its worth and potential impact for *small* and *large* organizations.

4. Review of Literature

There has been some work previously done on the relationship between Working Capital Management and its influence on profitability of companies. Many researchers have recognized the effect of a sensible management of working

capital on corporate performance. The ensuing lines enclose some of the research findings of the previously done work on this and the related topics:

Shin and Soenen (1998:44) were probably among the pioneers to relate efficient management of working capital with enhanced profitability. They found that a reasonable reduction in the Cash Conversion Cycle could lead to an increase in the firms' Profitability.

Vishnani and Shah (2007:201) made a pragmatic analysis of Indian Consumer Electronics Industry to determine the impact of working capital policies & practices on profitability for the period 1994–95 to 2004–05. They found a negative relationship between the determinants of WCM and profitability for most of the companies in their sample. In another related paper written by Lazaridis and Tryfonidis (2006:34), profitability was found to be statistically significant with the cash conversion cycle of firms listed in the Athens Stock Exchange for the period 2001-2004.

Ramachandran and Janakiraman (2009:73) also attempted to devise a significant relationship between the Working Capital Management Efficiency and EBIT. The results of their Regression analysis showed a significant negative relationship of EBIT with Cash Conversion Cycle.

One of the very few efforts made in Pakistan with the aim to assess the impact of Working Capital Management on Profitability was that initiated by Rehman and Nasr (2007) of COMSATS Institute of Information Technology, Islamabad. They took a sample of 94 Pakistani non-financial firms listed in Karachi Stock Exchange for a period of six years from 1999 to 2004. The results of their analyses demonstrated a very strong negative relationship between the determinants of working capital management and that of profitability. In addition to that, they also found a significant negative relation between the liquidity and profitability of firms in their sample (Rehman and Nasr (2007:299).

Mukhopadhyay (2004:74) indicated, in his article "Working Capital Management in Heavy Engineering Firms—A Case Study", that no significant role did current assets play in the profit maximization of the firms under study. A study with a view to analysing the relationship between working capital management efficiency and corporate profitability in the Indian Cement Industry was conducted by Ghosh and Maji. Their results depicted a significant association between effective and efficient use of current assets and profitability (Ghosh and Maji,2003:370).

Govind Rao and P. M. Rao (1999:258) researched the relationship of WCM and profitability in Indian cement industry and found a mix of positive and negative connections between the working capital related variables and that of profitability.

Vijaykumar and Venkatachalam (1995:383) explored a negative correlation between liquidity and profitability in the Tamil Nadu Sugar Industry. On the other hand, Bardia (2004:312) discovered a positive relationship between liquidity and profitability in the steel giant SAIL for the period 1992-2002. Narware (2004:127), however, found both positive and negative interrelationship between working capital management and profitability in a fertilizer company, NFL.

Singh (2008:73) observed that the level of Inventory had a profound influence on the management of working capital. He stressed on the need to prudently handle the Inventory. Singh and Pandey (2008:72), in their article "Impact of Working Capital Management in the Profitability of Hindalco Industries Limited" observed a significant effect of the management of working capital on the profitability of Hindalco Industries.

5. Plan of Work and Methodology

This research work investigates and compares the relationship of Corporate Profitability and Working Capital Management in *small* and *large* listed companies of Karachi Stock Exchange for a period of six years from 2003 to 2008. The data for this purpose was acquired from an official and legitimate document titled, *"Balance Sheet Analysis of Joint Stock Companies Listed on the Karachi Stock Exchange --- (2003-2008)"*, formally published by the Statistics and DWH Department of the State Bank of Pakistan (SBP). This document contained the Balance Sheet analysis of all the *non-financial firms* listed on the Karachi Stock Exchange as at June 30, 2008. Hence the research was entirely based on the *Secondary data*. Firms of various economic groups and sectors were included in the document including Cotton and Other Textiles, Chemicals, Engineering, Sugar and Allied Industries, Paper & Board, Cement, Fuel & Energy, Transport & Communication, Tobacco, Jute, Vanaspati & Allied Sector and others. It should be mentioned that the *financial corporations* like Banking Companies, Insurance Companies, Leasing Companies and Modarabas were not included in this study due to their distinctively dissimilar nature of business in comparison with the *non-financial* business entities.

There were a total of 436 non-financial companies listed on the Karachi Stock Exchange as at June, 2008 as per the analysis published by the State Bank of Pakistan. Out of these, 93 were found to be small or medium-sized companies as

per the SBP's *SME Prudential Regulations* and the remaining were large corporations.

6. The Samples

There were two distinct samples used in the study --- sample 1 for small and medium firms listed in Karachi Stock Exchange and sample 2 to represent large companies listed at KSE. The size of sample 1 was dependent on the availability of complete financial data of SME's in the source document published by SBP. As mentioned earlier, there were a total of 93 small and medium-sized non-financial firms listed in KSE. However, only 40 out of them had complete set of data required for the study, i.e., the data for each year from 2003 to 2008. Hence, analyses of all the 40 firms (having thorough six year financial data) were made for six years ranging from 2003 to 2008 that led to a total of 240 firm-year observations.

As for Sample 2, 30% of all the large non-financial firms listed in KSE were figured out. However, in order to select the *largest* firms listed in KSE for the sample, all the listed firms were rolled in a descending order based on their average annual gross sales amount and the top 30% firms as per the firm-size parameter were included in Sample 2. The reason for selecting the largest companies in sample 2 was to expand as much as possible the *size gap* between the firms of the two samples so as to get more perceptible and meaningful results, or, in other words, to be able to study the *change* in the impact of Working Capital Management on Profitability that could result due to a change in the *Size* of the firms based on their Sales Volume.

There were a total of 343 large non-financial firms listed in KSE as at June, 2008. Sample 2 included thirty percent of 343 firms or 103 firms for analysis. Hence, an aggregate of 618 firm-year observations was made with observations of each firm for six years ranging from the year 2003 to 2008.

7. The Regression Model

The Multiple Regression analysis was employed in the study to explore the combined effect of the variables of working capital management on profitability.

The Regression Equation for Sample 1 follows:

$$ROA\ ot = \beta 0 + \beta 1\,(\text{RCP ot}) + \beta 2\,(\text{ICP ot}) + \beta 3\,(\text{PDP ot}) + \beta 4\,(\text{CCC ot}) + \beta 5\,(\text{CR ot}) + \beta 6\,(\text{LNS ot}) + \beta 7\,(\text{SG ot}) + \beta 8\,(\text{FL ot}) + \varepsilon$$

The Regression Equation for Sample 2 is:

ROA pt = $\beta 0$ + $\beta 1$ (RCP pt) + $\beta 2$ (ICP pt) + $\beta 3$ (PDP pt) + $\beta 4$ (CCC pt) + $\beta 5$ (CR pt) + $\beta 6$ (LNS pt) + $\beta 7$ (SG pt) + $\beta 8$ (FL pt) + ε

Where:

$ROA\ ot$ = Return on Assets of firm o at time t; o = 1, 2, 3, …, 40 Small firms listed in Karachi Stock Exchange

$ROA\ pt$ = Return on Assets of firm p at time t; p = 1, 2, 3, …, 103 Large Companies listed in Karachi Stock Exchange

$\beta 0$ = The intercept of equation
t = Time = 1,2,3, …, Years
RCP = Receivable Collection Period
ICP = Inventory Conversion Period
PDP = Payable Deferral Period
CCC = Cash Conversion Cycle
CR = Current Ratio
LNS = Natural Logarithm of Sales
SG = Sales Growth
FL = Financial Leverage
ε = The Error Term

8. The Descriptive Analyses

This portion of the analyses offers the descriptive statistics for samples of small and large firms included in the study. Divided into two sections, the analyses give details of each variable of study for the two sample firms separately:

8.1. Descriptive Analysis for Sample 1

This section presents the descriptive statistics of the pooled data of all firms included in sample 1. Table 1 gives the mean values and the standard deviation for each variable in the study. Aside from that, the table also includes the minimum and maximum values for each variable in order to trace out the extreme values achieved by all variables during the years of study.

40 Small Non-financial Firms Listed in KSE: (2003-2008) 240 Firm-year Observations

Table 1: The Descriptive Statistics for Sample 1

VARIABLES	Obs	Mean	Min.	Max.	St. Dev.
Return on Assets	240	0.096	-1.232	9.683	0.736
Operating Profit to Sales	238	0.047	-3.760	6.419	0.731
Inventory Conversion Period	240	117.99	0.00	1420.00	154.03
Receivable Collection Period	240	105.94	0.00	2539.67	298.28
Payable Deferral Period	240	461.35	4.89	6675.44	643.25
Cash Conversion Cycle	240	-237.42	-5896.78	2611.02	639.66
Current Ratio	240	2.041	0.024	27.067	3.428
Financial Leverage	240	0.865	0.014	9.118	0.997
Size (Measured by LN Sales)	238	18.372	14.732	19.749	0.957
Sales Growth	240	0.329	-1.000	19.133	1.663

Source: Calculations based on the Balance Sheet Analysis of firms from 2003 to 2008

8.2. Descriptive Analysis for Sample 2

This section gives the descriptive details of the pooled data of all firms included in sample 2. Table 2 gives the mean values and the standard deviation for each variable in the study. Aside from that, the table also includes the minimum and maximum values for each variable in order to reveal the extreme values achieved by all variables during the years of study.

103 Large Non-financial Firms Listed in KSE: (2003-2008) 618 Firm-year Observations

9. The Quantitative Analyses

In the current study, two proxies were used for measuring profitability, i.e., the *return on assets* and the *operating profit to sales*. Hence, two separate regression analyses were made to accommodate the two dependent variables. However, since there were two samples in the study (sample 1 & sample 2), this translated into four regression analyses. These are all discussed one by one in the following sub-sections.

Table 2: The Descriptive Statistics for Sample 2

VARIABLES	Obs	Mean	Min.	Max.	St. Dev.
Return on Assets	618	0.108	-0.295	0.636	0.119
Operating Profit to Sales	618	0.128	-0.308	4.225	0.217
Inventory Conversion Period	618	69.34	0.00	457.69	58.93
Receivable Collection Period	618	29.68	0.00	293.10	30.27
Payable Deferral Period	618	197.96	19.25	2578.8	163.50
Cash Conversion Cycle	618	-98.94	2439.1	116.88	157.89
Current Ratio	618	1.465	0.177	8.432	0.982
Financial Leverage	618	0.591	0.082	1.646	0.194
Size (Measured by LN Sales)	618	22.790	18.394	27.092	1.127
Sales Growth	618	0.242	-0.527	11.187	0.658

Source: Calculations based on the Balance Sheet Analysis of firms from 2003 to 2008

9.1. The Regression Analysis 'A' for Sample 1

In the Regression analysis A for Sample 1, the indicators of working capital management and liquidity of sample 1 are regressed against the 'Return on Assets'. A total of five regressions are made to investigate the determinants of ROA for all 240 firm-year observations. The results of the Regression analysis 'A' for sample 1 are shown in Table 3 and described in the next lines:

The Regression 1 is run to explore the relationship between the Return on Assets and the Inventory Conversion Period for sample 1. The Regression shows an insignificant negative association of -0.046 between the two variables.

In Regression 2, the Inventory Conversion Period is replaced by the Receivable Collection Period. This Regression also shows an insignificant negative relationship of -0.054 between the RCP and the ROA.

The third Regression is run using the Payable Deferral Period as a replacement for the Receivable Collection Period. This Regression also shows an insignificant negative association of -0.126 between the PDP and the ROA.

In the fourth Regression, the Payable Deferral Period is replaced by the Cash Conversion Cycle. This Regression too shows an insignificant positive association of 0.075 between the CCC and the ROA.

In Regression 5, all the indicators of working capital management are excluded in order to separately measure the impact of Current Ratio (liquidity) on the Return on Assets. The Regression shows an insignificant positive association of 0.030 between the CR and the ROA.

Table 3: Linear Regressions for Sample 1 with 'Return on Assets' as a Dependent Variable

The Regression Analysis A-1: Linear Regressions for Sample 1					
Dependent Variable: Return on Assets					
40 Small-sized Non-Financial Firms listed in KSE (2003 to 2008), 240 Firm-year Observations					
VARIABLES	Reg. 1	Reg. 2	Reg. 3	Reg. 4	Reg. 5
(Constant)	0.030	0.086	0.733	0.102	-0.184
	(0.977)	*(0.937)*	*(0.543)*	*(0.924)*	*(0.854)*
Current Ratio	0.031	0.053	0.014	0.005	0.030
	(0.660)	*(0.499)*	*(0.838)*	*(0.946)*	*(0.670)*
Financial Leverage	0.112	0.111	0.162	0.149	0.116
	(0.128)	*(0.133)*	*(0.045)*	*(0.076)*	*(0.112)*
Size (Measured by LN Sales)	0.000	-0.005	-0.048	-0.006	0.014
	(0.994)	*(0.948)*	*(0.561)*	*(0.936)*	*(0.844)*
Sales Growth	0.003	-0.001	0.000	0.006	0.005
	(0.959)	*(0.985)*	*(0.991)*	*(0.927)*	*(0.942)*
Inventory Conversion Period	-0.046	-	-	-	-
	(0.503)	-	-	-	-
Receivable Collection Period	-	-0.054	-	-	-
	-	*(0.504)*	-	-	-
Payable Deferral Period	-	-	-0.126	-	-
	-	-	*(0.173)*	-	-
Cash Conversion Cycle	-	-	-	0.075	-
	-	-	-	*(0.425)*	-
Adjusted R Square	-0.008	-0.008	-0.002	-0.007	-0.006
F-Statistic	0.627	0.626	0.914	0.665	0.672

9.2. The Regression Analysis 'A' for Sample 2

In the Regression analysis A for Sample 2, the indicators of working capital management and liquidity are regressed against the 'Return on Assets' for sample 2. A total of five regressions are made (from Regression 6 to 10) to investigate the determinants of ROA for all 618 firm-year observations. Results of the Regression analysis 'A' for sample 2 are shown in Table 4 and described in the following lines:

The Regression 6 is run to explore the relationship between the Return on Assets and the Inventory Conversion Period for sample 2. The Regression shows an insignificant negative association of -0.051 between the two variables.

Table 4: Linear Regressions for Sample 2 with 'Return on Assets' as a Dependent Variable

The Regression Analysis A-2: Linear Regressions for Sample 2					
Dependent Variable: Return on Assets					
103 Large-sized Non-Financial Firms listed in KSE (2003 to 2008), 618 Firm-year Observations					
VARIABLES	Reg. 6	Reg. 7	Reg. 8	Reg. 9	Reg. 10
(Constant)	-0.072 *(0.457)*	-0.063 *(0.476)*	-0.105 *(0.262)*	-0.125 *(0.173)*	-0.117 *(0.202)*
Current Ratio	0.136 *(0.007)*	0.128 *(0.008)*	0.126 *(0.012)*	0.131 *(0.009)*	0.127 *(0.011)*
Financial Leverage	-0.333 *(0.000)*	-0.308 *(0.000)*	-0.340 *(0.000)*	-0.355 *(0.000)*	-0.347 *(0.000)*
Size (Measured by LN Sales)	0.118 *(0.002)*	0.119 *(0.001)*	0.131 *(0.000)*	0.139 *(0.000)*	0.136 *(0.000)*
Sales Growth	0.014 *(0.698)*	-0.004 *(0.911)*	0.015 *(0.687)*	0.016 *(0.648)*	0.016 *(0.666)*
Inventory Conversion Period	-0.051 *(0.190)*	- -	- -	- -	- -
Receivable Collection Period	- -	-0.226 *(0.000)*	- -	- -	- -
Payable Deferral Period	- -	- -	-0.021 *(0.593)*	- -	- -
Cash Conversion Cycle	- -	- -	- -	-0.042 *(0.255)*	- -
Adjusted R Square	0.207	0.254	0.205	0.206	0.206
F-Statistic	33.178	43.044	32.815	33.071	40.994

In Regression 7, the Inventory Conversion Period is replaced by the Receivable Collection Period. This Regression demonstrates a highly significant negative relationship of -0.226 (at ά = 0.000) between the RCP and the ROA.

The eighth Regression is run using the Payable Deferral Period as a replacement for the Receivable Collection Period. This Regression shows an insignificant negative association of -0.021 between the PDP and the ROA.

In the ninth Regression, the Payable Deferral Period is replaced by the Cash Conversion Cycle. This Regression shows an insignificant negative association of -0.042 between the CCC and the ROA.

In Regression 10, all the indicators of working capital management are excluded in order to separately measure the impact of Current Ratio (liquidity) on the Return on Assets. This Regression shows a significant positive association of 0.127 (at ά = 0.011) between the CR and the ROA.

9.3. Comparison of the Regression Analysis 'A' for Sample 1 and that for Sample 2

While comparing the results of the Regression analysis 'A' performed separately for Sample 1 and Sample 2, following consequences were drawn:

- No significant associations were detected between the indicators of WCM & liquidity and the Return on Assets for Sample 1 in the Regression analysis 'A'. As for Sample 2, one of the WCM indicators, i.e. the Receivable Collection Period, was found to be negatively related with the Return on Assets with a very high degree of significance.
- None of the regressions run in the analysis displayed a significant association between the Current Ratio and the Return on Assets for Sample 1. Conversely, all the regressions made for Sample 2 evidenced a highly significant, but positive, relationship between the CR and the ROA for large firms.
- A significant positive association was found between the Financial Leverage and the Return on Assets for Sample 1 in only two of the five regressions. Moreover, none of the regressions showed a significant association between the Firm size and the ROA for Sample 1. On the other hand, all the regressions made for Sample 2 depicted highly significant negative associations between ROA and Financial Leverage and highly significant positive relationships between ROA and the Firm size.

The comparison indicates a slightly stronger relationship between the efficient management of working capital and the Return on Assets for Sample 2 in contrast with that for sample 1 which shows no significant relationships at all between the ROA and the variables of WCM.

The comparison also evidences an enormous difference between the effect of liquidity on the Return on Assets of large firms and that of its impact on the ROA of small firms. As could be noticed, all the regressions pointed towards a significant association between the two variables (the CR and the ROA) for large firms in

Sample 2. On the other hand, none of the regressions in the analysis 'A' exhibited the same significant link for firms in Sample 1. Hence, liquidity seems to be a more crucial profit-determining factor for larger firms.

9.4. The Regression Analysis 'B' for Sample 1

In the Regression analysis B for Sample 1, the indicators of working capital management and liquidity are regressed against the 'Operating Profit to Sales' for sample 1. A total of five regressions are made (from Regression 11 to 15) to investigate the determinants of OPS for all 240 firm-year observations. Results of the Regression analysis 'B' for sample 1 are shown in Table 5 and described in the ensuing lines:

The Regression 11 is run to explore the relationship between the Operating Profit to Sales and the Inventory Conversion Period for sample 1. The Regression shows a significant negative association of -0.114 between the two variables. But the significance level is not fairly high as the *p*-value is (0.091). Hence, the result is significant at ά = 0.1 level.

In Regression 12, the Inventory Conversion Period is replaced by the Receivable Collection Period. This Regression also shows a significant negative relationship, with a coefficient of -0.170 and at the significance level of (0.032), between the RCP and OPS.

The thirteenth Regression is run using the Payable Deferral Period as a replacement for the Receivable Collection Period. This Regression shows an insignificant negative association of -0.018 between the PDP and the OPS.

In the fourteenth Regression, the Payable Deferral Period is replaced by the Cash Conversion Cycle. This Regression shows an insignificant negative association of -0.142 between the CCC and the OPS.

In Regression 15, all the indicators of working capital management are excluded in order to separately measure the impact of Current Ratio (liquidity) on the Operating Profit to Sales ratio of Sample 1. This Regression shows a highly insignificant negative association of -0.010 between the CR and the OPS.

Table 5: Linear Regressions for Sample 1 with 'Operating Profit to Sales' as a Dependent Variable

The Regression Analysis B-1: Linear Regressions for Sample 1					
Dependent Variable: Operating Profit to Sales					
40 Small-sized Non-Financial Firms listed in KSE (2003 to 2008), 240 Firm-year Observations					
VARIABLES	Reg. 11	Reg. 12	Reg. 13	Reg. 14	Reg. 15
(Constant)	-1.963	-1.650	-2.360	-3.029	-2.491
	(0.057)	*(0.117)*	*(0.047)*	*(0.004)*	*(0.012)*
Current Ratio	-0.007	0.063	-0.012	0.037	-0.010
	(0.916)	*(0.414)*	*(0.864)*	*(0.625)*	*(0.887)*
Financial Leverage	0.105	0.099	0.122	0.054	0.116
	(0.146)	*(0.172)*	*(0.125)*	*(0.509)*	*(0.110)*
Size (Measured by LN Sales)	0.143	0.118	0.167	0.213	0.176
	(0.043)	*(0.107)*	*(0.042)*	*(0.003)*	*(0.010)*
Sales Growth	-0.019	-0.034	-0.016	-0.017	-0.015
	(0.773)	*(0.598)*	*(0.807)*	*(0.788)*	*(0.816)*
Inventory Conversion Period	-0.114	-	-	-	-
	(0.091)	-	-	-	-
Receivable Collection Period	-	-0.170	-	-	-
	-	*(0.032)*	-	-	-
Payable Deferral Period	-	-	-0.018	-	-
	-	-	*(0.843)*	-	-
Cash Conversion Cycle	-	-	-	-0.142	-
	-	-	-	*(0.125)*	-
Adjusted R Square	0.026	0.033	0.014	0.023	0.018
F-Statistic	2.241	2.605	1.651	2.135	2.063

9.5. The Regression Analysis 'B' for Sample 2

In the Regression analysis B for Sample 2, the indicators of working capital management and liquidity are regressed against the 'Operating Profit to Sales' for Sample 2. A total of five regressions are made (from Regression 16 to 20) to investigate the determinants of OPS for all 618 firm-year observations. The results of the Regression analysis 'B' for Sample 2 are shown in Table 6 and described subsequently:

The Regression 16 is run to investigate the relationship between the Operating Profit to Sales and the Inventory Conversion Period for sample 2. The Regression shows a highly significant negative association of -0.098 with a significance level of (0.020).

Table 6: Linear Regressions for Sample 2 with 'Operating Profit to Sales' as a Dependent Variable

The Regression Analysis B-2: Linear Regressions for Sample 2					
Dependent Variable: Operating Profit to Sales					
103 Large-sized Non-Financial Firms listed in KSE (2003 to 2008), 618 Firm-year Observations					
VARIABLES	Reg. 16	Reg. 17	Reg. 18	Reg. 19	Reg. 20
(Constant)	0.800 *(0.000)*	0.695 *(0.000)*	-0.016 *(0.910)*	0.398 *(0.002)*	0.647 *(0.000)*
Current Ratio	0.339 *(0.000)*	0.323 *(0.000)*	0.342 *(0.000)*	0.389 *(0.000)*	0.322 *(0.000)*
Financial Leverage	0.167 *(0.002)*	0.161 *(0.003)*	-0.064 *(0.130)*	0.013 *(0.729)*	0.142 *(0.008)*
Size (Measured by LN Sales)	-0.197 *(0.000)*	-0.171 *(0.000)*	-0.023 *(0.438)*	-0.114 *(0.000)*	-0.163 *(0.000)*
Sales Growth	-0.010 *(0.788)*	-0.017 *(0.658)*	0.024 *(0.415)*	0.007 *(0.799)*	-0.007 *(0.848)*
Inventory Conversion Period	-0.098 *(0.020)*	- -	- -	- -	- -
Receivable Collection Period	- -	-0.112 *(0.004)*	- -	- -	- -
Payable Deferral Period	- -	- -	0.669 *(0.000)*	- -	- -
Cash Conversion Cycle	- -	- -	- -	-0.692 *(0.000)*	- -
Adjusted R Square	0.092	0.096	0.469	0.532	0.086
F-Statistic	13.566	14.176	110.144	141.454	15.481

In Regression 17, the Inventory Conversion Period is replaced by the Receivable Collection Period. This Regression also demonstrates a highly significant negative relationship of -0.112 (at ά = 0.004) between the RCP and the OPS.

The eighteenth Regression is run using the Payable Deferral Period as a replacement for the Receivable Collection Period. The Regression shows a very large coefficient of association between the PDP and the OPS with full significance --- 0.669 at ά = (0.000).

In the nineteenth Regression, the Payable Deferral Period is replaced by the Cash Conversion Cycle. This Regression also shows a highly significant and a huge negative association of -0.692 (at ά = 0.000) between the CCC and the OPS for Sample 2.

In Regression 20, all the indicators of working capital management are excluded in order to separately measure the impact of Current Ratio (liquidity) on the Operating Profit to Sales ratio for Sample 2. This Regression too shows a highly significant positive association of 0.322 (at ά = 0.000) between the CR and the OPS.

9.6. Comparison of the Regression Analysis 'B' for Sample 1 and that for Sample 2

By comparing the results of the Regression analysis 'B' for Sample 1 and that for Sample 2, following deductions were made:

- There was a significant negative association found between OPS and the Inventory Conversion Period and between OPS and the Receivable Collection Period for firms in Sample 1. The sample, however, could not establish any significant relationship between OPS and the Payable Deferral Period, OPS and the Cash Conversion Cycle and between OPS and the Current Ratio. On the other hand, firms in Sample 2 exhibited very strong and significant associations between OPS and all of the WCM and Liquidity indicators included in the study.
- The coefficient of relationship between Inventory Conversion Period and OPS for Sample 1 (-0.114) was a bit larger than that between the same variables for firms in Sample 2 (-0.098). But the reliability of the relationship between ICP and OPS for larger firms (ά = 0.020) was stronger than the one that existed between the given variables for smaller firms (ά = 0.091).
- As for the relationship between OPS and the Receivable Collection Period for the two samples, the coefficient of association for smaller firms (-0.170) was larger than that for larger firms (-0.112). But the reliability of association between RCP and OPS for larger firms (ά = 0.004) was much stronger than the one that existed between the given variables for smaller firms (ά = 0.032).
- None of the five regressions in the Regression analysis 'B' for Sample 1 witnessed a significant association between the Current Ratio and the Operating Profit to Sales ratio for small-sized organizations. In contrast, *all* of the five regressions in the Regression analysis 'B' for Sample 2 demonstrated a strong and significant, but positive, link between the liquidity indicator and the OPS.

The above comparison presents quite visible differences between the effects of working capital management and liquidity on the profitability (measured by the Operating Profit to Sales ratio) of small and that of the large organizations.

10. Conclusion and Discussion

Studying the results of the Regression Analysis 'A', no significant associations were detected between the indicators of WCM & liquidity and the Return on Assets for Sample 1. As for Sample 2, one of the WCM indicators, i.e. the Receivable Collection Period, was found to be negatively related with the Return on Assets with a very high degree of significance.

The most differentiating results for the two samples were, however, found in the Regression Analysis 'B'. For Sample 1, a weak but significant relationship was found between the Inventory Conversion Period and the Operating Profit to Sales and a highly significant negative association was discovered between the Receivable Collection Period and the OPS. However, the Payable Deferral Period and Cash Conversion Cycle had no significant link with the profitability variable. On the other hand, the pooled data of Sample 2 displayed highly significant relationships of OPS with all the indicators of working capital management including the ICP, RCP, PDP and the CCC. This is a clear indication of the fact that the efficiency of managing working capital has more positive effect on the profitability of larger firms.

Hence, based on the Regression analysis of pooled data for Sample 1 and for Sample 2, the Null hypotheses are all rejected. We here refer as a special case to our Null Hypothesis $H_{0\text{-}3}$ that stated, "*There is no substantial distinction between the effect of Working Capital Management on the Profitability of Small and Large Corporations listed at Karachi Stock Exchange*", and accept the Alternate Hypothesis $H_{1\text{-}3}$. Looking back at the pooled data analyses for the two distinct samples, the *differentiation* in the effect of WCM on the profit performance of *small* and *large* firms is quite evident. Firstly, the Regression analysis 'A' showed no significant associations being found between the Return on Assets and the variables of WCM for Sample 1; however the analysis did discover one significant association of the 'Receivable Collection Period' with the ROA for Sample 2. And secondly, the results of the Regression analysis 'B' displayed even more visible differences. Practically all the indicators of working capital management were strongly (or 'significantly' in a statistical sense) associated with the profitability variable for Sample 2 compared with only two moderately significant relationships that existed between the WCM and profitability indicators for Sample 1. All these evidences are sufficient enough to hold that *Working Capital Management has a more profound impact on the Profitability of large corporations than on the performance of smaller firms listed in the Karachi Stock Exchange*.

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