WORKING CAPITAL MANAGEMENT AND FIRM PROFITABILITY: EVIDENCE FROM PAKISTAN

Maqbool Hussain
The Bank of Khyber, Peshawar

Dr. Khursheed Iqbal
Assistant Professor, Iqra National University, Peshawar

Aqsa Siddiq
Assistant Professor, University of Peshawar, Pakistan

Muhammad Farooq Jan
Assistant Professor, Iqra National University, Peshawar

Abstract
The purpose of this study is to investigate that how working capital is affecting Firm Profitability of non-financial firms in chemical Sector of Pakistan and how it affects the firm profitability. The sample consists of all chemical firms listed on Pakistan Stock Exchange for the period 2005-2016. According to Fixed Effect Model for chemical sector, it is found that R-Square has a value of 72 % which shows that 72% changes in the Dependent variable. The regression results show Current Ratio have no significant impact on the Profitability of the firm, while the Acid Test, Inventory Turnover and Debtors Turnover have a significant impact on the Profitability.

Keywords: WCM, Acid Test, Inventory Turnover, Debtors Turnover, Profitability

INTRODUCTION
Working capital (hereafter WC) is one the most important topic in finance for discussion, as it impact day to day activities of the business firms. Napompech, (2002) defined WC that it is net assets of the firm. Akinlo (2011) revealed that the variables are stationary at first difference and then he applied the Cointegration approach. He concluded that there is a long run association between WCM and Profitability. Rezazadeh and Heydarian (2010) examined the association between Profitability and WCM in the stock exchange of Iran. They used the annual data of Iranian firms for the period 1998-07. They concluded that there is a association amid WCM and Productivity. He added that account receivables have a positive association with the Profitability. On the other hand, Shakor et al. (2012) also analyzed the association of WCM and Profitability. He used the annual data of 25 firms of manufacturing sector and applied different regression tools on it. They discovered that the firms must have a satisfactory amount of currents assets for their day to day operations and due to this the firm will be able to execute the operations successfully and efficiently. In addition, Soenen and
shin (1998) studied the association between WCM and Profitability. He used a large amount of data of American firms and concluded that there is a strong and adverse liaison of WCM and Productivity. They proposed that the Shareholders wealth can be increased by dipping the amount of cash conversion cycle. Gill, Biger, and Mathur (2010) analyzed 88 companies of Network. Plenty of your energy and effort frame of length of the study. They recommended those funds adjustment design is favorably concerning cost-effective performance.

Ali (2012) conducted a study on 160 textiles firm year 2000 - 2005 to investigate the impact WCM. WCM efficiency can be measured by cash conversion efficiency, days of operating cycle and days of working capital. While return on asset, economic value added, return on equity and profit margin on sale are used to calculate the profit. Deloof (2003) applied the correlation technique and regression and concluded that there is an adverse association between firm Profitability and WCM. He suggested that for improving the shareholder’s wealth, the management should work on improving the account receivables collection. Lyroudi & Lazaridis (2000) studied the data of 131 firms and applied different regression tools and methods. They acknowledged a negative relationship between Profitability and WCM. They suggested that creation of the profit can be made easy if the managers are handling the cash, account receivables and inventory properly. Abbasali and Milda (2012) investigated the effect of WCM and Profitability in the Tehran Stock Exchange for the period 2006-2010. Return on assets was used to measure the Profitability of the firm. They concluded that there is positive and significant association between Profitability and WCM. Vida, Seyed, and Rezvan (2011) established a connection in WCM and Productivity by using the data of Tehran Stock Exchange firms for the period of 2004-2008. They used the data of 101 firms for the analysis. Their results revealed that cash conversions cycle has a positive and significant relationship with the Profitability of the firm. They also disclosed that there is an adverse affiliation in debt and Productivity.

Research Questions

- What is the influence of WCM on Firm Productivity in Chemical Firms?
- How working capital is affecting Firm Profitability of non-financial firms in Textile Sector of Pakistan?

Objectives of the Study

- To examine the influence of WCM on the firm productivity in chemical sector of Pakistan.
To study the impact of working capital on Firm Profitability of non-financial firms from chemical sector.

**RESEARCH METHODOLOGY**

**Sample Size and Sampling Technique**

The sample consists of all Chemical firms listed on PSE (Pakistan Stock Exchange) for the period 2005-2016.

**Estimated Regression Model**

Profitability: \( \beta_0 + \beta_1 CR + \beta_2 QR + \beta_3 ITO + \beta_4 DTO + \epsilon \) ………………..I

Where:

\( \beta_0 \): Constant Term

\( CR \): Current Ratio

\( QR \): Quick Ratio

\( ITO \): Inventory Turnover Ratio

\( DTO \): Debt Turnover Ratio

\( \beta_1 \): Coefficient of Current Ratio

\( \beta_2 \): Coefficient of Quick Ratio

\( \beta_3 \): Coefficient of Inventory Turnover Ratio

\( \beta_4 \): Coefficient of Debt Turnover

\( \epsilon \): Error Term

**Hypothesis**

\( H_0 \): Current Ratio rate has no influence on Profitability.

\( H_a \): Current Ratio rate has an influence on Profitability.

\( H_0 \): Quick Ratio has no influence on Profitability.

\( H_a \): Quick Ratio has an influence on Profitability.

\( H_0 \): Inventory Turnover Ratio has no influence on Profitability.

\( H_a \): Inventory Turnover Ratio has an influence on Profitability.
**H₀:** Debtor Turnover Ratio has no impact on Profitability.

**Hₐ:** Debtor Turnover Ratio has an impact on Profitability.

**Independent Variables**

- Current Ratio
- Quick Ratio
- Inventory Turnover
- Debtors Turnover

**Dependent Variable**

- Profitability

**RESULTS & ANALYSIS**

Table 1

*Correlation Matrix*

<table>
<thead>
<tr>
<th></th>
<th>ROA</th>
<th>Current Ratio</th>
<th>Acid Test</th>
<th>Inventory Turnover</th>
<th>Debtors Turnover</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROA</td>
<td>1.0000</td>
<td>-0.3603</td>
<td>-0.1059</td>
<td>0.0619</td>
<td>0.0503</td>
</tr>
<tr>
<td>Current Ratio</td>
<td>-0.3603</td>
<td>0.7883</td>
<td>-0.4825</td>
<td>0.0673</td>
<td></td>
</tr>
<tr>
<td>Acid Test</td>
<td>-0.1059</td>
<td>0.0619</td>
<td>1.0000</td>
<td>-0.2782</td>
<td></td>
</tr>
<tr>
<td>Inventory Turnover</td>
<td>-0.4825</td>
<td>0.0673</td>
<td>1.0000</td>
<td>0.0673</td>
<td></td>
</tr>
<tr>
<td>Debtors Turnover</td>
<td>0.0503</td>
<td>-0.4678</td>
<td>-0.2782</td>
<td>1.0000</td>
<td></td>
</tr>
</tbody>
</table>

**Interpretation:** The association amongst variables was tested done via pair-wise correlation. The R value of less than 0.800 demonstrates that variables were not strongly correlated, and hence, no multicollinearity was found. The value for a Pearson's can fall between 0.00 (no correlation) and 1.00 correlation). Generally, correlations above 0.80 are considered pretty high. According to Evans (1996) if the value of “r” in Pearson correlations is “.00 - .19” then the correlation between the two variables would be considered very weak. If the value of “r” is between “.20-.39”, the correlation would be weak. On the other hand, if the value of “r” is “.40-59”, the variables will have a moderate correlation with each other. In the same way, if the value of “r” is “.60- .79”, the correlation would be strong. Similarly, the value of “r” is “.80-1.0”, it will be named as strong correlation (Evans, 1996)

Table 2

*Results of Hausman test*

<table>
<thead>
<tr>
<th>Correlated Random Effects - Hausman Test</th>
<th>Equation: Untitled</th>
<th>Test cross-section random effects</th>
<th>Test Summary</th>
<th>Chi-Sq. Statistic</th>
<th>Chi-Sq. d.f.</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cross-section random</td>
<td>81.527347</td>
<td>4</td>
<td>0.0000</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Interpretation: To decide between fixed or random affects we can run a Hausman test where the null hypothesis is that the preferred model is random effects vs. the alternative the fixed effects (Green, 2008). It basically tests whether the unique errors (ui) are correlated with the regressors, the null hypothesis is they are not. If the probability value of Cross-section random is more than 5, than we have to apply random effect model and if the P-Value of Cross-section random is less than 0.05, then Fixed effect model will be applied on the data. As the P-Value is less than 0.05, henceforth we cannot accept null hypothesis and we have to accept alternative hypothesis.

Table 3
Fixed Effect Model Results of Chemical Sector

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>3.441275</td>
<td>2.104276</td>
<td>1.635372</td>
<td>0.1032</td>
</tr>
<tr>
<td>Current Ratio</td>
<td>0.242262</td>
<td>0.610781</td>
<td>0.396643</td>
<td>0.6920</td>
</tr>
<tr>
<td>Acid Test</td>
<td>2.978244</td>
<td>1.020237</td>
<td>2.919170</td>
<td>0.0038</td>
</tr>
<tr>
<td>Inventory Turnover</td>
<td>-0.130833</td>
<td>0.029835</td>
<td>-4.385253</td>
<td>0.0000</td>
</tr>
<tr>
<td>Debtors Turnover</td>
<td>-0.679860</td>
<td>0.065275</td>
<td>-10.41539</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

Interpretation of the Results

R-Squared
The R-squared 72% which means that the variables we have taken to find out the relation are highly effective the remaining 28% constitutes those variables or factors that we have not taken.

F-Statistic
The overall significance of the model can be interpreted by the value of probability of F-statistic. Here a rule applies that if the probability value of F-Statistic is less than 0.05 or 5%, the model will be significant.

Individual Significance of Variables
The variables are now checked for individual significance. The significance of variables can be checked by their probability values.
Probability value of Current Ratio is 69.20 which is greater than 0.05. It implies that the variable is irrelevant. It also shows that Current Ratio has an insignificant impact over Profitability. Hence $H_0$ is accepted. Probability value of Acid test ratio is 0.0038 which is less than 0.05. It implies that the variable is significant. It also shows that Acid test ratio has a significant impact over Profitability. $H_a$ is accepted. Probability value of Inventory turnover is 0.0000 which is less than 0.05. It implies that the variable is significant. It also shows that Inventory turnover has a significant impact over Profitability. Hence $H_a$ is accepted. Probability value of Debtors Turnover Ratio is 0.0000 which is less than 0.05. It implies that the variable is significant. It also shows that Debtors Turnover has a significant impact over Profitability. Hence $H_0$ is rejected, and $H_a$ is accepted.

**Coefficient Analysis of Variables**

We now analyze the co-efficient of variables in order to test the hypotheses of this study. The coefficient of CA is 0.242262. It reveals that a 1-unit variation in CR will rise the Profitability by 24.22units. The coefficient of Acid Test Ratio is 2.978244. It reveals that a 1-unit change in Quick Ratio rate will increase the Profitability by 2.97units. The coefficient of Inventory turnover is -0.130833. It reveals that a 1-unit change in Inventory turnover rate will decrease the Profitability by 13units. The coefficient of Debtors Turnover is -0.679860. It reveals that a 1-unit change in Debtors Turnover will decrease the Profitability by 67.98units.

**Residuals Analysis**

<table>
<thead>
<tr>
<th>Test</th>
<th>Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breusch-Pagan LM</td>
<td>648.8400</td>
<td>0.0000</td>
</tr>
<tr>
<td>Pesaran scaled LM</td>
<td>14.84762</td>
<td>0.0000</td>
</tr>
<tr>
<td>Bias-corrected scaled LM</td>
<td>13.75671</td>
<td>0.0000</td>
</tr>
<tr>
<td>Pesaran CD</td>
<td>1.016729</td>
<td>0.3093</td>
</tr>
</tbody>
</table>

$H_0$: There is no autocorrelation in residuals.

$H_a$: There is autocorrelation in residuals.

From the above two tests (Pesaran scaled LM & Pesaran CD), the P-vale is greater than 5% so we will accept the null hypothesis and will reject the alternative hypothesis. So, there is no autocorrelation in residuals of the model.
HETEROSKEDASTICITY TEST: WALD TEST

Table 5  
Wald Test

<table>
<thead>
<tr>
<th>Test Statistic</th>
<th>Value</th>
<th>df</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>F-statistic</td>
<td>39.66614</td>
<td>4, 260</td>
<td>0.0000</td>
</tr>
<tr>
<td>Chi-square</td>
<td>158.66464</td>
<td></td>
<td>0.0000</td>
</tr>
</tbody>
</table>

The above table shows us the results for test of Heteroskedasticity. As presented in table 4.6, there is no problem of Heteroskedasticity.

The above figure and the table show us the results for Normality test. The Jarque Bera test value as 1189.916 and Probability value is 0.00000 which shows that the data used in this study is normal.

CONCLUSION

This study has examined the association between different factors of working Capital management and profitability. This research used 12 years Panel data of 100 firms listed at Pakistan Stock Exchange were used for the data analysis and interpretation. The regression results show Current Ratio have no significant impact on the Profitability of the firm as the P-Value is more than 0.05. While the Acid Test, Inventory Turnover and Debtors Turnover have a significant impact on the Profitability. Acid test ratio has a significant and positive relationship with Profitability, while Inventory Turnover and Debtors Turnover have significant and negative impact on profitability. On the other hand, results of Textile Sector
show that R-square has a 0.967687, which means 96.76% changes in the Profitability is due to the independent variables that we have used. In the Hausman test, as the P-Value is less than 0.05, henceforth we cannot apply random effect model and we have to apply fixed effect model. The regression results show that current Ratio has a significant impact over Profitability. As the Probability value of current Ratio is 0.0000 which is less than 0.05. However, Acid Test Ratio, Inventory turnover and Debtors Turnover has an insignificant impact over Profitability. Wald Test, LM Test, Pesaran CD, Correlation Test suggested that residuals have no issue of Autocorrelation and Heteroskedastic and Multicollinearity.

References