IMPACT OF WORKING CAPITAL MANAGEMENT ON PROFITABILITY
A CASE OF THE PAKISTAN CEMENT INDUSTRY

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Abstract
The object of this research is to find out empirical impact of the relationship between working capital management and profitability of Pakistan cement sector. For regard this research adopted quantitative method of research approach to test a research hypothesis. The survey use rations of 21 listed cement companies in Karachi stock exchange during the period of 2004 – 2010. The result of study showed that there is significant negative relationship between working capital management on profitability of the firms.

Keywords: working capital, working capital management, profitability, liquidity and working capital cycle.

1. Introduction
Working capital management is a very important component of corporate finance because it directly affects profitability of a company. Efficient management of working capital is one of the pre-conditions for the success of an enterprise. Efficient management of working capital means management of various components of working capital in such a way that an adequate amount of working capital is maintained for smooth running of a firm and for fulfillment of twin objectives of profitability (BPP Learning Media, 2010).

A firm is required to maintain a balance between profitability while conducting its day to day operations. While inadequate amount of working capital impairs a firm’s liquidity, holding of excess working capital results in the reduction of the profitability (Ghosh & Maji, 2003). Proper estimation of working capital actually required, is a difficult task for the management because amount of working capital varies across firms over the periods depending upon the nature of business, scale of operation, production cycle, credit policy, availability of raw materials, etc. For this reason significant amount of funds is necessary to invest permanently in the form of various current assets. For instance, due to time lag between sale of goods and their actual realisation in cash, adequate amount of working capital is always required to be made available for maintaining the desired level of sales. A firm can be very profitable if it can translate cash from operations within the same operating cycle, otherwise the firm would need to borrow to support its continued working capital needs. Thus, the twin objectives of profitability must be synchronized (Brigham & Houston, 2004). Investments in current assets are inevitable to ensure delivery of goods or services to the ultimate customers and a proper management of same should give the desired impact on either profitability. If resources are blocked at different stage of supply chain, this will prolong cash operating cycle. Although this might increase profitability (due to increase sales), it may also adversely affect the profitability if the costs tied up in working capital exceed the benefits of holding more inventory and/or granting more trade credit to customers (Khan & Jain).
Empirical results show that ineffective management of working capital is one of the important factors causing industrial sickness. Modern Financial management aims at reducing the level of current assets without ignoring the risk of stock outs (Bhattacharya, 1997). Efficient management of working capital is thus an important indicator of sound health of an organisation which requires reduction of unnecessary blocking of capital in order to bring down the cost of financing. In the light of the above, an attempt is made in this study to look into the working capital management in cement industry.

Cement industry is one of the benchmark materials industries which manufacture basic raw materials for industrial production together with steel and petrochemical industries. The industry, which is closely linked to the construction industry, provides concrete and cement manufacturing products for civil engineering and construction structure. Cement is binding material that is set to a hard mass mixed with water or salt solution. Manufacturing processes are categorized into 3 parts: Process of materials (mining, limestone crushing, grinding), Burning (kiln, firing, cooling), Making Product (cement grinding, packaging and shipment).

Pakistan’s cement sector presently is one of those sectors that have managed to thrive in adverse conditions being faced by business across the world in 2009-10. The country at present has 29 cement plants with an installed capacity of producing around 39 million tones of cement mainly Pak-land cement. Pakistan is not only meeting its domestic needs but also exporting the surplus. Pakistan Cement Industry produces exportable surplus of cement which is exported mainly to Afghanistan, India, Africa and the Middle East.

2. Concepts and definitions of working capital

There are two major concepts of working capital

- Gross working capital
- Net working capital

2.1. Gross Working Capital

The gross working capital is referred as working capital and it include the total current assets of the firms. If the current assets manage efficiently by the firm then it give more growth and can increase the value of the firm in the market.

2.2. Net working Capital

Net working capital is the difference between current assets and current liabilities of a trade and financial nature.  

\[
\text{Net working capital (NWC)} = \text{Current assets} - \text{Current liabilities}
\]

3. Definitions of Profitability

Profit is positive gain from an investment or business operation after subtracting for all expenses. The word profit basically derived from Latin word “profectus” means to progress. Profit is defined in two different ways, one for accounting and other one for economics, here only accounting definition will be taken (Moffatt, 2002).
In accounting, profit is the difference between price and the costs of bringing to market whatever it is that is accounted as an enterprise (whether by harvest, extraction, manufacture, or purchase) in terms of the component costs of delivered goods and/or services and any operating or other expenses (Scott, 2003).

4. Problem Statement
The problem statement to be analyzed in this study is:
“Does Working Capital Management affect Profitability of Cement sector of Pakistan?”

5. Research Objectives
Specific purposes of the study are:
A. To examine the efficiency of working capital management practices of the cement industry.
B. To test how fast the firms have been able to improve their respective level of efficiency in working capital management with respect to a target level (industry average).

6. Literature Review
Many researchers have studied working capital from different views and in different environments. The following are very interesting and useful for our research:

Write the Research Papers on “Working Capital Management And Profitability – Case Of Pakistani Firms” In this research, they selected a sample of 94 Pakistani firms listed on Karachi Stock Exchange for a period of 6 years from 1999 – 2004. They found a significant negative relationship between net operating profitability and the average collection period, inventory turnover in days, average payment period and cash conversion cycle for a sample of Pakistani firms listed on Karachi Stock Exchange. These results suggest that managers can create value for their shareholders by reducing the number of day’s accounts receivable and inventories to a reasonable minimum. The negative relationship between accounts payable and profitability is consistent with the view that less profitable firms wait longer to pay their bills (Raheman & Nasr, 2007).

In this paper findings indicate one angle loud and clear that a company’s inventory management policy, and debtors’ management policy and creditors’ management policy play an important role in its profitability performance. The concerned managers should give due attention towards policy formulation in this regard as well as implementation of such working capital policies (Vishnani & Shah, 2007).

This study to analyze determinants of firm profitability by means of variables related with working capital management practices using a sample of Turkish manufacturing firms for the period, inventory period of 1998-2007. Study show that accounts receivable period, inventory period, and leverage significantly and positively. And also examine the cash conversion cycle, and size of organization not have significant effects on firm profitability but leverage is important variable to effecting firm profitability negatively (Samiloglu & Demirgunes, 2008).

In this paper made an attempt to examine the efficiency of working capital management of the Indian cement companies during 1992 – 1993 to 2001 – 2002. For measuring the efficiency of working capital management, performance, utilization and overall efficiency indices were calculated instead of using some common working capital management ratios. Findings of the study indicated that the Indian Cement Industry as a whole did not perform remarkably well during this period (Ghosh & Maji, 2003).

Emphasized that working capital theory comprised of shared goals of profitability. The problem under investigation was to establish whether the more recently developed alternative working capital concepts showed improved association with return on investment to that of traditional working capital ratios or not. Results indicated that there were no significant differences amongst the years with respect to the independent variables (Smith & Begemann, 1997).

The pioneer work of (Shin & Soenen, 1998) highlighted that efficient Working Capital Management (WCM) was very important for creating value for the shareholders. The way working capital was managed had a significant impact on both profitability. The relationship between the length of Net Trading Cycle, corporate profitability and risk adjusted stock return was examined using correlation and regression analysis, by industry and capital intensity. They found a strong negative relationship between lengths of the firm’s net trading Cycle and its profitability. In addition, shorter net trade cycles were associated with higher risk adjusted stock returns.

7. Hypotheses testing
Since the objective of this study is to examine the relationship between profitability and working capital management, the study makes a set of testable hypothesis [the Null Hypotheses H0 versus the Alternate Hypotheses H1].
Hypothesis
The hypothesis of this study is as follows:

**H0:** There is no relationship between efficient working capital management and profitability of Pakistani cement sector.

**H1:** There is a possible positive relationship between efficient working capital management and profitability of Pakistani cement sector.

Firms more efficient in managing their working capitals are expected to pose high level of profitability and vice versa.

8. **Data sources**
The aim of this study is, as mentioned before, to investigate the impact of working capital management on firm profitability. In accordance with this objective select all 21 listed companies in Karachi Stock Exchange for the period of 2004-2010.

Limitation of data: Total 29 companies are working in Pakistan but only 21 listed in Karachi stock exchange and data available till 2010.

9. **Research methodology**
According to required objective, researcher use regression analysis. This analysis investigate the effect of current ratio, quick ratio, net current assets to total assets ratio, working capital turnover ratio and inventory turnover ratio on firm profitability. The depended variable of the regression model is return on assets. And other five variables are independent variable in regression model.

10. **Definition of variable:**
The definition of these dependent and independent variables are following:

10.1. **Return on total assets [ROTA]:** ROTA use as a dependent variable. Profitability is measured by Return on Total Assets (ROTA). It is the ratio which measures company’s earnings before interest and taxes (PBIT) against its total net assets. The ratio is considered as an indicator of how effectively a company uses its assets to generate earnings before meeting contractual obligations. The greater the company’s earnings in proportion to its assets, the more effectively the company is said to be using its assets (Emile Woolf International, 2008).

10.2. **Current ratio [CR]:** Establishes the relationship between Current assets and Current liabilities. Normally, high current ratio is considered to be a sign of financial strength. It is the indicator of the firm’s ability to promptly meet its short term liabilities (FTC, 2008).

10.3. **Quick Ratio [QR]:** Establishes a relationship between quick or liquid assets and current Liabilities. An asset is liquid if it can be converted into cash immediately or reasonably soon without a loss of value. Cash is the most liquid asset. It is also known as acid test Ratio (FTC, 2008).

10.4. **Net Current Assets to Total Assets Ratio [NCA / TA]:** Establishes a relationship between current assets and total assets. This ratio indicates the extent of total funds invested for working capital purpose (Get Through Guides, 2007).


10.6. **Inventory Turnover Ratio [ITR]:** Is the number of times inventory turned over in a year. It is relationship between Cost of Goods Sold and average inventory at cost (Shim & Siegel, 1998).
Regression Analysis:
Simple linear regression analysis was done for return on assets (ROTA) with Current Ratio (CR), Quick Ratio (QR), Net Current Assets to Total Assets Ratio (NCA / TA), Working Capital Turnover Ratio (WCT) and Inventory Turnover Ratio (ITR).
Regression model is:

\[ \text{ROTA} = \beta_0 + \beta_1 \text{CR} + \beta_2 \text{QR} + \beta_3 \text{NCA} / \text{TA} + \beta_4 \text{WCT} + \beta_5 \text{ITR} + \epsilon \]

11.1. Date analysis:
Table 1: Descriptive statistics (21 listed companies of cement sector in Karachi stock exchange)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROTA</td>
<td>6.3800</td>
<td>11.72284</td>
</tr>
<tr>
<td>CR</td>
<td>107.0300</td>
<td>69.48779</td>
</tr>
<tr>
<td>QR</td>
<td>97.0400</td>
<td>68.25649</td>
</tr>
<tr>
<td>NCA/TA</td>
<td>.2882</td>
<td>.13852</td>
</tr>
<tr>
<td>WCT</td>
<td>2.5601</td>
<td>40.71565</td>
</tr>
<tr>
<td>ITR</td>
<td>33.8812</td>
<td>56.34538</td>
</tr>
</tbody>
</table>

Table 2: Empirical results of dependent variables.

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Standardized Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( \beta )-Value</td>
</tr>
<tr>
<td>ROTA</td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>-2.611</td>
</tr>
<tr>
<td>CR</td>
<td>3.319</td>
</tr>
<tr>
<td>QR</td>
<td>-3.226</td>
</tr>
<tr>
<td>NCA/TA</td>
<td>.353</td>
</tr>
<tr>
<td>WCT</td>
<td>-.109</td>
</tr>
<tr>
<td>ITR</td>
<td>.135</td>
</tr>
</tbody>
</table>

12. Finding
The relationship between dependent and independent variables are analysed by the regression model mentioned earlier. Descriptive statistics (Table 2) and finding are given in Table 1 and 2 respectively.
Empirical findings of the study indicate that current ration and net current ratio on total ratio have significantly positive effects on firm profitability. This means that while accounts receivables and inventory periods lengthen, profitability increase, or vice versa. The other variables that have significant effects on firm profitability are quick ratio affecting its negatively. This means that any increases in stock leads profits to down. The other variables included in the regression model working capital turnover ratio and inventory turnover ratio have no statistically significant effects on firm profitability.

13. Conclusion
In financial management, you can about capital management studies are not as popular as those related to capital structure and capital budgeting. Of in this perspective, this study aims to analyze the determinants of firm profitability of variables associated with the management of working capital with a sample of steam for cements companies the period 2004-2010.
Results suggest that the profitability of the undertaking may be increased by shortening of inventory periods. The positive relationship between accounts receivable period and profitability can be reduced due to what customers want more time to evaluate the quality of products that purchase companies with profitable (Deloof, 2003). However, this empirical conclusion conflicts with some financial models that explain the commercial credit. Trade receivables are generally cheaper (Emery, 1984b) negotiable short-term investments, it is logical that, above all, business high profit that are most liquid transfer relatively large amounts of commercial credit to their buyers. Because, according to the theory of liquidity, liquids are less prone to commercial credit application and more likely to offer. Another empirical conclusion is similar, the negative relationship between period and inventory profitability and this may be the result of pressure on leaders in sales revenues to a level below and more inventory, as discussed in studio Deloof (2003).

Lever is another variable that affect profitability negatively stops. This conclusion can be explained suggestions that competing companies are strongly mobilized sweeter that will limit investment (Myers, 2003), therefore their power insufficient competition can lead to a decrease in profitability. The unique variables in the model studio has a significantly positive effect on profitability is the growth of the company (for sale). In the case of a company can obtain some advantages like monopoly or bargaining power because of growth as a reflection of economies of scale, a positive relationship between growth and expected profitability.
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