*Research Paper*
*Impact Factor: 3.996*
*Peer Reviewed & Indexed Journal*

*IJMSRR*
*E- ISSN - 2349-6746*
*ISSN* -2349-6738

# A STUDY ON IMPACT OF INVENTORY MANAGEMENT ON WORKING CAPITAL AND PROFITABILITY OF SELECT CEMENT COMPANIES IN ANDHRA PRADESH

**Dr. N. VenkataRamana*** **B. Subhan**** **K. Ramakrishnaiah*****

**Assistant Professor, Department of Management Studies, Madanapalle Institute of Technology and Science (Autonomous), Andhra Pradesh.*

***Assistant Professor, Department of Business Administration, Annamacharya Institute of Technology and Science (Autonomous), Kadapa.*

****Department of Commerce, SVU College of Commerce, Management and Computer Science, S.V. University, Andhra Pradesh.*

***Abstract***

*Inventory is an important part of current assets in manufacturing companies. Huge amount invested on inventories as to ensure smooth flow of production and to meet consumer demand. Efficient and effective inventory management is essential to successful running and survival of a company. The research paper evaluates the inventory management efficiency on working capital and profitability of select cement companies in Andhra Pradesh. The data collected from 2003-04 to 2012-13 for analysis of the study. The variables used inventory to total assets ratio, inventory to current assets ratio, inventory to sales ratio, inventory to working capital ratio, inventory turnover ratio, inventory conversion period, working capital ratio, return on capital employed ratio, correlation and regression analysis. The result found that there is a significant impact of inventory management efficiency on working capital ratio and return on capital employed.*

***Key Words: Inventory Management Efficiency Ratios, Working Capital Ratio, Return on Capital Employed Ratio, Correlation and Regression Analysis.***

## Introduction

Inventories constitute the most significant part of current assets of a large majority of companies in India. On an average inventories are approximately 60 percent of current assets in public limited companies in India. Because of the large size of inventories maintained by firms, commitment for a considerable amount of fund is required. It is, therefore, absolutely imperative to manage inventories efficiently and effectively in order to avoid unnecessary investment. A firm neglecting the management of inventories will be jeopardising its long-run profitability and may fail ultimately. It is possible for a company to reduce its levels of inventories to a considerable degree e.g., 10 to 20 percent, without any adverse effect on production and sales, by using simple inventory planning and control technique. The reduction in 'excessive' inventories carries a favourable impact on a company's profitability.

## Literature Review

Lwiki et al (2013) using a survey conducted on all the eight (8) sugar manufacturing firms in Kenya established that there is generally positive correlation between each of inventory management practices. Specificperformance indicators were proved to depend on the level of inventory management practices. They established that Return on Equity had a strong correlation with lean inventory system and strategic supplier partnerships. As such, they concluded that the performance of sugar firms could therefore be stated as being a function of their inventory management practices.

Capkun, Hameri, and Weiss (2009) studied the relationship between inventory and financial performance in manufacturing companies. The researchers studied 52,254 businesses for a period of 25 years between 1980 and 2005; they used multiple regressions to determine the correlation between financial performance and various inventory levels. They measured financial performance using gross profits and operating profit results and Inventory levels in regard to raw materials, partially manufactured products, and finished products. The results revealed a positive correlation between a company˝s inventory management and its financial performance. They also noted that Degrees of correlation vary depending on the type of inventory and the financial performance reference.

Sahari, Tinggi and Kadri(2012) empirically analyzed the relationship between inventory management and firm performance along with capital intensity. For the purpose they took a sample of 82 construction firms in Malaysia for the period 2006–2010. Using the regression and correlation analysis methods, they deduced that inventory management is positively correlated with firm performance. In addition, the results indicate that there is a positive link between inventory management and capital intensity.

## Objectives

- To assess the Inventory Management efficiency in select cement companies of Andhra Pradesh.
- To study the relationship between working capital ratio and inventory management efficiency ratios of select cement companies in Andhra Pradesh.
- To assess the relationship between return on capital employed ratio and inventory management efficiency ratios of select cement companies in Andhra Pradesh.

**Hypotheses**

- H01: There is no significant effect of Inventory Management efficiency ratios (ITTAR, ITCAR, ITSR, ITWCR, ITR and ICP) on Working Capital Ratio.
- H02: There is no significant effect of Inventory Management efficiency ratios (ITTAR, ITCAR, ITSR, ITWCR, ITR and ICP) on Return on Capital Employed Ratio.

**Regression Models**

WCR = £ + β1ITTAR + β2ITCAR + β3ITSR+ β4ITWCR + β5ITR+ β6ICP+e. -Model 1.
ROCE = £ + β1ITTAR + β2ITCAR + β3ITSR+ β4ITWCR + β5ITR+β6ICP+e.---Model 2.

**Data Sources**

The present study is based on secondary data only. Secondary data were compiled from the annual reports of select cement companies located in Andhra Pradesh.

**Sample Design**

The size of the population for the present research work is 34 cement companies. Out of these 34 companies the researcher has selected 10 cement companies as sample for his study. The sample has been drawn on the basis of convenience sampling method subject to availability of data.

**Period of the Study**

The study period is ten years starting from 2003-04 and ending with 2012-13.

**Table No 1: Inventory to Total Assets Ratio (in Ratio)**

| Year | Rayalaseema Region | | | | Telangana Region | | | | | Coastal Andhra Region | | | | Industry Average |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ICL | Panyam | Ultra | Region Average | ACC | Kakatiya | Kesoram | Sagar | Region Average | KCP | Ramco | NCL | Region Average | |
| 2003-04 | 4.61 | -61.56 | 8.49 | -16.15 | 18.05 | 34.31 | 27.61 | 12.69 | 23.17 | 21.06 | 5.82 | 44.10 | 23.66 | 10.22 |
| 2004-05 | 6.51 | -32.24 | 10.92 | -4.94 | 18.73 | 22.32 | 28.14 | 14.78 | 20.99 | 25.92 | 12.78 | 41.07 | 26.59 | 14.22 |
| 2005-06 | 6.51 | -6.72 | 15.24 | 5.01 | 15.94 | 20.86 | 26.26 | 14.85 | 19.47 | 30.14 | 10.14 | 28.39 | 22.89 | 15.79 |
| 2006-07 | 5.83 | -20.67 | 12.97 | -0.62 | 16.39 | 36.00 | 26.04 | 6.77 | 21.30 | 26.37 | 9.54 | 15.18 | 17.03 | 12.57 |
| 2007-08 | 6.83 | 140.36 | 13.74 | 53.64 | 14.66 | 38.41 | 21.32 | 2.32 | 19.18 | 25.22 | 9.37 | 12.05 | 15.55 | 29.45 |
| 2008-09 | 6.96 | 16.78 | 12.05 | 11.93 | 11.83 | 18.21 | 17.85 | 9.55 | 14.36 | 25.35 | 8.83 | 9.73 | 14.64 | 13.64 |
| 2009-10 | 7.47 | 15.30 | 13.22 | 11.99 | 13.08 | 8.56 | 19.63 | 11.24 | 13.13 | 16.47 | 10.00 | 9.11 | 11.86 | 12.33 |
| 2010-11 | 7.91 | 13.57 | 14.71 | 12.06 | 14.28 | 23.80 | 21.15 | 12.15 | 17.84 | 15.89 | 8.66 | 11.12 | 11.89 | 13.93 |
| 2011-12 | 8.30 | 28.40 | 12.21 | 16.30 | 15.18 | 37.31 | 19.82 | 20.54 | 23.21 | 23.81 | 11.79 | 14.98 | 16.86 | 18.79 |
| 2012-13 | 7.25 | 19.86 | 11.93 | 13.01 | 14.33 | 49.75 | 18.31 | 14.90 | 24.32 | 17.31 | 13.66 | 16.89 | 15.95 | 17.76 |
| AVG | 6.82 | 11.31 | 12.55 | 10.22 | 15.25 | 28.95 | 22.61 | 11.98 | 19.69 | 22.75 | 10.06 | 20.26 | 17.69 | 15.87 |
| SD | 1.06 | 53.36 | 1.94 | 18.29 | 2.12 | 12.19 | 3.97 | 5.00 | 3.73 | 4.84 | 2.25 | 12.99 | 5.03 | 5.41 |
| CV | 15.54 | 471.79 | 15.45 | 178.96 | 13.90 | 42.10 | 17.55 | 41.73 | 18.94 | 21.27 | 22.36 | 64.11 | 28.43 | 34.08 |
| CGR | 5.16 | -188.18 | 3.85 | -197.62 | -2.53 | 4.21 | -4.46 | 1.79 | 0.54 | -2.15 | 9.94 | -10.11 | -4.28 | 6.33 |
| LGR | 7.54 | 28.91 | 12.31 | 16.25 | 13.92 | 51.46 | 17.27 | 15.14 | 24.45 | 16.89 | 14.53 | 13.86 | 15.09 | 18.60 |

Source: Compiled from Annual Reports of Select Cement Companies from 2003-04 to 2012-13

Table 1 indicates the inventory to total assets ratio of select cement companies over different regions in Andhra Pradesh over a ten-year period from 2003-04 to 2012-13. The average ratio of inventory to total assets of cement industry in Andhra Pradesh is 15.87. The average ratio of inventory to total assets of cement industry in Andhra Pradesh in 2007-08, 2011-12 and 2012-13 is higher than the industry average. The region wise analysis pertaining to inventory to total assets ratio of Telangana region and Coastal Andhra Region is higher than the average ratio of inventory to total assets of industry whereas the inventory to total assets ratio of Rayalaseema region is lower than the average ratio of inventory to total assets of industry. Analysis pertaining to inventory to total assets ratio of select cement companies in Andhra Pradesh reveals that the inventory to total assets ratio of Kakatiya Cements Ltd and Kesoram Industries Ltd of Telangana region and KCP Cements Ltd and NCL of Coastal Andhra Region is higher than the inventory to total assets ratio of industry. The inventory to total assets ratio of India Cements Ltd, Panyam Cements and Mineral Industries Ltd and Ultra Tech Cement Ltd of Rayalaseema region, ACC Ltd and Sagar Cements Ltd of Coastal Andhra Region is lower than that of the industry.

**Table No 2: Inventory to Working Capital Assets Ratio (in Ratio)**

| Year | Rayalaseema Region | | | | Telangana Region | | | | | Coastal Andhra Region | | | | Industry Average |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ICL | Panyam | Ultra | Region Average | ACC | Kakatiya | Kesoram | Sagar | Region Average | KCP | Ramco | NCL | Region Average | |
| 2003-04 | 10.47 | 22.38 | 29.95 | 20.93 | 43.97 | 69.11 | 37.71 | 31.70 | 45.62 | 32.38 | 21.60 | 47.14 | 33.71 | 33.42 |
| 2004-05 | 12.95 | 29.88 | 33.35 | 25.39 | 41.83 | 54.23 | 36.41 | 24.75 | 39.31 | 35.45 | 41.63 | 47.10 | 41.39 | 35.36 |
| 2005-06 | 13.48 | 35.03 | 48.54 | 32.35 | 30.78 | 43.72 | 41.33 | 27.40 | 35.81 | 36.72 | 30.86 | 38.34 | 35.31 | 34.49 |
| 2006-07 | 14.32 | 19.16 | 44.60 | 26.03 | 31.67 | 60.29 | 43.18 | 12.27 | 36.85 | 33.27 | 20.86 | 36.78 | 30.30 | 31.06 |
| 2007-08 | 16.31 | 18.72 | 46.28 | 27.10 | 27.66 | 55.22 | 36.58 | 11.35 | 32.70 | 28.84 | 31.15 | 24.94 | 28.31 | 29.37 |
| 2008-09 | 18.08 | 9.91 | 50.20 | 26.06 | 31.88 | 26.48 | 37.26 | 33.72 | 32.33 | 25.74 | 35.99 | 27.86 | 29.86 | 29.42 |
| 2009-10 | 16.16 | 12.17 | 54.92 | 27.75 | 31.27 | 12.01 | 41.55 | 35.74 | 30.14 | 26.97 | 36.33 | 31.24 | 31.51 | 29.80 |
| 2010-11 | 17.72 | 12.98 | 46.78 | 25.83 | 29.00 | 30.55 | 49.53 | 33.26 | 35.58 | 36.10 | 35.70 | 30.74 | 34.18 | 31.86 |
| 2011-12 | 16.89 | 18.71 | 36.20 | 23.93 | 35.45 | 52.60 | 34.39 | 37.83 | 40.07 | 43.54 | 42.91 | 30.57 | 39.00 | 34.33 |
| 2012-13 | 14.75 | 16.86 | 41.44 | 24.35 | 31.36 | 63.61 | 40.45 | 26.66 | 40.52 | 33.98 | 40.87 | 34.03 | 36.29 | 33.72 |
| AVG | 15.11 | 19.58 | 43.23 | 25.97 | 33.49 | 46.78 | 39.84 | 27.47 | 36.89 | 33.30 | 33.79 | 34.87 | 33.99 | 32.28 |
| SD | 2.38 | 7.84 | 7.91 | 2.94 | 5.38 | 18.31 | 4.39 | 9.22 | 4.62 | 5.24 | 7.75 | 7.55 | 4.16 | 2.27 |
| CV | 15.75 | 40.04 | 18.29 | 11.32 | 16.06 | 39.14 | 11.02 | 33.56 | 12.52 | 15.73 | 22.99 | 21.65 | 12.23 | 7.03 |
| CGR | 3.88 | -3.09 | 3.67 | 1.69 | -3.68 | -0.92 | 0.78 | -1.90 | -1.31 | 0.54 | 7.34 | -3.55 | 0.82 | 0.09 |
| LGR | 15.23 | 16.25 | 42.72 | 24.73 | 29.96 | 62.00 | 40.75 | 26.10 | 39.95 | 34.16 | 43.01 | 32.57 | 36.58 | 33.75 |

Source: Compiled from Annual Reports of Select Cement Companies from 2003-04 to 2012-13

Table 2 reveals the ratio of inventory to working capital assets of select cement companies of different regions in Andhra Pradesh over a study period of ten year from 2003-04 to 2012-13. Inventory to working capital assets ratio of cement industry in Andhra Pradesh is 32.28. The average ratio of inventory to working capital assets in 2004-05, 2005-06, 2011-12, 2012-13 and 2003-04 is higher than the industry average. Region wise average ratio of inventory to working capital assets of select cement companies reveals that the average ratio of inventory to working capital assets ratio of Telangana region and Coastal Andhra Region is higher than the industry average whereas the average ratio of inventory to working capital assets ratio of Rayalaseema region is lower than the industry ratio. Inventory to working capital assets ratio of Ultra Tech Cement Ltd of Rayalaseema region, Kakatiya Cements Ltd, Kesoram Industries Ltd and ACC Ltd of Telangana region and NCL, Ramco Cements Ltd and KCP Cements Ltd of Coastal Andhra Region is higher than the inventory to working capital assets ratio of industry. For the remaining select cement companies of Andhra Pradesh inventory to working capital assets ratio is lower than the industry ratio.

**Table No 3: Inventory to Sales Ratio(in Ratio)**

| Year | Rayalaseema Region | | | | Telangana Region | | | | | Coastal Andhra Region | | | | Industry Average |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ICL | Panyam | Ultra | Region Average | ACC | Kakatiya | Kesoram | Sagar | Region Average | KCP | Ramco | NCL | Region Average | |
| 2003-04 | 15.64 | 11.26 | 9.86 | 12.25 | 13.92 | 47.68 | 15.38 | 10.95 | 21.98 | 26.35 | 7.56 | 34.75 | 22.89 | 19.04 |
| 2004-05 | 17.34 | 17.55 | 10.58 | 15.16 | 18.87 | 24.85 | 16.20 | 9.44 | 17.34 | 27.68 | 17.88 | 27.70 | 24.42 | 18.97 |
| 2005-06 | 13.87 | 24.00 | 11.50 | 16.46 | 10.89 | 22.52 | 15.63 | 4.98 | 13.51 | 30.92 | 10.05 | 22.53 | 21.17 | 17.04 |
| 2006-07 | 11.02 | 6.94 | 8.83 | 8.93 | 10.60 | 37.54 | 16.95 | 2.95 | 17.01 | 22.54 | 8.18 | 21.35 | 17.36 | 14.43 |
| 2007-08 | 11.52 | 6.93 | 11.06 | 9.84 | 10.97 | 36.43 | 14.73 | 2.95 | 16.27 | 18.11 | 12.10 | 18.27 | 16.16 | 14.09 |
| 2008-09 | 11.64 | 6.72 | 10.84 | 9.73 | 9.71 | 15.12 | 15.11 | 13.87 | 13.45 | 22.36 | 13.00 | 13.33 | 16.23 | 13.14 |
| 2009-10 | 12.70 | 12.14 | 11.67 | 12.17 | 11.96 | 9.38 | 19.29 | 10.10 | 12.68 | 22.53 | 14.70 | 13.04 | 16.76 | 13.87 |
| 2010-11 | 15.17 | 13.37 | 14.70 | 14.41 | 11.38 | 11.72 | 20.72 | 11.81 | 13.91 | 34.09 | 14.97 | 11.35 | 20.14 | 16.15 |
| 2011-12 | 12.51 | 15.91 | 11.12 | 13.18 | 9.98 | 33.61 | 16.82 | 14.14 | 18.64 | 24.76 | 15.00 | 11.75 | 17.17 | 16.33 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2012-13 | 10.80 | 19.29 | 11.65 | 13.91 | 10.04 | 41.55 | 15.98 | 11.68 | 19.81 | 16.92 | 15.53 | 13.38 | 15.28 | 16.33 |
| AVG | 13.22 | 13.41 | 11.18 | 12.60 | 11.83 | 28.04 | 16.68 | 9.29 | 16.46 | 24.63 | 12.90 | 18.75 | 18.76 | 15.94 |
| SD | 2.21 | 5.82 | 1.52 | 2.50 | 2.76 | 13.26 | 1.92 | 4.20 | 3.09 | 5.35 | 3.39 | 7.83 | 3.17 | 2.06 |
| CV | 16.71 | 43.40 | 13.57 | 19.86 | 23.30 | 47.28 | 11.48 | 45.25 | 18.80 | 21.71 | 26.26 | 41.78 | 16.91 | 12.93 |
| CGR | -4.03 | 6.16 | 1.87 | 1.42 | -3.57 | -1.52 | 0.43 | 0.72 | -1.15 | -4.80 | 8.33 | -10.06 | -4.39 | -1.69 |
| LGR | 10.26 | 20.18 | 11.85 | 14.10 | 9.61 | 40.87 | 16.05 | 11.76 | 19.57 | 15.87 | 16.42 | 11.01 | 14.43 | 16.03 |

Source: Compiled from Annual Reports of Select Cement Companies from 2003-04 to 2012-13

Table3 depicts the inventory to sales ratio of select cement companies of different regions in Andhra Pradesh over a study period of ten years from 2003-04 to 2012-13. The average inventory to sales ratio of cement industry in Andhra Pradesh is 15.94. The average inventory to sales ratio of cement industry in Andhra Pradesh in 2003-04, 2004-05, and 2005-06, 2011-12 and 2012-13 and 2010-11 is higher than the industry average. In the rest of the years inventory to sales ratio was lower than the average inventory to sales ratio of industry. Region-wise analysis pertaining to inventory to sales ratio of Coastal Andhra Region and Telangana region is higher than the inventory to sales ratio of industry whereas inventory to sales ratio of Rayalaseema region is lower than the inventory to sales ratio of industry. Inventory to sales ratio of Kakatiya Cements Ltd and Kesoram Industries Ltd of Telangana region and KCP Cements Ltd and NCL of Coastal Andhra Region is higher than the industry ratio of inventory to sales whereas the inventory to sales ratio of India cements Ltd, Panyam Cements and Mineral Industries Ltd and Ultra Tech Cement Ltd of Rayalaseema region, ACC Ltd and Sagar Cements Ltd of Telangana region and Ramco Cements Ltd of Coastal Andhra Region is lower than the inventory to sales ratio of industry.

**Table No 4: Inventory to Working Capital (in Ratio)**

| Year | Rayalaseema Region | | | | Telangana Region | | | | | Coastal Andhra Region | | | | Industry Average |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ICL | Panyam | Ultra | Region Average | ACC | Kakatiya | Kesoram | Sagar | Region Average | KCP | Ramco | NCL | Region Average | |
| 2003-04 | 14.94 | -18.72 | -59.35 | -21.04 | -226.56 | 83.18 | 144.43 | 106.22 | 26.82 | 70.71 | -52.89 | -445.37 | -142.52 | -45.58 |
| 2004-05 | 19.86 | -16.69 | -154.73 | -50.52 | -182.47 | 67.86 | 105.42 | 72.20 | 15.75 | 85.81 | -305.24 | 5019.51 | 1600.03 | 521.75 |
| 2005-06 | 19.60 | -3.69 | -105.29 | -29.79 | -562.99 | 79.25 | 128.02 | 468.31 | 28.15 | 81.88 | -103.62 | 248.28 | 75.51 | 24.62 |
| 2006-07 | 20.03 | -10.19 | -122.04 | -37.40 | -209.05 | 100.39 | 120.24 | 37.81 | 12.35 | 95.99 | -2306.47 | 147.97 | -687.50 | -237.52 |
| 2007-08 | 37.29 | -23.27 | -117.94 | -34.64 | -232.03 | 84.69 | 143.74 | 44.94 | 10.34 | 67.51 | 1605.16 | 57.58 | 576.75 | 184.15 |
| 2008-09 | 53.21 | 86.87 | -114.56 | 8.51 | -64.54 | 43.69 | 103.43 | 87.96 | 42.63 | 51.84 | -1996.90 | 159.54 | -595.17 | -181.34 |
| 2009-10 | 35.12 | 78.24 | -124.98 | -3.87 | -67.55 | 19.82 | 118.93 | 188.36 | 64.89 | 56.05 | 9549.53 | 292.37 | 3299.32 | 1120.11 |
| 2010-11 | 34.26 | 84.54 | -77.91 | 13.63 | -220.01 | 53.78 | 101.30 | 163.56 | 24.66 | 73.12 | -489.17 | 331.76 | -28.10 | 3.39 |
| 2011-12 | 43.91 | -226.33 | -312.44 | -164.95 | -89.90 | 70.47 | 145.04 | -450.53 | -81.23 | 2.93 | -64.89 | -78.39 | -46.78 | -97.66 |
| 2012-13 | 35.32 | -136.63 | -115.28 | -72.20 | -161.88 | 83.41 | 118.87 | -624.11 | -145.93 | 244.59 | -89.51 | -45.05 | 36.68 | -60.48 |
| AVG | 31.35 | -18.59 | -130.45 | -39.23 | -201.70 | 68.65 | 122.94 | 9.47 | -0.16 | 83.04 | 574.60 | 568.82 | 408.82 | 123.14 |
| SD | 12.37 | 99.19 | 69.04 | 51.41 | 142.88 | 23.67 | 17.01 | 316.37 | 63.73 | 62.26 | 3335.56 | 1580.24 | 1200.19 | 410.19 |
| CV | 39.45 | -533.56 | -52.92 | -131.05 | -70.83 | 34.78 | 13.83 | 3340.76 | -39831.25 | 74.97 | 580.50 | 277.81 | 293.57 | 333.11 |
| CGR | 10.03 | 24.71 | 7.65 | 14.68 | -3.66 | 0.03 | -2.14 | -221.74 | -220.71 | 14.78 | 6.02 | -22.47 | -186.00 | 3.19 |
| LGR | 37.58 | -149.73 | -121.49 | -77.88 | -154.69 | 83.43 | 116.03 | -705.25 | -165.12 | 263.91 | -93.58 | -0.57 | 56.58 | -62.14 |

**Source:** Compiled from Annual Reports of Select Cement Companies from 2003-04 to 2012-13

Table 4 shows the inventory to working capital ratio of select cement companies in different regions of Andhra Pradesh for the ten year period of study from 2003-04 to 2012-13. The average ratio of inventory to working capital of cement industry in

Andhra Pradesh is 123.14. In 2009-10, 2004-05 and 2007-08 inventory to working capital ratio of all the select cement companies is higher than the industry average whereas in all the remaining years the average inventory to working capital ratio of select cement companies in Andhra Pradesh is lower than the industry average. The average ratio of inventory to working capital of Coastal Andhra Region is (408.82) higher than the industry average whereas the ratio of inventory to working capital of Telangana region (-0.16) and Rayalaseema region(-39.23) is negative. Inventory to working capital ratio of Ramco Cements Ltd (574.60) and NCL (568.82) of Coastal Andhra Region is higher than the industry ratio of inventory to working capital. For the remaining select cement companies in Andhra Pradesh like India Cements Ltd (31.35) of Rayalaseema region, Kesoram Industries Ltd (122.94), Kakatiya Cements Ltd (68.65) and Sagar Cements Ltd (9.47) of Telangana region and KCP Ltd (83.04) of Coastal Andhra Region the ratio of inventory to working capital is lower than that of industry. The ratio of inventory to working capital of Panyam Cements and Mineral Industries Ltd (-18.59) and Ultra tech Cement Ltd (-130.45) of Rayalaseema region and ACC Ltd (-201.70) of Telangana region is negative.

**Table No 5: Inventory Turnover Ratio (in Ratio)**

| Year | Rayalaseema Region | | | | Telangana Region | | | | | Coastal Andhra Region | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ICL | Panyam | Ultra | Region Average | ACC | Kakatiya | Kesoram | Sagar | Region Average | KCP | Ramco | NCL | Region Average | Industry Average |
| 2003-04 | 6.39 | 8.88 | 10.14 | 8.47 | 7.18 | 2.09 | 6.50 | 9.13 | 6.22 | 3.79 | 13.22 | 2.88 | 6.63 | 7.11 |
| 2004-05 | 5.76 | 5.70 | 9.45 | 6.97 | 5.29 | 4.02 | 6.17 | 10.59 | 6.52 | 3.61 | 5.59 | 3.61 | 4.27 | 5.92 |
| 2005-06 | 7.21 | 4.17 | 8.70 | 6.69 | 9.18 | 4.44 | 6.40 | 20.05 | 10.02 | 3.23 | 9.95 | 4.44 | 5.87 | 7.53 |
| 2006-07 | 9.07 | 14.41 | 11.27 | 11.58 | 9.43 | 2.66 | 5.90 | 33.93 | 12.98 | 4.44 | 12.22 | 4.68 | 7.11 | 10.56 |
| 2007-08 | 8.68 | 14.43 | 9.04 | 10.72 | 9.11 | 2.74 | 6.80 | 33.83 | 13.12 | 5.52 | 8.26 | 5.47 | 6.42 | 10.08 |
| 2008-09 | 8.59 | 14.89 | 9.23 | 10.90 | 10.30 | 6.61 | 6.62 | 7.21 | 7.68 | 4.47 | 7.69 | 7.50 | 6.55 | 8.38 |
| 2009-10 | 7.87 | 8.24 | 8.57 | 8.23 | 8.36 | 10.65 | 5.18 | 9.89 | 8.52 | 4.43 | 6.80 | 7.66 | 6.30 | 7.68 |
| 2010-11 | 6.59 | 7.48 | 6.80 | 6.96 | 8.78 | 2.95 | 4.83 | 8.46 | 6.25 | 2.93 | 6.68 | 8.81 | 6.14 | 6.45 |
| 2011-12 | 7.99 | 6.28 | 8.99 | 7.75 | 10.02 | 2.97 | 5.95 | 7.07 | 6.50 | 4.04 | 6.66 | 8.51 | 6.88 | 6.89 |
| 2012-13 | 9.27 | 5.18 | 8.58 | 7.67 | 9.96 | 2.41 | 6.26 | 8.56 | 6.79 | 5.91 | 6.44 | 7.47 | 7.03 | 7.03 |
| AVG | 7.74 | 8.97 | 9.08 | 8.59 | 8.76 | 4.15 | 6.06 | 14.87 | 8.46 | 4.24 | 8.35 | 6.10 | 7.76 | 7.76 |
| SD | 1.21 | 4.12 | 1.15 | 1.81 | 1.52 | 2.64 | 0.63 | 10.68 | 2.69 | 0.94 | 2.60 | 2.14 | 1.51 | 1.51 |
| CV | 15.63 | 45.93 | 12.66 | 21.07 | 17.35 | 63.61 | 10.39 | 71.82 | 31.79 | 22.16 | 31.13 | 35.08 | 19.45 | 19.45 |
| CGR | 4.22 | -5.81 | -1.83 | -1.08 | 3.70 | 1.59 | -0.42 | -0.71 | 0.98 | 5.06 | -7.68 | 11.17 | -0.04 | -0.13 |
| LGR | 9.59 | 4.77 | 8.41 | 7.58 | 10.27 | 2.44 | 6.23 | 8.49 | 6.86 | 6.14 | 5.68 | 7.98 | 6.60 | 7.02 |

**Source:** Compiled from Annual Reports of Select Cement Companies from 2003-04 to 2012-13

Table 5 describes the inventory turnover ratio of select cement companies in Andhra Pradesh for a ten year study period from 2003-04 to 2012-13. The inventory turnover ratio of cement industry in Andhra Pradesh is 7.76. Inventory turnover ratio of cement industry in 2006-07, 2007-08, and 2008-09 is higher than the inventory turnover ratio of industry whereas for the remaining years the inventory turnover ratio is lower than the average inventory turnover ratio of industry. The inventory turnover ratio of the Rayalaseema region (8.59), Telangana region (8.46) and Coastal Andhra Region (7.76) is higher than the industry inventory turnover ratio. The inventory turnover ratio of Ultra Tech Cement Ltd (9.08) and Panyam Cements and Mineral Industries Ltd (8.97) of Rayalaseema region, Sagar Cements Ltd (14.87) and ACC Ltd (8.76) of Telangana region and Ramco Cements Ltd (8.35) of Coastal Andhra regionis higher thanthat of the industry whereas for the remaining select cement companies such as India Cements Ltd (7.74) of Rayalaseema region, Kesoram Industries Ltd (6.06) and Kakatiya Cements Ltd (6.06) of Telangana region and NCL (6.10) and KCP cements Ltd (4.24) of Coastal Andhra Region the inventory turnover ratio is lower than the inventory turnover ratio of industry.

**Table No 6: Inventory Conversion Period (in Days)**

| Year | Rayalaseema Region | | | | Telangana Region | | | | | Coastal Andhra Region | | | | Industry Average |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ICL | Panyam | Ultra | Region Average | ACC | Kakatiya | Kesoram | Sagar | Region Average | KCP | Ramco | NCL | Region Average | |
| 2003-04 | 57.10 | 41.11 | 50.79 | 49.67 | 50.79 | 174.06 | 56.13 | 39.98 | 80.24 | 96.20 | 27.61 | 126.87 | 83.56 | 71.15 |
| 2004-05 | 63.32 | 64.06 | 68.91 | 65.43 | 68.91 | 90.70 | 59.12 | 34.46 | 63.30 | 101.05 | 65.27 | 101.14 | 89.15 | 72.63 |
| 2005-06 | 50.62 | 87.61 | 39.75 | 59.33 | 39.75 | 82.19 | 57.07 | 18.20 | 49.30 | 112.90 | 36.69 | 82.24 | 77.28 | 61.97 |
| 2006-07 | 40.22 | 25.34 | 38.69 | 34.75 | 38.69 | 137.01 | 61.88 | 10.76 | 62.08 | 82.28 | 29.86 | 77.96 | 63.37 | 53.40 |
| 2007-08 | 42.04 | 25.30 | 40.38 | 35.91 | 40.05 | 132.97 | 53.75 | 10.79 | 59.39 | 66.10 | 44.18 | 66.68 | 58.99 | 51.43 |
| 2008-09 | 42.50 | 24.52 | 39.55 | 35.52 | 35.45 | 55.19 | 55.16 | 50.65 | 49.11 | 81.62 | 47.46 | 48.64 | 59.24 | 47.96 |
| 2009-10 | 46.35 | 44.32 | 42.58 | 44.42 | 43.67 | 34.26 | 70.39 | 36.88 | 46.30 | 82.26 | 53.64 | 47.61 | 61.17 | 50.63 |
| 2010-11 | 55.37 | 48.80 | 53.64 | 52.60 | 41.55 | 123.89 | 75.65 | 43.12 | 71.05 | 124.44 | 54.64 | 41.43 | 73.50 | 65.72 |
| 2011-12 | 45.66 | 58.06 | 40.58 | 48.10 | 36.43 | 122.69 | 61.38 | 51.60 | 68.02 | 90.39 | 54.76 | 42.88 | 62.68 | 59.60 |
| 2012-13 | 39.37 | 70.42 | 42.52 | 50.77 | 36.65 | 151.70 | 58.34 | 42.63 | 72.33 | 66.75 | 56.67 | 48.84 | 57.42 | 60.17 |
| AVG | 48.25 | 48.95 | 45.74 | 47.65 | 43.19 | 110.47 | 60.89 | 33.91 | 62.11 | 90.40 | 47.08 | 68.43 | 68.64 | 59.47 |
| SD | 8.08 | 21.25 | 9.57 | 10.29 | 10.07 | 43.89 | 6.99 | 15.34 | 11.25 | 18.78 | 12.36 | 28.60 | 11.39 | 8.17 |
| CV | 16.74 | 43.41 | 20.92 | 21.59 | 23.31 | 39.73 | 11.47 | 45.23 | 18.11 | 20.77 | 26.25 | 41.79 | 16.59 | 13.73 |
| CGR | -4.04 | 6.16 | -1.95 | 0.24 | -3.56 | -1.51 | 0.43 | 0.71 | -1.14 | -3.97 | 8.32 | -10.06 | -4.08 | -1.84 |
| LGR | 37.40 | 73.67 | 41.60 | 50.89 | 35.08 | 149.21 | 58.59 | 42.92 | 71.45 | 63.48 | 59.89 | 40.17 | 54.52 | 58.95 |

Source: Compiled from Annual Reports of Select Cement Companies from 2003-04 to 2012-13

Table 6 reveals the inventory conversion period of select cement companies in different regions of Andhra Pradesh for a study period of ten years from 2003-04 to 2012-13. The inventory conversion period of cement industry in Andhra Pradesh is 59.47 days. The inventory conversion period of cement industry from 2003-04 to 2005-06 and from 2010-11 to 2012-13 is higher than the average inventory conversion period of industry. In the remaining years the inventory conversion period is lower than the industry average. The average inventory conversion period of Coastal Andhra Region (68.64) and Telangana region (62.11) is higher than the average inventory conversion period of industry. The average inventory conversion period of Rayalaseema region is 47.65 which is lower than the average inventory conversion period of industry. Inventory conversion period of Panyam Cements and Mineral Industries Ltd (48.95), India Cements Ltd (48.25) and Ultra Tech Cement Ltd (45.74) of Rayalaseema region, ACC Ltd (43.19) and Sagar Cements Ltd (33.91) of Telangana region and Ramco Cements Ltd (47.08) of Coastal Andhra Region is lower than the average inventory conversion period of industry whereas the average inventory conversion period of Kakatiya Cements Ltd (110.47) and Kesoram Industries Ltd (60.89) of Telangana region and KCP Cements Ltd (90.40) and NCL (68.43) of Coastal Andhra Region is higher than the inventory conversion period of industry.

**Table No 7: Working Capital Ratio (in Ratio)**

| Year | Rayalaseema Region | | | | Telangana Region | | | | | Coastal Andhra Region | | | | Industry Average |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ICL | Panyam | Ultra | Region Average | ACC | Kakatiya | Kesoram | Sagar | Region Average | KCP | Ramco | NCL | Region Average | |
| 2003-04 | 3.34 | 0.45 | 0.66 | 1.48 | 0.84 | 5.91 | 1.35 | 1.43 | 2.38 | 1.85 | 0.71 | 0.90 | 1.15 | 1.79 |
| 2004-05 | 2.88 | 0.36 | 0.82 | 1.35 | 0.81 | 4.98 | 1.53 | 1.52 | 2.21 | 1.71 | 0.88 | 1.01 | 1.2 | 1.59 |
| 2005-06 | 3.21 | 0.09 | 0.69 | 1.33 | 0.95 | 2.23 | 1.48 | 1.06 | 1.43 | 1.82 | 0.77 | 1.18 | 1.25 | 1.34 |
| 2006-07 | 3.51 | 0.35 | 0.73 | 1.53 | 0.87 | 2.50 | 1.56 | 1.98 | 1.73 | 1.68 | 0.99 | 1.33 | 1.33 | 1.53 |
| 2007-08 | 1.77 | 0.55 | 0.72 | 1.01 | 0.89 | 2.87 | 1.34 | 1.34 | 1.61 | 1.75 | 1.02 | 1.76 | 1.51 | 1.38 |
| 2008-09 | 1.52 | 1.13 | 0.70 | 1.12 | 0.67 | 2.54 | 1.56 | 1.62 | 1.60 | 1.99 | 0.98 | 1.21 | 1.39 | 1.37 |
| 2009-10 | 1.85 | 1.18 | 0.70 | 1.24 | 0.68 | 2.54 | 1.54 | 1.23 | 1.49 | 1.93 | 1.00 | 1.12 | 1.35 | 1.36 |
| 2010-11 | 2.07 | 1.82 | 0.63 | 1.51 | 0.88 | 2.32 | 1.96 | 1.25 | 1.60 | 1.98 | 0.93 | 1.10 | 1.34 | 1.48 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2011-12 | 1.63 | 0.92 | 0.90 | 1.15 | 0.72 | 3.94 | 1.31 | 0.92 | 1.72 | 1.17 | 0.60 | 0.72 | 0.83 | 1.23 |
| 2012-13 | 1.72 | 0.89 | 0.74 | 1.12 | 0.84 | 4.21 | 1.52 | 0.96 | 1.88 | 1.16 | 0.69 | 0.57 | 0.81 | 1.27 |
| AVG | 2.35 | 0.77 | 0.73 | 1.28 | 0.82 | 3.40 | 1.53 | 1.33 | 1.77 | 1.70 | 0.86 | 1.09 | 1.22 | 1.43 |
| SD | 1.04 | 0.52 | 0.06 | 0.18 | 0.09 | 1.28 | 0.51 | 0.32 | 0.31 | 0.30 | 0.15 | 0.33 | 0.23 | 0.17 |
| CV | 44.25 | 67.53 | 8.22 | 14.06 | 10.97 | 37.64 | 33.33 | 24.06 | 17.51 | 17.64 | 17.44 | 30.27 | 18.85 | 11.89 |
| CGR | -7.11 | 7.87 | 1.27 | -3.10 | 0.00 | -3.69 | 1.32 | -4.33 | -2.58 | -5.05 | -0.32 | -4.95 | -3.89 | -3.03 |
| LGR | 1.54 | 0.94 | 0.75 | 1.08 | 0.84 | 4.02 | 1.54 | 0.91 | 1.83 | 1.08 | 0.69 | 0.53 | 0.77 | 1.22 |

Source: Compiled from Annual Reports of Select Cement Companies from 2003-04 to 2012-13

Table 7 shows the working capital ratio of select cement companies in different regions of Andhra Pradesh over a ten year period. Analysis pertaining to working capital ratio of select cement companies over a study period of ten year in Andhra Pradesh reveals that the industry average working capital ratio in Andhra Pradesh over the ten year period is 1.43. The average working capital ratio of select cement companies in 2003-04, 2004-05, 2006-07 and 2010-11 is higher than the industry average in Andhra Pradesh whereas in the remaining years of the ten year period it is lower than the industry average. Region wise analysis pertaining to working capital ratio of select cement companies in Andhra Pradesh reveals that the average working capital ratio of Telangana region is higher than the average working capital ratio of the whole industry whereas in the remaining two regions such as in Rayalaseema region and Coastal Andhra Region the average working capital ratio is lower than the industry average. The working capital ratio of Kakatiya Cements Limited of Telangana region, India Cements Limited of Rayalaseema region, KCP Cements Limited of Coastal Andhra region and Kesoram Industries Limited of Telangana region is higher than the average working capital ratio of all the select cement companies in Andhra Pradesh whereas the working capital ratio of all the remaining select cement companies in all the regions in all the years of Andhra Pradesh is lower than the average working capital ratio of the whole industry.

**Table No 8: Return on Capital Employed (in Ratio)**

| Year | Rayalaseema Region | | | | Telangana Region | | | | | Coastal Andhra Pradesh Region | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ICL | Panyam | Ultra | Region Average | ACC | Kakatiya | Kesoram | Sagar | Region Average | KCP | Ramco | NCL | Region Average | Industry Average |
| 2003-04 | -3.20 | 39.26 | 2.57 | 12.88 | 24.69 | 3.70 | 18.90 | 1.24 | 12.13 | 1.21 | 5.93 | -83.76 | -25.54 | -0.18 |
| 2004-05 | 0.17 | 29.86 | 0.18 | 10.07 | 37.73 | 6.86 | 8.29 | 5.19 | 14.52 | 11.61 | 8.37 | 36.89 | 18.96 | 14.51 |
| 2005-06 | 1.63 | 28.15 | 17.05 | 15.61 | 69.37 | 11.93 | 8.26 | 12.89 | 25.61 | 18.82 | 13.84 | 11.16 | 14.61 | 18.61 |
| 2006-07 | 12.69 | -5.85 | 38.82 | 15.22 | 79.85 | 15.92 | 29.91 | 45.03 | 42.68 | 42.79 | 42.58 | 19.19 | 34.85 | 30.92 |
| 2007-08 | 16.25 | -40.07 | 38.71 | 4.96 | 55.12 | 13.62 | 32.67 | 11.30 | 28.18 | 54.15 | 22.37 | 13.84 | 30.12 | 21.09 |
| 2008-09 | 10.31 | -87.44 | 25.97 | -17.05 | 54.79 | 19.14 | 16.54 | 4.47 | 23.73 | 42.44 | 13.01 | 10.02 | 21.82 | 9.50 |
| 2009-10 | 7.53 | -199.72 | 26.93 | -55.09 | 41.28 | 10.70 | 7.34 | 5.91 | 16.31 | 17.27 | 11.81 | 3.25 | 10.78 | -9.33 |
| 2010-11 | 1.33 | 23.71 | 21.25 | 15.43 | 38.89 | 4.15 | -5.07 | 5.18 | 10.79 | 7.84 | 6.30 | 7.33 | 7.16 | 11.12 |
| 2011-12 | 6.62 | -14.38 | 23.54 | 5.26 | 35.26 | 16.45 | -13.49 | 25.69 | 15.98 | 18.47 | 17.02 | 35.42 | 23.64 | 14.96 |
| 2012-13 | 3.35 | -54.52 | 22.15 | -9.67 | 30.81 | 11.92 | -9.41 | 4.81 | 9.53 | 7.94 | 18.08 | -26.88 | -0.29 | -0.14 |
| AVG | 5.67 | -28.10 | 21.72 | -0.24 | 46.78 | 11.44 | 9.39 | 12.17 | 19.95 | 22.25 | 15.93 | 2.65 | 13.61 | 11.11 |
| SD | 6.12 | 73.22 | 12.83 | 22.24 | 17.60 | 5.21 | 15.62 | 13.47 | 10.23 | 17.85 | 10.74 | 35.17 | 17.31 | 11.78 |
| CV | 107.93 | -260.56 | 59.06 | 9266.67 | 37.62 | 45.54 | 166.34 | 110.68 | 51.27 | 80.22 | 67.54 | 1327.16 | 127.18 | 106.03 |
| CGR | -200.51 | -203.72 | 27.04 | -196.87 | 2.49 | 13.88 | -192.54 | 16.25 | -2.64 | 23.24 | 13.18 | -11.86 | -39.27 | -2.37 |
| LGR | 4.08 | -64.94 | 24.32 | -12.18 | 31.49 | 12.83 | -12.55 | 5.21 | 9.24 | 8.68 | 19.43 | -20.56 | 2.52 | -0.14 |

Source: Compiled from Annual Reports of Select Cement Companies from 2003-04 to 2012-13

Table 8 shows the return on capital employed ratio of select cement companies in different regions of Andhra Pradesh over a study period of ten years from 2003-2004 to 2012-13. The ratio of return on capital employed of cement industry in Andhra Pradesh is 11.11. The ratio of return on capital employed in 2006-07, 2008-09, 2005-06, 2011-12, 2004-05 and 2010-11 is higher than the industry average. Return on capital employed ratio of Telangana region (19.95) and Coastal Andhra Region (13.61) is higher than the ratio of return on capital employed of the industry whereas the return on capital employed ratio of Rayalaseema region is negative. Ultra Tech Cement Ltd (21.72) of Rayalaseema region, ACC Ltd (46.78), Sagar Cements

Ltd (12.17) and Kakatiya Cements Ltd (11.44) of Telangana region and KCP Cements Ltd (22.25) and Ramco Cements Ltd (15.93) of Coastal Andhra Region have higher return on capital employed ratio than the return on capital employed ratio of industry whereas India Cements Ltd (5.67) of Rayalaseema region, Kesoram Industries Ltd (9.39) of Telangana region and NCL (2.65) of Coastal Andhra Region have a lower return on capital employed ratio than the return on capital employed ratio of industry and return on capital employed of Panyam Cements and Mineral Industries Ltd is negative.

**Table No 9: Correlation between WCR and Inventory Management Efficiency Ratios**

| **Correlations** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | **WCR** | **INTA** | **INCA** | **INWCR** | **INSR** | **ITR** | **ICP** |
| WCR | Pearson Correlation | 1 | .364** | .157 | -.001 | .556** | -.252* | .559 |
| | Sig. (2-tailed) | | .000 | .119 | .992 | .000 | .011 | .000 |
| | N | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| INTA | Pearson Correlation | .364** | 1 | .489** | .072 | .552** | -.358** | .555** |
| | Sig. (2-tailed) | .000 | | .000 | .478 | .000 | .000 | .000 |
| | N | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| INCA | Pearson Correlation | .157 | .489** | 1 | .081 | .604** | -.470** | .589 |
| | Sig. (2-tailed) | .119 | .000 | | .424 | .000 | .000 | .000 |
| | N | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| INWCR | Pearson Correlation | -.001 | .072 | .081 | 1 | .088 | -.073 | .082 |
| | Sig. (2-tailed) | .992 | .478 | .424 | | .383 | .468 | .417 |
| | N | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| INSR | Pearson Correlation | .556** | .552** | .604** | .088 | 1 | -.677** | .957** |
| | Sig. (2-tailed) | .000 | .000 | .000 | .383 | | .000 | .000 |
| | N | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| ITR | Pearson Correlation | -.252* | -.358** | -.470** | -.073 | -.677** | 1 | -.687* |
| | Sig. (2-tailed) | .011 | .000 | .000 | .468 | .000 | | .000 |
| | N | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| ICP | Pearson Correlation | .559** | .555** | .589** | .082 | .957** | -.687** | 1** |
| | Sig. (2-tailed) | .000 | .000 | .000 | .417 | .000 | .000 | |
| | N | 100 | 100 | 100 | 100 | 100 | 100 | 100 |

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table No 9 refers the results of Pearson correlation between the working capital ratio (WCR) and inventory management efficiency ratios. From the table above it is observed that working capital ratio has a positive relationship with inventory to total assets ratio (r = 0.364), inventory to sales ratio (0.556) and inventory conversion period (0.559) and negative correlation with inventory turnover ratio (-0.252) at 0.01 level of significance.

**Table No 10: Regression Analysis between WCR and Inventory Management Efficiency Ratios**

| **Model Summary** | | | | |
|---|---|---|---|---|
| **Model** | **R** | **R Square** | **Adjusted R Square** | **Std. Error of the Estimate** |
| | .641[a] | .411 | .373 | .76319 |

Predictors: (Constant), ICP, ITWCR, ITTAR, ITCAR, ITR, ITSR

Table 10 shows the "R" value is 0.641 which shows that there is a moderate correlation between dependent variable (WCR) and independent variables.

"R square" value **(Coefficient of Determination or Regression Coefficient)** indicates 41.10 per cent of variation in return on capital employed is caused by predictors.

"Adjusted R square" value indicates that 37.30 per cent variation is caused by predictors considering number of observations and the number of predicted variables.

**Table No 10a: ANOVA**

| **Model** | **Sum of Squares** | **Df** | **Mean Square** | **F** | **Sig.** |
|---|---|---|---|---|---|
| Regression | 37.812 | 6 | 6.302 | 10.820 | .000[b] |
| Residual | 54.169 | 93 | .582 | | |
| Total | 91.981 | 99 | | | |
| a. Dependent Variable: WCR | | | | | |
| b. Predictors: (Constant), ICP, INWCR, INTAR, INCAR, ITR, INSR | | | | | |

Table No 10a portrays that the calculated value of 'F' is greater than the table value of 'F'. It indicates that there is significant effect of inventory management efficiency ratios on working capital ratio. Therefore, the null hypothesis (Ho1) is rejected that there is no significant impact of inventory management efficiency ratios on working capital ratio.

**Table No 10b: Coefficients**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | T | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | .130 | .404 | | .321 | .749 |
| | INTAR | .009 | .007 | .129 | 1.307 | .194 |
| | INCAR | -.023 | .008 | -.298 | -2.885 | .005 |
| | INWCR | -3.463E-005 | .000 | -.041 | -.515 | .608 |
| | INSR | .050 | .033 | .419 | 1.500 | .137 |
| | ITR | .045 | .022 | .221 | 1.999 | .049 |
| | ICP | .013 | .009 | .417 | 1.486 | .141 |
| a. Dependent Variable: WCR | | | | | | |

Table No 10b depicts the significant value of INCAR (0.005) and ITR(0.049) is less than 0.05 at 5 per cent level of significance. Hence, the said variables have a significant impact on ROCE whereas the remaining variables have no impact on ROCE because their computed values are more than 0.05 at 5 per cent level of significance.

**Table No 11: Correlation between ROCE and Inventory Management Efficiency Ratios**

| | | ROCE | ITTAR | ITCAR | ITSR | ITWCR | ITR | ICP |
|---|---|---|---|---|---|---|---|---|
| ROCE | Pearson Correlation | 1 | | | | | | |
| | Sig. (2-tailed) | | | | | | | |
| | N | 100 | | | | | | |
| ITTAR | Pearson Correlation | -.184 | 1 | | | | | |
| | Sig. (2-tailed) | .067 | | | | | | |
| | N | 100 | 100 | | | | | |
| ITCAR | Pearson Correlation | .213* | .281** | 1 | | | | |
| | Sig. (2-tailed) | .034 | .005 | | | | | |
| | N | 100 | 100 | 100 | | | | |
| ITSR | Pearson Correlation | -.057 | .327** | .604** | 1 | | | |
| | Sig. (2-tailed) | .576 | .001 | .000 | | | | |
| | N | 100 | 100 | 100 | 100 | | | |
| ITWCR | Pearson Correlation | .001 | .045 | .081 | .088 | 1 | | |
| | Sig. (2-tailed) | .991 | .660 | .424 | .383 | | | |
| | N | 100 | 100 | 100 | 100 | 100 | | |
| ITR | Pearson Correlation | .038 | -.167 | -.470** | -.677** | -.073 | 1 | |
| | Sig. (2-tailed) | .704 | .096 | .000 | .000 | .468 | | |
| | N | 100 | 100 | 100 | 100 | 100 | 100 | |
| ICP | Pearson Correlation | -.066 | .328** | .589** | .957** | .082 | -.687** | 1 |
| | Sig. (2-tailed) | .514 | .001 | .000 | .000 | .417 | .000 | |
| | N | 100 | 100 | 100 | 100 | 100 | 100 | 100 |

** Correlation is significant at the 0.01 level (2-tailes)

*Correlation is significant at the 0.05 level (2-tailed)

Table No 11 portrays the results of Pearson correlation between the return on capital employed (ROCE) and inventory management efficiency ratios. From the table above it is observed that return on capital employed has a positive relationship with inventory to current assets ratio (r = 0.213) at 0.01 level of significance.

**Table No 12: Regression Analysis between ROCE and Inventory Management Efficiency Ratios**

| Model Summary | | | | |
|---|---|---|---|---|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
| | .384 | .148 | .093 | 30.81980 |

Predictors: (Constant), ICP, ITWCR, ITTAR, ITCAR, ITR, ITSR

Table No 12 shows the "R" value is 0.384 which shows that there is a less correlation between dependent variable (ROCE) and independent variables.

"R square" value **(Coefficient of Determination or Regression Coefficient)** indicates 14.8 per cent of variation in return on capital employed is caused by predictors.

"Adjusted R square" value indicates that 9.3 per cent variation is caused by predictors considering number of observations and the number of predicted variables.

**Table No 12a: ANOVA**

| Model | Sum of Squares | Df | Mean Sum of Square | F | Sig. |
|---|---|---|---|---|---|
| Regression | 15298.952 | 6 | 2549.825 | 2.684 | .019 |
| Residual | 88336.964 | 93 | 949.860 | | |
| Total | 103635.915 | 99 | | | |

a. Predictors: (Constant), ICP, ITWCR, ITTAR, ITCAR, ITR, ITSR
b. Dependent Variable: ROCE

Table No12a portrays that the calculated value of 'F' is greater than the table value of 'F'. It indicates that there is significant effect of inventory management efficiency ratios on return on capital employed ratio. Therefore, the null hypothesis (Ho2) is rejected that there is no significant impact of inventory management efficiency ratios on return on capital employed ratio.

**Table No 12b: Coefficients**

| Model | Unstandardized Coefficients | | Standardized Coefficients | T | Sig. |
|---|---|---|---|---|---|
| | B | Std. Error | Beta | | |
| (Constant) | -7.908 | 16.207 | | -.488 | .627 |
| ITTAR | -.398 | .180 | -.227 | -2.208 | .030 |
| ITCAR | 1.106 | .315 | .427 | 3.507 | .001 |
| ITSR | -.289 | 1.342 | -.072 | -.215 | .830 |
| ITWCR | -4.278 | .003 | -.002 | -.016 | .987 |
| ITR | .415 | .904 | .061 | .459 | .647 |
| ICP | -.142 | .362 | -.132 | -.392 | .696 |

a. Dependent Variable: ROCE

Table No 12b depicts the significant value of ITTAR (0.030) and ITCAR (0.001) is less than 0.05 at 5 per cent level of significance. Hence, the said variables have a significant impact on ROCE whereas the remaining variables have no impact on ROCE because their computed values are more than 0.05 at 5 per cent level of significance.

**Conclusion**

The study of impact of inventory management on working capital and profitability is leads to the conclusion that Sagar Cement Ltd Company's inventory management efficiency is good and KCP Cement Ltd Company's inventory management is worst. Return on capital employed is positive relationship with inventory to current assets ratio. There is a significant impact of inventory management efficiency on working capital ratio and profitability.

**References**

1. Aminu, Y. (2012). Determinants of Inventory Managements as a Component of Working Capital in Ensuring Corporate Profitability-A Conceptual Approach. *Research Journal of Finance and Accounting,* 3 (11), 58 – 61.

2. Chalotra, V. (2013). Inventory Management and Small Firms Growth: An Analytical Study in Supply Chain. *Vision*, 17(3), 213–222.
3. Kothari, C.R. (2005) Research Methodology. Methods and Techniques (Second Revised).
4. Sahari, S., Tinggi, M. &Kadri, N. (2012). Inventory Management in Malaysian Construction Firms: Impact on Performance. *SIU Journal of Management*, 2 (1), 59.
5. Schreibfeder, J. (2004). *Inventory Management: Analyzing Inventory to Maximize Profitability*. Microsoft Dynamics.
6. Vedran, C., Ari-Pekka, H. & Weiss, L. A. (2009). On the relationship between inventory and financial performance in manufacturing companies. *International Journal of Operations & Production Management,* 29 (8), 789 – 806.