PROFITABILITY ANALYSIS OF A SMALL AND PARTNERSHIP ENTERPRISE - A CASE STUDY OF KRISTNA ENGINEERING WORKS

Abstract: Owners and Managers are naturally interested in financial soundness of their Business Enterprise. Financial soundness can be measured in terms of operating efficiency. Operating efficiency of an enterprise means its ability to earn adequate returns to owners and depends ultimately on the profits earned by the enterprise. The profitability of an enterprise is measured by profitability ratios. In this paper, an attempt is made to do Profitability Analysis of Kristna Engineering Works. Kristna Engineering Works is one of the leading manufacturers and exporters from India engaged in the manufacturing of Sugar Mill Rollers, Blank Shells, Mill Spares, Crane Preparatory Devices and spares for sugar and for other allied industries. It is a small and partnership enterprise located at Vijayawada of Krishna district of Andhra Pradesh. Profitability analysis was done through analyzing various profit margins, Profitability ratios relating to investments and Profitability ratios relating to various expenses. Profit margins covered include Gross Profit Margin, Operating Profit Margin and Net Profit Margin. Profitability ratios relating to investments include Return on Assets (ROA), Return on Capital Employed (ROCE) and Return on Share holder’s equity (ROSE). Profitability ratios relating to various expenses include Cost of Goods sold Ratio, Operating Expenses Ratio, Administrative Expenses Ratio, Selling Expenses Ratio and Financial Expenses Ratio. Chi-square test is used for testing the hypotheses formed.

Index Terms - Financial Expenses Ratio, Net Profit Margin, Operating Profit Margin, Return on Assets (ROA), Return on Capital Employed (ROCE), Selling Expenses Ratio.

I. Introduction

Owners and Managers are naturally interested in financial soundness of their Business Enterprise. Financial soundness can be measured in terms of operating efficiency. Operating efficiency of an enterprise means its ability to earn adequate returns to owners and depends ultimately on the profits earned by the enterprise. The profitability of an enterprise is measured by profitability ratios. There are three important profitability ratios namely profitability ratios relating to sales, profitability ratios relating to investment and profitability ratios relating to expenses. In this paper, an attempt is made to do Profitability Analysis of Kristna Engineering Works. Kristna Engineering Works is one of the leading manufacturers and exporters from India engaged in the manufacturing of Sugar Mill Rollers, Blank Shells, Mill Spares, Crane Preparatory Devices and spares for sugar and for other allied industries. It is a small and partnership enterprise located at Vijayawada of Krishna district of Andhra Pradesh. Kristna Engineering Works was established in the year 1969. This company is catering the needs of more than Two hundred and fifty sugar mills located in India and overseas. This Enterprise has an annual turnover of Rupees 4118.1 lakhs as per 2015-16 Accounts. The total assets of the company are Rupees 3713.1 lakhs.

II. Review of Literature


III. Objectives

The general objective of the study is to do Profitability Analysis of Kristna Engineering Works. The specific objectives include the following:

1. To examine Gross profit margin, Operating profit margin and Net Profit Margin of Kristna Engineering Works during the period of study.
2. To investigate into various profitability ratios relating to investment in Kristna Engineering Works during the period of study.
3. To analyze various profitability ratios related to expenses in Kristna Engineering Works during the period of study.
4. To examine the overall profitability of Kristna Engineering Works during the period of study.
5. To offer suggestions for improvement of profitability of the Enterprise, if required.

IV. Hypotheses

H₀₁: Gross Profit Margin of Kristna Engineering Works is uniform during the period of study.  
H₀₂: Operating Profit Margin of Kristna Engineering Works is uniform during the period of study.  
H₀₃: Net Profit Margin of Kristna Engineering Works is uniform during the period of study.  
H₄: Return on Assets (ROA) in Kristna Engineering Works is uniform during the period of study.  
H₅: Return on Capital Employed (ROCE) in Kristna Engineering Works is uniform during the period of study.  
H₆: Return on Share holder’s equity (ROE) in Kristna Engineering Works is uniform during the period of study.  
H₇: Cost of Goods sold Ratio in Kristna Engineering Works is uniform during the period of study.  
H₈: Operating Expenses Ratio in Kristna Engineering Works is uniform during the period of study.  
H₉: Administrative Expenses Ratio in Kristna Engineering Works is uniform during the period of study.  
H₁₀: Selling Expenses Ratio in Kristna Engineering Works is uniform during the period of study.  
H₁₁: Financial Expenses Ratio in Kristna Engineering Works is uniform during the period of study.
V. Methodology

The present study is mainly based on secondary data. The data is taken from the financial statements including balance sheet, trading account and profit and loss account of Kristna Engineering Works. The period of study is ten years covering the financial years from 2006-07 to 2015-16. The data gathered is analyzed through the ratios relating to profitability of the enterprise. Profitability analysis was done through analyzing various profit margins, profitability ratios relating to investments and profitability ratios relating to various expenses. Profit margins covered include Gross Profit Margin, Operating Profit Margin and Net Profit Margin. Profitability ratios relating to investments include Return on Assets (ROA), Return on Capital Employed (ROCE) and Return on Shareholder’s equity (ROSE). Profitability ratios relating to various expenses include Cost of Goods sold Ratio, Operating Expenses Ratio, Administrative Expenses Ratio, Selling Expenses Ratio and Financial Expenses Ratio. Chi-square test is used for testing the hypotheses formed.

VI. Profitability Analysis with Profit Margins

Profit Margins are based on the assumption that an Enterprise should earn sufficient profit on each Rupee of sales.

Gross Profit Margin

Gross Profit Margin has varied between 22.4 and 26.7 during the period of study. Gross Profit Margin is slightly low during the period of study. This was due to high cost of production. Management should make efforts to reduce cost of production. It is found in the significance test that Gross Profit Margin is uniform during the period of study.

Table-1: Gross Profit Margin

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</tr>
</thead>
<tbody>
<tr>
<td>Gross Profit</td>
<td>636.2</td>
<td>734.2</td>
<td>883.5</td>
<td>632.4</td>
<td>856.5</td>
<td>925</td>
<td>1084.5</td>
<td>1031.4</td>
<td>1127.2</td>
<td>921.2</td>
</tr>
<tr>
<td>Sales</td>
<td>2462.8</td>
<td>2870.8</td>
<td>3066.6</td>
<td>2442.8</td>
<td>3731.4</td>
<td>4039.2</td>
<td>4274.0</td>
<td>4123.7</td>
<td>4360.0</td>
<td>4118.1</td>
</tr>
<tr>
<td>Gross Profit Margin</td>
<td>25.8</td>
<td>25.5</td>
<td>26.7</td>
<td>25.9</td>
<td>23.0</td>
<td>22.9</td>
<td>25.4</td>
<td>25.0</td>
<td>25.9</td>
<td>22.4</td>
</tr>
</tbody>
</table>

Source: Annual Reports of Kristna Engineering Works from 2006-07 to 2015-16.

Calculated value of Chi-Square for Gross Profit Margin = 0.8. Calculated value is less than critical Value at 5% level of Significance i.e., 0.8<16.919. Hence, H₀₁ is accepted.

Operating Profit Margin

Operating Profit Margin has varied between 11.2 and 16.9 during the period of study. Operating Profit Margin is low during the period of study due to high cost of production. It is found in the significance test that Operating Profit Margin is uniform during the period of study.

Table-2: Operating Profit Margin

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</tr>
</thead>
<tbody>
<tr>
<td>EBIT</td>
<td>349.4</td>
<td>484.6</td>
<td>545.4</td>
<td>332.6</td>
<td>442.7</td>
<td>492.1</td>
<td>624.6</td>
<td>624.9</td>
<td>527.6</td>
<td>461.4</td>
</tr>
<tr>
<td>Sales</td>
<td>2462.8</td>
<td>2870.8</td>
<td>3066.6</td>
<td>2442.8</td>
<td>3731.4</td>
<td>4039.2</td>
<td>4274.0</td>
<td>4123.7</td>
<td>4360.0</td>
<td>4118.1</td>
</tr>
<tr>
<td>Operating Profit Margin</td>
<td>14.2</td>
<td>16.9</td>
<td>16.5</td>
<td>13.6</td>
<td>11.9</td>
<td>12.2</td>
<td>14.6</td>
<td>15.2</td>
<td>12.1</td>
<td>11.2</td>
</tr>
</tbody>
</table>

Source: Annual Reports of Kristna Engineering Works from 2006-07 to 2015-16.

Calculated value of Chi-Square for Operating Profit Margin = 2.6. Calculated value is less than critical Value at 5% level of Significance i.e., 2.6<16.919. Hence, H₀₂ is accepted.

Net Profit Margin

Net Profit Margin has varied between 3.1 and 10.2 during the period of study. Net Profit Margin is low during the period of study due to high cost of production. Positive Net Profit Margin indicates that the firm is covering its financial expenses. It is found in the significance test that Net Profit Margin is uniform during the period of study.

Table-3: Net Profit Margin

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</tr>
</thead>
<tbody>
<tr>
<td>Net Profit</td>
<td>250.8</td>
<td>252.6</td>
<td>264.3</td>
<td>120.1</td>
<td>189.5</td>
<td>198.2</td>
<td>266.4</td>
<td>233.1</td>
<td>171.8</td>
<td>125.7</td>
</tr>
<tr>
<td>Sales</td>
<td>2462.8</td>
<td>2870.8</td>
<td>3066.6</td>
<td>2442.8</td>
<td>3731.4</td>
<td>4039.2</td>
<td>4274.0</td>
<td>4123.7</td>
<td>4360.0</td>
<td>4118.1</td>
</tr>
<tr>
<td>Net Profit Margin</td>
<td>10.2</td>
<td>8.8</td>
<td>8.0</td>
<td>4.9</td>
<td>5.1</td>
<td>4.9</td>
<td>6.2</td>
<td>5.7</td>
<td>3.9</td>
<td>3.1</td>
</tr>
</tbody>
</table>

Source: Annual Reports of Kristna Engineering Works from 2006-07 to 2015-16.

Calculated value of Chi-Square for Net Profit Margin = 7.5. Calculated value is less than critical Value at 5% level of Significance i.e., 7.5<16.919. Hence, H₀₃ is accepted.

VII. Profitability Analysis with Profitability Ratios Related to Investment

Profitability ratios relating to investment are based on the assumption that an Enterprise should earn good profit on its investment.
Return on Assets (ROA)

Return on Assets Ratio has varied between 3.4 and 17.4 during the period of study. It is found in the significance test that Return on Assets Ratio is not uniform during the period of study. Return on Assets Ratio is less than 10 during last seven years of the study, which indicates that there is need for better profitability management in the enterprise.

Table-4: Return on Assets (ROA) (Figures in Lakhs)

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<tbody>
<tr>
<td>Net Profit</td>
<td>250.8</td>
<td>252.6</td>
<td>264.3</td>
<td>120.7</td>
<td>189.5</td>
<td>198.2</td>
<td>266.4</td>
<td>233.1</td>
<td>171.2</td>
<td>125.7</td>
</tr>
<tr>
<td>Average Total Assets</td>
<td>1443.7</td>
<td>1643.3</td>
<td>1907.4</td>
<td>1733.6</td>
<td>2292.4</td>
<td>2604.6</td>
<td>2953.6</td>
<td>3083.3</td>
<td>3767.5</td>
<td>3713.1</td>
</tr>
<tr>
<td>ROA</td>
<td>14.7</td>
<td>16.4</td>
<td>14.4</td>
<td>10.4</td>
<td>14.7</td>
<td>13.4</td>
<td>17.2</td>
<td>17.6</td>
<td>20.3</td>
<td>14.0</td>
</tr>
</tbody>
</table>

Source: Annual Reports of Kristna Engineering Works from 2006-07 to 2015-2016.

Calculated value of Chi-Square for ROA = 63.3. Calculated value is greater than critical Value at 5% level of Significance i.e., 20.6>16.919. Hence, H₀ₐ is rejected.

Return on Capital Employed (ROCE)

Return on capital employed has varied between 12.4 and 28.6 during the period of study. It is found in the significance test that Return on capital employed is uniform during the period of study. Return on Capital Employed is less than 20 during 2010, 2011, 2012, 2013 and 2014, which indicates that there is need for better profitability management in the enterprise.

Table-5: Return on Capital Employed (ROCE) (Figures in Lakhs)

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</thead>
<tbody>
<tr>
<td>EBIT</td>
<td>349.4</td>
<td>484.6</td>
<td>545.4</td>
<td>332.6</td>
<td>432.7</td>
<td>492.1</td>
<td>624.6</td>
<td>624.9</td>
<td>527.6</td>
<td>461.4</td>
</tr>
<tr>
<td>Average Total Capital</td>
<td>1443.7</td>
<td>1643.3</td>
<td>1907.4</td>
<td>1733.6</td>
<td>2292.4</td>
<td>2604.6</td>
<td>2953.6</td>
<td>3083.3</td>
<td>3767.5</td>
<td>3713.1</td>
</tr>
<tr>
<td>ROCE</td>
<td>24.2</td>
<td>29.5</td>
<td>28.6</td>
<td>19.2</td>
<td>19.2</td>
<td>18.9</td>
<td>21.1</td>
<td>20.3</td>
<td>14.0</td>
<td>12.4</td>
</tr>
</tbody>
</table>

Source: Annual Reports of Kristna Engineering Works from 2006-07 to 2015-2016.

Calculated value of Chi-Square for ROCE = 13.2. Calculated value is less than critical Value at 5% level of Significance i.e., 13.2<16.919. Hence, H₀ₐ is accepted.

Return on Share Holders’ Equity (ROSE)

Return on Shareholders’ Equity has varied between 9.3 and 53.0 during the period of study. Return on Shareholders’ Equity is greater than 10 during all the years except during 2016, which is good for owners. Return on Shareholders’ Equity is not uniform during the period of study.

Table-6: Return on Share Holders’ Equity (ROSE) (Figures in Lakhs)

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<tbody>
<tr>
<td>Net Profit</td>
<td>250.8</td>
<td>252.6</td>
<td>264.3</td>
<td>120.7</td>
<td>189.5</td>
<td>198.2</td>
<td>266.4</td>
<td>233.1</td>
<td>171.2</td>
<td>125.7</td>
</tr>
<tr>
<td>Average Share Holders’ Equity</td>
<td>473.4</td>
<td>701.2</td>
<td>912.7</td>
<td>818.2</td>
<td>940.2</td>
<td>983.6</td>
<td>1180.5</td>
<td>1242.3</td>
<td>1354.1</td>
<td>1356.8</td>
</tr>
<tr>
<td>ROSE</td>
<td>53.0</td>
<td>56.1</td>
<td>52.0</td>
<td>42.0</td>
<td>42.0</td>
<td>39.0</td>
<td>42.6</td>
<td>42.7</td>
<td>37.5</td>
<td>37.5</td>
</tr>
</tbody>
</table>

Source: Annual Reports of Kristna Engineering Works from 2006-07 to 2015-2016.

Calculated value of Chi-Square for ROSE = 63.3. Calculated value is greater than critical Value at 5% level of Significance i.e., 63.3>16.919. Hence, H₀ₐ is rejected.

VIII. Profitability Analysis with Profitability Ratios Related to Expenses

These ratios are based on the assumption that Enterprise should reduce its expenses in relation to sales.

Cost of Goods Sold Ratio

Cost of Goods Sold Ratio has varied between 73.3 and 77.6 during the period of study. Cost of Goods Sold Ratio is slightly high during the period of study. Management should make efforts to reduce cost of production. It is found in the significance test that Cost of Goods Sold Ratio is uniform during the period of study.

Table-7: Cost of Goods Sold Ratio (Figures in Lakhs)

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<tbody>
<tr>
<td>Cost of Goods Sold</td>
<td>1826.6</td>
<td>2138.4</td>
<td>2423.1</td>
<td>1810.4</td>
<td>2874.9</td>
<td>3114.2</td>
<td>3189.5</td>
<td>3092.3</td>
<td>3232.8</td>
<td>3196.9</td>
</tr>
<tr>
<td>Sales</td>
<td>2462.8</td>
<td>2870.8</td>
<td>3306.6</td>
<td>2442.8</td>
<td>3731.4</td>
<td>4039.2</td>
<td>4274.0</td>
<td>4123.7</td>
<td>4360.0</td>
<td>4118.1</td>
</tr>
<tr>
<td>Ratio</td>
<td>74.2</td>
<td>74.5</td>
<td>73.3</td>
<td>74.1</td>
<td>77.0</td>
<td>77.1</td>
<td>74.6</td>
<td>75.0</td>
<td>74.1</td>
<td>77.6</td>
</tr>
</tbody>
</table>

Source: Annual Reports of Kristna Engineering Works from 2006-07 to 2015-2016.

Calculated value of Chi-Square for Cost of Goods sold Ratio = 0.3. Calculated value is less than critical Value at 5% level of Significance i.e., 0.3<16.919. Hence, H₀ₐ is accepted.
Operating Expenses Ratio

Operating Expenses Ratio has varied between 3.4 and 7.7 during the period of study. Operating Expenses Ratio is low in the enterprise during the period of study. Management is making good efforts to reduce operating expenses. It is found in the significance test that Operating Expenses Ratio is uniform during the period of study.

Table-8: Operating Expenses Ratio

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<tbody>
<tr>
<td>Operating Expenses</td>
<td>160.2</td>
<td>96.5</td>
<td>166.7</td>
<td>164.9</td>
<td>245</td>
<td>264.5</td>
<td>274.2</td>
<td>203.8</td>
<td>336.8</td>
<td>196.6</td>
</tr>
<tr>
<td>Sales</td>
<td>2462.8</td>
<td>2870.8</td>
<td>3306.6</td>
<td>2442.8</td>
<td>3731.4</td>
<td>4039.2</td>
<td>4274.0</td>
<td>4123.7</td>
<td>4360.0</td>
<td>4118.1</td>
</tr>
<tr>
<td>Ratio</td>
<td>6.5</td>
<td>3.4</td>
<td>5.0</td>
<td>6.6</td>
<td>6.5</td>
<td>6.4</td>
<td>4.9</td>
<td>7.7</td>
<td>4.8</td>
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</table>

Source: Annual Reports of Kristna Engineering Works from 2006-07 to 2015-16.
Calculated value of Chi-Square for Operating Expenses Ratio = 2.5. Calculated value is less than critical Value at 5% level of Significance i.e., 2.5<16.919. Hence, H₀₈ is accepted.

Administrative Expenses Ratio

Administrative Expenses Ratio has varied between 2.7 and 6.6 during the period of study. Administrative Expenses Ratio is low in the company during the period of study. Management is making good efforts to reduce Administrative expenses. It is found in the significance test that Administrative Expenses Ratio is uniform during the period of study.

Table-9: Administrative Expenses Ratio

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</thead>
<tbody>
<tr>
<td>Administrative Expenses</td>
<td>146.3</td>
<td>76.8</td>
<td>137.6</td>
<td>139.1</td>
<td>205.7</td>
<td>212.2</td>
<td>225.7</td>
<td>165.5</td>
<td>287.6</td>
<td>129.7</td>
</tr>
<tr>
<td>Sales</td>
<td>2462.8</td>
<td>2870.8</td>
<td>3306.6</td>
<td>2442.8</td>
<td>3731.4</td>
<td>4039.2</td>
<td>4274.0</td>
<td>4123.7</td>
<td>4360.0</td>
<td>4118.1</td>
</tr>
<tr>
<td>Ratio</td>
<td>5.9</td>
<td>2.7</td>
<td>4.2</td>
<td>5.7</td>
<td>5.5</td>
<td>5.3</td>
<td>5.3</td>
<td>4.0</td>
<td>6.6</td>
<td>3.1</td>
</tr>
</tbody>
</table>

Source: Annual Reports of Kristna Engineering Works from 2006-07 to 2015-16.
Calculated value of Chi-Square for Administrative Expenses Ratio = 3.0. Calculated value is less than critical Value at 5% level of Significance i.e., 3.0<16.919. Hence, H₀₉ is accepted.

Selling Expenses Ratio

Selling Expenses Ratio has varied between 0.6 and 1.6 during the period of study. A low Selling Expenses Ratio is indicating that management is making good efforts to reducing Selling expenses. It is found in the significance test that Selling Expenses Ratio is uniform during the period of study.

Table-10: Selling Expenses Ratio

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</tr>
</thead>
<tbody>
<tr>
<td>Selling Expenses</td>
<td>13.9</td>
<td>19.7</td>
<td>29.1</td>
<td>25.8</td>
<td>39.3</td>
<td>52.3</td>
<td>48.5</td>
<td>38.3</td>
<td>49.2</td>
<td>66.9</td>
</tr>
<tr>
<td>Sales</td>
<td>2462.8</td>
<td>2870.8</td>
<td>3306.6</td>
<td>2442.8</td>
<td>3731.4</td>
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<tr>
<td>Ratio</td>
<td>0.6</td>
<td>0.7</td>
<td>0.9</td>
<td>1.1</td>
<td>1.3</td>
<td>1.3</td>
<td>0.9</td>
<td>1.1</td>
<td>1.6</td>
<td></td>
</tr>
</tbody>
</table>

Source: Annual Reports of Kristna Engineering Works from 2006-07 to 2015-16.
Calculated value of Chi-Square for Selling Expenses Ratio = 0.7. Calculated value is less than critical Value at 5% level of Significance i.e., 0.7<16.919. Hence, H₁₀ is accepted.

Financial Expenses Ratio

Financial Expenses Ratio has varied between 2.8 and 7.1 during the period of study. Financial Expenses Ratio is low during the period of study. Management is making good efforts for reducing financial expenses. It is found in the significance test that Financial Expenses Ratio is uniform during the period of study.

Table-11: Financial Expenses Ratio

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Financial Expenses</td>
<td>68.0</td>
<td>96.5</td>
<td>141.4</td>
<td>142.2</td>
<td>181.7</td>
<td>210.7</td>
<td>240.6</td>
<td>268.3</td>
<td>267.5</td>
<td>290.6</td>
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<tr>
<td>Sales</td>
<td>2462.8</td>
<td>2870.8</td>
<td>3306.6</td>
<td>2442.8</td>
<td>3731.4</td>
<td>4039.2</td>
<td>4274.0</td>
<td>4123.7</td>
<td>4360.0</td>
<td>4118.1</td>
</tr>
<tr>
<td>Ratio</td>
<td>2.8</td>
<td>3.4</td>
<td>4.3</td>
<td>5.8</td>
<td>4.9</td>
<td>5.2</td>
<td>5.6</td>
<td>6.5</td>
<td>6.1</td>
<td>7.1</td>
</tr>
</tbody>
</table>

Source: Annual Reports of Kristna Engineering Works from 2006-07 to 2015-16.
Calculated value of Chi-Square for Financial Expenses Ratio = 3.2. Calculated value is less than critical Value at 5% level of Significance i.e., 3.2<16.919. Hence, H₁₁ is accepted.
IX. Conclusion

Gross Profit Margin, Operating Profit Margin, Net Profit Margin, Return on Capital Employed Ratio, Cost of Goods sold Ratio, Operating Expenses Ratio, Administrative Expenses Ratio, Selling Expenses Ratio and Financial Expenses Ratio are uniform during the period of study. Return on Assets Ratio and Return on Share holder’s Equity Ratio are not uniform during the period of study. Gross Profit Margin, Operating Profit Margin and Net Profit Margin are low during the study period. This was due to high cost of production. Management should make efforts to reduce cost of production. Return on Assets Ratio is less than 10 during last seven years of the study and Return on Capital Employed is less than 20 during 2010, 2011, 2012, 2015 and 2016, which indicate that there is need for better profitability management in the company. Return on Shareholders’ Equity is greater than 10 during all the years except during 2016, which is good for owners. Management is making good efforts in reducing Administrative expenses, selling expenses and financial expenses.

References


