

PROFITABILITY MANAGEMENT OF SELECT SAMPLE SUGAR FACTORIES OF PRIVATE SECTOR IN ANDHRA PRADESH

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Abstract

The Indian sugar industry plays an important role in global sugar market being the world's second largest producer, after Brazil, producing nearly 15 and 25 per cent of global sugar and sugarcane respectively. The India sugar industry uses sugarcane in the production of sugar and a maximum number of companies are found in the sugarcane growing states of India including Andhra Pradesh, Uttar Pradesh, Maharashtra, Gujarat, Tamil Nadu and Karnataka. At present, there are 538 sugar factories have been set up in India with installed capacities ranging from 1,250 TCD to 6,000 TCD providing employment opportunities to the tune of 1.75 lakh workers and sustaining 2.50 lakh cane-growers upto 2014-15. In India sugarcane is growing in an extent of 51.44 lakh hectares with sugarcane production of 3593.30 lakh tones extracting and output of production of sugarcane providing employment of 1.75 lakh people. The integrated sugar industry (comprising sugar, molasses, alcohol, power and bio-fertilizer) now enjoys monopoly in an annual turnover of around Rs. 90,000 crores (which can go up to Rs. 1,25,000 crores at 32 MT of production) and contributes around Rs. 3,000 crores to Central Government exchequer, by way of central excise duty every year. Nearly 40 per cent of the sugar produced is utilized for manufacture of Gur and Khandasari, sugarcane cultivation is a lucrative enterprise for farmers. Keeping the facts stated above in view the researcher has made an attempts in this to analyse the profitability management efficiency of select private sample sugar factories in Andhra Pradesh by using accounting ratios viz., Gross Profit Ratio, Net Profit Ratio, Operating Profit Ratio, Return on capital employed ratio and Return on total assets. The private sugar factories working in different parts of Andhra Pradesh and are selected as sample units for the present study viz., Prudential Sugar Corporation Limited, Nindra, Chittoor District, SNJ Sugars and Allied Products Limited, Nelvoy, Chittoor District, KCP Sugar and Industries Corporation Limited, Vuyuru, Krishna District and The Andhra Sugars Limited, Tanuku, West Godavari District for the period of ten years i.e., 2005-06 to 2014-15.

KeyWord: Profitability, Gross Profit Ratio, Net profit Ratio, Operating Profit Ratio, Return on capital employed ratio, Return on total assets Ratio

INTRODUCTION

Business organisation which wants to prosper in the long-run shall have proper profit planning and shall discharge its obligations to the interested segments of the society by means of earning adequate profits. Earning profit is imperative on the part of an organisation. Business organisations shall strive hard for this all round development. Sometimes, the terms 'profit' and 'profitability' are used interchangeably. But in real sense, there is a difference between the two. Profit is an absolute term, whereas, the profitability is a relative term. However, they are closely related and mutually interdependent, having distinct roles in business.

Profitability management can be defined both from a top-down and a bottom-up perspective. From a top-down point of view, profitability management consists of a set of processes and a methodology to bring all costs and revenues together on an operational level, providing operational managers with the insight on how to deploy their resources in an optimal way. Bottom-up profitability management entails the process and methodology of identifying the organization's operational cost and value drivers at a transactional level and aggregating them up to translate their workings into financial results. Profitability management has been possible but until recently not really practical, which explains why it is not more widely practiced in most types of business. Software that facilitates the analyses needed to perform profitability management has been available but not widely adopted, in part because it has not been easy enough to use in day-to-day operations. And although profitability management is the norm in some businesses, such as airlines and hotels, it is still a novel approach in most others. Consequently, so far there haven't been enough success stories to spur senior executives to change.

INDIAN SUGAR INDUSTRY: AN OVERVIEW

Sugar industry occupies an important place in Indian economy. It is the second largest agro-based industry in India, which has been instrumental in the mobilization of resources, generation of employment opportunities, income generation and in providing social infrastructure in rural areas. It supports 50 million farmers and their families and provides direct employment to over 0.5 million skilled and semi-skilled persons in sugar mills and integrated industries. The Indian sugar industry plays a leading role in global sugar market being the world's second largest producer after Brazil, producing nearly 15 and 25 per cent of global sugar and sugarcane respectively. The India sugar industry uses sugarcane in the production of sugar and a maximum number of the companies are found in the sugarcane growing states of India including Andhra Pradesh, Uttar Pradesh, Maharashtra, Gujarat, Tamil Nadu and Karnataka.

At present, there are about 538 sugar factories have been set up in India with an installed capacities ranging from 1,250 TCD to 6,000 TCD providing employment opportunities to the tune of 1.75 lakh workers and sustaining 2.50 lakh cane-growers upto 2014-15. The industry can produce 283.13 lakh tonnes of sugar production. Area under sugarcane cultivation in India is 51.44 lakh hectares, production of sugarcane 3593.30 lakh tonnes and recovery of sugar from sugarcane is 10.37 per cent during the year 2014-15. The integrated sugar industry (comprising sugar, molasses, alcohol, power and bio-fertilizer) now enjoys monopoly in attaining the turnover of around Rs. 90,000 crores (which can go up to Rs. 1,25,000 crores at 32 MT of production) and contributes around Rs. 3,000 crores to central Government exchequer, by way of central excise duty every year. Nearly 40 per cent of the sugar produced is utilized for manufacture of Gur and Khandasari, sugarcane cultivation is a lucrative enterprise for farmers.

Financial Management helps the sugar companies in the utilization of financial resources more efficiently. It must be viewed as an integral part of overall management rather than as a staff specialty concerned with fund raising operations. In other words, financial management is directly concerned with the overall management of an enterprise and in taking policy decisions relating to the line of business, size of the firm, type of equipment used, extent of debt, liquidity and so on. These, in turn, determine the level of profitability. Therefore, financial management is crucial and significant in every activity, be it an industry, service, agriculture or a combination of all.

RESEARCH DESIGN AND METHODOLOGY

Objective of the study

The chief objective of the present study is to analyse the profitability efficiency of select sample sugar factories of private sector in Andhra Pradesh.

Collection of Data

The present study uses mainly secondary data only. The secondary data have been collected from different sources like Directorate of Sugarcane Commission, Hyderabad, Assistant Cane Commissioners, Chittoor, West Godavari and Krishna Districts, Indian Sugar Year Book, Hand Book of Sugar statistics, Reports of India Sugar Mills Association, Cooperative Sugar Monthly Publication, Annual Reports from select sample sugar factories of private sector, Directorate of Economics and Statistics, Hyderabad, Books, Journals, Magazines, Periodicals, Websites and Newspapers.

Sample Design

Having bifurcated the united Andhra Pradesh into Andhra Pradesh and Telangana the state of Andhra Pradesh comprises two regions viz., Rayalaseema and Coastal Andhra region. In these two regions together in Andhra Pradesh at present 22 private sugar factories are working. Out of these 22 sugar factories, 5 factories located are in Rayalaseema Region and 17 factories are located in the Coastal Andhra Region of Andhra Pradesh. The researcher has made a pilot study and identified that only two factories in Rayalaseema region and two factories in Coastal Andhra are working well and the relevant data were available with them. Therefore, the researcher has selected 2 factories from Rayalaseema and 2 factories from Coastal Andhra region by adopting a convenient sampling method. The following are the private sugar factories working in different parts of Andhra Pradesh and are selected as sample units for the present study.

1. Prudential Sugar Corporation Limited, Nindra, Chittoor District
2. SNJ Sugars and Allied Products Limited, Nelvoy, Chittoor District
3. KCP Sugar and Industries Corporation Limited, Vuyuru, Krishna District
4. The Andhra Sugars Limited, Tanuku, West Godavari District

Period of study

Period of study chosen for the present study is 10 years i.e. from 2005-06 to 2014-15.

Tools of Analysis

The data drawn from various sources has been processed, tabulated, analyzed and interpreted with the help of both financial tools and statistical techniques viz., percentages, ratios, mean, Standard Deviation (SD), Coefficient of Variation (CV), Compound Growth Rate (CGR), Linear Growth Rate (LGR), ANOVA, 't' test and trend. Graphs and diagrams are presented at appropriate places to illustrate facts and figures wherever necessary.

Limitations of the Study

This study is confined to the financial management of select sample sugar factories of private sector in Rayalaseema and Coastal Andhra regions of Andhra Pradesh. The present study covers the performance of financial management in terms of Capital Structure, Fixed Assets Management, Working Capital Management and Profitability Management in select sample private sugar factories of Andhra Pradesh.

PROFITABILITY PERFORMANCE OF SELECT SAMPLE SUGAR FACTORIES OF PRIVATE SECTOR IN ANDHRA PRADESH

An attempt is made in this present paper to analyse the profitability management efficiency of select private sample sugar factories in Andhra Pradesh by using accounting ratios viz., Gross Profit Ratio, Net Profit Ratio, Operating Profit Ratio, Return on capital employed ratio and return on total assets.

Gross profit ratio

Gross profit ratio establishes the relationship between gross profit and net sales. It also reveals the amount of gross profit for each rupee of sale. Higher gross profit ratio is an indication that the firm has higher profitability. A low gross profit ratio indicates the inability of the management. 20 – 30 per cent of gross profit ratio may be considered normal standard⁵. It may be calculated by following formula:

$$\text{Gross profit ratio} = \frac{\text{Gross profit}}{\text{Net sales}} \times 100$$

Table – 1

Gross Profit ratio of select sample sugar factories of private sector in Andhra Pradesh during the period from 2005-06 to 2014-15

(Per cent)

Year	Prudential Sugar Corporation Limited	SNJ Sugars & Allied Products Limited	KCP Sugar and Industries Corporation Limited	The Andhra Sugars Limited
2005-06	11.84	11.06	27.49	15.65
2006-07	2.77	4.42	11.64	16.65
2007-08	-27.46	-0.56	3.24	-35.65
2008-09	0.63	-46.57	9.96	11.92
2009-10	0.21	-34.26	13.74	18.11
2010-11	2.64	17.24	6.46	10.21
2011-12	3.60	16.92	9.68	18.19
2012-13	2.33	24.25	13.34	16.47
2013-14	2.06	9.91	9.81	10.50
2014-15	-1.31	11.36	-6.98	8.60
Mean	-0.27	1.38	9.84	9.07
SD	10.18	23.25	8.69	16.10
CV	-3784.90	1688.36	88.36	177.57
LGR	-83.31	179.20	-17.29	11.03
t-value	0.189[@]	0.960[@]	-2.080[@]	0.542[@]

Note : @ Not significant; * Significant at 0.05 level; ** Significant at 0.01 level

Source : Data compiled from the annual reports of select sample sugar factories of private sector in Andhra Pradesh from 2005-06 to 2014-15.

Table 1 explains the ratio of gross profit to sales of select sample sugar factories of private sector in Andhra Pradesh during the period from 2005-06 To 2014-15. It can be observed from the table 1 that the ratio of gross profit to sales of Prudential Sugar Corporation Limited decreased from 11.84 per cent in 2005-06 to 2.06 per cent in 2013-14 exact 27.46 per cent in 2007-08 and -1.31 per cent in 2014-15. The growth in the data pertaining to gross profit ratio of Prudential Sugar Corporation Limited is negative and not consistent because the computed value of CV is negative (-3784.90). The computed value of LGR for the time series data pertaining to gross profit ratio Prudential Sugar Corporation Limited is negative. The computed value of 't' for the time series data pertaining to gross profit ratio of Prudential Sugar Corporation Limited is not significant either at 1 per cent level of significance or at 5 per cent level of significance.

The gross profit ratio of SNJ Sugars and Allied Products Limited decreased from 11.06 per cent in 2005-06 to 4.42 per cent in 2006-07. In the remaining period of three years i.e., from 2007-08 to 2009-10, the gross profit ratio of SNJ Sugar and Allied Products Limited is negative. The ratio of gross profit to sales of SNJ Sugars and Allied Products Limited decreased from 17.24 per cent in 2010-11 to 11.36 per cent in 2014-15 with wide fluctuations from year to year. The growth in the data pertaining to gross profit ratio of SNJ Sugars and Allied Products Limited is not consistent because the computed value of CV is more than 50 per cent. The computed value of LGR for the time series data pertaining to gross profit ratio of SNJ Sugars and Allied Products Limited is positive. The computed value of 't' for the time series data pertaining to gross profit ratio of SNJ Sugars and Allied Products Limited is not significant either at 1 per cent level of significance or at 5 per cent level of significance.

The gross profit ratio of KCP Sugar and Industries Corporation Limited decreased from 27.49 per cent in 2005-06 to 9.81 per cent in 2013-14 with wide fluctuations during the study period. The ratio of gross profit to sales of KCP Sugar and Industries Corporation Limited is negative (-6.98 per cent). The growth in the data pertaining to gross profit ratio of KCP Sugar and Industries Corporation Limited is not consistent because of the computed value of CV is more than 50 per cent. The computed value of LGR for the time series data pertaining to gross profit ratio of KCP Sugar and Industries Corporation Limited is negative. The computed value of 't' for the time series data pertaining to gross profit ratio of KCP Sugar and Industries Corporation Limited is negative as well as it is not significant either at 1 per cent level of significance or at 5 per cent level of significance.

The ratio of gross profit to sales of the Andhra Sugars Limited increased to 16.65 per cent by the end of the year 2006-2007 and quoted as negative i.e., -35 per cent in the year 2007-08. The gross profit ratio of The Andhra Sugars Limited increased from 11.92 per cent in 2008-09 to 18.19 per cent in 2011-12 except in 2010-11. The gross profit ratio of the Andhra Sugars Limited decreased from 16.47 per cent in 2012-13 to 8.60 per cent in 2014-15. The growth in the data pertaining to gross profit ratio of the Andhra Sugars Limited is not consistent because the computed value of CV is more than 50 per cent. The computed value of LGR for the time series data pertaining to gross profit ratio of the Andhra Sugars Limited is positive. The computed value of 't' for the time series data pertaining to gross profit ratio of the Andhra Sugars Limited is not significant either at 1 per cent level of significance or at 5 per cent level of significance.

From the foregoing analysis one can infer that the gross profit ratio of all the select sample sugar factories in private sector under study is low. It indicates that all the firms have exhibited their ability in attaining the standard gross profit ratio for all the years of ten year study period except in one year in case of SNJ Sugars and Allied Products Limited and KCP Sugar and Industries Corporation Limited. It further indicates that the management of the sample sugar factories are not able to generate more profits for this concern.

Net Profit Ratio

Net profit ratio is also termed as sales margin ratio or profit margin ratio or net profit to sales ratio. This ratio measures the relationship between net profit (after taxes) and sales of a firm. Higher net profit ratio indicates the standard performance of the business concern and high returns to the shareholders. 5 per cent to 10 per cent of net profit ratio may be considered as ideal standard norm⁶. This ratio can be computed as:

$$\text{Net profit ratio} = \frac{\text{Net profit}}{\text{Sales}} \times 100$$

Table – 2
Net profit ratio of select sample sugar factories of private sector in Andhra Pradesh during the period from 2005-06 to 2014-15

(Per cent)				
Year	Prudential Sugar Corporation Limited	SNJ Sugars & Allied Products Limited	KCP Sugar and Industries Corporation Limited	The Andhra Sugars Limited
2005-06	9.30	10.27	16.72	11.13
2006-07	1.67	4.20	7.52	11.13
2007-08	-1.81	0.32	3.03	9.18
2008-09	-0.31	-45.40	6.18	7.92
2009-10	-1.29	-45.40	9.51	12.10
2010-11	0.70	-29.95	5.75	7.17
2011-12	2.92	14.48	8.06	12.33
2012-13	1.56	13.53	9.30	9.00
2013-14	1.36	21.59	8.15	7.51
2014-15	-0.83	-6.94	-4.10	6.51
Mean	1.33	-6.33	7.01	9.40
SD	3.17	25.05	5.27	2.14
CV	239.22	-395.78	75.16	22.75
LGR	-29.60	-21.83	-12.94	-3.84
t-value	-1.143[@]	0.479[@]	-1.728[@]	-1.680[@]

Note : @ Not significant; * Significant at 0.05 level; ** Significant at 0.01 level

Source : Data compiled from the Annual Reports of select sample sugar factories in Andhra Pradesh from 2005-06 to 2014-15.

Table 2 shows the ratio of net profit to sales of select sample sugar factories of private sector in Andhra Pradesh over a period of ten years i.e., from 2005-06 to 2014-15. Table 2 clearly discloses the net profit to sales of Prudential Sugar Corporation Limited. The net profit to sales ratio of Prudential Sugar Corporation Limited decreased from 9.30 per cent in 2005-06 to 1.36 per cent in 2013-14. In the subsequent years i.e., from 2007-08 to 2009-10 the net profit to sales ratio of Prudential Sugar Corporation Limited is negative. The growth in the data pertaining to net profit ratio of Prudential Sugar Corporation Limited is not consistent because the computed value of CV is more than 50 per cent. The computed value of LGR for the time series data pertaining to net profit ratio of Prudential Sugar Corporation Limited is negative. The computed value of 't' for the time series data pertaining to net profit ratio of Prudential Sugar Corporation Limited is negative and also not significant either at 1 per cent level of significance or at 5 per cent level of significance.

The net profit to sales ratio of SNJ Sugars and Allied Products Limited has decreased from 10.27 per cent in 2005-06 to 0.32 per cent in 2007-08. The ratio of net profit to sales of SNJ Sugars and Allied Products Limited was negative for four years i.e., from 2008-09 to 2010-11 and 2014-15. The growth in the data pertaining to net profit ratio of SNJ Sugars and Allied Products Limited is not consistent because of the computed value of CV is more than 50 per cent. The computed value of LGR for the time series data pertaining to net profit ratio SNJ Sugars and Allied Products Limited is negative. The computed value of 't' for the time series data pertaining to net profit ratio of SNJ Sugars and Allied Products Limited is not significant either at 1 per cent level of significance or at 5 per cent level of significance.

The net profit to sales ratio of KCP Sugars and Industries Corporation Limited has decreased from 16.72 per cent in 2005-06 to 8.15 per cent in 2013-14 from fluctuations during the study period from 2005-06 to 2013-14 and exact 2014-15 it is recorded as negative (-4.10 per cent). The growth in the data pertaining to net profit ratio of KCP Sugar and Industries Corporation Limited is not consistent because of the computed value of CV is more than 50 per cent. The computed value of LGR for the data pertaining to net profit ratio of KCP Sugar and Industries Corporation Limited is negative. The computed value of 't' for the time series data pertaining to net profit ratio of KCP Sugar and Industries Corporation Limited is negative and also it is not significant either at 1 per cent level of significance or at 5 per cent level of significance.

The net profit to sales ratio of The Andhra Sugars Limited increased in 11.13 per cent in 2005-06 and remained constant in 2006-07. The net profit to sales ratio of The Andhra Sugars Limited has decreased from 9.18 per cent in 2007-08 to 6.51 per cent in 2014-15 with ups and downs fluctuations during the study period from 2008-09 to 2014-15. The growth in the data pertaining to net profit ratio of The Andhra Sugars Limited is consistent. The computed value of LGR for the data pertaining to net profit ratio of the Andhra Sugars Limited is negative. The computed value of 't' for the time series data pertaining to net profit

ratio of the Andhra Sugars Limited is negative and also it is not significant either at 1 per cent level of significance or at 5 per cent level of significance.

From the foregoing analysis one can infer that the net profit ratio of Prudential Sugar Corporation Limited and SNJ Sugars and Allied Products Limited is less than the standard norm of 5 to 10 per cent in most of the years of ten year study period. The business performance of those two concerns is not standard and cannot offer high returns to this shareholders whereas The Andhra Sugars Limited and KCP Sugar and Industries Corporation Limited have been exhibiting high standard performance. These two concerns may offer high returns to this shareholders.

Operating profit ratio

Operating profit ratio indicates the operational efficiency of the firm and is a measure of the firm's ability to cover the total operating expenses. It also represents the amount of profit earned for each rupee of sales after dividing the net sales to net operating profit. 15 to 20 per cent of operating profit ratio is considered as normal standard. The term operating profit means profit before interest and tax. Interest on short-term borrowings will be deducted for computing operating profit⁷. Operating profit ratio can be calculated by this formula:

$$\text{Operating profit ratio} = \frac{\text{Operating profit}}{\text{Net sales}} \times 100$$

$$\text{Operating Profit} = \text{Net Sales} - \text{Operating Cost}$$

$$\text{Operating cost} = \text{Cost of goods sold} + \text{Office and Administrative Expenses} + \text{Selling and Distribution Expenses}$$

Table – 3
Operating Profit ratio of select sample sugar factories of private sector in Andhra Pradesh during the period from 2005-06 to 2014-15

Year	Prudential Sugar Corporation Limited	SNJ Sugars & Allied Products Limited	KCP Sugar and Industries Corporation Limited	The Andhra Sugars Limited
2005-06	79.90	83.89	83.85	31.06
2006-07	85.86	84.49	82.49	70.28
2007-08	82.19	83.10	80.92	64.97
2008-09	81.71	114.81	81.78	71.80
2009-10	88.64	118.44	88.56	75.65
2010-11	86.58	69.80	67.69	92.09
2011-12	91.36	66.99	93.17	70.64
2012-13	93.12	60.29	92.95	69.77
2013-14	91.92	74.79	91.73	60.83
2014-15	92.12	78.75	93.30	58.95
Mean	87.34	83.54	85.64	66.60
SD	4.85	19.15	8.08	15.48
CV	5.55	22.92	9.43	23.24
LGR	1.62	-3.05	1.58	2.02
t-value	5.395**	-1.245[@]	1.664[@]	0.771[@]

Note : @ Not significant; * Significant at 0.05 level; ** Significant at 0.01 level

Source : Data compiled from the annual reports of select sample sugar factories of private sector in Andhra Pradesh from 2005-06 to 2014-15

Table 3 explains the operating profit ratio of select sample sugar factories of private sector in Andhra Pradesh for a study period of ten years from 2005-06 to 2014-15. It is evident from table 3 that the ratio of operating profit to sales of Prudential Sugar Corporation Limited has gradually increased from 79.90 per cent in 2005-06 to 85.86 per cent in 2006-07 and decreased from 82.19 per cent in 2007-08 to 81.71 per cent in 2008-09 was fluctuated from year to year from 86.58 per cent in 2010-11 to 91.36 per cent in 2011-12 and further increased to 93.12 per cent in 2012-13. The operating profit of Prudential Sugar Corporation Limited decreased in 2013-14 and increased to 92.12 per cent in 2014-15. Afterwards, it increased to 92.12 per cent in 2014-15. The growth in the data pertaining to operating profit ratio of Prudential Sugar Corporation Limited is consistent. The computed value of LGR for the data pertaining to operating profit ratio of Prudential Sugar Corporation

Limited is positive. The computed value of 't' for the time series data pertaining to operating profit ratio of Prudential Sugar Corporation Limited is significant at 1 per cent level of significance.

The operating profit to sales ratio of SNJ Sugars & Allied Products Limited increased from 83.89 per cent in 2005-06 to 118.44 per cent in 2009-10 except in 2007-08. Afterwards, in the subsequent period of three years from 2010-11 to 2012-13 the operating profit ratio of SNJ Sugars & Allied Products Limited gradually decreased and again increased from 74.79 per cent in 2013-14 to 78.75 per cent by the end of 2014-15. The growth in the data pertaining to operating profit ratio of SNJ Sugars and Allied Products Limited is consistent because of the computed value of CV is less than 50 per cent. The computed value of LGR for the data pertaining to operating profit ratio of SNJ Sugars and Allied Products Limited is negative. The computed value of 't' for the time series data pertaining to operating profit ratio of SNJ Sugars and Allied Products Limited is negative and it is not significant either at 1 per cent level of significance or at 5 per cent level of significance.

The ratio of operating profit to sales of KCP Sugar and Industries Corporation Limited decreased from 83.85 per cent in 2005-06 to 80.92 per cent in 2007-08 and increased from 81.78 per cent in 2008-09 to 93.17 per cent in 2011-12 except in 2010-11. The operating profit ratio of KCP Sugar and Industries Corporation Limited decreased from 92.95 per cent in 2012-13 to 91.73 per cent in 2013-14 except 93.30 per cent in 2014-15. The growth in the data pertaining to operating profit ratio of KCP Sugar and Industries Corporation Limited is consistent because of the computed value of CV is less than 50 per cent. The computed value of LGR for the data pertaining to operating profit ratio of KCP Sugar and Industries Corporation Limited is positive. The computed value of 't' for the time series data pertaining to operating profit ratio of KCP Sugar and Industries Corporation Limited is not significant either at 1 per cent level of significance or at 5 per cent level of significance.

The operating profit to sales ratio of the Andhra Sugars Limited has gradually increased from 31.06 per cent in 2005-06 to 92.09 per cent in 2010-11 except in 2007-08 (64.97 per cent). Afterwards, the ratio of operating profit to sales ratio of the Andhra Sugars Limited decreased from 70.64 per cent in 2011-12 to 58.95 per cent in 2014-15. The growth in the data pertaining to operating profit ratio of the Andhra Sugars Limited is consistent because of the computed value of CV is less than 50 per cent. The computed value of LGR for the data pertaining to operating profit ratio of the Andhra Sugars Limited is positive. The computed value of 't' for the time series data pertaining to operating profit ratio of the Andhra Sugars Limited is not significant either at 1 per cent level of significance or at 5 per cent level of significance.

From the foregoing analysis one can infer that the mean operating profit of the first three sugar factories viz., Prudential Sugar Corporation Limited (87.34 per cent), SNJ Sugars and Allied Products Limited (83.54 per cent) and KCP Sugar and Industries Corporation Limited (85.64 per cent) is more than 80 per cent whereas the operating ratio of The Andhra Sugars Limited is 66.60 per cent. The operating profit ratio of all the sugar factories under the study area is more than the standard norm. This indicates that all the sample sugar factories under private sector have ability to cover the total operating expenses.

Return on capital employed ratio

The ratio measures a relationship between profit and capital employed. It indicates the profitability of a firm in relation to the funds supplied by the lenders and owners together. This ratio is otherwise known as return on investment and is the overall profitability ratio. The term capital employed refers to total investments made in the business. This ratio is used as a test of profitability related to the sources of long-term funds. And also, it highlights how efficiently the long-term funds of owners and creditors are being used. The higher the ratio, the more efficient is the use of capital employed⁹. It is calculated as follows:

$$\text{Return on capital employed} = \frac{\text{Net profit after interest and taxes}}{\text{Capital employed}} \times 100$$

Table –4

Return on Capital employed ratio of select sample sugar factories of private sector in Andhra Pradesh during the period from 2005-06 to 2014-15

(Per cent)

Year	Prudential Sugar Corporation Limited	SNJ Sugars & Allied Products Limited	KCP Sugar and Industries Corporation Limited	The Andhra Sugars Limited
2005-06	20.58	15.02	80.05	15.80
2006-07	5.18	2.42	37.33	17.14
2007-08	-4.73	0.16	8.11	10.33
2008-09	-0.52	-21.00	14.75	11.85
2009-10	-0.52	-16.95	35.88	23.44
2010-11	2.06	11.44	16.91	13.70

2011-12	19.45	8.26	52.24	34.53
2012-13	64.61	14.21	19.48	25.45
2013-14	55.86	-6.12	39.73	17.62
2014-15	-5.19	9.33	-25.31	16.05
Mean	15.68	1.68	27.92	18.59
SD	39.13	12.72	28.27	7.30
CV	180.51	758.76	101.26	39.26
LGR	26.62	27.26	-16.96	4.55
t-value	1.411[@]	0.309[@]	-1.664[@]	1.059[@]

Note : @ Not significant; * Significant at 0.05 level; ** Significant at 0.01 level

Source: Data compiled from the annual reports of select sample sugar factories in Andhra Pradesh from 2005-06 to 2014-15

Table 4 shows the growth in the return on capital employed ratio of select sample sugar factories of private sector in Andhra Pradesh during the period from 2005-06 to 2014-15.

It may be observed from the table above that the return on capital employed ratio of Prudential Sugar Corporation Limited decreased from 20.58 per cent in 2005-06 to 2.06 per cent in 2010-11. The return on capital employed ratio of Prudential Sugar Corporation Limited was negative for four years i.e., from 2007-08 (-4.73 per cent) to -0.52 per cent in 2009-10 and -5.19 per cent in 2014-15. The return on capital employed ratio of Prudential Sugar Corporation Limited increased from 19.45 per cent in 2011-12 to 64.61 per cent in 2012-13 and 55.86 per cent in 2013-14. The growth in the data pertaining to return on capital employed ratio of Prudential Sugar Corporation Limited is not consistent because the computed value of CV is 180.51 and it is more than 50 per cent. The computed value of LGR for the data pertaining to return on capital employed ratio of Prudential Sugar Corporation Limited is positive. The computed value of 't' for the time series data pertaining to return on capital employed ratio of Prudential Sugar Corporation Limited is not significant either at 1 per cent level of significance or at 5 per cent level of significance.

The return on capital employed ratio of SNJ Sugars & Allied Products Limited rapidly decreased from 15.02 per cent in 2005-06 to 0.16 per cent in 2007-08. The return on capital employed ratio of SNJ Sugars & Allied Products Limited is negative in 2008-09 and 2009-10. The return on capital employed ratio of SNJ Sugars & Allied Products Limited suddenly increased to 11.44 per cent in 2010-11 and it decreased to 8.26 per cent in 2011-12. The return on capital employed ratio of SNJ Sugars & Allied Products Limited increased to 14.21 per cent in 2012-13. The return on capital employed ratio of SNJ Sugars & Allied Products Limited is negative in 2013-14 and increased to 9.33 per cent in 2014-15. The growth in the data pertaining to return on capital employed ratio of SNJ Sugars and Allied Products Limited is not consistent because the computed value of CV is 758.76 and it is more than 50 per cent. The computed value of LGR for the data pertaining to return on capital employed ratio SNJ Sugars and Allied Products Limited is positive. The computed value of 't' for the time series data pertaining to return on capital employed ratio of SNJ Sugars and Allied Products Limited is not significant either at 1 per cent level of significance or at 5 per cent level of significance.

The return on capital employed ratio of KCP Sugar and Industries Corporation Limited gradually decreased from 80.05 per cent in 2005-06 to 8.11 per cent in 2007-08. The return on capital employed ratio of KCP Sugar and Industries Corporation Limited gradually increased from 14.75 per cent in 2008-09 to 52.24 per cent in 2014-15 except in 2010-11 wherein the said ratio of KCP Sugar and Industries Corporation Limited decreased. The return on capital employed ratio of KCP Sugar and Industries Corporation Limited significantly decreased to 19.48 per cent in 2012-13 and sharply increased to 39.73 per cent in 2013-14. The return on capital employed ratio of KCP Sugar and Industries Corporation Limited was negative in 2014-15. The growth in the time series data pertaining to return on capital employed ratio of KCP Sugar and Industries Corporation Limited is not consistent because the computed value of CV is 101.26 and it is more than 50 per cent. The computed value of LGR for the data pertaining to return on capital employed ratio of KCP Sugar and Industries Corporation Limited is negative. The computed value of 't' for the time series data pertaining to return on capital employed ratio of KCP Sugar and Industries Corporation Limited is negative and it is not significant either at 1 per cent level of significance or at 5 per cent level of significance.

The return on capital employed ratio of The Andhra Sugars Limited increased from 15.80 per cent in 2005-06 to 17.14 per cent in 2006-07 and decreased to 10.33 per cent in 2007-08. The return on capital employed ratio of The Andhra Sugars Limited increased from 11.85 per cent in 2008-09 to 34.53 per cent in 2011-12 except in 2010-11. The return on capital employed ratio of the Andhra Sugars Limited decreased gradually from 25.45 per cent in 2012-13 to 16.05 per cent in 2014-15. The growth in the data pertaining to return on capital employed ratio of the Andhra Sugars Limited is consistent. The computed value of LGR for the data pertaining to return on capital employed ratio of the Andhra Sugars Limited is positive. The computed value of 't' for the time series data pertaining to return on capital employed ratio of The Andhra Sugars Limited is not significant either at 1 per cent level of significance or at 5 per cent level of significance.

From the foregoing analysis one can infer that the return on capital employed ratio of KCP Sugar and Industries Corporation Limited The Andhra Sugars Limited and Prudential Sugar Corporation Limited are higher than the SNJ Sugars and Allied Products Limited. It highlights that the long-term funds of owners and creditors of KCP Sugar and Industries Corporation Limited and the Andhra Sugars Limited have been utilized more efficiently than the after tow sugar factories.

Return on total assets ratio

The return on total assets may be called profit-to-asset ratio. There are various possible approaches to define net profits and assets, according to the purpose and intent of the calculation of the ratio⁸. The ratio denotes how well the management has used the funds provided by creditors and owners.

$$\text{Return on total assets ratio} = \frac{\text{Profit after interest and taxes}}{\text{Total assets}} \times 100$$

Table – 5
Return on total assets ratio of select sample sugar factories of private sector in Andhra Pradesh during the period from 2005-06 to 2014-15

(Per cent)				
Year	Prudential Sugar Corporation Limited	SNJ Sugars & Allied Products Limited	KCP Sugar and Industries Corporation Limited	The Andhra Sugars Limited
2005-06	7.88	10.13	18.43	7.54
2006-07	1.73	2.16	6.84	7.80
2007-08	-1.33	0.14	2.17	4.61
2008-09	-0.18	-15.52	3.72	4.97
2009-10	-1.05	-12.05	7.71	7.86
2010-11	0.61	8.79	2.92	3.68
2011-12	2.33	6.73	6.24	8.46
2012-13	1.80	10.33	9.28	6.74
2013-14	1.04	-4.94	5.75	4.50
2014-15	-0.61	6.63	-3.63	3.89
Mean	1.22	1.24	5.94	6.01
SD	2.66	9.28	5.69	1.85
CV	217.46	748.66	95.69	30.78
LGR	-27.97	28.02	-17.12	-3.94
t-value	-1.196[@]	0.323[@]	-1.822[@]	-1.188[@]

Note : @ Not significant; * Significant at 0.05 level; ** Significant at 0.01 level

Source : Data compiled from the annual reports of select sample sugar factories of private sector in Andhra Pradesh from 2005-06 to 2014-15

Table 5 depicts the growth in the return on total assets of select sample sugar factories of private sector in Andhra Pradesh for a period of ten years i.e., from 2005-06 to 2014-15.

It can be seen from table 5 that the return on total assets ratio of Prudential Sugar Corporation Limited was positive. However, it gradually decreased from 7.88 per cent in 2005-06 to 0.61 per cent in 2010-11. The return on total assets ratio of Prudential Sugar Corporation Limited increased in 2011-12 and decreased whereas the return on total assets ratio was negative continuously for period of three years from 2007-08 to 2009-10 and as well as in 2014-15. The growth in the data pertaining to return on total assets ratio of Prudential Sugar Corporation Limited is not consistent because of the computed value of CV is 217.46 and it is more than 50 per cent. The computed value of LGR for the data pertaining to return on total assets ratio of Prudential Sugar Corporation Limited is negative. The computed value of 't' for the time series data pertaining to return on total assets ratio of Prudential Sugar Corporation Limited is negative and more over not significant either at 1 per cent level of significance or at 5 per cent level of significance.

The return on total assets ratio of SNJ Sugars & Allied Products Limited was decreased from 10.13 per cent in 2005-06 to 0.14 per cent in 2007-08. Afterwards, in the subsequent period of two years from 2008-09 and 2009-10 the return on total assets ratio of SNJ Sugars & Allied Products Limited was negative. The return on total assets ratio of SNJ Sugars & Allied Products Limited was improved and tremendously increased from in 2010-11 (8.79 per cent) to 10.33 per cent in 2012-13 except in 2011-12 wherein the return on total assets ratio of SNJ Sugars & Allied Products Limited as compared to its previous year (2010-11) and to its preceeding year 2012-13. However, the return on total assets ratio of SNJ Sugars & Allied Products Limited decreased to 6.63 per cent in 2014-15. The growth in the data pertaining to return on total assets ratio of SNJ Sugars and Allied

Products Limited is not consistent because of the computed value of CV is more than 50 per cent. The computed value of LGR for the data pertaining to return on total assets ratio SNJ Sugars and Allied Products Limited is positive. The computed value of 't' for the time series data pertaining to return on total assets ratio of SNJ Sugars and Allied Products Limited is not significant either at 1 per cent level of significance or at 5 per cent level of significance.

The return on total assets ratio of KCP Sugar and Industries Corporation Limited was gradually decreased from 18.43 per cent in 2005-06 to 2.17 per cent in 2007-08 and increased from 3.72 per cent in 2008-09 to 7.71 per cent in 2009-10. The return on total assets ratio of KCP Sugar and Industries Corporation Limited decreased to 2.92 per cent in 2010-11. The return on total assets ratio of KCP Sugar and Industries Corporation Limited increased from 6.24 per cent in 2011-12 to 9.28 per cent in 2012-13. The return on total assets ratio of KCP Sugar and Industries Corporation Limited decreased from 5.75 per cent to -3.63 per cent in 2014-15. The growth in the data pertaining to return on total assets ratio of KCP Sugar and Industries Corporation Limited is not consistent because of the computed value of CV is more than 50 per cent. The computed value of LGR for the data pertaining to return on total assets profit ratio of KCP Sugar and Industries Corporation Limited is positive. The computed value of 't' for the time series data pertaining to return on total assets ratio of KCP Sugar and Industries Corporation Limited is negative and it is not significant either at 1 per cent level of significance or at 5 per cent level of significance.

The return on total assets ratio of The Andhra Sugars Limited was increased from 7.54 per cent in 2005-06 to 7.80 per cent in 2006-07 and decreased to 4.61 per cent in 2007-08. Afterwards, it was increased from 4.97 per cent in 2008-09 to 8.46 per cent in 2011-12 except in 2010-11. The return on total assets ratio of The Andhra Sugars Limited was decreased from 6.74 per cent in 2012-13 to 3.89 per cent in 2014-15. The growth in the data pertaining to return on total assets ratio of The Andhra Sugars Limited is consistent. The computed value of LGR for the data pertaining to return on total assets ratio of the Andhra Sugars Limited is negative. The computed value of 't' for the time series data pertaining to return on total assets ratio of The Andhra Sugars Limited is negative and it is not significant either at 1 per cent level of significance or at 5 per cent level of significance.

From the fore going analysis one can infer that the profit asset ratio is relatively high in The Andhra Sugars Limited than in the other three sugar factories of private sector under the study area. This denotes that The Andhra Sugars Limited and KCP Sugar and Industries Corporation Limited have managed well the funds provided by this creditors and owners.

FINDINGS AND SUGGESTIONS

The following findings are:

- The gross profit ratio of all the select sample sugar factories in private sector under study is low. It indicates that all the firms have exhibited their ability in attaining the standard gross profit ratio for all the years of ten year study period except in one year in case of SNJ Sugars and Allied Products Limited and KCP Sugar and Industries Corporation Limited. It further indicates that the management of the sample sugar factories are not able to generate more profits for this concern.
- The net profit ratio of Prudential Sugar Corporation Limited and SNJ Sugars and Allied Products Limited is less than the standard norm of 5 to 10 per cent in most of the years of ten year study period. The business performance of those two concerns is not standard and cannot offer high returns to their shareholders whereas The Andhra Sugars Limited and KCP Sugar and Industries Corporation Limited have been exhibiting high performance. These two concerns may offer high returns to their shareholders.
- The mean operating profit of the first three sugar factories viz., Prudential Sugar Corporation Limited (87.34 per cent), SNJ Sugars and Allied Products Limited (83.54 per cent) and KCP Sugar and Industries Corporation Limited (85.64 per cent) is more than 80 per cent whereas the operating ratio of The Andhra Sugars Limited is 66.60 per cent. The operating profit ratio of all the sugar factories under the study area is more than the standard norm. This indicates that all the sample sugar factories under private sector have ability to cover the total operating expenses.
- The return on capital employed ratio of KCP Sugar and Industries Corporation Limited, The Andhra Sugars Limited and Prudential Sugar Corporation Limited are higher than the SNJ Sugars and Allied Products Limited. It highlights that the long-term funds of owners and creditors of KCP Sugar and Industries Corporation Limited and The Andhra Sugars Limited have been utilized more efficiently than the other two sugar factories.
- The profit asset ratio is relatively high in The Andhra Sugars Limited than in the other three sugar factories of private sector under the study area. This denotes that The Andhra Sugars Limited and KCP Sugar and Industries Corporation Limited have managed well the funds provided by this creditors and owners.

SUGGESTIONS

The following are the suggestions made for improving the profitability management practices.

- No sugar factory has attained the standard gross profit ratio of 20-30 per cent. The ratio shows poor percentage, it indicates the inability of the management. Therefore, all the sugar factories working under private sector in Andhra Pradesh must increase the management performance in terms of reducing manufacturing expenses to attain the normal standard throughout.
- The net profit ratio is very low because the net operating profit ratio is also poor. This deficiency can be rectified by reducing the interest burden which is an abnormal item of expenditure in the profit and loss account.
- The return on capital employed in select sample sugar factories should be maintained by adopting the measures like increasing the recovery rate, increasing the capacity utilization, improving the procurement of qualitative raw material and to reduce the expenses in order to improve the profitability.
- Return on total assets ratio has shown negative trend in Prudential Sugar Corporation Limited for four year, SNJ Sugars and Allied Products Limited for three years of ten year study period. It indicates that the funds were not used properly. Therefore, the factories stated above shall improve their return on total assets ratio.

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