

WORKING CAPITAL MANAGEMENT OF SELECT SAMPLE SUGAR FACTORIES OF PRIVATE SECTOR IN ANDHRA PRADESH

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ABSTRACT

Working capital plays a crucial role in a business enterprise just as the role of heart in human body. Working capital management is concerned with the problems that arise in attempting to manage the current assets, the current liabilities and the interrelationship that exists between them. The goal of working capital management is to manage the firm's current assets and liabilities in such a way that a satisfactory level of working capital is maintained. This is so because if the firm cannot maintain a satisfactory level of working capital, it is likely to become insolvent and may even be forced into bankruptcy. The current assets should be large enough to cover its current liabilities in order to ensure a reasonable margin of safety. Each of the current assets must be managed efficiently in order to maintain the liquidity of the firm while not keeping too high a level of any one of them. Each of the short-term sources of financing must be continuously managed to ensure that they are obtained and used in the best possible way. Sugar industry is the second largest agro based industry in India next to cotton textiles and contributes significantly to the socio-economic development of rural population. Sugarcane is the most important cash crop it is bound to play a greater role in the Indian economy in the years to come by offering a stable income to the farmers by way of cane price by providing employment to rural masses, by realizing excise duty cane cess/ purchase tax and foreign exchange earnings.

The researcher has made an attempt to examine the efficiency of working capital management of select sample private sugar factories in Andhra Pradesh. The researcher has also presented descriptive analysis on working capital with the help of some important ratios relating to working capital pertaining to gross working capital, net working capital, current ratio, quick ratio, inventory turnover ratio, Debtors' turnover ratio, Creditors' turnover ratio and working capital turnover ratio. 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.

Key words: *Gross Working Capital, Net Working Capital, Current Ratio, Quick Ratio, Inventory Turnover Ratio, Debtors' Turnover Ratio, Creditors' Turnover Ratio and Working Capital Turnover Ratio*

INTRODUCTION

Working capital plays a crucial role in a business enterprise just as the role of heart in human body. Working capital management is concerned with the problems that arise in attempting to manage the current assets, the current liabilities and the interrelationship that exists between them. The goal of working capital management is to manage the firm's current assets and liabilities in such a way that a satisfactory level of working capital is maintained. This is so because if the firm cannot maintain a satisfactory level of working capital, it is likely to become insolvent and may even be forced into bankruptcy. The current assets should be large enough to cover its current liabilities in order to ensure a reasonable margin of safety. Each of the current assets must be managed efficiently in order to maintain the liquidity of the firm while not keeping too high a level of any one of them. Each of the short-term sources of financing must be continuously managed to ensure that they are obtained and used in the best possible way¹.

The importance of working capital management is reflected in the time most spent by financial managers in managing current assets and current liabilities. Working capital is considered as central nervous system of a firm. Maintenance of adequate working capital is necessary to discharge day-to-day liabilities and protect the business from adverse effects in times of emergencies. It aims at protecting the purchasing power of assets and maximize the return on investment. In other words, the goal of working capital management is to minimize the cost of working capital and maximizing a firm's profits³. Management is required to be vigilant in maintaining appropriate levels in the various working capital accounts. The working capital management is concerned with determination of relevant levels of current assets and their efficient use as well as the choice of the financing mix. The efficiency of a firm to earn profits depends largely on its ability to manage working capital. In other words, working capital management policies have a crucial effect on firm's liquidity and profitability. Thus, working capital plays a crucial role in earning a reasonable rate of return. Hence, working capital has to be effectively planned, systematically controlled and optimally utilized².

SUGAR INDUSTRY IN INDIA

Sugar industry is the second largest agro based industry in India next to cotton textiles and contributes significantly to the socio-economic development of rural population. Sugarcane is the most important cash crop it is bound to play a greater role in the Indian economy in the years to come by offering a stable income to the farmers by way of cane price by providing employment to rural masses, by realizing excise duty cane cess/ purchase tax and foreign exchange earnings.

At present, 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 1.75 lakh workers and sustaining 2.50 lakh cane-growers upto 2014-15. The industry can produce 283.13 lakh tonnes of production of sugar, area under cultivation 51.44 lakh hectares, production of sugarcane 3593.30 lakh tonnes and recovery of sugar 10.37 per cent during the year 2014-15. The integrated sugar industry (comprising sugar, molasses, alcohol, power and bio-fertilizer) now

enjoys 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.

RESEARCH DESIGN AND METHODOLOGY

Objective of the study

The chief objective of the study is to examine the efficiency of working capital management of select sample private sugar factories 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

Andhra Pradesh comprises two regions viz., Rayalaseema and Coastal Andhra regions after bifurcation of the state. At present 22 private sugar factories are working in Andhra Pradesh. Out of these 22 sugar factories, 5 factories are in Rayalaseema Region and 17 factories 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 focuses the performance of financial management in terms of Capital Structure, Fixed Assets Management, Working Capital Management and Profitability Management in select sample sugar factories of private sector in Andhra Pradesh.

WORKING CAPITAL ANALYSIS

The working capital analysis is generally done with the help of the following ratios:

- **Liquidity Ratios**
- **Turnover Ratios**

Liquidity Ratios

The liquidity ratios measure the ability of a firm to meet its short-term obligations and reflect the short-term financial strength of a firm. To measure the liquidity of the firm, the following ratios are commonly used:

- Current ratio
- Quick ratio

Current Ratio

Current ratio represents the relationship between current assets and current liabilities. It attempts to measure the ability of a firm to meet its current obligations. The rule of thumb suggests that a current ratio of 2:1 is considered ideal for manufacturing firms. The current ratio is generally an acceptable measure of short-term solvency as it indicates the extent to which the claims of short-term creditors are covered by assets³. To compute this ratio, the following formula is used:

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}} \times 100$$

Table – 1

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

(In Times)

Year	Prudential Sugar Corporation Limited	SNJ Sugars & Allied Products Limited	KCP Sugar and Industries Corporation Limited	The Andhra Sugars Limited
2005-06	2.68	1.84	1.70	1.79
2006-07	2.44	5.65	1.81	1.93
2007-08	1.21	5.02	2.06	1.82
2008-09	1.54	1.94	2.25	1.76
2009-10	1.40	1.82	2.13	1.57
2010-11	1.54	2.16	1.57	1.27
2011-12	1.12	2.81	1.53	1.14
2012-13	1.05	1.86	1.70	1.78
2013-14	1.29	2.63	1.89	1.78
2014-15	1.06	1.76	1.98	1.69
Mean	1.53	2.75	1.80	1.68
SD	0.57	1.42	0.28	0.20
CV	37.33	51.52	15.31	11.86
LGR	-9.71	-7.65	-0.15	-1.23
t-value	-3.611*	-1.424[@]	-0.083[@]	-0.934[@]

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 depicts the growth in the time series data pertaining to current ratio of select sample sugar factories of private sector in Andhra Pradesh for the ten year study period from 2005-06 to 2014-15

The current ratio of Prudential Sugar Corporation Limited initially decreased from 2.68 times in 2005-06 to 1.21 times in 2007-08. The current ratio of Prudential Sugar Corporation Limited from year to year for the remaining period of seven years from 2008-09 to 2014-15 except in 2012-13 has been fluctuated. In that year the said ratio of Prudential Sugar Corporation Limited further decreased. The growth in the data pertaining to current ratio of Prudential Sugar Corporation Limited is consistent. The computed value of LGR for the time series data pertaining to current ratio of Prudential Sugar Corporation Limited is negative. The computed value of 't' for the time series data pertaining to current ratio of Prudential Sugar Corporation Limited is negative. However, it is significant at 5 per cent level of significance.

The current ratio of SNJ Sugars and Allied Products Limited rapidly increased from 1.84 times in 2005-06 to 5.65 times in 2006-07. Afterwards, it was decreased for three years i.e., from 2007-08 (5.02 times) to 2009-10 (1.82 times). The current ratio of SNJ Sugars and Allied Products Limited increased from 2.16 times in 2010-11 to 2.81 times in 2011-12 and decreased from 1.86 times in 2012-13 to 1.76 times in 2014-15 except in 2013-14 wherein the said ratio of SNJ Sugars and Allied Products Limited increased significantly. The growth in the data pertaining to current ratio of SNJ Sugars and Allied Products Limited is not consistent because of the computed value of CV is more than 50 times. The linear growth rate for the time series data pertaining to current ratio of SNJ Sugars and Allied Products Limited is negative. The computed value of 't' for the time series data pertaining to current ratio of SNJ Sugars and Allied Products Limited is negative and more over it is not significant either at 1 per cent level of significance or at 5 per cent level of significance.

The current ratio of KCP Sugar and Industries Corporation Limited initially increased from 1.70 times in 2005-06 to 2.25 times in 2008-09 and decreased from 2.13 times in 2009-10 to 1.53 times in 2011-12. The current ratio of KCP Sugar and Industries Corporation Limited increased from 1.70 times in 2012-13 to 1.98 times in 2014-15. The growth in the data pertaining to current ratio of KCP Sugar and Industries Corporation Limited is consistent. The computed value of LGR for the data pertaining to current ratio of KCP Sugar and Industries Corporation Limited is negative. The computed value of 't' for the time series data pertaining to current ratio of KCP Sugar and Industries Corporation Limited is negative and more over it is not significant either at 1 per cent level of significance or at 5 per cent level of significance.

The current ratio of The Andhra Sugars Limited is 1.79 times in 2005-06 and was increased to 1.93 times in 2006-07. The current ratio of The Andhra Sugars Limited gradually decreased from 1.82 times in 2007-08 to 1.14 times in 2011-12. The current ratio of The Andhra Sugars Limited increased to 1.78 times in 2012-13 and it remained constant even in 2013-14. The current ratio of The Andhra Sugars Limited decreased to 1.69 times in 2014-15. The growth in the data pertaining to current ratio of The Andhra Sugars Limited is consistent. The linear growth in the data pertaining to current ratio of The Andhra Sugars Limited is negative. The computed value of 't' for the time series data pertaining to current ratio of Andhra Sugars Limited is negative. However, 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 current ratio of SNJ Sugar and Allied Products Limited is high whereas the same ratio of KCP Sugar and Industries Corporation Limited and The Andhra Sugars Limited is moderate and the Prudential Sugar Corporation Limited is relatively low that indicates that the current assets of Prudential Sugar Corporation Limited are not adequate enough to pay its current liabilities. The current assets of KCP Sugar and Industries Corporation Limited and The Andhra Sugars Limited are just adequate enough to clear of the dues of the sugar factories stated above.

Quick Ratio

Quick ratio is also termed as ‘acid test ratio’ or liquidity ratio. This ratio is ascertained by comparing the liquid assets (i.e., assets which are immediately convertible into cash without much loss) to current liabilities. Prepaid expenses and stock are not taken as liquid assets. This ratio is also an indicator of short-term solvency of the company. The ideal ratio is 1:1. It indicates a healthy sign of short-term financial strength to pay off current liabilities at a short notice⁴. To compute this ratio, the formula given hereunder is used:

$$\text{Quick Ratio} = \frac{\text{Quick Assets}}{\text{Current Liabilities}} \times 100$$

$$\text{Quick Assets} = \text{Current Assets} - \text{Inventories and Prepaid Expenses}$$

Table – 2

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

(In Times)

Year	Prudential Sugar Corporation Limited	SNJ Sugars & Allied Products Limited	KCP Sugar and Industries Corporation Limited	The Andhra Sugars Limited
2005-06	1.21	0.83	0.33	0.62
2006-07	1.03	3.16	0.35	0.79
2007-08	0.66	3.89	0.56	0.67
2008-09	0.41	1.10	0.44	0.80
2009-10	0.50	1.13	0.58	0.86
2010-11	0.50	1.49	0.25	0.50
2011-12	0.36	1.52	0.26	0.61
2012-13	0.35	0.73	0.31	0.79
2013-14	0.40	1.28	0.30	0.72
2014-15	0.24	1.12	0.35	0.66
Mean	0.57	1.63	0.37	0.70
SD	0.32	1.05	0.12	0.11
CV	55.71	64.36	31.27	15.69
LGR	-15.88	-9.22	-3.73	-0.40
t-value	-4.844**	-1.362[@]	-1.092[@]	-0.217[@]

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 – 2 explains the growth in the time series data pertaining to quick ratio of select sample sugar factories of private sector in Andhra Pradesh over a period of ten years from 2005-06 to 2014-15.

The quick ratio of Prudential Sugar Corporation Limited initially decreased from 1.21 times in 2005-06 to 0.41 times in 2008-09. The quick ratio of Prudential Sugar Corporation Limited slightly increased in 2009-10 and remained constant even in 2010-11. The quick ratio of Prudential Sugar Corporation Limited decreased from 0.36 times in 2011-12 to 0.24 times in 2014-15 except in 2013-14. The growth in the data pertaining to quick ratio of Prudential Sugar Corporation Limited is not consistent because the computed value of CV is more than 50 times. The computed value of LGR for the time series data pertaining to quick ratio of Prudential Sugar Corporation Limited is negative. The computed value of 't' for the time series data pertaining to quick ratio of Prudential Sugar Corporation Limited is negative. However, it is significant at 1 per cent level of significance.

The quick ratio of SNJ Sugars and Allied Products Limited rapidly increased from 0.83 times in 2005-06 to 3.89 times in 2007-08 and decreased to 1.10 times in 2008-09. The quick ratio of SNJ Sugar and Allied Products Limited increased from 1.13 times in 2009-10 to 1.52 times in 2011-12 and decreased to 0.73 times in 2012-13. The quick ratio of SNJ Sugars and Allied Products Limited was 1.28 times in 2013-14 and decreased to 1.12 times in 2014-15. The growth in the data pertaining to quick ratio of SNJ Sugars and Allied Products Limited is not consistent because of the computed value of CV is more than 50 times. The linear growth rate in the data pertaining to quick ratio of SNJ Sugars and Allied Products Limited is negative. The computed value of 't' for the time series data pertaining to quick ratio of SNJ Sugars and Allied Products 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 quick ratio of KCP Sugar and Industries Corporation Limited initially increased from 0.33 times in 2005-06 to 0.58 times in 2009-10 except in 2008-09 wherein the quick ratio of KCP Sugar and Industries Corporation Limited decreased. The quick ratio of KCP Sugar and Industries Corporation Limited gradually increased from 0.25 times in 2010-11 to 0.35 times in 2014-15 except in 2013-14 wherein the quick ratio of KCP Sugar and Industries Corporation Limited showed a decreasing trend. The growth in the data pertaining to quick ratio of KCP Sugar and Industries Corporation Limited is consistent. The computed value of LGR for the data pertaining to quick ratio of KCP Sugar and Industries Corporation Limited is negative. The computed value of 't' for the time series data pertaining to quick ratio of KCP Sugar and Industries Corporation Limited is negative and more over it is not significant either at 1 per cent level of significance or at 5 per cent level of significance.

The quick ratio of The Andhra Sugars Limited increased from 0.62 times in 2005-06 to 0.86 times in 2009-10 except in 2007-08 wherein the quick ratio of The Andhra Sugars Limited decreased. The quick ratio of The Andhra Sugars Limited decreased to 0.50 times in 2010-11. The quick ratio of The Andhra Sugars Limited increased from 0.61 times in 2011-12 to 0.79 times in 2012-13 and decreased from 0.72 times in 2013-14 to 0.66 times in 2014-15. The growth in the data pertaining to quick ratio of The Andhra Sugars Limited is consistent. The linear growth rate in the data pertaining to quick ratio of The Andhra Sugars Limited is negative. The computed value of 't' for the time series data pertaining to quick ratio of Andhra Sugars

Limited is negative and more over 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 mean quick ratio of SNJ Sugars and Allied Products Limited is highest when compared to the quick ratio of the other three sugar factories of private sector in Andhra Pradesh. The mean quick ratio of The Andhra Sugar Limited is highly moderative and mean quick ratio of Prudential Sugar Corporation Limited is slightly moderative whereas the quick ratio of KCP Sugar and Industries Corporation Limited is low. Hence, the ability of SNJ Sugars and Allied Products Limited is very high in meeting its quick liabilities out of its quick assets.

Turnover Ratios

Funds of creditors and owners are invested in various assets to generate sales and profits. Turnover ratios are employed to evaluate the efficiency with which the firm manages and utilizes its assets. These ratios are also called activity ratios because they indicate the speed with which assets are being converted or turned over into sales. Turnover ratios can also be termed as efficiency ratio or performance ratios. Turnover ratios are represents the relationship between sales and assets. A proper balance between sales and assets generally reflects that assets are managed well. Several turnover ratios can be calculated to judge the effectiveness of asset utilization⁵. The following activity or turnover ratios are commonly used:

- Inventory Turnover Ratio
- Debtors Turnover Ratio
- Creditors Turnover Ratio
- Working Capital Turnover Ratio

Inventory Turnover Ratio

Inventory turnover ratio indicates the efficiency of the firm in producing and selling its product. Inventory means stock of raw materials, work-in-progress and finished goods. It is also called “Stock Turnover Ratio”. In a manufacturing company inventory of finished goods is used to calculate inventory turnover⁶. The ideal standard norm of this ratio may be considered as 5 to 6 times. A higher inventory turnover ratio is considered congenial for the business as it implies better cash flow. A very low inventory turnover ratio is dangerous. It signifies excessive inventory or over investment in inventory⁷. It is calculated as follows:

$$\text{Inventory Turnover Ratio} = \frac{\text{Net Sales}}{\text{Inventory}}$$

Table – 3

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

(In Times)

Year	Prudential Sugar Corporation Limited	SNJ Sugars & Allied Products Limited	KCP Sugar and Industries Corporation Limited	The Andhra Sugars Limited
2005-06	3.22	3.00	2.51	2.48
2006-07	3.64	1.91	2.63	2.94
2007-08	4.39	3.53	1.85	1.91

2008-09	1.97	1.57	1.43	2.92
2009-10	2.67	2.04	2.25	4.21
2010-11	2.40	3.93	0.98	2.02
2011-12	1.78	2.08	1.44	2.51
2012-13	2.61	1.55	1.92	2.88
2013-14	1.53	2.72	1.21	2.03
2014-15	1.68	3.79	1.64	3.48
Mean	2.59	2.61	1.79	2.74
SD	0.93	0.91	0.55	0.72
CV	35.90	34.82	30.80	26.20
LGR	-8.98	1.46	-6.33	0.90
t-value	-3.282*	0.362[@]	-2.250[@]	0.295[@]

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 – 3 shows the growth in the data pertaining to inventory turnover ratio of select sample sugar factories of private sector in Andhra Pradesh during the period from 2005-06 to 2014-15.

The inventory turnover ratio of Prudential Sugar Corporation Limited increased from 3.22 times in 2005-06 to 4.39 times in 2007-08 and decreased to 1.97 times in 2009-10. The inventory turnover ratio of Prudential Sugar Corporation Limited increased to 2.67 times in 2009-10. The inventory turnover ratio of Prudential Sugar Corporation Limited decreased from 2.40 times in 2010-11 and to 1.78 times in 2011-12. The inventory turnover ratio of Prudential Sugar Corporation Limited fluctuated from 2012-13 to 2014-15. The growth in the data pertaining to inventory turnover ratio of Prudential Sugar Corporation Limited is consistent. The computed value of LGR for the time series data pertaining to inventory turnover ratio of Prudential Sugar Corporation Limited is negative. The computed value of 't' for the time series data pertaining to inventory turnover ratio of Prudential Sugar Corporation Limited is negative. However, it is significant at 5 per cent level of significance.

The inventory turnover ratio of SNJ Sugars and Allied Products Limited decreased from 3.00 times in 2005-06 to 1.57 times in 2008-09 except in 2007-08. The inventory turnover ratio of SNJ Sugars and Allied Products Limited increased from 2.04 times in 2009-10 to 3.93 times in 2010-11. The inventory turnover ratio of SNJ Sugars and Allied Products Limited decreased from 2.08 times in 2011-12 to 1.55 times in 2012-13. The inventory turnover ratio of SNJ Sugars and Allied Products Limited increased from 2.72 in 2013-14 to 3.79 times in 2014-15. The growth in the data pertaining to inventory turnover ratio of SNJ Sugars and Allied Products Limited is consistent. The linear growth rate in the data pertaining to inventory turnover ratio of SNJ Sugars and Allied Products Limited is positive. The computed value of 't' for the time series data pertaining to inventory turnover 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 inventory turnover ratio of KCP Sugar and Industries Corporation Limited increased from 2.51 times in 2005-06 to 2.63 times in 2006-07. The inventory turnover ratio of KCP Sugar and Industries Corporation Limited fluctuated from year to year for eight years of ten years study period. The growth in the data pertaining to inventory turnover ratio of KCP Sugar and Industries Corporation Limited is consistent. The computed value of LGR for the data pertaining to inventory turnover ratio of KCP Sugar and Industries Corporation Limited is negative. The computed value of 't' for the time series data pertaining to inventory turnover 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 inventory turnover ratio of The Andhra Sugars Limited increased from 2.48 times in 2005-06 to 2.94 times in 2006-07. The inventory turnover ratio of The Andhra Sugars Limited significantly decreased to 1.91 times in 2007-08. The inventory turnover ratio of The Andhra Sugars Limited increased from 2.92 times in 2008-09 to 4.21 times in 2009-10. The inventory turnover ratio of The Andhra Sugars Limited decreased to 2.02 times in 2011-12. The inventory turnover ratio of The Andhra Sugars Limited increased from 2.51 times in 2011-12 to 3.48 times in 2014-15 except in 2013-14 wherein the inventory turnover ratio of The Andhra Sugars Limited decreased. The growth in the data pertaining to inventory turnover ratio of The Andhra Sugars Limited is consistent. The linear growth in the data pertaining to inventory turnover ratio of The Andhra Sugars Limited is positive. The computed value of 't' for the time series data pertaining to inventory turnover ratio of Andhra Sugars Limited 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 no sample sugar factory maintaining the ideal standard inventory turnover ratio throught the study period of ten years. So, the inventory turnover ratio cannot be considered congenial for the business since it doesn't implies but cash flow. The inventory turnover ratio for all the sample sugar factories of private sector in Andhra Pradesh is dangerous.

Debtors' Turnover Ratio

Debtors' turnover ratio is also termed as "Receivable Turnover Ratio". Receivables and debtors represent the uncollected portion of credit sales. Debtors' turnover ratio indicates the number of times the receivables are turned over in business during a particular period. In other words, it represents how quickly the debtors are converted into cash. This ratio is used to measure the firm's liquidity position. The ratio refers to the relationship between receivables and credit sales⁸. A higher debtors' turnover ratio explains that the firm is efficient in collecting its debts whereas lower ratio signifies its inefficiency⁹. The ratio may be computed as:

$$\text{Debtors Turnover Ratio} = \frac{\text{Total Sales}}{\text{Sundry Debtors}}$$

Table – 4
Debtors' turnover ratio of select sample sugar factories of private sector in Andhra Pradesh during the period from 2005-06 to 2014-15

(In Times)

Year	Prudential Sugar Corporation Limited	SNJ Sugars & Allied Products Limited	KCP Sugar and Industries Corporation Limited	The Andhra Sugars Limited
2005-06	10.76	6.15	31.63	14.29
2006-07	9.31	5.37	27.36	17.72
2007-08	5.85	3.66	38.53	13.71
2008-09	7.92	3.19	50.53	9.94
2009-10	9.68	3.35	49.39	12.48
2010-11	16.39	2.75	17.92	9.63
2011-12	12.80	4.42	26.48	8.37
2012-13	16.87	4.66	19.32	9.15
2013-14	13.38	6.70	16.42	7.98
2014-15	12.68	6.98	17.29	8.37
Mean	11.56	4.72	29.49	11.16
SD	3.54	1.52	12.89	3.24
CV	30.60	32.20	43.72	29.04
LGR	6.41	3.19	-8.33	-8.24
t-value	2.317*	0.890[@]	-1.998[@]	4.749**

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

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

Table – 4 explains the data pertaining to debtors' turnover ratio of select sample sugar factories of private sector in Andhra Pradesh during the period from 2005-06 to 2014-15

The debtors' turnover ratio of Prudential Sugar Corporation Limited decreased from 10.76 times in 2005-06 to 5.85 times in 2007-08 and increased from 7.92 times in 2008-09 to 16.87 times in 2012-13 except 2011-12 wherein the ratio of debtors' turnover ratio of Prudential Sugar Corporation Limited showed decreased trend. In 2013-14 and 2014-15 the debtors' turnover ratio of Prudential Sugar Corporation Limited decreased. The growth in the data pertaining to debtors' turnover ratio of Prudential Sugar Corporation Limited is consistent. The computed value of LGR for the time series data pertaining to debtors' turnover ratio of Prudential Sugar Corporation Limited is positive. The computed value of 't' for the time series data pertaining to debtors' turnover ratio of Prudential Sugar Corporation Limited is significant at 5 per cent level of significance.

The debtors' turnover ratio of SNJ Sugars and Allied Products Limited decreased from 6.15 times in 2005-06 to 2.75 times in 2010-11 except in 2008-09 wherein the debtors' turnover ratio of SNJ Sugars and Allied Products Limited decreased. The debtors' turnover ratio of SNJ Sugars and Allied Products Limited rapidly increased from 4.42 times in 2011-12 to 6.78 times in 2014-15. The growth in the data pertaining to debtors' turnover ratio of SNJ Sugars and Allied Products Limited is consistent. The linear growth rate in the data pertaining to debtors'

turnover ratio of SNJ Sugars and Allied Products Limited is positive. The computed value of 't' for the time series data pertaining to debtors' turnover 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 debtors' turnover ratio of KCP Sugar and Industries Corporation Limited increased from 31.63 times in 2005-06 to 50.53 times in 2008-09 except in 2006-07. The inventory debtors' ratio of KCP Sugar and Industries Corporation Limited fluctuated from year to year for six years of ten year study period i.e., from 2009-10 to 2014-15. The growth in the data pertaining to debtors' turnover ratio of KCP Sugar and Industries Corporation Limited is consistent and so sizable. The computed value of LGR for the data pertaining to debtors' turnover ratio of KCP Sugar and Industries Corporation Limited is negative. The computed value of 't' for the time series data pertaining to debtors' turnover 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 debtors' turnover ratio of The Andhra Sugars Limited increased from 14.29 times in 2005-06 to 17.72 times in 2006-07 and decreased from 13.71 times in 2007-08 to 8.37 times in 2011-12 except in 2009-10 wherein the debtors' turnover ratio increased. The debtors' turnover ratio of The Andhra Sugars Limited fluctuated from 2012-13 to 2014-15. The growth in the data pertaining to debtors' turnover ratio of The Andhra Sugars Limited is consistent. The linear growth in the data pertaining to debtors' turnover ratio of The Andhra Sugars Limited is negative. The computed value of 't' for the time series data pertaining to debtors' turnover ratio of Andhra Sugars Limited is significant at 1 per cent level of significance.

From the fore going analysis one can infer that the debtors turnover ratio of KCP Sugar and Allied Products Limited is higher than the debtors turnover ratio of other three sugar factories. Higher debtors' turnover ratio reveals that the KCP Sugar and Industries Corporation Limited is more efficient in collecting in credit sales.

Creditors' Turnover Ratio

Creditors' turnover ratio is also called as Payable Turnover Ratio". The creditors' turnover ratio indicates the number of times the payment is made to the supplier in respect of credit purchases¹⁰. A higher ratio signifies that the creditors are being paid promptly. A lower ratio indicates that the payment to creditors is not in time¹¹. The ratio can be calculated by the following formula:

$$\text{Creditors Turnover Ratio} = \frac{\text{Total Purchases}}{\text{Sundry Creditors}}$$

Table – 5

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

(In Times)

Year	Prudential Sugar Corporation Limited	SNJ Sugars & Allied Products Limited	KCP Sugar and Industries Corporation Limited	The Andhra Sugars Limited
2005-06	7.32	3.12	2.01	1.80
2006-07	6.23	5.39	1.66	2.28
2007-08	3.24	4.50	2.11	1.60

2008-09	3.16	1.33	1.82	1.91
2009-10	3.02	1.40	2.48	1.93
2010-11	2.75	2.64	1.33	11.91
2011-12	1.60	3.15	3.69	15.46
2012-13	2.18	2.16	3.23	34.95
2013-14	1.68	3.98	2.99	22.96
2014-15	1.70	2.64	3.27	28.90
Mean	3.29	3.03	2.46	12.37
SD	1.96	1.30	0.80	12.71
CV	59.53	42.97	32.35	102.71
LGR	-17.08	-3.84	7.57	29.69
t-value	-4.965**	-0.794[@]	2.839*	5.118**

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

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

Table – 5 explains the growth in the data pertaining to creditors' turnover ratio of select sample sugar factories of private sector in Andhra Pradesh over a period of ten years i.e., from 2004-05 to 2014-15.

The creditors' turnover ratio of Prudential Sugar Corporation Limited drastically decreased from 1.60 times in 2005-06 to 1.60 times in 2011-12 and increased to 2.18 times in 2012-13. The creditors' turnover ratio of Prudential Sugar Corporation Limited slightly increased from 1.68 times in 2013-14 to 1.70 times in 2014-15. The growth in the data pertaining to creditors' turnover ratio of Prudential Sugar Corporation Limited is not consistent because of the computed value of CV is more than 50 times. The computed value of LGR for the time series data pertaining to creditors' turnover ratio of Prudential Sugar Corporation Limited is negative. The computed value of 't' for the time series data pertaining to creditors' turnover ratio of Prudential Sugar Corporation Limited is negative. However, it is significant at 1 per cent level of significance.

The creditors' turnover ratio of SNJ Sugars and Allied Products Limited significantly increased from 3.12 times in 2005-06 to 5.39 times in 2006-07 and decreased from 4.50 times in 2007-08 to 1.33 times in 2008-09. The creditors' turnover ratio of SNJ Sugars and Allied Products Limited rapidly increased from 1.40 times in 2009-10 to 3.98 times in 2013-14 except in 2012-13 wherein the creditors' turnover ratio of SNJ Sugars and Allied Products Limited showed a decreasing trend. The creditors' turnover ratio of SNJ Sugars and Allied Products Limited decreased. The growth in the data pertaining to creditors' turnover ratio of SNJ Sugars and Allied Products Limited is consistent. The linear growth rate in the data pertaining to creditors' turnover ratio of SNJ Sugars and Allied Products Limited is negative. The computed value of 't' for the time series data pertaining to creditors' turnover 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 creditors' turnover ratio of KCP Sugar and Industries Corporation Limited increased from 2.01 times in 2005-06 to 3.27 times in 2014-15 with wide fluctuations in the growth of

creditors' turnover ratio of KCP Sugar and Industries Corporation Limited from year to year for the entire study period i.e., from 2005-06 to 2014-15. The growth in the data pertaining to creditors' turnover ratio of KCP Sugar and Industries Corporation Limited is consistent and so sizable. The computed value of LGR for the data pertaining to creditors' turnover ratio of KCP Sugar and Industries Corporation Limited is positive. The computed value of 't' for the time series data pertaining to creditors' turnover ratio of KCP Sugar and Industries Corporation Limited is significant at 5 per cent level of significance.

The creditors' turnover ratio of The Andhra Sugars Limited increased from 1.80 times in 2005-06 to 2.28 times in 2006-07. The creditors' turnover ratio of The Andhra Sugars Limited decreased to 1.60 times in 2007-08 and increased from 1.91 times 2008-09 to 34.95 times in 2012-13. The growth in the data pertaining to creditors' turnover ratio of The Andhra Sugars Limited is fluctuated from year to year for the remaining two year from 2013-14 and 2014-15. The growth in the data pertaining to creditors' turnover ratio of The Andhra Sugars Limited is not consistent because of the computed value of CV is more than 50 times. The linear growth in the data pertaining to creditors' turnover ratio of The Andhra Sugars Limited is positive. The computed value of 't' for the time series data pertaining to creditors' turnover ratio of The Andhra Sugars Limited is significant at 1 per cent level of significance.

From the fore going analysis one can infer that the mean creditors turnover ratio of The Andhra Sugars Limited is higher than the creditors turnover ratio of the other three sugar factories of private sector in Andhra Pradesh over ten year study period. So, The Andhra Sugars Limited is paying to its creditors promptly.

Working Capital Turnover Ratio

The working capital turnover ratio is also known as working capital leverage ratio. The ratio indicates whether the business organizations are utilizing their working capital efficiently. If a company achieves higher performance of sales with small amount of working capital it is considered such companies are working more efficiently in utilizing the working capital more efficiently. It can be computed with the help of the formula given hereunder.

$$\text{Working Capital Turnover Ratio} = \frac{\text{Net Sales}}{\text{Working Capital}}$$

Table – 6
Working Capital Turnover ratio of select sample sugar factories of private sector in
Andhra Pradesh during the period from 2005-06 to 2014-15

(In Times)

Year	Prudential Sugar Corporation Limited	SNJ Sugars & Allied Products Limited	KCP Sugar and Industries Corporation Limited	The Andhra Sugars Limited
2005-06	2.82	3.60	4.94	3.67
2006-07	3.57	1.03	6.13	3.60
2007-08	11.57	0.99	2.62	2.67
2008-09	4.12	1.39	2.07	3.69
2009-10	6.02	1.71	3.09	5.22
2010-11	4.63	2.26	2.28	5.68
2011-12	11.25	1.48	3.44	4.76
2012-13	40.01	2.04	3.79	3.65
2013-14	4.75	2.25	2.16	2.74
2014-15	22.09	3.18	3.02	2.67
Mean	11.08	1.99	3.35	3.86
SD	11.73	0.87	1.31	1.04
CV	105.86	43.52	38.96	27.07
LGR	18.81	3.29	-6.49	-0.73
t-value	1.805[@]	0.666[@]	-1.652[@]	-0.232[@]

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

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

Table – 6 shows the growth in the data pertaining to working capital turnover ratio of select sample sugar factories of private sector in Andhra Pradesh during the period from 2004-05 to 2014-15.

The working capital turnover ratio of Prudential Sugar Corporation Limited increased from 2.82 times in 2005-06 to 11.57 times in 2007-08 and it decreased to 4.12 times in 2008-09. The working capital turnover ratio of Prudential Sugar Corporation Limited increased from 6.02 times in 2009-10 to 40.01 times in 2012-13 except in 2010-11 wherein the working capital turnover ratio of Prudential Sugar Corporation Limited decreased. The working capital turnover ratio of Prudential Sugar Corporation Limited decreased drastically in 2013-14 level of 4.75 times in 2013-14 and increased to 22.09 times in 2014-15. The growth in the data pertaining to working capital turnover ratio of Prudential Sugar Corporation Limited is not consistent because of the computed value of CV is more than 50 times. The computed value of LGR for the time series data pertaining to working capital turnover ratio of Prudential Sugar Corporation Limited is positive. The computed value of 't' for the time series data pertaining to working capital turnover ratio of Prudential Sugar Corporation Limited is not significant at 1 per cent level of significance or at 5 per cent level of significance.

The working capital turnover ratio of SNJ Sugars and Allied Products Limited drastically decreased from 3.60 times in 2005-06 to 0.99 times in 2007-08 and increased from 1.39 times in 2008-09 to 2.26 times in 2010-11. The working capital turnover ratio of SNJ Sugars and Allied

Products Limited decreased to 1.48 times in 2011-12 and increased from 2.04 times in 2012-13 to 3.18 times in 2014-15. The growth in the data pertaining to working capital turnover ratio of SNJ Sugars and Allied Products Limited is consistent and so sizable. The linear growth rate in the data pertaining to working capital turnover ratio of SNJ Sugars and Allied Products Limited is positive. The computed value of 't' for the time series data pertaining to working capital turnover 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 working capital turnover ratio of KCP Sugar and Industries Corporation Limited increased from 4.94 times in 2005-06 to 6.13 times in 2006-07 and decreased from 2.62 times in 2007-08 2.07 times in 2008-09 and increased to 3.09 times in 2009-10. The working capital turnover ratio of KCP Sugar and Industries Corporation Limited decreased to 2.28 times in 2010-11 and increased from 3.44 times in 2011-12 to 3.79 times in 2012-13 and again its decreased to 2.16 times in 2013-14 and increased to 3.02 times in 2014-15. The growth in the data pertaining to working capital turnover ratio of KCP Sugar and Industries Corporation Limited is consistent and so sizable. The computed value of LGR for the data pertaining to working capital turnover ratio of KCP Sugar and Industries Corporation Limited is negative. The computed value of 't' for the time series data pertaining to working capital turnover ratio of KCP Sugar and Industries Corporation Limited is negative and it is also not significant either at 1 per cent level of significance or at 5 per cent level of significance.

The working capital turnover ratio of The Andhra Sugars Limited decreased from 3.67 times in 2005-06 to 2.67 times in 2007-08 and increased from 3.69 times in 2008-09 to 5.68 times in 2010-11. The working capital turnover ratio of The Andhra Sugars Limited decreased from 4.76 times in 2011-12 to 2.67 times in 2014-15. The growth in the data pertaining to working capital turnover ratio of The Andhra Sugars Limited is consistent. The linear growth in the data pertaining to working capital turnover ratio of The Andhra Sugars Limited is negative. The computed value of 't' for the time series data pertaining to working capital turnover ratio of The Andhra Sugars 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.

From the fore going analysis one can infer that the mean working capital turnover ratio of Prudential Sugar Corporation Limited is higher than the working capital turnover ratio of the other three sugar factories of private sector in Andhra Pradesh. This indicates that the Prudential Sugar Corporation Limited is operating more efficiently than the other three sugar factories of private sector in Andhra Pradesh.

FINDINGS AND SUGGESTIONS

Findings

The following are the findings which are deduced from the analysis given under each of the relevant tables.

- ❑ The current ratio of SNJ Sugar and Allied Products Limited is high whereas the same ratio of KCP Sugar and Industries Corporation Limited and The Andhra Sugars Limited is moderate and the Prudential Sugar Corporation Limited is relatively low. Low ratio indicates that the current assets of Prudential Sugar Corporation Limited are not adequate enough to pay its current liabilities. The current assets of KCP Sugar and Industries Corporation Limited and The Andhra Sugars Limited are just adequate enough to clear of their dues.
- ❑ The mean quick ratio of SNJ Sugars and Allied Products Limited is highest when compared to the quick ratio of the other three sugar factories of private sector in Andhra

Pradesh. The mean quick ratio of The Andhra Sugar Limited is highly moderate and mean quick ratio of Prudential Sugar Corporation Limited is slightly moderate whereas the quick ratio of KCP Sugar and Industries Corporation Limited is low. Hence, the ability of SNJ Sugars and Allied Products Limited is very high in meeting its quick liabilities out of its quick assets.

- ❑ No sample sugar factory maintaining the ideal standard inventory turnover ratio throughout the study period of ten years. So, the inventory turnover ratio cannot be considered congenial for the business since it doesn't implies but cash flow. The inventory turnover ratio for all the sample sugar factories of private sector in Andhra Pradesh is dangerous.
- ❑ The debtors turnover ratio of KCP Sugar and Allied Products Limited is higher than the debtors turnover ratio of the other three sugar factories. Higher debtors' turnover ratio reveals that the KCP Sugar and Industries Corporation Limited is more efficient in collecting its credit sales.
- ❑ The mean creditors turnover ratio of The Andhra Sugars Limited is higher than the creditors turnover ratio of the other three sugar factories of private sector in Andhra Pradesh over ten year study period. So, The Andhra Sugars Limited is paying to its creditors promptly.
- ❑ The mean working capital turnover ratio of Prudential Sugar Corporation Limited is higher than the mean working capital turnover ratio of the other three sugar factories of private sector in Andhra Pradesh. This indicates that the Prudential Sugar Corporation Limited is utilizing the working capital properly. Therefore the working capital is more efficiently utilized. The other three private sugar factories are not utilizing their working capital is more efficiently since working capital turnover ratio of the firm is considerably low.

Suggestions

The following suggestions are offered to overcome difficulties which have been identified by the researcher.

- Managements of all the sample sugar factories of private sector in Andhra Pradesh are advised to keep up standard ratio so as to meet their current obligations.
- Managements of KCP Sugar and Industries Corporation Limited and The Andhra Sugars Limited are advised to improve their financial position i.e., the standard quick ratio of 1:1. It indicates poor signal of short term financial strength to pay off current abilities at a short notice. Therefore, they must improve their quick ratio to attain the standard norm.
- No sugar factory has attained the standard inventory turnover ratio of 5 to 6 times. The inventory turnover ratio shows dangerous signals. So, they must improve the ratio to reach the normal standard norm.
- The debtors turnover ratio of Prudential Sugar Corporation, SNJ Sugars and Allied Products Limited and The Andhra Sugars Limited was not satisfactory. Hence, it will improve the debtors' turnover ratio.
- The creditors' turnover ratio of Prudential Sugar Corporation Limited, SNJ Sugars and Allied Products Limited and KCP Sugar and Industries Corporation Limited was so low. Low ratio indicates that the said companies are most paying their creditors promptly. Therefore, they should increase their creditors' turnover ratio.

Readings

1. Khan, M.Y., and Jain, P.K., 'Financial Management' (4th edition), Tata McGraw-Hill Publishing Company Limited, New Delhi, 2004, p.26.3.
2. Periasamy, P., Financial Management, (3rd edition), Vijay Nicole Impri8nts Private Limited, Chennai, 2011, p.20.4.
3. Pandey, I.M., 'Financial Management' (10th Edition), Vikas Publishing House Pvt., Ltd., New Delhi, 2010, p.648.
4. Pandey, I.M., 'Financial Management' (10th Edition), Vikas Publishing House Pvt., Ltd., New Delhi, 2010, p.589.
5. Periasamy, P., Financial Management, (3rd edition), Vijay Nicole Impri8nts Private Limited, Chennai, 2011, p.4.43.
6. Aryasri, A.R., "Accounting and Financial Management", Tata McGraw-Hill Education Pvt., Ltd., New Delhi, 2010, pp.6.8.
7. Periasamy, P., Financial Management, (3rd edition), Vijay Nicole Impri8nts Private Limited, Chennai, 2011, p.4.49.
8. Khan, M.Y., and Jain, P.K., Financial Management – Text, Problems and cases (6th edition), McGraw Hill, New Delhi, 2011, p.6.9.
9. Periasamy, P., Financial Management, (3rd edition), Vijay Nicole Impri8nts Private Limited, Chennai, 2011, p.4.5.
10. Maheshwari, S.N., "**Financial Management: Principles and Practice**", (9th Edition), Sultan Chand and Sons Educational Publishers, New Delhi, 2004, p.B.53.
11. Pandey, I.M., 'Financial Management' (10th Edition), Vikas Publishing House Pvt., Ltd., New Delhi, 2010, p.589.

