IOSR Journal of Economics and Finance (IOSR-JEF)
e-ISSN: 2321-5933, p-ISSN: 2321-5925.Volume 7, Issue 2. Ver. II (Mar. - Apr. 2016), PP 01-07
www.iosrjournals.org

Impact of Working Capital Components on Profitability- A Study on Private Sugar Factories in Coastal Region, Andhra Pradesh

* G.L.Meena ** Lokanandha Reddy Irala
** Associate professor, Faculty of Management,Golden Valley Integrated Campus, Madanapalle*
***Professor & Director, Department of MBA, KKC Engineering College, Puttur*

Abstract: *This study examines the influence of working capital components on the profitability of private sugar factories in Coastal Region of Andhra Pradesh. In this study we have considered 6 private sugar manufacturing units for the period from 2005-06 to 2012-13 and analyzed various working capital components, viz., Cash Conversion Cycle, Inventory in Days, Accounts Receivables Days, Accounts Payables Days affecting the profitability of the firm. We grouped single factor analysis of variance for coastal region is done on the three components of working capital management. we conclude that approaches used by the firms with respect to managing inventory days and AP days significantly vary within sugar industry in coastal region but Accounts Receivables are insignificant it indicates the results produced by the selected companies in coastal region are maintaining hetrogenity We have considered Return On Total Assets as measure of Performance and the study reveals 1. The average payment period (APP) is positively correlated with ROTA. 2. inventory turnover in days (ID), cash conversion cycle (CCC) are negatively correlated with ROTA. 3. Average Receivables Period (ARP) and ROTA are statistically insignificant.*

I. Introduction

Financial Management is that managerial activity which is concerned with the planning and controlling of the firm's finance. Finance is one of the foundations of all kinds of economic activities. Finance is the life-blood of a business. The financial management study deals with the process of procuring necessary financial resource and their judicious use with a view to maximizing the value of the firm and there by the value of the owners i.e. equity share holders in a company. Practicing managers are interest in this subject because among the most crucial decisions of the firm are those which relate to finance, and an understanding of the theory of financial management provides them with conceptual and analytical insights to make those decisions skillfully. Working capital, on the one hand, can be seen as a metric for evaluating a company's operating liquidity. A positive working capital position indicates that a company can meet its short-term obligations. On the other hand, a company's working capital position signals its operating efficiency. Comparably high working capital levels may indicate that too much money is tied up in the business. The most important positions for effective working capital management are inventory, accounts receivable, and accounts payable. Depending on the industry and business, prepayments received from customers and prepayments paid to suppliers may also play an important role in the company's cash flow.

Industry Profile

Indian Sugar Industry stands in second largest with an annual productive capacity of over 25 MMT, where Brazil stood at first position. The Indian sugar industry was accounted for around 15% of the world wide sugar production. India consumes approximately 22 MT of sugar per annum. The rapid growth in population, sufficient and well distributed monsoon rains, and substantial improvements in sugar production capacity have made India the largest consumer and second largest producer of sugar across the world. This sector is highly fragmented with organized and unorganized players hence it is more positively contributing towards socio-economic development and employment in the rural areas of the country. In the year 2011-12 there are large number of sugar mills i.e 527 sugar manufacturing units were operated in India. In 2014-15 The Indian sugar sector was facing a huge financial crisis . There was a rapid and continuous reduction in sugar prices due to which the manufacturing units are unable to recover the cost of production and generate the required cash flows. Due to low realization of cash flows the companies are unable to meet with their commitments. Hence, The liquidity woes of the industry are continuing, and it was finding it tough to run its operations and pay suppliers on time.

Objectives of the study:

1. To examine the nature and the extent of relationship between working capital components and profitability of select private sugar factories in Coastal region.

2. To study the impact of working capital components on corporate performance of select private sugar factories in Coastal Region

Scope of the Study

The present study considered 6 private sugar manufacturing units of Coastal region, Andhra Pradesh for the period from 2005-06 to 2012-13 and analyzed various working capital components and its affect on firm's Return On Total Assets. The list of Companies selected for the study are

1. The Andhra Sugars Limited
2. Empee Sugars And Chemicals
3. KCP Vuyyur
4. The Jeypore Sugar Co
5. N C S Sugars Ltd
6. Nava Bharat Ventures Limited

II. Research Methodology

The effect of working capital components on profitability of 6 private sugar factories in Coastal region, Andhra Pradesh. Out of 12 Private sugar factories 50% companies have selected for the research. The financial data will be edited, classified, and tabulated as per the requirement of the study. The ratio analysis technique is used to determine the working capital components of the companies. The study will be based majorly on secondary sources i.e., data collected through financial statements, and the websites of selected sugar factories located in Andhra Pradesh.

Limitations of the Study

The study is confined to the period of 8 years (2006-2013) to analyse the effect of working capital components on profitability performance of the companies. This period is not enough to reach a confirmed decision. The data collected for the study is from published annual reports of the company.

Literature review

Appavadhanulu (1971) identified there is lack of attention being given to investment in working capital, he analyzed working capital management by examining the impact of method of production on investment in working capital. He stated that amount of working capital is depending up on the production techniques because different techniques have differences in the length of production period, the rate of output flow per unit of time and time pattern of value addition. The production methods would also affect the stock of raw materials and finished goods, by affecting lead-time, optimum lot size and marketing delays of output disposals. He, therefore, identified that choice of production method could reduces the need of working capital. He measured the ratio of work-in-progress and working capital to gross output and net output in textile weaving done during 1960. He conducted detailed discussions with producers and not considered the balance sheets. Finally, he did not find any significant relationship between method of production and working capital.

Shulman and Cox(1985) in their study measured the Working Capital Management of a firm using different techniques of working capital requirements. They concluded towards their posed hypotheses that debt ratio along with operating cash flow are significant determinants of working capital requirement, whereas company growth, company performance, firm size, business cycle seem inconsistent in determining Working Capital Management of Taiwanese firms.

Kamta Prasad Singh(1986) identified and analyzed various aspects of working capital management in fertilizer industry in India during the period 1978-79 to 1882-83. Sample included public sector unit Fertilizer Corporation of India Ltd.(FCI) and its daughter units namely Hindustan Fertilizers Corporation Ltd., the National Fertilizer Ltd., Rashtriya Chemicals and Fertilizers Ltd., and comparing their working capital management .

Jose(1996) concluded in his study there is significant negative relationship between profitability and Cash Conversion Cycle by examined the relationship between aggressive working capital management and profitability of the US firms using Cash Conversion Cycle(CCC) as a measure of working capital management, where a shorter CCC represents the aggressiveness of working capital management and also indicating that more aggressive working capital management is associated with higher profitability

Falope and Ajilore (2005) were considered the sample of 50 Nigerian quoted non-financial firms for the period 1996 -2005. Their study used the data econometrics in a pooled regression, where time-series and cross-sectional observations were combined and estimated. They concluded there is a significant negative relationship between the average collection period, average payment period, inventory turnover period, cash conversion cycle with that of net operating profitability of fifty Nigerian firms listed on the Nigerian Stock Exchange. Moreover they also identified there is no significant variations in the effects of working capital management on corporate profitability between large and small firms.

Anupam Jain (2010) made a study to show there is a negative significant relationship between cash conversion cycle and firm profitability and positive relationship between current ratio and profitability of firms. In "Effect of Working Capital Management On profitability of firm: A Study of the Indian Oil Drilling and Exploration Industry" He used the Correlation, regression and Descriptive Statistics analysis. His study reveals that reducing cash conversion period and increasing the current ratio results intro profitability increase. Thus, in purpose to create share holder value, firm manager should concern on shorten of cash conversion cycle till accomplish optimal level.

Irfan Ahmed(2011) analysed the effect of working capital management on firm's performance by considering the sample of 253 non financial listed companies of Karachi Stock Exchange (KSE), Pakistan. The study undertaken secondary data from Balance Sheet Analysis of Stock Listed Companies on KSE published by State Bank of Pakistan. The outcomes were analyzed by using the Logistic Regression, OLS Regression and Pearson Correlation techniques. Finally the conclusions are stating that among all the five components of working capital management only current asset to total sales showed significant negative relationship with both the proxies of performance i.e. return on equity and return on assets. Where as inventory turnover, current ratio, current asset over total asset (CATA), debtor's turnover showed significant positive relationship with performance. At last Logistic regression results are showing that probability of firm is being is highly determined by CATA, CATS and CR.

Zbigniew ,Gołaś et al.,(2013) in this study the effectiveness of working capital management were evaluated by using inventories conversion period, receivables, liabilities and cash conversion cycle in relation to rate of return earned on assets. They have considered the food industry in Poland. The study was conducted by taking 30 companies of the food industry from 2005 to2009, based on unpublished data of the Central Statistical Office. The positive effect of shortening the working capital cycle on profitability was also examined by using regression analysis. The Studies showed that in the present industry the companies whose working capital conversion cycle is the shortest achieving the highest rate of return.

Data Analysis and Interpretation:

Table 1:Calculation Of Inventory Days Of Select Sugar Manufacturing Units In Coastal Region

NAME OF THE COMPNAIES						
Year	AndhraSugars	EmpeeSugars	JeyporeSugars	KCPSugars	NavaBharatSugars	NcsSugars
2005-06	138	139	78	119	86	58
2006-07	125	96	94	92	66	130
2007-08	136	129	80	53	58	98
2008-09	129	125	98	127	96	99
2009-10	128	122	106	103	28	87
2010-11	90	103	89	121	129	83
2011-12	96	116	66	129	87	95
2012-13	145	98	109	88	69	108
Average	123	116	90	104	77	95

Source: Data compiled from the annual reports of sugar manufacturing units of Coastal region.

Interpretatio

Table-1 presents the Inventory days of sugar companies produced in the Coastal region of Andhra Pradesh and the relative position of the selected sugar manufacturing units under study. The Inventory days gives investors an idea of how long it takes a company to turn its inventory into sales. It is an efficiency measure of average number of days the company holds its inventory before selling it. The ratio measures the number of days funds are tied up in inventory. Shorter number of days inventory outstanding means the company can convert its inventory into cash sooner. Longer number of days represents the company will have more inventory with it and it takes longer time to convert inventory into sales. Over the period of analysis, out of the six selected sugar manufacturing units the Number of days of Inventory of three companies (EMPEE , KCP and NAVA sugars) were decreased and the remaining three companies (ANDHRA sugars, JEYPORE and NCS sugars) ratio values during the study period were increased. Concerned about the ratio, the three companies (EMPEE , KCP and NAVA sugars) because of decreasing ratio values will depicts that the companies are effectively managing its Inventory and can able to convert its inventory with a short period of time. The highest number of days (i.e., 123 days) was found in ANDHRA sugars. The analysis brings out the observation that, the Inventory days of the selected sugar manufacturing of the three Companies (EMPEE , KCP and NAVYA sugars) were efficient at converting its inventory into cash sooner when compared to the remaining of three companies (ANDHRA sugars, JEYPORE and NCS sugars). Overall the study period with respect to Inventory days sugar companies in coastal region, out of the six sugar manufacturing units ANDHRA sugars stood at first followed by EMPEE sugars, KCP sugars, NCS sugars, JEYPORE sugars and NAVYA sugars with respect to Number of days of Inventory during the study period.

Table 2: Calculation Of Ar Days Of Select Sugar Manufacturing Units In Coastal Region

NAME OF THE COMPANIES						
Year	AndhraSugars	EmpeeSugars	JeyporeSugars	KCPSugars	NavaBharatSugars	NcsSugars
2005-06	19	35	32	25	28	39
2006-07	36	37	28	34	45	12
2007-08	26	18	23	12	19	35
2008-09	22	44	10	41	45	38
2009-10	38	19	25	32	39	43
2010-11	39	24	18	12	35	28
2011-12	37	41	36	19	10	44
2012-13	29	30	38	30	17	21
Average	31	31	26	26	30	32

Source: Data compiled from the annual reports of sugar manufacturing units of Coastal region.

Interpretation

Table-2 presents the Accounts Receivables days of sugar produced in the Coastal region of Andhra Pradesh and the relative position of the selected sugar manufacturing units under study.

The Accounts Receivables measures efficiency of a firm in terms of how many times a business can turn its accounts receivable into cash during a period. A higher Accounts Receivables would be more favorable. Higher ratios mean that companies are collecting their receivables more frequently throughout the year. Higher efficiency is favorable from a cash flow standpoint as well. A lesser ratio indicates the company is not able to collect cash from its customers at a faster rate. Over the period of analysis, out of the six selected sugar manufacturing units the Accounts Receivables of three companies (NAVA sugars, KCP sugars and JEYPORE) were decreased and the remaining three companies (ANDHRA, EMPEE and NCS sugars) values during the study period were increased. Concerned about the ratio, the three companies (ANDHRA, EMPEE, and NCS sugars) because of increasing ratio values will effectively can turn its accounts receivable into cash during a period. The highest average number of days (i.e., 32days) was found in NCS sugars. The analysis brings out the observation that, the Accounts Receivables of the three selected sugar manufacturing Companies(ANDHRA, EMPEE ,and NCS sugars) were at efficient in accounts receivables when compared to JEYPORE , KCP and NAVA sugars). Overall the study period of accounts receivables in coastal region, out of the six sugar manufacturing units NCS sugars stood at first followed by ANDHRA sugars, EMPEE sugars, JEYPORE sugars, KCP sugars and NAVA sugars with respect to Accounts receivables during the study period.

Table 3: Calculation Of Accounts Payable Days Of Select Sugar Manufacturing Units In Coastal Region

NAME OF THE COMPANIES						
YEAR	AndhraSugars	EmpeeSugars	JeyporeSugars	KCPSugars	NavaBharatSugars	NcsSugars
2005-06	18	13	19	7	16	8
2006-07	25	29	22	24	26	30
2007-08	16	19	23	20	18	28
2008-09	19	25	27	18	16	29
2009-10	28	22	13	26	28	17
2010-11	30	13	11	29	19	13
2011-12	9	16	20	26	17	15
2012-13	15	9	28	19	9	18
Average	20	18	20	21	19	20

Source: Data compiled from the annual reports of sugar manufacturing units of coastal region.

Interpretation

Table-3 presents the Accounts payable days of sugar companies produced in the Coastal region of Andhra Pradesh and the relative position of the selected sugar manufacturing units under study. The Accounts payable measures efficiency of a firm in terms of how long it takes a company to pay its invoices from trade creditors. The longer they take to pay their creditors, the more money the company has on hand, which is good for working capital and free cash flow. The number of days increases from one period to the next, this indicates that the company is paying its suppliers more slowly, and may be an indicator of worsening financial condition. Over the period of analysis, out of the six selected sugar manufacturing units the Accounts payable of three companies (ANDHRA, EMPEE and NAVA sugars) were decreased and the remaining three companies (KCP, JEYPORE and NCS sugars) values during the study period were increased. Concerned about the ratio, the three companies (ANDHRA, EMPEE and NAVA sugars) because of increasing ratio values will effectively pay their accounts to the trade creditors. The highest average number of days (i.e., 21 days) was found in JEYPORE sugars. The analysis brings out the observation that, the Accounts payable of the three selected sugar manufacturing Companies (ANDHRA, EMPEE ,and NAVYA sugars) were at efficient in accounts payable when compared to (JEYPORE , KCP and NCS sugars). Overall the study period of accounts payable in coastal region, out of the six sugar manufacturing units sugars EMPEE sugars stood at first followed by NAVA sugars, KCP sugars, ANDHRA sugars, NCS sugars, JEYPORE sugars and NCS sugars with respect to Accounts payable during the study period.

Table 4: Calculation Of CCC Days Of Select Sugar Manufacturing Units In Coastal Region

NAME OF THE COMPANIES						
Year	AndhraSugars	EmpeeSugars	JeyporeSugars	KCPSugars	NavaBharatSugars	NcsSugars
2005-06	139	161	103	125	98	89
2006-07	136	104	98	104	85	112
2007-08	146	128	83	42	59	105
2008-09	132	144	90	141	125	108
2009-10	138	119	105	122	39	113
2010-11	99	114	78	122	145	98
2011-12	124	141	76	128	80	124
2012-13	159	119	128	90	77	111
Average	134	129	95	109	88	107

Source: Data compiled from the annual reports of sugar manufacturing units of Coastal region.

Interpretation:

Table-4 presents the Cash Conversion Cycle days of sugar companies produced in the Coastal region of Andhra Pradesh and the relative position of the selected sugar manufacturing units under study. The Cash Conversion Cycle measures the length of time, in days, that it takes for a company to convert resource inputs into cash flow. Cash conversion Cycle gives us the amount of time needed to sell inventory, the amount of time needed to collect receivables and the length of time to pay the credits. Shorter Cash Conversion Cycle is favorable as the company can pay its bills and can generate cash at short period of time. Over the period of analysis, out of the six selected sugar manufacturing units the Cash Conversion cycle of three companies (EMPEE, KCP and NAVA sugars) were decreased and the remaining three companies (ANDHRA, JEYPORE and NCS sugars) values during the study period were increased. Concerned about the cash conversion days, the three companies (EMPEE, KCP and NAVA sugars) because of decreases in the number of days they can effectively convert their inputs into resources and can convert them into cash with a less period of time. The highest number of Cash Conversion days (i.e., 134) was found in ANDHRA sugars. The analysis brings out the observation that, the Cash Conversion of three selected sugar manufacturing Companies ((EMPEE, KCP and NAVA sugars) were at efficient in converting their inputs into cash when compared to (ANDHRA, JEYPORE and NCS sugars). Overall the study period of Cash Conversion Cycle in coastal region, out of the six sugar manufacturing units, highest average of Cash Conversion is at Andhra Sugars followed by EMPEE sugars, KCP sugars, NCS sugars, JEYPORE sugars and NAVA sugars during the study period.

Table 5: Calculation Of Return On Total Assets Of Select Sugar Manufacturing Units In Coastal Region

NAME OF THE COMPANIES						
YEAR	AndhraSugars	EmpeeSugars	JeyporeSugars	KCPSugars	NavaBharatSugars	NcsSugars
2005-06	0.1865	0.0848	0.5334	0.5023	0.0404	0.0337
2006-07	0.2258	0.2415	0.8178	0.5629	0.1543	0.0393
2007-08	0.2475	0.2540	0.2767	0.2301	0.1889	-0.1590
2008-09	0.1342	0.0777	0.0805	0.0879	0.3455	-0.0067
2009-10	0.2085	0.0842	0.1217	0.0335	0.4374	0.0771
2010-11	0.2537	0.0382	0.1724	0.0752	0.2458	0.0536
2011-12	0.1449	0.0168	0.0618	0.0383	0.1334	0.0462
2012-13	0.2505	0.1071	0.2061	0.8770	0.0743	0.0416
Average	0.2065	0.1130	0.2838	0.3009	0.2025	0.0157

Source: Data compiled from the annual reports of sugar manufacturing units of Coastal region.

Interpretation:

Table-5 presents the Return on total assets ratio of sugar produced in the Coastal region of Andhra Pradesh and the relative position of the selected sugar manufacturing units under study.

The Return on Total Assets ratio measures how effectively a company can turn earns a return on its investment in assets. A higher ratio is more favorable to investors because it shows that the company is more effectively managing its assets to produce greater amounts of net income. A positive ROA ratio usually indicates an upward profit trend as well. Over the period of analysis, out of the six selected sugar manufacturing units the Return on total assets ratio of one company (JEYPORE sugars) was decreased and the remaining five companies(ANDHRA, EMPEE , KCP, NAVA and NCS sugars) ratio values during the study period were increased. Concerned about the ratio, the five companies (ANDHRA, EMPEE , KCP, NAVA and NCS sugars) because of increasing ratio values will effectively managing its assets to produce greater amounts of net income. The highest average ratio (i.e., 0.3009) was found in KCP sugars. The analysis brings out the observation that, the Return on total assets ratio of the selected sugar manufacturing Companies were at safest maintenance of their Assets (except JEYPORE and NAVA sugars). Overall the study period with respect to Return on total assets ratio in coastal region, out of the six sugar manufacturing units KCP sugars stood at first followed by JEYPORE sugars, ANDHRA sugars, NAVA sugars, EMPEE sugars and NCS sugars with respect to maximization of Return on Total Assets during the study period.

Calculation Of Anova In Selected Sugar Manfacturing Units

TABLE 6: Calculation of Anova In Costal Region:

		Sum of Squares	df	Mean Square	F	Sig.
INVENTORY DAYS	Between Groups	6122.417	5	2445.483	3.879	.001
	Within Groups	18443.250	42	342.458		
	Total	54465.667	47			
ACCOUNT PAYABLE DAYS	Between Groups	21.688	5	8.338	1.546	.018
	Within Groups	2013.254	42	64.467		
	Total	1940.312	47			
ACCOUNT RECEIVABLE DAYS	Between Groups	545.938	5	55.188	.039	.654
	Within Groups	5450.375	42	129.723		
	Total	5456.312	47			

Hypothesis:

H0: single factor analysis of variance for coastal region is done on the three components of working capital management i.e., INVENTORY, RECEIVABLES, PAYABLES to find if the means of the working capital management components are significantly different.

Interpretation:

The results of this analysis explains that inventory days(0.001<0.05) and Accounts Payables in days(0.018<0.005) are significant and remaining variable accounts Receivables (AR) in days is positively correlated but not significant. Hence we conclude that approaches used by the firms with respect to managing inventory days(INV) and AP days significantly vary within sugar industry in coastal region but Accounts Receivables are insignificant it indicates the results produced by the selected companies in coastal region are maintaining heterogenity.

III. Results and conclusion

Co-efficient of Correlation between Profitability and Working Capital Components:

1. The Results of the study shows positive coefficient (0.12) of Accounts Payables in days has positive relationship between APP and profitability(ROTA). The negative coefficient of Inventory in days (-0.23) and cash conversion cycle (-0.202) shows these has negative relationship with profitability (ROTA) of firms of the sample. The accounts receivable(-0.504) are statistically insignificant. Hence, The average payment period (APP) is positively correlated with ROTA. Where the inventory turnover in days (ID), cash conversion cycle (CCC) are negatively correlated with ROTA and Average Receivables Period (ARP) and ROTA are statistically insignificant.
2. The approaches used by the select firms with respect to managing inventory days(INV) and Accounts Payable days are significantly vary with in sugar industry in coastal region, where but Accounts

Receivables are insignificant. Hence, it indicates the results produced by the selected companies in coastal region are maintaining heterogenity.

3. The Inventory days of sugar companies in coastal region, out of the six sugar manufacturing units Andhra sugars stood at first followed by Empee sugars, KCP sugars, NCS sugars, Jeypore sugars and Nava Bharat sugars.
4. The accounts receivables in days of sugar companies in coastal region, NCS sugars stood at first followed by Andhra sugars, Empee sugars, Jeypore sugars, KCP sugars and Nava Bharat sugars.
5. The accounts payables in days of select sugar companies EMPEE sugars stood at first followed by Nava Bharat Sugars, Kcp Sugars, Andhra Sugars, Ncs Sugars, Jeypore Sugars.
6. Cash Conversion Cycle of select sugar industries in coastal region, the highest average of Cash Conversion cycle is at Andhra Sugars followed by Empee Sugars, KCP Sugars, NCS Sugars, Jeypore Sugars And Nava Bharat Sugars during a study period.
7. Return on total assets ratio is highest at KCP sugars then Jeypore sugars, Andhra sugars, Nava Bharat sugars, Empee sugars and NCS sugars stood consequently.

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