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A Study on the Impact of Working Capital Management on Profitability With Reference To Sugar Companies In Tamil Nadu

Dr.R.Gowri,
Assistant Professor,Dep,artment of Commerce,Sri Vasavi College (SFW), Erode.

I. Introduction

India is the second largest producer of sugar in the world. It occupies an important place in the Indian economy. Nearly 7.5 million people across the country are directly or indirectly employed in the industry and over 50 million people depend on their livelihood
from growing and supplying sugarcane. It contributes annually around Rs.50 billion by way of excise duty and other taxes. Inaddition about Rs.6 billion is realized by the State Government annually through vat, cess and octroi. It is the second largest agro-based industry and its contribution to the Indian economy is enormous. Sugar is produced from sugarcane and sugar beet. Bagasse also a by-product of sugar can be used as a bio-fuel and as renewable resource in manufacturing pulp, paper-products, building materials and also a renewable energy for power generation.

Working Capital Analysis

Working Capital (WC) is regarded as the life blood of a business and it plays a pivotal role in keeping the wheels of a business. Every organization, irrespective of its size and nature of business needs a requisite amount of WC. The efficient management of WC is crucial as it decides the survival, liquidity,solvency and profitability of the business concern. The maintenance of excessive levels of current assets can easily result in a substandard return on a firm's investment.

The firms with inadequate levels of current assets may incur shortages of funds and have difficulties in smoothly maintaining day to-day operations. Efficient WCM involves planning and controlling current assets and current liabilities in a manner that eliminates the risk of inability to meet due to short term obligations and avoid excessive investment in these assets.

II. Review Of Literature

Vijayakumar, A. and Venkatachalam (1995) have made "An Empirical Analysis on Working Capital and Profitability of Sugar Industry in Tamilnadu" covering a period from 1982-83 to 1991-92. Correlation and regression analysis have been applied to measure the impact of working capital ratios on profitability. The study had revealed that liquid ratio, cash turnover ratio and receivable turnover ratio had positively influenced the profitability.

Jose (1996) in his article "Corporate returns and Cash Conversion Cycle of US Firms" examined the relationship between aggressive working capital management and profitability of the firms. Cash conversion cycle is a measure of working capital management whereas shorter cash conversion cycle represents the aggressiveness of working capital management. They concluded that exist significant negative relationship between cash conversion cycle and profitability which indicated that more aggressive working capital management was associated with higher profitability.

Sakthivel Murugan, M. (1999) in his article on "Working Capital Management – A Case Analysis", revealed that one of the several indicators of efficient management of working capital is to examine whether adequate liquidity is maintained. The 'Z' Score analysis revealed that the organization maintained the 'Z' score above 3 points for all the year taken for the study. This showed that the company was maintaining adequate working capital by investing sufficient funds in its current assets. With the help of adequate current asset, it was also able to meet the current obligation without inviting the risk of bankruptcy.

Dheenadhayalan.V and Devianbarasi (2009) made "A Study on Financial Health of Co-operative Sugar Mills - A Case of NPKRR Co-Operative Sugar Mills Ltd". In this study they have used 'Z' score model. They have concluded that the financial health of co-operative sugar mills remained sick and was not healthy. They had suggested that those mills should take proactive approach in order to improve their financial performance in future.

MulwaM.R. Emrouznejad A., MurithiF.M(2009) have analysed "Impact of Liquidity and Solvency on the Profitability of Sugar Industry in Kenya". They have concluded that the liquidity position and solvency position of these units was found to be not satisfactory. They have also found that those units had not tapped debt capital to desired level. They had suggested that proper debt-equity mix was the need for sugar units in Kenya in order to with stand in market competition.

Ramachandran and Gopinathan (2012) analysed the relationship between, "Working Capital Management and Profitability of Sugar Industry in India". There was a significant positive co-efficient between current ratio and Return On Investment (5.263), Inventory Turnover Ratio and Return On Investment (1.110) at 5% level. Also there was a significant negative co-efficient between Quick ratio and Return On Investment (-10.582), Working Capital Turnover Ratio and Return On Investment (-0.036) at 5% level. Debtors Turnover Ratio recorded highly significant negative co-efficient (-0.020) at 1% level with Return On Investment. Creditors Turnover Ratio registered insignificant positive co-efficient 0.014 with profitability. The overall regression model fit, which was represented by R^2 was above 50% (0.51) which indicated that the sugar industry in India was poised to reap a rich harvest in the season beginning Oct 2010. The Sugar Corporate firm were over burdened with surplus inventories that most of them do not have adequate storage facilities, capacities and cash flow which have led them to resort to distress sale of sugar which only brought down the prices.

Dr.A.Selvaraj and H.Chandra (2013) examined "Financial Health of the Indian Steel Companies". Financial health of selected steel companies with reference to liquidity, leverage, activity and profitability was identified with 'Z' score. On the basis of above analysis, it was clear that the financial health of small size steel companies were not satisfactory during the study period (Mean Z score = 1.65, in between 1.23 & 2.99). On the other hand, the medium and large size steel companies were in distress zone on an average over the period. It reveals that the financial health of selected steel companies was not in the safe zone during the study period. It was found that this may be due to failure to earn adequate surplus to meet non-operating activities and increase in EBIT did not match total assets and increased debt equity mix.

Statement Of The Problem

The Sugar Companies are facing many financial problems. Most of the sugar companies are operationally viable but suffering from working capital. Hence, It is the need to analyse the impact of working capital management on profitability and improve its firm's growth opportunities and return to shareholders. Therefore, the present study is made an attempt to analyse the impact of WCM on profitability of sugar companies in Tamil Nadu.

Objectives Of The Study

The following is the objective of the study.

To analyze the determinants of profitability by examining the sensitivity of Returns On Investment (Profitability) to changes in the level of working capital of the sugar companies in Tamil Nadu.

Hypothesis Of The Study

The null hypothesis was framed on the basis of the objectives of the study.

- There is no significant relationship between Current ratio, Quick ratio, Inventory turnover ratio and profitability.
- There is no significant relationship between working capital turnover ratio, Debtors as well as Creditors turnover ratio and profitability.

III. Methodology Of The Study

Sample Selection

The present study is purely based on secondary data. The required data were collected from the Prowess Data Base of CMIE (Centre for monitoring Indian Economy). The total Number of sugar companies in Tamil Nadu are Eleven (11) out of which five companies have been selected and the remaining were excluded from the study due to non-availability of data for the continuous period of 10 years.

Accordingly, the following five companies constitute the sample set for the study.

1. **Bannariamman Sugars Ltd (BSL)**
2. **Dharani Sugar & Chemicals Ltd (DSL)**
3. **EID-Pary (India) Ltd (EIDL)**
4. **Ponni Sugars (Erode) Ltd (PSL)**
5. **Sakthi Sugars Ltd (SSL)**

Period Of Study: The study covers a period of 10 years from 2004-05 to 2013-14.

Tools For Analysis

WCM Measures (Ratios)

For measuring the WCM, simple mathematical tool viz., ratio was extensively used. The ratios relating to WCM, which have been computed and used for the analysis.

Regression Analysis

In order to determine the impact of working capital on profitability of sugar companies, the Multiple Regression Model can be used. This model consists of a set of independent variables. The profitability is determined as Return on Investment (ROI).

$$ROI = b_0 + b_1\ CR + b_2QR + b_3WCTR + b_4DTR + b_5CTR + b_6ITR$$

Where b_0 = Constant
$b_1 \ldots\ldots b_6$ = Estimated Co-efficients
CR = Current Ratio
QR = Quick Ratio
WCTR = WC Turnover Ratio
DTR = Debtors Turnover Ratio
CTR = Creditors Turnover Ratio.
ITR = Inventory Turnover Ratio

Table – 1 Determinants of Profitability of Bannariamman Sugars Limited

	Coefficients	**t Stat**	**Remarks**
Constant	0.021	0.090	-
Current Ratio	-0.058	-0.959	NS
Quick Ratio	0.065	0.964	S*
WCTR	0.007	0.809	S**
DTR	-0.010	-0.582	NS
CTR	0.000	0.555	S**
ITR	0.059	0.951	S*
R2			0.790
Adjusted R2			0.371
F Statistics			39.851(NS)

Source : Computed

* Significant at 5% Level
** Significant at1% Level

Table – 2: Determinants of Profitability of Dharani Sugar & Chemicals Ltd

	Coefficients	t Stat	Remarks
Constant	-0.126	-0.829	-
Current Ratio	-0.020	-0.463	NS
Quick Ratio	0.021	0.365	S*
WCTR	-0.004	-0.953	NS
DTR	0.005	1.350	S**
CTR	0.000	0.281	S**
ITR	0.027	1.155	S*
R2			0.608
Adjusted R2			-0.175
F Statistics			5.383(NS)

Source : Computed
* Significant at 5% Level
** Significant at1% Level

Table – 3: Determinants of Profitability of EID Parry (India) Ltd

	Coefficients	t Stat	Remarks
Constant	-0.226	-1.023	-
Current Ratio	0.017	0.199	S*
Quick Ratio	0.065	0.692	S*
WCTR	-0.004	-3.983	NS
DTR	0.013	0.891	S**
CTR	0.000	0.136	S**
ITR	0.020	0.954	S*
R2			0.608
Adjusted R2			-0.175
F Statistics			27.382(NS)

Source : Computed
* Significant at 5% Level
** Significant at1% Level

Table – 4: Determinants of Profitability of Ponni Sugars (Erode) Ltd

	Coefficients	t Stat	Remarks
Constant	-0.911	-1.425	-
Current Ratio	0.716	1.024	S*
Quick Ratio	-0.603	-0.808	NS
WCTR	-0.002	-0.903	NS
DTR	0.001	1.039	S**
CTR	0.000	0.970	S**
ITR	0.151	1.452	S*
R2			0.504
Adjusted R2			-0.487
F Statistics			7.895(NS)

Source : Computed
* Significant at 5% Level
** Significant at1% Level

Table – 5: Determinants of Profitability of Sakthi Sugars Limited

	Coefficients	**t Stat**	**Remarks**
Constant	-0.083	-0.724	-
Current Ratio	0.033	0.473	S*
Quick Ratio	-0.025	-0.176	NS
WCTR	-0.001	-0.261	NS
DTR	0.002	0.335	S**
CTR	0.000	-0.415	NS
ITR	-0.002	-0.148	NS
R2			0.685
Adjusted R2			0.054
F Statistics			11.423(NS)

Source : Computed
* Significant at 5% Level
** Significant at1% Level

Analysis And Interpretation

Table 1-5 shows that CR experienced significant positive co-efficients of EIDL,PSL and SSL (0.017,0.716,0.033) and negative co-efficients of BSL,DSL (-0.058,-0.020) at 5% level with ROI indicating that higher CR increased the ROI and viceversa. Whereas QR experienced Positive co-efficients of BSL,DSL and EIDL (0.065,0.021,0.065) and negative co-efficients of PSL and SSL (-0.603,-0.025) at 5% level with ROI indicating that maintaining assets in terms of ready cash helps in increasing the profitability and otherwise reduce the profit of the concern. ITR regarded significant positive co-efficients of BSL,DSL,EIDL,PSL (0.059,0.027,0.020 and 0.151) and negative co-efficients of SSL (-0.002) with ROI which shows that lower ITR increased the ROI and vivaversa.

Hence,the null hypothesis (ie)Thereisno significant relationship between CR, QR as well as ITR and ROI is rejected with positive, negative and positive relationship respectively.

Working Capital Turnover Ratio (WCTR) recorded significant positive co-efficients of BSL,SSL (0.007, 0.001) and negative co-efficients of DSL,EIDL and PSL

(-0.004, -0.004, -0.002) at 5% level with ROI which means the companies maintained a larger proportion of Net WC when compared to sales and vivaversa. Debtors Turnover Ratio (DTR) recorded significant positive co-efficients of DSL,EIDL,PSL and SSL (0.005, 0.013, 0.001, 0.002) and negative co-efficients of BSL (-0.010) at 1% level with ROI indicating that Shorter period between credit sales and cash collection, smaller profitability and viceversa.

Hence, the Null hypothesis (ie)There isno significant relationship between WCTR,DTR and ROI is rejected with negative relationship between them.CTR recorded a positive co-efficients of all companies with profitability. So, the Null hypothesis is rejected and there is a significant relationship between CTR and profitability.The overall regression model fit which is represented by R2 is above 50% which shows that the explaining variables determine more than 50% of changes in profitability.

Concluding Remarks

The production of sugar is cyclical as it depends upon the sugarcane production. Dual pricing system is adopted in sugar companies, which includes sugar price in public distribution system and free sale sugar price. So, the companies are overburdened with surplus inventories that most of them do not have adequate storage facilities, capacities and cashflows which have led them to resort to distress sale of sugar which only brings down the prices. So,the Companies has to maintain an integrated and distinctivedepartment for management of inventory and it can work inliasion with finance department .Better cash position would earn credit confidence and reduce the risk of short term crisis.

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