CHAPTER I

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1.1. INTRODUCTION

"India is the largest consumer and the second largest producer of sugar in the world." [1] According to industrial circles, India produces the cheapest Sugar in the world, but it is out-priced in the international market because of the interference by the Government and the State. The Indian sugar industry is proud to be an industry, which spreads the taste of sweetness to the mankind. Sugar is generally made from sugarcane and beet. In India, sugar is produced mainly from sugarcane. It is India which introduced sugar-canes all over the world and is a leader country in making sugar from sugarcane.

Indian economy is a mixed economy where both Private Sector, public and Co-operative Sector sugar mills exist side by side. The first three five year plan period were remarkable during which period the New Sugar Mills were successfully constructed and brought under productivity.

As per the New Industrial Policy of July 1991, the private sector and entrepreneurs were allowed to play an increasing role in the sugar Industry. The Green revolution helped in the modernization of sugar industry to higher productivity. India has the largest area under sugarcane cultivation in the World. It accounts for the largest value of production amongst all the commercial crops. In India 2.8 lakh farmers are cultivating sugarcane over a very vast area of 4.4 lakh acres and 11 crore people are directly or indirectly dependent on the sugar industry in our country. Employment is also generated in various allied activities like transport, trade, manufacturing and servicing of machinery and supply of agricultural inputs. In India the Sugar Industries are the second largest agro-based Industries next to Textile; they play an important role in the economic growth of the rural areas and generate large scale direct employment. Besides that large scale indirect employment to rural population is also provided.

By the way, the Development of sugar Industry paved the way for increase in employment opportunities in India both directly and indirectly. The progress of the sugar Industry increased the percapita income of the people. The By-products of sugarcane are Bagasse, Press mud and Molasses. They are used for making paper, paper boards, packing paper, power, alcohol, Bio-Fertilizers, cattle feed and fuel for vehicles. These by-products reduce the overall cost of production of sugar. In the recent years most of the sugar Industries (Private, Public and Co-operative Sector) has successfully commissioned the Co-generation power projects and Ethanol project. The Industrial guideline of July 1991, new economic Policy with regard to de-licensing of sugar mills by the Government, was a boost to the sugar Industry. Which made the Sugar Industry to play an important role in the Indian economy, at present 529 sugar mills are functioning in our country. They all produced 263.40 lakhs Metric Tons of sugar during in 2011-12 crushing season. The Government of India, (Directorate of Sugar) offered both free sale and levy sale quantity of sugar every month (now the monthly or quarterly release mechanism is dispensed with from first of April 2013 onward) and also fixed the price for levy sugar sale (the levy obligation are also dispensed with from 2012-13 season). Table 1.1 Shows the Sugar Industries at a glance during 2010-11 and 2011-12 crushing seasons in India

TABLE 1.1

Indian Sugar Industries at a Glance

S.No	Particulars	2010-2011Season	2011-12 Season
1	Number of Sugar Factories in Operation	527	529
2	Crushing Capacity (million TCD)	24.17	24.84
3	Sugarcane Crushed (million tons)	239.80	256.97
4	Sugar Produced (million tons)	24.39	26.34
5	Recovery % Cane	10.17	10.25
6	Yield of sugarcane (tons per hectare)	70.1	70.3

Source: Indian Sugar Mills Association

Tamil Nadu Sugar industry contributes 10% of the total sugar production in India.The sugar industry in Tamil Nadu is now in crisis as that of the other rural industries. The sugar industry received a boom in 2008-09 season, but the era of crisis started from 2010-11 season, with the rise in the procurement price of sugar cane, surplus production and decline in the open market sugar price, made the industry and the sugar mills, to have a glut of stocks.

The Sugar industry in Tamil Nadu have come out as a tool for distribution of economic growth and therefore the Government decided to set up nine new sugar mills in the state. The new mills have been set up with the following guidelines to function as an integrated Sugar complex. The State Government delimited the Cane areas for establishment of nine new integrated Sugar complexes with different options of co-generation, distillery and ethanol production, tissue culture lab, soil testing lab, bio-composting and the like. At present the Tamil Nadu sugar industry comprises of 46 Sugar Mills, with 16 of them in the co-operative sector, 3 sugar mills in public sector and 27 Sugar Mills in the private sector. In total, 43 Sugar Mills are functioning as on31st March 2012 , In fact the Co-operative Sugar Industries are functioning under the control of the Commissioner or Director of Sugar, who is the functional Registrar of Co- operative societies in respect of sugar mills .

1.2. STATEMENT OF THE PROBLEM

Sugar is a consumer product, it comes under essential commodity act and every person, whether rich or poor, is interested in its availability with sufficient quantity and at a reasonable price. Since it is a common food product and in order to lessen the burden on the weaker section of the society, the Government resorted to dual pricing policy for this product. Controlled sugar at a fair price for public distribution system and free sale sugar at a higher price or of the market price. In view of the impact of price of sugar on the common man's budget, any saving effected in the cost of production of sugar bring down the price of sugar .The Co-operative Sugar Mills actively participate in growth of state as well as Indian economy. It covers 4.4 lakhs acres of cultivated area and crushing 256.38 million tons of sugar cane, further it provides employment opportunities to 2.8 lakhs of people of Tamil Nadu. Its production, fixation of price and overall managerial affairs are controlled by Government of Tamil Nadu. In a particular situation, the price is fixed on the basis of last year trends in production, its cost and other economies of previous years. Hence the sugar Industry particularly Co-operative Sugar Industries in Tamil Nadu have incurred heavy losses. Table 1.2 clearly shows the scenario of statement of profit and loss for Tamil Nadu Co-Operative Sugar Mills for the study period from 2003-04 to 2011-12.

TABLE 1.2

Statement of Net Profit or Loss for Tamil Nadu Co-op Sugar Mills in Tamil Nadu

	Statement of Net Profit or Loss for Runing Co operative Sugar Mills in Tamil Nadu								
	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12
AmaravathiCSM	-430.67	-447.14	-936.18	-49.71	-535.44	**51.5**	**441.2**	-574.61	-920.83
AmburCSM	-703.41	-385.72	-559.97	-1592.38	**96**	-1764.65	-925.94	-632.28	-1350.48
Chengalrayan CSM	-52.89	-828.37	**575.65**	-1145.53	-3514.98	**331.31**	-304.74	-26.83	-2182.65
Cheyyar CSM	**372.09**	**571.99**	**392.61**	-305.66	-928	**778.5**	**2160.97**	**67.8**	-399.66
DarmapuriCSM	-472.43	**337.43**	109.35	-660.69	-2037.89	**920.18**	**2258.73**	**1013.46**	-29.39
K1CSM	-467.48	**233.24**	-1257.88	-2415.28	-3099.29	**1016.21**	**2329.785**	**291.91**	-3125
K2CSM	**258.33**	**605.06**	**918.63**	**380.37**	-746.1	**1118.12**	**2187.55**	**635.81**	**917.66**
MRKCSM	**439.58**	**828.21**	**27.67**	-644.59	-2226.16	**342.14**	**904.1**	-1166.5	-1986.68
NPKRRCSM	-1530.02	-1315.2	-1662.78	-2667.53	-3789.86	-1412.76	-1157.86	-2888.62	-2628.27
National CSM	-1212.77	-1275.85	-1395.24	-2000.39	-3313.64	-1625.27	-208.61	-1520.8	-1687.7
SalemCSM	-737.07	-365.69	-234.45	**79.08**	-1493.44	**1666.72**	**3536.75**	**499.02**	**235.21**
S.SivaCSM	-378.89	**608.78**	-122.92	**57.2**	-1380.96	**747.68**	**3998.16**	**547.69**	**452.36**
TiruthaniCSM	115.39	-1063.49	-888.24	-2042.81	-3064.31	-879.52	-1192.29	-1461.73	-1943.08
TirupatturCSM	-639.05	-319.13	-434.51	-1311.93	-1935.88	**489.01**	**69.47**	-374.89	-811.24
VelloreCSM	-168.45	**209.05**	-138.87	-1566.32	-2262.38	-60.31	**283.09**	-390.96	-1005.27

Source: Secondary Data

The Co-operative sugar Industries in Tamil Nadu are incurring heavy losses in every year (Except 2008-09, 2009-10 years, K2CSM, S.Siva CSM, Salem CSM sugar mills) due to:

I. High Sugar losses in milling and process and also due to non-availability of value added projects like co-generation, distillery cum ethanol and due to lack of modernization.

II. High rate of wages for workers and low productivity.

III. High rate of interest on term loan and working capital loan.

IV. Higher cane price paid to cane growers.

V. Lower selling price in the market of sugar.

VI. Fluctuations in the sales realization of by-products.

The Management of sugar industries is focusing their attention towards minimizing the cost. This cost control and cost reduction measures can be taken through management accounting practices to overcome the financial problem faced by these Co-operative sugar mills.

In such a difficult mode of operandi, these mills have to face competition from public and private limited companies. Irrespective of competition from these companies and is controlled by Central or State Government, these Co-operative Sugar Mills have its own management affairs, accounting system, decision making process and the like. Therefore, the following issues are becoming relevant to the study.

1. Analyzing the Working Capital Management particularly Z-score model analysis in Co-Operative Sugar Mills in Tamil Nadu
2. Assessing the Break-even point particularly Break-even Recovery, Cutoff Recovery, Break-even Sugar production, Break-even cane crushing, Break-even Sales (Revenue)
3. Analysing effect of the change in Sugar Cane Price Fixation Policy
4. Studying the practice of cost of by product

1.3. REVIEW OF LITERATURE

Sugar industry is very much related to economics of common man because sugar is a commodity of daily necessity. It is a multi-faceted industry and therefore is a challenging subject of study and research. Even then there has been hardly any comprehensive study on important aspects of the industry encompassing the Country. Even the total numbers of studies are limited by number and by coverage. They are either in the form of case studies covering one or a few mills or a region. Even with this limitation they discover knowledge, facts and trends in this industry that has helped in formulation of policies at State as well as at National level.

Agarwal[2] studied working capital management on the basis of sample of 34 large manufacturing and trading public limited companies in ten industries in private sector for the period 1966-67 to 1976-77. Applying the same techniques of ratio analysis, responses to questionnaire and interview, the study concluded that the working capital per rupee of sales showed a declining trend over the years but still there appeared a sufficient scope for reduction in investment in almost all the segments of working capital. An upward trend in cash to current assets ratio and a downward trend in cash turnover showed the accumulation of idle cash in these industries. Almost all the industries had overstocking of raw materials shown by increase in the share of raw material to total inventory while share of semi-finished and finished goods came down. It also revealed that long-term funds as a percentage of total working capital registered an upward trend, which was mainly due to restricted flow of bank credit to the industries.

Amin[3] focuses attention on the cultivation of sugarcane by small farmers in Gorakhpur region. He analyses the socio-economic and cultural conditions, under which these small farmers became dependent upon traders, landlords and other intermediaries for marketing sugarcane for the production of crystal sugar.

Anekar.R.B.[4] discussed various of co-operative sugar mills in his thesis titled "Economic survey of the Cooperative Sugar mills in Maharashtra". He included 20 co-operative sugar mills in his study. Sugar mills, their capital structure, cost structure, marketing methods and labour practice were the major factors that were discussed by him. He stated that sugar mills have greatly in-fluenced the social structure of the State and have provided a number of economic and occupational opportunities to the people in the vicinity. He has compared practices in cooperative sugar mills with those of joint stock companies.

Anitha S.Kantawala[5] , in his study on financial performance of non-banking finance companies (NBFCs) in India, has concluded that there existed a significant variation in the profitability ratios, leverage ratios and liquidity ratios of various categories of NBFCs. She concluded that the analysis of variance along with the details the average ratio may become a useful guide to companies so as to decide for continuation or otherwise in same line of business considering the overall profitability within the regulatory frame work.

Appavadhanulu [6] recognizing the lack of attention being given to investment in working capital, analysed working capital management by examining the impact of method of production on investment in working capital. He emphasized that different production techniques require different amount of working capital by affecting goods-in-process 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. Different techniques would also affect the stock of raw materials and finished goods, by affecting lead-time, optimum lot size and marketing lag of output disposals. He, therefore, hypothesised that choice of production technique could reduce the working capital needs. He estimated the ratio of work-in-progress and working capital to gross output and net output in textile weaving done.

Ardekanian[7] studied the relation between working capital management and profitability. The author applied different financial ratios such as Account Collection Period (ACP), average inventory period, Average Payment Period (APP) and Cash Conversion Cycle (CCC) to analyze working capital management. To measure profitability, one of profitability ratios was used.110 companies in 17 industries were selected using screening method and were studied in 6 years. The data required for research were gathered from Tehran Stock Exchange and Pearson correlation coefficient and regression analysis were applied to analyze data. The results indicated that there was a negative relation between working capital management and profitability. Negative relation means that assertive policies in working capital management increase profitability while conservative strategies will lead to cut down of profitability.

Asiya Siddiqi[8]in his an Analyzing the effects of early nineteenth century review settlements, **has commented** that the subsistence element in (the peasant) economy was undermined and monetization was induced, not because (the peasant) had a surplus to exchange but because of the necessity of paying his installment of revenue forced him to sell even his food and stock have highlighted the linkage of regional production of indigo, cotton and sugar to the overseas and a growing home market in the first half of the nineteenth century.

Attwood Donald[9] studied another dimension "Capital and the Transformation of Agrarian Class System. A Case Study of Sugar Production in India". In this paper the author has raised two issues: (i) Why do some agrarian systems generate more economic growth than others and (ii) Why do some undergo structural transformation leading to further growth, while others stagnate? These issues have been discussed in terms of different kinds of agrarian class systems which either promote or inhibit economic innovations, and economic forces in terms of different levels of capital investment and managerial skills required for different levels of production and distribution systems. His conclusion is that ownership control of land is not relevant to the productivity of sugarcane farm in Maharastra while R.K. Gupta feels that it is the landed interest which could increase sugarcane cultivation and in turn sugar production in Birbhoom district of West Bengal.

Basavraj S. Benni[10] studied the physical and financial performance of twelve co-operative sugar factories during 2001-02 with the help of Ratio Analysis and Multivariate Econometric Technique Method. The study revealed that the physical and financial performance indicators influenced the total performance of sugar co-operative factories and concluded with a remark that in the total sugar production cost, cane conversion cost was greater than the cane cost.

Baviskar. B.S.[11] has made an extensive and intensive study of Kisan Co-operative Sugar Factory, Kopergaon. He has discussed the criteria of measuring success of cooperative sugar mills and on the basis of these determinates has evaluated the success of the said factory. Emergence of cooperative sugar mills has brought an important change in the life style of people in rural Maharashtra. Co-operative sugar mills have also brought a change in the character and style of politics in rural Maharashtra.

Chakraborty[12] approached working capital as a segment of capital employed rather than a mere cover for creditors. He emphasized that working capital is the fund to pay all the operating expenses of running a business. He pointed out that return on capital employed, an aggregate measure of overall efficiency in running a business, would be adversely affected by excessive working capital. Similarly, too little working capital might reduce the earning capacity of the fixed capital employed over the succeeding periods. For knowing the appropriateness of working capital amount, he applied Operating Cycle (OC) Concept. He calculated required cash working capital by applying OC concept and compared it with cash from balance sheet data to find out the adequacy of working capital in Union Carbide Ltd. and Madura Mills Co. Ltd. for the years 1970 and 1971. He extended the analysis to four companies over the period 1965-69 in 1974 study.[13] The study revealed that cash working capital requirement were less than average working capital as per balance sheet for Hindustan Lever Ltd. and Guest, Keen and Williams Ltd. indicating the need for effective management of current assets. Cash working capital requirements of Dunlop and Madura Mills were more than average balance sheet working capital for all year's efficient employment of resources. For Union Carbide Ltd., cash working capital requirements were more in beginning years and then started reducing in the later years as compared to conventional working capital indicating the attempts to better manage the working capital. Chakraborty emphasized the usefulness of OC concept in the determination of future cash requirements on the basis of estimated sales and costs by internal staff of the firm. OC concept can also be successfully employed by banks to assess the working capital needs of the borrowers.

Chenhall[14] and others ,Survey based empirical research on management accounting can be divided into two main types of studies. The first group of studies refers to management accounting as the independent variable. Such surveys examine in which way management accounting has a significant impact on outcome-variables which differ with the respective studies. Some of these outcome-variables are the usage respectively the usefulness or the efficiency of the information generated by management accounting, the effect of changes in the **MAS** on stock prices or the impact of the structure and sophistication of the MAS on corporate performance. The second group of studies refers to management accounting as the dependent variable. These studies are driven by the question whether there are contextual factors which have a significant contribution to explain the wide range of structures, sophistication and use of instruments of management accounting systems observed in practice. Such a search for contextual factors is often preceded by basic considerations of the contingency theory. This theory proposes that special organizational features of companies and institutions are mainly caused by certain external and internal factors Contingency theory originally referred to the influence of contextual factors on the organization as a whole. Transferred to management accounting, this leads to the assumption that structure, organization and functions of specific MASs depend on certain contextual variables. The most important variables to which former studies attribute a significant impact on management accounting comprise the external environment, especially its uncertainty, production technology, the organizational structure, the company size, the strategic orientation and national culture. Furthermore in other studies an influence of IT and the grade of diversification could be identified.

Debasis Sur, Kaushik chakraborthy and Santanu Das[15] in his study, related to working capital management on Balmer Lawrie & Co Ltd., found that the company was averse to risk of maintaining lower level of current assets. The regression result showed major variation between actual and anticipated working capital in all the years in the study. The trend analysis of turnover and working capital of the company showed that the changes in the investment of working capital did not have any impact on the trading activity of the concern. Such a mismatch revealed the inefficiency of working capital management of the company in this study

Debasis Sur[16] conducted a study on measuring the efficiency of asset management of private sector enterprises in India during the pre and post liberalization periods. It was concluded in this study that the efficiency of the inventory management was achieved in the post- liberalization period as compared to the pre-liberalization era. The average turnover of fixed assets and the average efficiency of the cash management have declined considerably during the post-liberalization period as compared to the pre-liberalization era. It reflected on various assets during the post liberalization period. It also signified that the selected company failed to adapt itself to the challenging and competitive environment resulting from liberalization.

Desai B.H[17], in his study of financial performance, had used Altman's equation. He identified that low profitability was attributed to low rate of return on total assets. By using Z score analysis, he concluded that Gujarat Steel Tubes Ltd. was sick and felt that financial restructuring was the need of the hour.

Dev Prasad, Garry D.Broton and Andreas G. Merikas[18] have analyzed to confirm the linkage between the capital structure and strategic posture of the firm. Specifically, managers were found to structure the selection of debt and capital intensity in a mean consistent with the strategic goal of long run control of systematic risk. This study has identified that the efficacy of a strategic perspective of capital structure will be examined by investigating the control of systematic risk in firms over the long-term through adjustment of the firm's capital structure.

Devekar. P.N.[19] in his studied “the sugar industry in Bombay division. In his study he explained development of sugar industries and their problems. And also explained economics of sugarcane and sugar with reference to the irrigation, transport, manufacturing etc. The study points out the necessity and importance of sugar co-operative in the Indian economy.

Dheenadhayalan. V and Devianbarasi. R [20] In their case study with NPKRRCSM under title of "Financial Management Practice in Co-Operative Sugar Mills". Financial management is that managerial activity which is concerned with the planning and controlling of the firm's financial resources and is also a vital area for the success of every business. And they attempt to study the financial management functions such as long-term asset mix, short-term asset mix and profitability in the cooperative sugar industry.

Dr.A.P.J.Abdul Kalam[21] had a word for the sugar technologists, that they have to create a partnership between agricultural scientists, extension workers and farmers, so that there is persistent effort to increase the per hectare productivity in all the states of the country taking the experience of high yielding varieties of different states.

Dr.Harbir Sing[22] in his study states that there are certain areas in which substantial efforts are urgently required to keep the company on an uneven keel. The company can improve its financial health, if it adopts a technique of more scientific control on raw materials, stores and spares and strives to reduce the unprofitable investment blocked in loan and advances and other current assets. To regulate the cash flow, it is imperative that a weekly cash flow statement and a cash budget be prepared on a regular basis. These measures will hopefully enable the company to make a real breakthrough and place it in the forefront of the Sugar Industry.

Dr. Kanagaraju. P. [23] in his presentation on " A Study on Working Capital Management in Tamilnadu Sugar Corporation Limited (TASCO)" has given the following conclusion 'Indian sugar industry, second agro-based processing industry after the cotton textile industry in India, has a lion's share in accelerating industrialization process and bringing socio economic changes in under developed rural areas. Sugar industry covers around 7.5% of total rural population and provides employment to 5 lakhs rural people. About 4.5 crore farmers are engaged in sugar cane cultivation in India. Sugar mills (co-operative, private and public sector) have been instrumental in initiating a number of entrepreneurial activities of rural India. Tamil Nadu public sector sugar mills incurred losses for the five years ended 31st March 2005 **a**nd their paid up capital as on that date had been completely eroded by the cumulative losses. Arignar Anna sugar mill has incurred a loss of Rs. 6.04 crores (provisional) in 2004-05, while Perambalur sugar mill incurred a loss of Rs. 5.80 crores. The main reason for the losses incurred by these two mills was the heavy interest burden on funds borrowed from the government and other public sector undertakings. These borrowed funds were utilized as working capital that is. to make payment for sugar cane procurement. Public sector sugar mills could reduce the working expenditure, the sugar mills should also be allowed to diversify their operations to increase the revenues. Byproducts of the sugar mill viz., baggage, molasses and press mud, should be gainfully utilized for increasing the rename of the mills.

Dr. Neeraj Kumar Gupta [24] in his paper under the title of ‘Financial Wealth Health of Co-Operative Sugar Mill’ .Financial health is the Stepping stone for the economic activities in every business Enterprise. Financial health reflects the success of the sugar mills. The scenario circles around diagnosing the wealth health of sugar mill by peeping deep into the annual reports of the concerns.

Durai. R.[25] conducted field experiments during the seasons 2001-02 and 2002-03 in order to find out suitable nutrient chemical/ growth regulator to induce drought tolerance. The pooled data of two years plant and one year ratoon collected from the experiments were tabulated. The study revealed that among the treatments, toiler spray of salicylic acid on sugarcane crop under water stress conditions favour for faster growth and there by recorded higher cane yield of 25 to 30 percent as compared to unsprayed.

Etgar.R.[26] has concluded that Vertical co-operation enables downstream channel members to share their market knowledge with upstream channel members and also use this knowledge to develop strategies and tactics that successfully match offerings to the needs and demands of target markets.

Frango Modigliani[27] highlighted the impact of capacity utilization on inventory investment. Existing stock of inventories is expected to take account of adjustment process to the desired levels. Thus the variable, existing stock of inventories, is postulated to be negatively related with the desired stock. The ratio of inventory to sales may affect inventory investment positively because a high ratio of stocks to sales in the past suggests the maintenance of high levels of inventories in the past and thus also calling for high investment in inventories in the current period.

Gaur.G.[28], ex-financial advisor of National Federation of Co-operative Sugar Factories made an attempt to explain the financial norms and classification of fixed and variable costs applicable to the co-operative sugar mills. In his concluding remark said that any improvement in productivity both in the field and factory would provide level playing ground to the Indian Sugar Industry to face the competition in future.

George.S.[29] in his study he explained that it was cross section analysis of balance sheet data of 52 public limited companies for the period 1967-70. Accelerator, internal and external finance variables were considered in the equations for raw materials including goods-in-process and total inventories. However, equations of finished goods inventories considered only for output variable. Accelerator and external finance variables were found to be important.

Hanchinmani S.N.[30] has done the financial analysis of co-operative sugar factories in *Belgaum* district of Karnataka with a sample size of one unit. The annual reports and manufacturing reports from 1990-1994 were used as secondary data. The main objectives were to access the financial position of co-operative sugar factory under study and to evaluate the financial operations and performances with the help of financial ratios. The parameters used in the study were, Financial Structure = Capital Structure + Current Liabilities; Capital Structure = Total Owned Fund + Term Loan; and Assets Structure = Fixed Assets + Current Assets. The study revealed that there were disproportionate relationship between different financial variables and standards; the co-operative sugar factory had a weak financial base, more dependent on bank loan; and the professional management yet to step in co-operative sugar factory.

Hilage. V.M [31] studied the growth of sugar industries in India in general and co-operative sugar sector in Maharashtra in particular. The main objective of the study was to take review of methods of performance analysis and **determines** to evaluate the performance of two selected units situated in southern Maharashtra and to study the top management style and climate of the organization for the period from 1976 to 1986. The study revealed that the Cooperative. Act 1904 played a significant role till 1947 in sugar sector. But the co-operative sugar sector suffered from financial weaknesses, lack of professionalism, under developed marketing system and the low production of sugar. It is a case study of two units; the stratified random sampling was used for selection of farmers and members from 50 villages from the study area. The opinions of the middle level management were obtained by personnel interview also.

Hussein A. Hassan Al-Tamimi and Ahmad M. Lootah[32] describes that weak management, size, liquidity, and diseconomies of scale with respect to personnel were identified as the main sources of inefficiency. Oral and Yolalan measured the operating efficiencies of a set of 20 bank branches of a major Turkish commercial bank. They concluded that the younger the age of the branches, the smaller the number of personnel, the higher the number of active accounts, the bigger the size of administrative expenses, and the proximity of branches to newly urbanized sections of the cities, the most efficient the branch.

Jai Ghorpade[33] conducted the study of relative organizational effectiveness using two measures of efficiency as the criteria of success:

$$\text{Sugar Losses} = \frac{\text{Sugar content of sugarcane} - \text{Sugar recovered}}{\text{Sugar content of sugarcane}} \times 100$$

$$\text{Work Hour Losses} = \frac{\text{Controllable work hours lost}}{\text{Actual Hours worked}} \times 100$$

As criteria of effectiveness, these two indices are designed to measure the overall operating efficiency of the enterprises signified in their ability, to minimize the costs incurred in transforming a resource (sugarcane) into a usable output (sugar). It may be mentioned, that both of these indices are commonly used by sugar factory officials in India, for assessing the general efficiency of sugar factories.

Jain.N. S.[34] in his study title "Regional Economic Planning in Sugar Factory Area" with the help of a case discussion has studied the functions of local planning agencies that can be taken up by cooperative sugar mills. His conclusion is that the area of the cooperative sugar factory did not develop considering the growth in irrigation facilities, agricultural development and generation of employment opportunities in the area.

Joshi. C.J. [35] developed a study under title "Analysis of the Finances of sugar mills in Kolhapur district". His hypothesis is, given the most congenial environment for running cooperative sugar mills in Kolhapur district, the enterprises besides being the precursors of rural development over a period of time, emerged as commercial units with sound financial health, owing to sagacious financial management. He has studied finances of all the eleven cooperative sugar mills in Kolhapur district. Using the ratio analysis and working capital structure as tools of analysis he has ranked the mills in Kolhapur district. He selected seventeen ratios from liquidity, solvency, efficiency and profitability groups. To find out the style of day to day using of money at their disposal he employed the tool of working capital management. Financial performance of sugar mills did not rest conspicuously on operationally related factors. Performance results are mostly the products of attitude, policies, practices and wisdom of factory and bosses

Kamat.G.S.[36] in his doctoral thesis title "Management of Cooperative Sugar mills in Maharashtra" has discussed four major aspects of cooperative sugar mills namely production, financial structure, management and labour. He argued, if cooperative sugar mills are to become successful they must begin from managing cultivation of sugar cane by farmers. On production front the performance of 14 Co-operative sugar mills in Maharashtra had paid regard to the principles of good financial management and also to the principles of cooperation and successfully reconciled them. They have conferred many benefits on the cultivators in an unorthodox manner. There is a need to develop cost consciousness in managers in cooperative sugar mills. There is a need to have a new look to the administration of finance. The Board of Directors of cooperative sugar mills works in a peculiar way of solving grievances of individual members and interfering in the functioning of the subordinates. Development of democratic control in cooperative industrial structure is a complex process. It is necessary to develop staff relationships of a typically cooperative character because it resembles to the personnel practices in private sector.

Khan.M.Y. and Jain. P.K.[37] says in their book 'Management Accounting' that, profitability is a measure of efficiency and search for it provides an incentive to achieve efficiency. Profitability also indicate public acceptance of the product and shown that the firm can produce completely. Moreover, profit provides the money for repaying the debt incurred to finance the project and recourses for internal financing of expansion.

Kharche.R.M [38]has studied sugar mills under the caption "Co-operative Sugar mills in Maharashtra - A Critical Study". He selected five sugar mills on the basis of representative sampling method from the five districts of Marathwada. Low recovery of sugar, excess expenditure on staff and underutilisation of capacity is the problems that sugar cooperative face. They face shortage of sugar cane causing heavy losses. Managements of sugar mills do not take adequate steps to generate internal sources of funds and also control expenditure on staff. It is necessary that sugar mills take steps to increase per hectare yield of sugar cane. Government should adopt policy of licensing new cooperative sugar mills in backward region where potential of sugarcane production exists.

Krishnamurty[39] in his study he explained that it was aggregative and dealt with inventories in the private sector of the Indian Economy as a whole for the period 1948-61. This study used sales to represent demand for the product and suggested the importance of accelerator. Short-term rate of interest had also been found to be significant.

Krishnamurty. S and Sastry. D.U. [40] in theirs the most comprehensive study was on manufacturers' inventories. They used CMI data and the consolidated balance sheet data of public limited companies published by RBI, to analyse each of the major components *i.e.* raw material, goods-in-process and finished goods for 21 industries over the period 1946-62. It was a time series study but some inter-industry cross section analysis had also been done. Accelerator represented by change in sales, bank finance and short-term interest rate were found to be important determinants. Utilization of productive capacity and price anticipations had been found to be of some relevance. Another study conducted by them in 1975 analyzed inventory investment in the context of flexible accelerator with financial variables. Both RBI and Stock Exchange, Official Directory, Mumbai data for seven important industries had been taken for the period of 1956-69. Their study of pooled cross section was in current prices whereas time series analysis based on RBI data was in constant prices. OLS results showed the important influence of accelerator, internal and external funds flow and fixed investment on inventory investment.

Lallanji Gopal[41] In a study of “The most significant contribution on sugar making in ancient period”. This is a well-researched piece of work giving the origin of sugarcane and its cultivation and the art of sugar making using as sources ancient documents like *Atharvaveda*, *Charaka Samhita* and *Sushruta Samhita* and the subsequent *sutras*. It elaborates on various forms of sugar which were made from cane juice and its uses. The paper also lists various fruits used as a source of sugar.

Lawrence.E.[42] examined status of working capital management in 300 companies including 150 companies with high level of sales and 150 companies with low level of sales. He aimed to consider different methods of working capital management which are applied in varied size companies and also to provide a general view from common approaches used by all companies. Lawrence (2000) concluded that there are differences between developed working capital, management methods and approaches which are applied in companies

Lawrence sports[43] his study titled “working capital management policy paper M.B.A. 550 January, 2008 University of Phonics stated that **within** 10 days changing financial business environment, a company must maintain in 10 days changing financial viability by adhering to the basics of a business strategy which is to be profitable and continually increase revenues for share- holders a company by the name of low Rene sports is no expectation to the challenging decisions on a working capital policy. A financial manager was recently hired by Lawrence sports to help with the current capital management challenges and opportunities Lawrence sports needs to develop a working capital policy, cash balance required credit policy suppliers negotiation strategy short term financing and measuring matrices to monitor performance against policy.

Lokesh. G.B.[44] a Case study of Sugar Industry in Karnataka **under** title of “Financial Performance of Agro-Based Industries” is a comprehensive analysis of trends of the sugar production and financial performance of sugar firms set up in the public, cooperative and private sectors. The author has made genuine efforts to examine the financial performance of the sugar industry starting from the firm level to the state and national levels. The book also covers the current policy and policy options for improvement of the industry in Karnataka. The author provides a comparative analysis of the sugar units set up in the public, private and cooperative sectors in Karnataka. SWOT analysis is used to examine the functioning of the sugar mills. On the whole, the book is a very valuable addition to the existing literature on the financial performance of agro-based industries, especially the sugar industry in the state as well as in the entire country.

Manickam. G. *et al.* [45] conducted field experiments to evaluate the performance of three early season sugarcane clones *viz.,* C960696, Si96129 and G96736 along with five standards (Coc98061, Co86249, Co86032, Co8021 and Cosi95071) for their cane yield, juice, quality and sugar productivity during 2002 to 2004. The result revealed that the new clone C96696 significantly registered the highest mean cane yield of 160.49 MT and 154.67 MT t respectively in plant and ratoon crop. The same clone registered the highest commercial cane sugar percent of 12.62 in plant and 12.68 in ratoon crop.

Mansur Mulia. A[46], in his study on financial health of textile mills, found that the textile mill under the study was just on the verge of financial collapse. The financial health of the mill was never in the too healthy zone during the period of study. The position on its performance front was very unviable and apprehensions of the total failure of the mill were inevitable and certain. The mill has faced the problem of overtrading owing to the inadequate level of working capital

McDonald.S.[47] extended the work on the EU sugar policy to explore the implications of a reform for African, Caribbean and Pacific countries. He showed that there are significant reductions in income transfers and that the Caribbean countries plus Fiji and Mauritius bear the heaviest loss. In a similar manner, Milner, Morgan and Zgovu (2004) explored the way in which a reform will affect the transfers of welfare to the ACP countries. The authors take into account the fact that OECD sugar reform can affect both domestic and world prices. They concluded that while some countries would lose due to decreased transfers, others may gain due to the impact of sugar reform has on world prices. They argue that the differences are due to the uneven allocation of preferential quotas across protocol countries and the highly differential dependence of the countries on EU and non-EU export markets.

Mintz.W.S.[48] he feels that sugar, whether its origin is from cane or beet, is today regarded as a mass consumption item and it also accounts for a large share of the total calorie intake of an average household. This universality of sugar is of recent origin and is closely related to the global expansion of European power. The author attempts to review the link between the increasing European, especially English, household sugar consumption and the English economic power. Sugarcane was first domesticated in New Guinea around 8000 B.C. and was carried to India about 2000 years later, though it is evident from Atharvaveda and Charaka Samhita that India was the home of sugarcane since ancient times. However, it was only around the eleventh century that evidence of European knowledge is available (Southern Europe from Italy) and Asian or Arab sugar in significant quantity arrived in Europe. During the

10th to 12th century, knowledge about sugar spread throughout Europe. Till the 16th century, sugar was used as medicine rather than as sweetener in Europe leave alone as a food item. From medicine to a luxury sugar became a necessity only in the 19th century. Mintz uses both historical and anthropological skills in exploring the importance of sugar in the consumption basket of European households, both because it is so recent and so obviously linked to the outward expansion of Europe. Finally, Mintz discusses how questions of power, social status and hierarchy are inevitably intermeshed with questions of how people live their lives, how they organize their livelihood, the habits associated with consumption, production and so on. Sugar contributed not only to the enrichment of the imperial ruling class, but also helped in winning over to the latter side the growing proletarian class by making it a product whose increasing consumption visibly symbolized their upward social visibility. This was also strengthened by the arguments that the readiness of working people to work harder in order to be able to earn and thus consume more was a crucial feature of the evolution of modern patterns of eating.

Mishra.K.K.[49] has prepared the study under title as "Sickness in Indian Sugar Industry". As a partial fulfilment of the Advanced Professional Programme, he collected data on cost, realisations of profitability of mills from each of the sixteen zones. He could pinpoint four factors as basic causes of sickness a) Lack of availability of good quality cane with reasonable distances from mills, b) High cost of conversion, c) Pricing of sugar cane, and d) Pricing of sugar. Proper sugar cane management, timely repairs and maintenance of plant and machinery, control on cost of conversion, maintenance of parity between the returns obtained by growers from sugarcane and other competing crops, adequate provisions for inclusion of interest cost, minimum bonus and return on investment in determining price of levy sugar can save many mills from falling sick.

Misra[50] studied the problems of working capital with special reference to six selected public sector undertakings in India over the period 1960-61 to 1967-68. Analysis of financial ratios and responses to a questionnaire revealed somewhat the same results as those of NCAER study with respect to composition and utilization of working capital. In all the selected enterprises, inventory constituted the more important element of working capital. The study further revealed the overstocking of inventory in regard to its each component, very low receivables turnover and more cash than warranted by operational requirements and thus total mismanagement of working capital in public sector undertakings.

Misra.D.P and Mishra P.K. [51] , in their study on profitability, analyzed the factors influencing the profitability of Sugar Industry. The factors that have assumed a direct bearing on profitability are: Growth in size, growth in volume of business, operating cost ratio, leverage, liquidity, receivables turnover, fixed assets turnover and age. Their conclusion revealed that the variations in profitability was caused by the factors, namely, operating cost ratio, liquidity ratio and fixed assets turnover ratio.

Mrs. Prabha.R.[52] in her study revealed that the Sugar mills (cooperative, private, and public) have been instrumental in initiating a number of entrepreneurial activities in rural India. Indian sugar industry can be a global leader, provided, it comes out of the vicious cycle of shortage and surplus of sugarcane, lower sugarcane yield, lower sugar recovery, ever increasing production costs and mounting losses. There is a considerable scope for further reduction in the cost of production of both sugarcane and sugar in India, with liberalization of controls on the sugar industry. Consolidation of land holdings and corporate farming on the raw material side and expansion of capacity on the unit size are important developments, and would lead to substantial improvements in productivity, thereby rendering India a cost-effective producer of sugar, in the world. In the current scenario of glut in sugar production, it may be advisable to divert such additional cane for the production of alcohol, after meeting the sweetener requirement. Such flexibility has become very relevant in the current scenario of economy, liberalization and more particularly, as a means to correct the aberrations in sugar production. The sugar policy of the Government has been seriously lacking a long-term perspective. Controls, decontrols, partial controls, etc. have been used in the past and in ad-hoc manner. If there is more liberalization in this sector, India has the potency to become the world's biggest exporter by removing the missing leads. The cooperative sugar sector in Tamil Nadu is facing various problems than the private sugar sector, and if these are solved in time, then it will be possible for the cooperative sector to compete with the private sector. Healthy competition leads to the growth of the sugar industry, and thereby the country.

Naquvi.R.K.[53] described various centers of sugar production in upper India during 16th to 18th centuries. She dwells upon methods of sugar manufacturing, practices of sugarcane cultivation and the regional variations. She elaborates upon the trade in sugar covering various center's from where sugar was being exported and places to which it was being exported on account of the East India Company.

National Council of Applied Economic Research (NCAER) [54] has conducted a study for working capital management in three industries namely cements fertilizer and sugar. This is the first, small but fine piece of work in 1966. This was the first study on nature and norms of working capital management in countries with 'scarcity of investible resources'. This study was mainly devoted to the ratio analysis of composition, utilization and financing of working capital for the period 1959 to 1963. This study classified these three industries into private and public sector for comparing their performance as regards the working capital management. The study revealed that inventory constituted a major portion of working capital *i.e.* 74.06 per cent in the sugar industry followed by cement industry (63.1%) and fertilizer industry (59.58%). The study observed that the control of inventory had not received proper attention. The inventory control was mainly confirmed to materials management leading to the neglect of stores and spares. So far as the utilization of working capital was concerned, cement and fertilizer industry had a more efficient utilization of working capital. The sugar industry had inefficient utilization of working capital largely due to the accumulation of stock with the factories. As regards financing of working capital, the study showed that internal sources had contributed very little towards the financing of working capital. It was 11.87 per cent in the cement industry, 15.03 per cent in sugar and 31.25 per cent in fertilizer industry, 17.78 per cent being the average. However, this study failed to put into sharp focus the various problems involved in the management of specific working capital accounts.

Nikam.G.A.[55] selected nine sugar mills from different districts of Maharashtra to analyse their cost structure, cost components, total cost/ trends of changes in cost, financial strength and profitability. His study is captioned as "Inter-Regional Financial Statements - Analysis of Sugar Cooperative in Maharashtra". Most of the sugar mills have narrow capital base. Even compared to net worth of the mills share capital was very little and therefore the sugar mills had to rely upon borrowed capital. Proportion of general expenditure and administrative expenses was much higher as compared to that in private sugar mills.

Owen Irvine.F.[56] in his study noticed that the estimated co-efficient on the capital cost measures were not only negatively signed but also they were statistically significant .And he concluded that the effect of capital cost on inventory demand has been a controversial subject and also he observed significant effects of capital costs on the demand for the inventories, finally he reported economics of scale with respect to holding inventories.

Potdar. S.D.[57] presented a case study of Panchganga co-operative sugar factory in his doctoral dissertation title, "Working and Impact of Sugar Co-operative on the Economic conditions of producer members in Kolhapur District". He concluded that the sugar factory under study has provided a number of infrastructural facilities to the cane grower farmers. Irrigation, roads, transportation, seeds, fertilisers and technical services were major among them. The factory, by developing and utilising by-products has added strength. Using the tool of break-even analysis he has analysed the cost structure of the factory.

Rajendran. K.[58] did his study as a case study in Chengalrayan Co-operative Sugar Mills Ltd under the title of "Cost Reduction in Co-Operative Sugar Mills" in which he concluded the following Now much attention is not paid to collect the accounts receivable in time and steps may be taken to get this amounts in time, accounts managers must monitor this regularly. All-round efforts should be taken to improve the operational efficiency at a reduced cost to improve the profitability of the mills. Cost reduction program should not be considered as a onetime action or program. It is not confined to one department. It should be carried out in all departments continuously by all employees of the mills. Cost reduction does not mean arbitrary cost slashing. The example of cost reduction should be first set by top executives. The right and need for cost reduction should be explained to all and the designed benefits also be explained such as profitability, better liquidity etc. Above all cost reduction should not be carried out for the sake of reducing cost. All other factors should also be looked into. Cost reduction needs to be monitored continuously by the management for survival.

Ramachandra Reddy.B.[59] in his book he selected three co-operative sugar factories from the state of Tamil Nadu for detailed study .He examined in detail the capital structure and cost of capital, capital budget, working capital management, distribution of surplus, financial management in co-operatives, etc. He recommends the following suggestions: 1) It is found that the Government interferes in the functioning of co-operative sugar factories. The Co-operative sugar factories should be free to work by democratic system. 2) There is need to increase internal sources of capital. 3) The co-operative sugar factories may have to pay the interest on capital of shareholder so as to increase the amount of share capital. 4) Sugar factories should pay the sugar cane price promptly 5) To improve the efficiency of workers there is need for training and Orientation Programmes for them. 6) Sugar development programme should be implemented in sugar factories .To avoid the shortage of sugarcane proper planning of sugar cane is needed. 7) The repairs of machinery and use of by products may be done during off-season of the factory. In the interest of the factory and the shareholder there may be planned development programme.

Ramchari S. Nikam [60] analyzed the composition of various cost elements and their magnitude in total cost of sugar production, and also cost and productivity trend in co-operative sugar factories in *Solhapur* district of Maharashtra State for the period of 1987 to 1993. The study revealed that the rapid growth was observed in co-operative sugar industry. Post-independent period was dominated by co-operative sugar sector. The sector's total sugar production and average crushing capacity increased from 800 TCD to 5000 TCD; capacity utilization gone up from 94% to 131%; and average sugar recovery increased from 9% to 12% during the study period. The booms in the said industry fetch an attractive return to the cane growers. A notable suggestion is, over dependence on loan and deposits may hamper the sugar sector in future and cost consciousness is yet to be popularized among these mills. With the help of structured questionnaire primary data was computed.

Ram Vichar Sinha[61] studied the agricultural economics of sugarcane, problems of cane marketing and transport, technical performance, utilization of By-products, labour relations and policies on sugar economy. Simple tabulation method is used to analyse the data for the period from 1979-80 to 1983-84. The study revealed that the sugarcane development activities were not efficient, effective plant modernization and effective infrastructure developments were not under taken, utilization of By-products yet to introduce in the sugar mills and the work force yet to get proper wage.

Reddy.V.N. and Ramkumar Kakani[62] , in their study on econometric analysis of the capital structure determinants, have revealed that the profitability was found to be negatively correlated to the capital structure of the firm. Capital intensity of the firm was also negatively correlated to the short-term debt and total debt ratio of the firm. The regulated firms and growth oriented firms had more long-term debt in their capital structure. The earnings volatility and non-debt tax shields were significantly negatively related to the short-term and total debt of the firm.

Rengarajan.M.R.[63] , in his study on working capital for sick industry, revealed that even profit-making companies were no exception, because, often their symptom of sickness was hidden by their profits. A close watch on the financial parameters would check the sickness at the gross root level, facilitating remedial measures. The interest burden of the industry and percentage of operating expenses on turnover were going up which resulted in depleting the profits. A detailed evaluation of operating expenses and shifting for soft loans or conversion of higher interest loans to equities could sort out the sickness and pave the way for revival measures.

RBI's [64] Study Group studied the problems of sickness in sugar industry erosion of profit of sugar mills is mainly due to mechanical obsolescence has been concluded by various committee constituted after 1980 recommendation of these committee Modernization and rehabilitation are considered as the way to reconstruct of the sugar industry.

Roy. R.N.[65] had his thesis under title "Sugar Industry in Darbhanga Division". There were five mills in Darbhanga Division, one in. private sector and four in public sector. No factory was in cooperative sector. Sugar industry in the division was found to be in stagnant position as no factory was established since forties. Sugar production came down to half indicating under- utilization of existing installed capacity. These sugar mills suffered from inadequate supply of sugar cane, they are not of standard size, there were insurmountable transportation, problems and recovery of sugar has dwindled: As in India, sugar industry in Darbhanga division suffered from uncertainty in Government policy.

Sagan, John [66] in his paper, perhaps the first theoretical paper on the theory of working capital management, emphasized the need for management of working capital accounts and warned that it could vitally affect the health of the company. He realized the need to build up a theory of working capital management. He discussed mainly the role and functions of money manager inefficient working capital management. Sagan pointed out the money manager's operations were primarily in the area of cash flows generated in the course of business transactions. However, money manager must be familiar with what is being done with the control of inventories, receivables and payables because all these accounts affect cash position. Thus, Sagan concentrated mainly on cash component of working capital. Sagan indicated that the task of money manager was to provide funds as and when needed and to invest temporarily surplus funds as profitably as possible in view of his particular requirements of safety and liquidity of funds by examining the risk and return of various investment opportunities. He suggested that money manager should take his decisions on the basis of cash budget and total current assets position rather than on the basis of traditional working capital ratios. This is important because efficient money manager can avoid borrowing from outside even when his net working capital position is low. The study pointed out that there was a need to improve the collection of funds but it remained silent about the method of doing it. Moreover, this study is descriptive without any empirical support.

Sanjaya Baru [67] In his research on "Structural Changes in the International Sugar Economy" is also in similar vein. It supports the argument those two hundred years after enslaving people to work on sugar plantations, rich countries are enslaving them again by ruining their plantations and for any of the poor countries to rely on them.

Sanwar N.Mishra[68] , in his paper, stressed the factors responsible for competitive gain. Under the process of globalization of industry, achievement of the competitive advantage over the rival calls for an urgent management attention. The factors responsible for sustaining competitive advantage were production function characteristics, the process technologies, update of an efficient process, plant maintenance, the productive machine availability, efficient man-power utilization, customer relationship management and supply chain management.

Sastry [69] , in his study he explained that it was a cross section analysis of total inventories of companies across several heterogeneous industries for the period 1955-60 using balance sheet data of public limited companies in the private sector. The study brought out the importance of accelerator represented by change in sales. It also showed negative influence of fixed inventory investment.

Shirodkar.S.L[70] did his study on Cooperative Movement in Kolhapur district. He developed a hypothesis that the Co-operative sugar mills in Kolhapur district have provided stability to the agricultural income by reasonable and guaranteed price. With a view to achieve all-round development of backward regions he has suggested establishment of sugar mills in backward regions. Shirodkar has studied the problems of sugar industry in respect of availability of raw materials, finance and organization of the factory.

Sinha.R.V.[71] has made an extensive study. His work titled as “Sugar Industry in India” covers data on various aspects of sugar industry. He has analyzed the cost of cultivating sugar cane also. Transportation and marketing of sugar cane are the major problems that cane farmer faces. Sinha has also discussed technical performance of sugar mills. Cost structure has been analyzed to find out components of cost and their appropriateness, utilization of by-products, labour relations are the additional factors discussed by him. In his consideration there is a need to develop a consistent, programmatic sugar policy by the Government.

Soenen.L.A.[72] , for the first time, examined the relationship between net trade cycle as an indicator of working capital and investment return in American companies. Chai-square test results showed a negative relation between net trade cycle time and properties return. The negative relation is different for different industries. In fact, a significant relationship for almost half of considered companies indicated that the negative relation depends on type of industry

Tupe.S.D.[73] conducted a case study at depth of the Sanjivani Co-operative sugar factory under the title “Impact of Sugar mills on Rural Economy”. He has discussed the effect of sugar factory on various aspects of rural life or like the agriculture, the economy of agriculturists, life of agricultural labour, economic conditions of factory workers and the change brought about in the rural area by the spread effects of the sugar factory. His finding is that the development of agriculture depends upon the development of agro-based industries in the region. Sugar factory functions as a growth centre in rural area and centrifugal and centripetal forces created by its spread development in the region. Establishment of sugar factory though had a favourable effect on economic conditions of agriculturists, had an adverse effect on those of the agricultural labourers indicating the fruits of development were grabbed by haves, having not been expelled from those.

Uyar, Ali[74] , in his paper titled “The relationship of Cash Conversion Cycle(CCC) with firm size and profitability: An empirical investigation of Turkey firms”, Examined the industry Benchmarks for CCC of merchandising and manufacturing companies and found that merchandising industry has shorter CCC than manufacturing industries. Further, the study examined the relationship between length of the CCC and size of the firms and indicated a significant negative correlation between the length of CCC and the firm size, in terms of both net sales and total assets. The study further showed significant negative correlation between length of CCC and profitability

Vijaykumar and A.Venkatachalam [75] studied the impact of working capital on profitability in sugar industry in Tamil Nadu by selecting a sample of 13 companies; 6 companies in co-operative sector and 7 companies in private sector over the period 1982-83 to 1991-92. They applied simple correlation and multiple regression analysis on working capital and profitability ratios. They concluded through correlation and regression analysis that liquid ratio inventory turnover ratio, receivables turnover ratio and cash turnover ratio influenced the profitability of sugar industry in Tamil Nadu. They also estimated the demand functions of working capital and its components *i.e.* cash, receivables, inventory, gross working capital and net working capital, by applying regression analysis. They showed the impact of sales and interest rate on working capital and its components. When only sales was taken as independent variable, coefficient of sales was more than unity in all the equations of working capital and its components showing more than unity sales elasticity and dis-economies of scale. When sales and interest rate were taken as independent variable, sales elasticity was again more than unity in demand functions of working capital and its components except cash. So far as capital costs were concerned, these had negative signs in all the equations but significant only in inventory, gross working capital and net working capital showing negative impact of interest rates on investment in working capital and its components. Thus study showed that demand for working capital and its components was a function of both sales and carrying costs.

Vimal Raghavachari[76] submitted her Ph.D. thesis under the caption “The State and the Indian Sugar Industry”, Time span covered by her was 1965 to 1970. She has analysed the role of Government in the development of sugar mills in respect of licensing, location of financing. Thereby, the State and Central Governments have tried to, on the one hand, help and on the other hand, control of sugar industry. In her opinion sugar industry is of great social and economic importance. And therefore it has to play vital role in moulding the society and the economy of the nation. In her opinion the industry has bright prospects.

Vinay Kumar[77] , Managing Director of N.F.C.S.F. examined the sugar technology - prospects and challenges with reference to the technical area of the sugar industry and the efficiency norms applicable to the industry and concluded with a remark that the productivity can be improved by developing sugar complexes with the help of professional management.

Vinod Prakash’s[78] study, was a time series analysis with mostly unrelated data taken from CMI and Annual Survey of Industries (ASI) for the period 1946-63. It examined the influence of structural changes in manufacturing activity on the relative size and composition of inventory in the large scale-manufacturing sector in India. Three different models for industry groups and for six important individual industries had been tried. Output/sales, capacity utilization, short-term rate of interest, money supply, foreign exchange availability, price index, size and time trend were taken as explanatory variable. The simple accelerator model with output gave better results for industrial groups, whereas the ratio model seemed to perform better in the analysis of individual industry. The flexible accelerator models were found to be inferior. The impact of price index was found to be generally insignificant, while the impact of foreign exchange and money supply was absent. The rate of interest showed a perverse impact. Time trend appeared to be important than the size of establishment. The role of availability of funds was completely ignored in this study.

Walker.Ernes.W.[79] in his study made a pioneering effort to develop a theory of working capital management by empirically testing, though partially, three propositions based on risk-return trade-off of working capital management. Walker studied the effect of the change in the level of working capital on the rate of return in nine industries for the year 1961 and found the relationship between the level of working capital and the rate of return to be negative. On the basis of this observation, Walker formulated three following propositions: Proposition I─ If the amount of working capital is to fixed capital, the amount of risk the firm assumes is also varied and the opportunities for gain or loss are increased. Walker further stated that if a firm wished to reduce its risk to the minimum, it should employ only equity capital for financing of working capital; however by doing so, the firm reduced its opportunities for higher gains on equity capital as it would not be taking advantage of leverage. In fact, the problem is not whether to use debt capital but how much debt capital to use, which would depend on management attitude towards risk and return. On the basis of this, he developed his second proposition. Proposition II─ The type of capital (debt or equity) used to finance working capital directly affects the amount of risk that a firm assumes as well as the opportunities for gain or loss. Walker again suggested that not only the debt-equity ratio, but also the maturity period of debt would affect the risk-return trade-off. The longer the period of debt, the lower be the risk. For, management would have enough opportunity to acquire funds from operations to meet the debt obligations. But at the same time, long-term debt is costlier. On the basis of this, he developed his third proposition: Proposition III─ The greater the disparity between the maturities of a firm's debt instruments and its flow of internally generated funds, the greater the risk and *vice-versa*. Thus, Walker tried to build-up a theory of working capital management by developing three prepositions. However, Walker tested empirically the first proposition only. Walker's Study would have been more useful had he attempted to test all the three propositions.

Weston.J.F. and Brigham, E.F.[80] further extended the second proposition suggested by Walker by dividing debt into long-term debt and short-term debt. They suggested that short-term debt should be used in place of long-term debt whenever their use would lower the average cost of capital to the firm. They suggested that a business would hold short-term marketable securities only if there were excess funds after meeting short-term debt obligations. They further suggested that current assets holding should be expanded to the point where marginal returns on increase in these assets would just equal the cost of capital required to finance such increases.

Zahid Iqbal, Zulafiqar Ali and Others[81] An Analysis of "Financial Statement for Kokinoor Sugar Mills Ltd". In this analyze, they are analyzed the financial statement of Kokinoor Sugar Mills Ltd from the perspective of three important Factors investors ,long term creditors and short term creditors.

This is a brief resume of some thesis and other selected research works. Besides this there appear some books studying particular aspects of sugar industry and also discussing general nature of the industry. There have been a number of reports of committees appointed by the Central and State Governments. This literature provides an in-depth understanding of the various aspects of sugar industry in India.

However, there is a need to penetrate still deeper into the management of sugar mills especially financial and management accounting. Present study is an exercise undertaken to study in what way and how the Tamil Nadu Co-operative Sugar Industry should follow the Management Accounting practice for their day to day operation. The emphasis is on finding whether they are used economically, effectively and efficiently. With a view to make the study systematic and meaningful various methods of investigation and analysis are dovetailed. The main focus of the study is to ascertain the degree of financial health condition of the selected units, access the management accounting practice in these units and the success thereof.

1.4. SIGNIFICANCE OF THE STUDY

Sugar industry, being an agro based industry, boost the rural development, by providing employment opportunities, directly and indirectly. The facilities, such as road, water, power, transport, education, hospitals and much infrastructural facilities are made, if there exists a sugar mill. The country's economic development is possible, only if the mills run profitably. India, with huge population, has the largest consumers of sugar, in the world. Only a little amount is left for export. Though, it is the second largest producer of sugar, it is all there, only to meet the domestic market. Unlike India, Brazil gives equal importance to ethanol production and sugar production. Hence, it earns huge income, and it is the cost reducer.

In India, when prices are fixed, sometimes it cannot meet even the cost of production. Out of the 100 bags, each weighing 100 Kgs., 20 bags should be given to the government, for levy price. Only 80 bags will be sold of their own. Hence, taking all these factors into consideration, the mills should take up the earnest steps, to come out with profit and development. The first and foremost factor to be considered is the '***cost***'. Each and every cost in sugar production should be analyzed, and the necessary steps are to be taken, to reduce the cost. There should be a keen watching, whether each and every rupee spent gives the maximum utilization. The technical factors, all the cost items, capacity utilized, interest paid, crushing days, recovery per cent, overhead cost; all have to be analyzed and to verify, the pulling factor, that brings down the profit of the mill. The most important factor to be analyzed is, how, with the same raw material, it is possible for the private sector sugar mills to run successfully than the co-operative sugar mill.

The present study is a modest attempt to examine whether the Management Accounting practice is to be followed in co-operative sugar industries in Tamil Nadu. It is important to study the growth of sugar industries and the role played by them in socio-economic development of farmers. Tamil Nadu is well known for sugar industries. Hence this study is definitely useful for the future development of this sector in Tamil Nadu.

An attempt is made here to understand the origins of the development of the co-operative sugar industry in Tamil Nadu. The conditions leading to the emergence of rich peasant strata in the region in the early 1960s and the relevant characteristics of the peasantry are discussed in the study. The spread of canal and well irrigation, coupled with financial support from co-operative credit institution which, enabled the rich peasants to cultivate sugarcane, extensively as well as intensively.

This brought about certain conditions necessary for the subsequent shift, two to three decades later, into co-operative manufacture and marketing of sugar. The development of a modern sugar industry received a great boost in the early 1960's. This together with the actual setting up of the pioneering co-operative sugar enterprises is discussed in detail.

This Study becomes an additional literature for further research. Though it covers Co-operative Sugar Mills in Tamil Nadu alone, the results of its are very much applicable to the Co-operative Sugar Mills in other states in India. And this research report can be considered for other type of mills in this sectors also .The results are to guide, State Government and authorities of mills to take policy decision for its growth.

1.5. OBJECTIVES OF THE STUDY

1. To analyze the Working Capital Management particularly Z-score Model Analysis practiced in Co-op. Sugar Mills in Tamil Nadu.
2. To assess the Break-Even Point particularly Break-Even Recovery, Cut off Recovery Analysis in practice in Co-op. Sugar Mills in Tamil Nadu.
3. To analyse the effect of the Price Fixation Policy for Sugar Cane in Co-operative Sugar Mills in Tamil Nadu.
4. To study the practice of Cost of By- Product of sugar in Co-op. Sugar Mills in Tamil Nadu.
5. To offer suggestions to the policy maker.

1.6. SCOPE OF THE STUDY

The sugar mills in Tamil Nadu are in three Sectors, namely: (i) Private Sector, (ii) Public Sector and (iii) Co-operative sector. The growth of sugar industry in Tamil Nadu is, in both the co-operative and the private sectors. Only the Co-operative has been considered and has taken into this study. There are Sixteen Co-operative sugar mills in Tamil Nadu, which are registered and installed. Out of which, fifteen mills were in operation during the study period. The scope of the present study is to understand the pattern of Management Accounting practice that exists in the running Co-operative Sugar Mills in Tamil Nadu. Hence to draw logical and meaningful conclusions, only fifteen running-operative sugar mills are included, in the present study. The study units consist of Fifteen Co-operative Sectors sugar mills which are Amaravathi CSM, Ambur CSM, Chenagalrayan CSM, Cheyyar CSM, Dharmapuri CSM, Kallakurichi I CSM, Kallkurichi IICSM, MRKCSM, NPKRRCSM, National CSM, Salem CSM, S.Siva CSM, Tiruthani CSM, Tirupattur CSM, and Vellore CSM.

1.7. LIMITATIONS OF THE STUDY

In the present study, an attempt has been made to cover all-important aspects of management accounting in co-operative sugar mills of Tamil Nadu with the maximum degree of thoroughness. But in this earnest endeavor various difficulties of a serious nature at all stages of collecting data have been experienced. Moreover, it has been observed that the collected data depend upon secondary data of Audit Report and other publications.

The study however, brings within its fold almost all vital issues relating to the Management Accounting in the Co-operative sugar industries of Tamil Nadu. But it is pertinent to mention, that the case studies, results and findings presented in it may not strictly apply to the co-operative sugar industry of Tamil Nadu as a whole.

The analysis is based on the data in audited reports of the concerned Co- operative sugar mills. The figure and facts claimed in the annual reports and other forms are assumed to be true. The authenticity of conclusions drawn is only based on the observations made by the researcher only.

The outcome of the study is based on the data given in the financial statements. So that there is always difference in the actual and the calculated values, This study is based on only ten years annual reports from 2002-03 to 2011-12. Conclusions and recommendations are based on such limited period of data. The trend of last ten year may or may not reflect the real working capital position of the Co- operative sugar mills in Tamil Nadu.

It was difficult to collect the data regarding the competitors and their financial information. And also in this study due to inadequate time, it is not possible to analyze all aspects of management accounting practice for Co- operative Sugar Mills in Tamil Nadu.

In order to make the study of management accounting practice in Tamil Nadu Co-operative Sugar Mills more fruitful, it is essential that data should be collected at frequent time intervals. But, such type of weekly or monthly data could not be obtained and due to this study has been forced to use the annual data which is available in profit and loss accounts and balance sheet .The use of annual data in this is likely to make the conclusions somewhat less valid and less reliable.

The study was focused on one single state, like wise. Tamil Nadu. And this study is limited only to Co- operative sugar mills in Tamil Nadu. This mean that the Sugar mills other than Co- operative are not considered. The Co- operative sugar mills chosen are those which were in operation during the study period that is ,The Co- operative sugar mills which are not in regular operation during the study period are not considered ,therefore it implies the conclusions drawn are of a tentative nature and firm generalization should be avoided for the entire sugar industries. However it is hoped that these limitations do not determine the scope of study or the analysis and the inferences drawn.

1.8. GEOGRAPHICAL AREA

The study is restricted to the state of Tamil Nadu. Since the researcher belongs to a farming community, interested in the economic development of Tamil Nadu and interested in making a study whether management accounting practice have been followed in these co-operative sugar mills in Tamil Nadu, the researcher has undertaken this study.

1.9. PERIOD OF STUDY

The sugar industry is cyclical in its nature, which is normally of four to five years that is, two or three years of bumper sugarcane crop, followed by two or three years as shortage of sugarcane due to drought or of market position and one year is a normal. Naturally, this cycle affects the cost effectiveness and the economy of the sugar mills. Therefore, the researcher has decided, to cover a period of two cycles that is. ten years from 2002-03 to 2011-2012. It has been considered as an appropriate period, for the analysis of mills, over a period of time.

1.10. HYPOTHESIS

The researcher has framed the following hypothesis and tested in the study:

1. Profit is not significantly affected by Change of sugar cane price fixation policy.
2. Variable cost per Metric Tonne is not significantly affected by Change of sugar cane price fixation policy.
3. Profit is not significantly affected by Change of fixation of cost of production for the by- product policy.

1.11. METHODOLOGY

The Cross-Sectional descriptive research design was used for conducting this research work. The data for this study had been taken from Secondary data collected from fifteen Co-Operative sugar mills of Tamil Nadu in operation during the year form 2002-03 to 2011-12. And the Research Methodology includes design of the study, collection of data and tools of analysis of the study.

1.11.1. Design of the Study

The present study is an experimental study trying to analyse the management practice in Co-Operative Sugar Mills in Tamil Nadu. The directory or annual report of Tamil Nadu State

Federation of Co-operative Sugar Mills Ltd., Chennai has been considered as sampling frame to identify target population.

The samples had been selected taking into consideration following factors. 1) Sugar Mills are in co-operative form of organization and registered in Tamil Nadu under ‘The Tamil Nadu Co-operative Societies Act, 1961’, 2) Sugar Mills have plant capacity ranging from 1,250 to 3,000 TCD and it is located in entire Tamil Nadu State, 3) It is engaged in manufacturing of white sugar, 4) Sugar Mills are functional and not closed, liquidated or on the verge of liquidation and required data is available for last ten years.

According to the annual report or directory of Tamil Nadu State Federation of Co-operative Sugar Mills Ltd., Chennai, Sixteen co-operative sugar mills have actually functioned during the study period. Out of sixteen co-operative sugar mills, fifteen co-operative sugar mills, which operated during different crushing season and having different plant size and located in Tamil Nadu ,have been taken as actual sample for this study. Hence,In this study all fifteen running Co- Operative Sugar Mills in Tamil Nadu are taken: Amaravathi CSM, Ambur CSM, Chenagalrayan CSM, Cheyyar CSM, Dharmapuri CSM, Kallakurichi I CSM, Kallkurichi IICSM, MRKCSM, NPKRRCSM, National CSM, Salem CSM, S.Siva CSM, Tiruthani CSM, Tirupattur CSM and Vellore CSM.

1.11.2. Collection of Data

In the absence of cost accounting systems in these Co-operative sugar mills, the researcher had to rely more on the data, which are available, through financial accounting system. Therefore, the researcher took rounds to most of the sample sugar mills, Co-operative Sugar Federation personally, and collected the required data and information on research. The present study is based on secondary data alone. These secondary data are collected from Books, Journals, Periodicals, Unpublished thesis, Audit reports or Annual reports of the concerned Co-operative sugar mills and various other publications of the Government of India and Government of Tamil Nadu, web sites and the like for the relevant periods from 2002-03 to 2011-12, certain information were collected through various reports prepared by various official committees. These information were supplemented with the related information collected from the Indian Sugar Mills Association (ISMA). Finally, all the information and data collected are analyzed and vital inferences have been drawn from them.

1.11.3. Tools used for Analysis of Data

After carrying out analysis of financial statements, balance sheet and profit and loss account, to elicit additional information to supplement the analysis, discussions were held with the concerned Chief Officers of the Co- operative sugar mills. For analytical purpose, only the secondary data are considered. Data analysis is made by employing statistical tools, such as mean, standard deviation, co-efficient of variation, Edward Altman's Z score model, simple linear regressions, AGR, F-test and ANOVA.

1.11.3.1. Ratio Analysis:

Ratio analysis is regarded as one of the best tools in analysis and comparing the time series accounting data of different firm that is why it has been extensively used in the present study, Various ratios like , Solvency Ratio(Current Ratio), Immediate Solvency(Quick Ratio Or Acid Test Ratio), Inventory Efficiency (Inventory Turnover) Ratio, Current Assets Efficiency (Turnover) Ratio are computed, in order to analyse the size, composition and circulation of working capital and its various components (inventory, receivables, cash) have been explained at the relevant places in appropriate chapter .However , in this study the use of ratios has not been made in the course of analysis directly .to make the analysis and interpretation more precise and accurate, the values of X ,CV and j have been computed from the ratios.

1.11.3.2. Arithmetic Mean (X):

Arithmetic mean gives a single value to describe the whole data. It has been obtained by adding the values of all observations and dividing by the number of observations.

X = ∑x / N where **∑x** =sum variables and N =number of observations.

1.11.3.3. Standard Deviation:

In statistics and probability theory, the standard deviation (SD) [82] *(represented by the Greek letter sigma, σ) measures the amount of variation or dispersion from the average .In which A low standard deviation indicates that the data points tend to be very close to the mean (also called expected value); a high standard deviation indicates that the data points are spread out over a large range of values.*

$$\sigma(r) = \sqrt{\frac{1}{N-1}\sum_{i=1}^{N}(x_i - r)^2}.$$

.

Where $r = \overline{x}$.

1.11.3.4. Co-Efficient of Variations (C.V):

It is used in problem which requires comparing the variables of two or more than two series. The series, for which co-efficient of variation is greater, is said to be more variable or conversely less consistent, less uniform, less stable or less homogeneous. On the other hand the series for which co -efficient of variations is less, is said to be less variables or more consistent, more uniform, more stable or more homogeneous. In ratio analysis of financial data, less co-efficient of variation in ratio is taken to mean relatively better control of the management on that ratio.

$$\mathbf{C.V} = \frac{S.d}{\mathbf{X}}$$

Where **S.d** is the standard deviation and X is the mean

1.11.3.5. Z Score Model:

And also in this study Edward Altman's Z score model (Z score= $aX_1+bX_2+cX_3+d6X_4+eX_5$) has been used. In this Z score model formula a,b,c,d,e stand for constant rate whose values as follows a=1.2,b=1.4,c=3.3,d=0.6,e=0.999.

1.11.3.6. T-test,F-test and ANOVA Table:

F-test and ANOVA Table Calculated with the following formula

$$F = \frac{SS_{model}/df_{model}}{SS_{error}/df_{error}} = \frac{MS_{model}}{MS_{error}}$$

Where SS is Sum of Square MS Mean Square DF Degree of Freedom

1.12. CHAPTER SCHEME

This study is divided into seven chapters. The first chapter is an "**INTRODUCTION AND DESIGN OF THE STUDY",** where presents the introduction, state of the problem, reviews the available literature, details, its objectives, the scope of the study, limitations, sample design, collection of data, method of analysis and tools of analysis. The second chapter is a theoretical one under the title of "**SUGAR INDUSTRY IN INDIA-A MANAGERIAL PERSPECTIVE**". And this Chapter includes the history of the sugar cane production and manufacture of sugar in India, examine more issues relating sugar industry in India and theoretical Framework for this study. The third chapter is an analysis chapter titled "**PRACTICE IN MANAGING WORKING CAPITAL AND Z SCORE ANALYSIS**". In this chapter that the working capital Management particularly Z-score model analysis in practice for the Co-op. Sugar Mills in Tamil Nadu is included. The fourth chapter titled "**PRACTICE IN MANAGING NO PROFIT AND NO LOSS ANALYSIS**" is also an analysis chapter and it includes an assessment of the Break Even Recovery Analysis in practice in Co-op. Sugar Mills in Tamil Nadu. The fifth chapter is an analysis chapter titled "**PRACTICE IN FIXING OF SUGAR CANE PRICE** ". In this chapter the effect of the change in Price Fixation Policy for Sugar Cane in Co-op. Sugar Mills in Tamil Nadu is analyzed. The Sixth Chapter titled "**PRACTICE IN FIXING THE COST OF BY-PRODUCT**" is also an analysis chapter and it includes the practice under Cost of By-Product for Sugar in Co-op. Sugar Mills in Tamil Nadu is analyzed. The last chapter " **FINDINGS, CONCLUSIONS AND SUGGESTIONS " ,**where sums up the key Findings and Conclusions of the study. At the end of this chapter Certain Suggestions are also given.

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