CHAPTER II

REVIEW OF LITERATURE

2.1 INTRODUCTION

Review of literature has vital relevance with any research work. Further, review of literature avoids repetition of study and another dimension can be selected for the study. In this chapter an attempt has been made to briefly review the work already undertaken over the period to evaluate the financial position. It deals with the critical examination of various published and unpublished works related to the present study.

2.2 REVIEW OF LITERATURE

Agarwal (2001)\(^1\) in his study, “Technical efficiency and the productivity growth in the central public sector enterprises in India”, analyzed the efficiency and total factor productivity growth of central public sector enterprises of an industry by group-wise and firm-wise. The result shows that the public sector enterprises have not experienced a significant technological change during the study period. Further the results point to a decreasing return to scale in production. Results also suggested that the firm has low levels of efficiency and that the efficiency has not improved significantly over the time.

Ahluwalia ((1985)\(^2\) in his study “Industrial growth in India stagnation since mid sixties”, analysed the productivity growth of Indian manufacturing industries during the period 1959-1960 to 1979-1980, he applied Solow model and measured the production. The study estimated that rubber products and miscellaneous manufacturing industries suffer a sharp decline in the total factor productivity

---

growth whereas the industries registered a high growth rate at around 2 to 3 per cent per annum. The study estimated a declining total factor productivity growth rate between 0.2 to 1.37 per cent per annum.

Amita S. Kantawals (2001-2002)³ in his study “Financial performance of Non-Banking finance companies in India” concluded that there exists a significant difference in the profitability ratios, leverage ratios and liquidity ratios of various categories of Non-Banking Financial companies. The more number of ratios do not statistically differ from one another in majority of the cases except the trading in shares and investment holding were compared with leasing. The Analysis of Variance along with the details of average ratios may become a useful guide to companies to decide the dissatisfaction or continuation in the same line of business considering overall profitability within the regulatory framework.

Balakrishnan, R (1958)⁴ examined in his study “Productivity measurement in Indian industry”, says that the indices derived are based on labour and they measure the industrial efficiency in general reckoned in terms of a specific factor. Any factor affecting output or labour may have an influence on labour productivity. Therefore, changes in the output of labour are measured of general efficiency. So, what is measured is the combined effect of the diverse influence at work in a productive function.

Banerjee (1975)⁵ in his study calculated partial productivity for both labour and capital for the year 1946 to 1964. For Indian manufacturing industries labour and productivity was measured by gross value added per person and capital productivity by dividing gross value added capital. The former was found to increase while the

latter showed a decrease during the study period. He also came to the conclusion that increase in labour was achieved mostly through capital depending. He also calculated total productivity using Solow model and estimated the efficiency parameter using production function.

**Bansal L.K & Gupta R.K (1985)** in their study entitled “Financial ratio analysis and statistics” say that the co-efficient of variation had a wide gap varying between 7.1 per cent and 51.3 per cent for current ratio and ratio of fixed assets to sales during the study period. The correlation of component of short-term liquidity ratio generally possesses low correlation as against long-term solvency ratio components but the components of both ratios independently possess quite satisfactory correlation in cotton textile industry. The profitability ratio elements in the industry also have quite high correlation in cotton industry as compared to synthetic industry.

**Beri (1962)** in his study “Measurements of production and productivity in Indian industry” estimates partial and total factor productivity for cement, cotton, iron and steel and sugar for the period 1948-1955. His study reveals an evidence of increasing returns to scale, high relative efficiency and increase in capital intensity, presence of technological change and low elasticity of substitution in sugar industry.

**Bothwell, Cooley & Hall (1982)** in their research “A new view of market structure – performance debate”, used a sample of 156 large U.S. manufacturing firms over the period 1960-1967 for determining the relationship between profit rate and other variables like seller concentration, advertising intensity, economics

---


of scale, absolute capital requirements, leverage, profit variability, firm growth, firm size and market share etc. Positive correlation between seller concentration, market share and growth of demand, business risk, advertisement expenses and profit rate was found. Profit rates were negatively related with the extent of economics and capital requirements.

**Brahmamanda, P.R (1982)** in his study “Productivity in the Indian Economy”, has estimated the single and total factor productivity for the sectors and sub-sectors of Indian economy during 1950-1951 to 1980-1981. During the period, he found that the capital productivity declined by as much as 40 per cent for the labour productivity went up to 2 1/4 times in the registered Indian manufacturing sector. He estimated that this sector witnessed an increase in the total factor productivity at an annual rate of 0.70 per cent during 1950-1951 to 1970-1971 and thereafter he found it declining during 1970-1970 to 1980-981.

**Brown and Decani (1962)** in their study “Technological changes can be measured through the simple ratios and through production approach”, analysed that the ratio analysis can be in terms of A) Simple traditional partial productivity indices of Capital and Labour. B) total or Multi-factor productivity indices which can be measured arithmetically and geometrically; and C) Decomposition of technical change into components, where changes in productivity and technology are analyzed in terms of prices and costs. By these methods, some of the parameters of the production function can be inferred.

---

Chandrasekaran, N. (1993)\textsuperscript{13} in his study “Determinants of profitability in cement industry”, has studied the determinants of profitability. The objective of his study is to examine determinants of profitability in cement industry. The study aims at drawing inferences on impact of policy measures which led to change in price and distribution policies relevant for cement industry. He also analyzed using the technique of least squares based on existing theories and econometric empirical works. The study concluded that efficiency in inventory management and efficient management of current assets was important to improve profitability.

Chandrasekaran (1999)\textsuperscript{14} carried out a study on financial performance of Indian sugar industry for the period covering 1990-1991 to 1995-1996 in which various ratios like profitability ratios, leverage ratios, liquidity ratios and turnover ratios were calculated. It was found that financial performance of the sugar industry had been moderate to poor except during 1993-1994. The study disclosed that the financial performance of sugar industry was affected mainly by high stocks of finished goods, average to low coverage ratio due to high variability of earnings, high leveraging and difficulty of controlling cost structure. The author concluded that tough cycle of low production, high price reduction followed by higher production and low price realization leading to delay in payments would affect the companies if there was no significant improvement in the financial industry.

Chiang, Jiunn-Chiou (2002)\textsuperscript{15} examined the financial and operating performances in various hospitals after the implementation of national health insurance. This study utilized financial ratios, Chi-square tests, ANOVA and Multiple Regression to assess Taiwan hospital’ financial performance.

\textsuperscript{13} Chandrasekaran, N, "Determinants of profitability in cement industry”, Decision, vol.20, No.4, 1993, pp.235-244.


\textsuperscript{15} Chiang, Jiunn-Chiou, “Factors Associated with hospital financial performance in Taiwan following Implementation of NHI”, Degree: Ph.D, University of south Carolina (0202), 2002, p.177.
The results showed that the hospitals capability to meet short-term liability in Taiwan is better than that in the US. However the hospitals’ profitability in Taiwan is lower than those in US.

**Chidambaram, P. (2006)** stated that the Sugar factories that were operational in 2002-03 sugar seasons would be assisted to restructure. NABARD, in consultation with State Governments, RBI, banks and financial institutions will work out a scheme for providing a financial package with a moratorium of two years, on both principal and interest, and a schedule of payment with regard to the commercial viability of each unit. Government has already reduced the rate of interest on loans from the Sugar Development Fund to 2 percentage points below the bank rate. He proposes to make the same rate applicable to outstanding loans as on October 21, 2004. Indian Banks’ Association (IBA) and NABARD will be asked to work out a scheme under which individual sugar factories may renegotiate the rate of interest on their past high interest loans.

**Darling Selvi (2005)** conducted a study on the financial performance analysis of TTK pharmaceutical company and which is an analytical study on financial statements through ratio analysis and trend analysis for the period from 1999-2000 to 2003-2004. In this study net profit ratio, current ratio, liquid ratio, inventory to working capital ratio, debt-equity ratio, ratio of fixed assets to net worth, ratio of current assets to proprietors fund and ratio of current liabilities to proprietors fund have been analyzed. It can concluded from the study that the income generating capacity of TTK pharmaceutical Limited is good except during the year 2000-2001 in which the company has incurred heavy loss and hence it was not able to fulfill its obligations to its owners and outsiders which was the main reason for the maintenance of low profitability ratios. In the investment

---


pattern also a huge amount had been invested in fixed assets and so it was the hindrance for the running of working capital. The heavy blocking of inventory shows lower sales than production and the company’s cash position is good and is able to pay interest. The leverages show a negative result of high risk for the investors.

Dash.D.K (1999)\(^{18}\) in his study “Financial performance Evaluation through ratio analysis: A case study of Nawanagar co-operative Bank” concluded that the liquidity position of the bank had been maintained at high level. The high level of liquidity affects the profitability and the low level of liquidity hampers the banks image. These banks could ill-afford to ensure financial stability and operational efficiency in order to survive in the ever changing business environment. The financial performance of the banks was satisfactory. The cost of operating and managing the bank was more than 3 per cent to the working capital which was vast above the ideal level of 2.5 per cent. The bank was gradually consolidating its position of Net worth as compared to fixed assets.

Gopalan, M. & Minraj, K. (1987)\(^{19}\) studied the financial management of co-operative sugar mills and analyzed the financial performance in various ways. It revealed that the owned funds were more than that of borrowed funds. Borrowing was not abnormal, but surplus was getting reduced due to the establishment cost and other factors, which are also a case study of a period of fourteen years.

Gurumoorthy, T.R. (1999)\(^{20}\), in his study on “Sugar import socially unjustified” has observed that though we are in the era of liberalization, sugar mills are still under government control. Decanalisation is introduced in sugar sector but not decontrol. The sugar mills should supply 40 per cent of their


production for the public distribution system at a price less than the market price and the sugar distribution in the open market is also under the direction of the government. Decanalisation has created a serious problem in Indian sugar sector. Under decanalisation, private traders are permitted to import sugar and sell in the open market. Sugar import is continued though we have surplus sugar production. This affects sugar mills. Their sales are getting down and stock is accumulated and sugar mills may not be in the position to pay sugarcane arrears in time. Sugar mills are affected by the problem of working capital shortage”.

Martina, R.Noronha, & Dilipsinh Thakor (2012) in their study “Financial viability of sugar factories in south Gujarat-a case study” say that there is tremendous scope for India to emerge as a significant player in the world sugar trade in milling and overheads improvement. A fair degree of progress on agricultural efficiency [per hectare output of sugar and cost of production] as well as conversion efficiency, India will surely become a major exporter which will stabilize the industry and reduce its cyclicality significantly, as well as open up new vistas of growth for the Indian Sugar Industry. An efficient and well managed future trading mechanism needs to be put in place to facilitate price discovering both for farmers and millers both in the domestic and global markets. The cost of production in Indian sugar industry is higher because it is labour extensive. Many sugar mills are shifting to mechanization and automation but the change is very slow. The pace of mechanization and automation will have to be accelerated.

Selvam, Vanitha, S. and Babu, M. (2003) in their study on financial health of cement industry Z-Score analysis predicted the financial health of a cement unit using Z-Score analysis. The study attempted to determine the

---


combined effect of various financial ratios with the help of multiple discriminate analysis. The study evaluated the reason for the poor financial health of the unit and steps to be taken to prevent total failure of the company in the near future. The use of multiple discriminate analyses for predicting the financial viability of a sector is made evident through this case study.

Srivatsa, S.C. (1980)\textsuperscript{23} in his study says that the sugar industry profit after tax, as a percentage on the net worth in the first two periods i.e., 1950-56 and 1956-57 to 1960-61, showed an increasing trend but decreased in the third period i.e., from 1960-61 to 1962-63. He further observed that there was a close relationship between profits, wages and productivity of the industry. The industries selected for the study include cement, cotton, textiles, woolen, jute, sugar, matches, iron and steel and paper”.

Gangadhar (1998)\textsuperscript{24} conducted a study on “Financial analysis of companies in Eritrea: a profitability and efficiency” focus and investigated the profitability and financial efficiency of two Eritrean sugar companies namely Asmara Breweries Ltd and Asmara Wine and Liquor Factory Ltd by analyzing the audited financial statements for a period of five years from 1992. The author computed various ratios relating to profitability liquidity, solvency and asset management. Statistical techniques such as standard deviation, co-efficient of variation and averages were also applied to analyse the consistency and overall trends in the different financial aspects of the companies. The study revealed that the rate of return was higher and more consistent in Asmara Breweries limited than Asmora Wine and Liquor Factory Limited. The liquidity analysis disclosed that these companies were facing severe liquidity problems. Besides, the author observes that both companies were heavily on the debt financing and were adopting high

\textsuperscript{23} Dr.Srivatsa.S.C “Wages, profits, productivity in selected industries”, 1980.

capital gearing techniques. The author claimed that this type of financing policy would influence higher rate of return on equity and at the same time with high financial risk.


George Gallinger (2000) has examined the framework of financial statement analysis in terms of five parts. In his study he has focused on “Return-on-assets performance”. He has examined the profitability of Salton Company. He has examined the components related to return on sales and asset management in depth. According to him, inefficient asset management will result in destroyed market value of the company and will probably cause financial distress problems which may even result in bankruptcy. He also revealed that if the weighted average cost of capital on a before-tax basis exceeds the return-on-asset, the company would need to improve the performance through higher return on sales, increased asset turnover or both.

**Glancey, K. (1998)**

Glancey, K. (1998) in his study “Determinants of growth and profitability in small entrepreneurial firms” investigates the relationship between company characteristics including size, age, location and industry group and profitability and growth. The trade-off between the possibly conflicting objectives of profit and growth is considered. Primarily from the entrepreneurial rather than the managerial standpoint which previous econometric studies of small firm performance have concentrated, it is argued that firm size measure based on employment is more appropriate than one based on sales or assets. Firm’s characteristics are found to be of limited value in explaining profitability. However, larger firms are found to grow faster than smaller, and younger firms are found to grow faster than older. There is also some evidence that growth is stronger in urban than in sub-urban and rural locations.

---


Gorg R.K (1997)\textsuperscript{27} conducted a study on Managing working capital in the manufacturing organization stated that any reduction in operation cost as a result of effective and efficient management would improve the profitability, liquidity and solvency of an organization.

Gurusamy, S. & Radha Krishnan (2010)\textsuperscript{28} in their study “Performance of the companies profitability”, stated that the post-acquisition performance of the companies profitability, asset utilization, debt utilization, cost utilization, liquidity and capital structure had not uniformly changed in all sample industries. The horizontal and vertical mergers and acquisitions had no uniform impact to change the post-acquisition performance.

Hercker (1995)\textsuperscript{29} undertook a study entitled “Analysis of financial and operational factories of sugar industry”. In this study he aimed at evaluating the managerial performance of sugar industry in cooperative sector on the basis of operation factors such as age, crushing capacity, and sucrose recovery, capacity utilization which had a fairly good impact on financial performance of the sugar industry. It was also observed that the operational factors also had an impact on the financial performance. The author also concluded that the crushing capacity and sucrose recovery was not directly correlated with the financial performance.

Indra Doraisamy (1968)\textsuperscript{30} in her study on “Financial performance – An Interfirm Comparison” analysed that the financial performance of 73 member mills relationship between profits, capital, productivity, raw material cost and yarns selling price. The study also covered influence of number of counts spun,  

\textsuperscript{27} Gorg R.K.,“Managing working capital in the manufacturing organization”, Vikalpa, vol.22, No.4, Dec 1997, p.69


inventory, age and size of the mills profit on count. The study found that raw materials cost is not associated with profit and does not show any significant effect on production per spindle and labour productivity. The profit per spindle and return does not show any appreciable difference between old mills and mills started during the period 1948 to 1954.

**Jagan Mohana Rao, P. (1993)** in his study “Financial appraisal of Indian Automotive Tyre Industry” studied the financial appraisal of Indian Automotive Tyre Industry. The study was intended to probe into the financial condition- financial strength and weakness of the Indian Tyre industry. To this end a modest attempt has been made to measure and evaluate the financial performance through inter-company and inter-sectoral analysis over a given period of time (1981-1988). The main findings are that fixed assets utilization in many of the Tyre undertakings was not as productive as expected and inventory was managed fairly well. The industry’s overall profit performance was subjected to inconsistency and ineffective.

**Jagdish Lal (1992)** in his article “Sugar and sugarcane production, trends and policies” studies the production of sugar and its consumption trend and examines the impact of sugarcane and sugar pricing and distribution policies. The study showed that there was an increasing trend in the case of production and consumption of sugar during the period 1950-1951 to 1990-1991.

**Jagdish Lal and Bajpai (1984)** in their article entitled “Regional disparities and trends in area, production and productivity of sugarcane in seven states in India” in his study indicated that the area, production and productivity of sugarcane in different states in India as a whole had been increasing considerably

---


over the years with reasonable year to year fluctuations. It was observed that the variations in acreage in most of the states were the reason for variation in sugarcane production. It was suggested to stabilize acreage through appropriate manipulation of price and risk factors.

**Jain S.L (2006)**[^34] in his study says that Cane is one of the most profitable options our farmers have today. India’s sugar output in September 2006 is likely to rebound to 18.5 million tons from about 13 million a year ago. He also says that returns to mills had improved and farmers were getting timely payments for their cane crop. Mills are paying more than the state-administered price for cane and there are no arrears. 450 sugar mills in India and many in the cooperative sector have been ailing due to low domestic prices and high loans resulting in huge arrears to farmers. They are finally seeing light at the end of the tunnel.

**Jitendra Kumar Gupta (2010)**[^35] in his study “Production surge to keep sugar bitter” states that there are indications that in 2010-2011 the deficit phase comes to an end and the sugar output is likely to expand and the seasons output is likely to grow further and the sugar industry wants rollback of duty-free import extension.

**Juliet D’Souza and William L. Megginson (1999)**[^36] have studied “The Financial and operating performance of privatized firms during the 1990s”, his study compares the pre- and post-privatization financial and operating performance of 85 companies from 28 industrialized companies that were privatized to public share offerings for the period from 1990 through 1996. The significant increase in profitability, output and operating efficiency dividend payments and significant decrease in leverage ratios for the full sample of firms.


after privatization were noticed. Capital expenditure increase significantly in absolute terms, but not relative to sales, Employment declines but insignificantly. The findings of the study strongly suggest that privatization yields significant performance improvements.

**Kallu Rao, P. (1993)** has made a study of inter-company financial analysis of tea industry-retrospect and prospect. An attempt has been made in his study to anlayse the important variables of tea industry and projected future trends regarding sales and profit for the next ten year period, with a view to help the policy makers to take appropriate decisions. Various financial ratios have been calculated for anlayising the financial health of the industry. The forecast of sales and profits of tea manufacturing companies shows that the Indian tea industry has bright prospects. The recent changes in the Indian economic policies will boost up the foreign exchange earnings, which will benefit those companies which are exporting to hard currency areas.

**Kasbekar, S.A. (1981)** has observed that the sugar economy has been passing through phases of surpluses and deficits in production and consumption leading to wide fluctuations in the price of sugar and whitening agents. He further observed that it has affected the major indicators of sugar industry and sugar prices. In his study he attributed such situations due to a lack of coherent and integrated long-term policy of government of India.

**Kendrick (1961)** in his study “Productivity trends in the United States”, the term ‘Productivity’ is used to denote the ratio of output to any or all associated inputs in real terms. Ratios of output to particular input may be termed partial

---


38 Kasbekar S.A, “Sugar shares on it s way to discovery”, Economic times research Bureau, 1981.

productivity measures. Output per man hour or output per unit of capital can be termed as partial productivity ratios. The ratios are useful to measure the saving of labour utilization achieved over a particular time. But they do not measure over-all changes in productive efficiency. They are affected by the changes in the composition of input i.e by the factor substitution.

**Kewal Raj Dawas (1998)**

in his study “The profitability in sugar in Punjab and Haryana”, says that the profitability has been measured for the individual mills every year and after that, time series and cross-section data have been pooled for executing multiple regressions. The study concluded that the improvement in cane recovery and avoidance of abnormal expansion could go a long way in improving profitability ratio in the sugar industry in Punjab and Haryana.

**Khaemasunun, Kamol (2005)**

examined the family firms in terms of profit risk and the profitability of their survival in developing countries. Regression results show that the single- family managed firms and corporate-style firms have more significant relationship than family-partnership. According to the total return variance and the fama French 3 factor model, family firms are riskier than the other two styles of management. The study reveals that family companies and partnership companies have a lower likelihood of filing for bankruptcy than corporate style firms.

**Khan (1988)**

conducted a study on physical performance of sugar industry in India since 1950-1951 and showed that a striking feature of the sugar industry had been unstable in its output. The author had also disclosed that the industry faced regional imbalance in capacity expansion and capacity requirements.

---


Kharch, P.M. (1997) conducted a study on Co-operative sugar industry in Marathwada. The study discussed the working co-operative sugar industry in Marathwada region in Maharashtra. The author highlighted the various socio-economic development of sugar farmers in this region due to co-operatives.

Kuldip Kaur (1998) has studied the size, growth and profitability of Indian firms in various industries. In this context, the study of various facts of 235 firms of India have been taken, covering the period from 1970-1971 to 1989-1990. Growth pattern of the firms showed that majority of the firms recorded a growth rate from 10 to 20 per cent. He measured by profitability margins (operating profit as percentage of net sales) and by profitability rate (gross profit as percentage of net sales). Thus the analysis showed that there was no systematic tendency, on comparison of increase and decrease in average profitability with the change in size of the firm.

Kumari (1983) in her study on “Productivity in public sector” has identified the total and partial factor productivity and elasticity of factor substitution of public sector enterprises for 11 groups of industries in India during 1971-72 and 1987-88. In the estimation, she applied basic measures of productivity measures such as Solow model. The study found significant variations in the growth levels of factor productivity and substitutions. For the study she estimated an annual growth of total factor productivity at 4.19 per cent, 4.935 and 4.8 per cent measures Solow model of productivity. The annual growth of labour productivity at 8.93 per cent and capital productivity at 2.82 per cent was also estimated by her study. In the estimation she used production function unit as the elasticity factor.

Latha Arun Reddy (1983)\(^{46}\) undertook a study entitled “Profitability and growth – Indian manufacturing industries” examined the profitability of the Indian paper industry with reference to the financial statistics of joint stock companies in India by the RBI during the period 1950-1951 to 1973-1974. The prime objective of the study was to look at the relationship between growth and profitability using regression models and compound growth rates. The author observed that there was a strong positive correlation between growth and profitability in the paper industry.

Mahalingam, S (1980)\(^{47}\) conducted a study entitled financial performance of Indian sugar industries and highlighted the theoretical as well as practical advantages or operation of sugar mills. In his study, he had shown the actual benefits derived from the cooperative sugar mills. He had pointed out that the benefits included rise in remuneration and consequent change in their cropping pattern, additional employment opportunities and the development of their industrial and business activities in and around cooperative sugar mills.

Majumdor (1996)\(^{48}\) in his study “Fall and rise of productivity in Indian industries an impact”, studied the pattern of productivity growth of Indian industrial sector since 1950. The study empirically proved the positive impact of liberalization measures on productivity. The reforms process did not exacerbate entry threats for the Indian industry, but the environment was equally competitive for the new entrants. Attainment of efficiency was a key survival criterion in such situations and the Indian firms have so far yielded positive efficiency outcomes. The adoption of technological and organizational innovations had a very large impact on productivity at the firm level.


\(^{48}\) Majumdor, “Fall and rise of productivity in Indian industries an impact”, Economic and political weekly, Vol.31, November 1996, pp. 46- 53.
The policy changes that took place in India in the 1990s did significantly enhance potential opportunities on one hand and increase uncertainties and ambiguities levels on the other.

Manickam, M. (2001)\(^49\) in his study on “The future of sugar industry” highlighted that it is the mills that are unable to pay a higher cane price, and it is the cane farmers who suffer and unable to get a reasonable price for cane, the farmers are forced to switch over to the other crops. Every mill should share the sugar price with the cane farmers in an agreed proportion. The union government should fix this proportion. If this method is adopted it is possible to estimate the cane price every year. If this approach is adopted, the mills and the farmers are confident of their share in the price. The clamour for higher cane price to be fixed every year is not in the real interest of the industry or even farmers. The farmers have to analyze the problems in the interest of both the parties and arrive at a solution, which will be helpful to both the mill owners and the cane growers.

Manjappa, D.H and M. Mahesha (2008)\(^50\) in their study “Measurement of productivity growth and efficiency change and technical progress of selected capital intensive and labour-intensive Industries during reform period of India”, stated that the capital-intensive and labour-intensive recorded a positive total factor productivity growth. He also enhanced that extend of ideas, the production frontiers by analyzing productivity growth, efficiency and technical progress through the use of the differentiation of productivity measurements within a firm. The contrast between the types of industry indicates that each one depends on both technical efficiency and change for overall output growth, further emphasizing the need to improve technologies in the sector and the way they are used.


Mansur Mulia, A. (2002)\textsuperscript{51}, in his study “Z Score analysis for evaluation of 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 too healthy zone during the study period. The position on its performance front was very unviable and apprehensions of the total failure on the mill were inevitable and certain, the mill has faced the problem of overtrading owing to the inadequate level of working capital.

Mehta (1980)\textsuperscript{52} in his research work entitled, “Analysis of sugar industry- a production function approach”, computed the productivity of capital and labour and total factor productivity by solow method. The total factor productivity indices measured by method showed a downward trend. The movement in labour productivity and capital productivity showed a diverse trend labour productivity increase significantly in selected industries. In his study capital intensity was able to explain the growth in labour productivity in sugar, tanning, ceramics, cotton textiles and other industries, despite a rise in capital per person it had not led to gain in labour productivity. So he concluded that capital intensity need not increase labour productivity.

Mishra, R.K. (1988)\textsuperscript{53} in his study entitled, “Performance evaluation of public enterprises in India”, intensively examined the financial performance of public enterprises. His study demonstrates that the public enterprises have fallen behind the expectations and there is strong school of thought describing the poor performance of public enterprises largely due to the internal factors. This study holds lack of accountability, over-investment, wrong financing and dividend decisions were responsible for poor public enterprise performance.


Mohammed Mrini, Faouzi Senhaji and David Pimental (2001)\textsuperscript{54} conducted a study entitled “A comparative analysis of the production and processing of sugar beet and sugarcane in Morocco” which was carried out with regard to energy and water use. Overall analysis demonstrated that the production of sugar from sugar beet is more energy intensive than from sugarcane while sugarcane requires larger inputs of water.

Morarka, R.R. (1979)\textsuperscript{55} has observed that the government policies and the administration of partial decontrol of sugar had eroded the capacity of the industry to absorb the shocks of fluctuating fortunes to sustain it. He further observed that the government policy of fixing a low price of sugar was totally unrealistic and arbitrary.

Mukerji (1962)\textsuperscript{56} in his study covers six industries i.e, Jute, Cotton, Iron and Steel, Sugar, Cement and Paper. In his study an attempt is made to find the effect of localization on productivity assuming the effect of other factors remaining more or less constant. In his study he concluded that localization has no specific effect on productivity indices.

Murugesan, V. and S. Natarajan (2000)\textsuperscript{57} conducted a study on “Enhancing sugarcane productivity” which clearly brought out the fact that sugarcane crop responds positively for the variations in the system of irrigation. Sugarcane crops with rain tap system, the duration of irrigation can be reduced up to 40 percent. The overall water requirement for sugarcane cultivation can be reduced up to 30 percent by adopting rain tap system of irrigation, instead of the conventional flood irrigation with ridges.

\begin{itemize}
\item[54] Mohammed Mrini Faouzi Senhaji and David pimental, the energy and water cost of sugar production in a semiarid context; “\textit{A comparative Analysis of sugar beet and sugarcane production and processing in Morocco}”, STAI current scene, vol.4, issue 14, April 2001 to June 2001. p.84.
\end{itemize}
An increase in cane yield of 35 per cent was recorded in the study plot with rain tap system, resulting in an enhanced income of Rs.13602 per acre. The payback period of the rain tap system laid for sugarcane crop works out to be 1.7 years with the absence of bunds in rain tap system, the cropped area can be significantly increased.

Nair, N.K. (1991) has studied the productivity aspect of Indian cement industry. This study emphasized that cement being a construction material, occupied a strategic place in the Indian economy. This study has revealed that, in 1990-1991, the industry had an installed capacity of 60 million tons with a production of 48 million tons. In this study, the cement industry was forecast to have a capacity growth of about 100 million tons by the year of 2000. This study has also analyzed the productivity and performance ratios of the cement industry with a view to identifying the major problem areas and the prospects for solving them.

Navdeep Aggarwal and Singla, S.K. (2001) in their study developed a single index of financial performance. Through their analysis they made an attempt to identify from among the 11 ratios, used as inputs, which are relevant in distinguishing between profit making units and loss making units in Indian paper industry. The study also shows that inventory turnover ratio, interest coverage ratio, net profit to total assets and earnings per share are the most important indicators of financial performance. The studies also suggest that the results of MDA can be used as predictor of future profitability or sickness.

Pachpute, S.P, Dani, R.V. (2005) stated that there was a shortage of sugarcane during the year 2003 to 2005 in some parts of our country such as Maharastra, Karnataka, Tamilnadu etc., which has resulted into drastic fall in

60 Pachpute S.P, Dani R.V, “Production of White Sugar from Imported Raw Sugar in Maharastra”, T.S.Ingale Vasantdada sugar institute, Pune, 2005
production of sugar up to 125 lakh million tons in last season. In order to utilize the optimum capacity of sugar factories and to reduce the overhead charges, the possibility of importing raw sugar and processing it to produce white sugar or refined sugar was tried in season 2004-2005. This alternative of supplementary raw material has been tried by many sugar mills in India with independent and combined processing of raw sugar with sugar cane.

**Pai, V.S., Vadivel, V. and Kamala, K.H. (1995)** in their study “The diversified company’s financial performance: A study” made an effort to study the relationship between diversified firms and their financial performance. Seven large firms having different products, both related and otherwise in their portfolio and operating in diverse industries were analyzed. A set of performance measured ratios was employed to determine the level of financial performance. The results reveal that the diversified firms studied have healthy financial performance. However, variation in performance from one firm to another has been observed and statistically established.

**Pandey, I.M. (1985)** has conducted a study on the financial leverage in India and found that there was no definite structural relationship between the percentage of financial leverage, profitability and growth on the other hand, though profitability and growth have improved over time and so had the percentage of leverage. He also found out through his study that Indian companies follow a high levered capital structure, the size of the companies are highly associated with leverage and as the leverage increased, the profitability and growth also increased.

---


Pant, L.W. (1991)\(^{63}\) has sought to identify factors which influence corporate economic performance. Important industrial characteristics which have been used by industrial organization researchers as the determinants of financial performance are concentration, market share, industry growth, research and development expenditure advertisement, intensity, and size of the firms in the industry. These characteristics may allow firms to be in a better position to implement their strategies successfully and profitably. Consequently, firms may reflect better performance on account of favorable industrial characteristics.

Parameswaran Gupta (1998)\(^{64}\) in his study “World and Indian sugar scenario” found that the country achieved an all time record sugar production of 164 lakhs tons, in 1995-96, against 98.2 lakhs tons the previous year. He also found that this industry is acting as a catalyst in carrying effective and progressive trends into the countryside i.e. it provides jobs in rural areas by drawing resources from urban areas and this industry also contributes to the exchequer by way of taxes, over Rs.16000 crores annually.

Parasuram, N.R. (2006)\(^{65}\) has made an attempt identify and study the movement of key financial parameters and their relationship with profitability of automobile industry. He also made an attempt to study whether the key identified parameters move in a synchronous way going up and coming down with basic profitability parameters. The two wheeler and three wheeler industries chosen and all comparably profit-making companies have been taken as the sample for study for the period of 2002-2004. On the basis of this data a trend parameter is calculated for the year 2005. The actual figures in respect of the year 2005 were


compared with the trend parameters by way of T-test. So, on the base of the analysis the broad conclusion is that the parameters are consistent within a wide horizon and with the growth that companies have achieved, the parameters have also responded in a synchronous manner.

**Pari and Dibakar Naik (1997)** carried out a study entitled “Trends in area, production and productivity of sugarcane in Orissa in comparison with national and global level” and analyzed the inter-district trends in area, production and productivity of sugarcane in the state of Orissa for the period 1973-1974 to 1990-1991 and compared the same with national and global levels. The study reported a significant use in area, production and productivity of sugarcane at the global level.

**Pari and Vijayakumar (1991)** undertook a study entitled “Productivity and profitability of the paper industry: A case study of Seshasayee paper and boards Limited, Tamilnadu” analyzed the productivity and profitability of the paper industry. The authors analyzed the growth in production, sales and profit of Seshasayee paper and boards limited for the period of 1981-1982 to 1993-1994 and found out the factors that determined the profitability of the company. The regression analysis revealed that the debt to total assets ratio, inventory turnover ratio, current ratio, operating expenditure ratio, capacity integration and vertical integration were permanent variables in determining the profitability of Seshasayee paper and boards limited.

**President’s Message (2006)** states India is the largest producer-consumer of sugar in the world. Indian sugar industry is amongst the most diversified

---


industry in the world, with an installed capacity to produce 847 MW co-generated powers against a potential of 5000 MW. The Government of India recognizes this potential and has committed itself to promote renewable sources of energy. The government influences the cane as well the sugar prices through its various price control mechanisms driven by supply controls and different quota mechanisms.

Ramasamy (1996)\(^6\) made a study entitled “Productivity of the Indian manufacturing industries”. He pooled the data for 18 industry groups and estimated a multiple regression model with a time dummy to capture the effect of periods. He regressed the productivity growth on output growth rates. He found that the output growth has a positive effect on productivity and supported the hypothesis that the entry in the period of the industrial deregulation had a positive impact on productivity growth.

RBI study (1995)\(^7\) has made an attempt to study the financial performance of private corporate sector during 1994-1995. Out of 1030 companies covered in this study, 925 were Non-Financial companies and 105 were financial companies. The results of the Non-Financial and Financial companies were analyzed size-wise (size classified on the basis of 1994-1995 paid up capital of the companies) apart from the analysis of the consolidated results for the entire sector. The good corporate performances during 1994-1995 reflect in major profitability ratios registering distinct improvement in the year under review as compared to the previous year.

In the RBI Bulletin (2006)\(^8\) entitled “Finances of Large public Limited Companies”, it is found that the financial performance of 1064 large Non-government


public Limited companies (each with paid up capital of Rs.1 crore and above) during 2005-2006 based on their audited annual account closed during April to March 2006. The consolidated results of the study revealed continuous improvement in the performance of the companies viewed from the growth in sales, value of production, gross profits, profits after tax, profits retained and net worth in 2005-2006 when compared to 2004-2005. The profitability and profit allocation ratios like profit margin and profit after tax to net worth also increased during the year under review. External sources of funds played an important role in financing the asset formation during the year 2005-2006.

Romer (1990)\(^ {72} \) in his study on “Endogenous technical change” suggested that the technological change has been an important factor to contribute output growth. Technological change arises in large part because of intentional actions taken by people who respond to make incentives and hence the technical change happens more to be endogenous rather than exogenous. In his study he concluded that the stock of capital accelerated the growth but the growth did not depend on total size of labour force or the population. He found that the international trade facilities, the flow of new ideas and technologies were developed in developed countries and trade with them helped in realizing these dynamic gains to promote productivity. He further found that the use of non-rivalry name of technological change was a source of increasing returns to scale and sustain the run growth.

Rosario G. Manashan, Junaita Amatong & Gil Beltran (1998)\(^ {73} \) have made a study on “The public sector in the Philippines: Economic contribution and performance”, and found out that the public enterprise sector has grown at a tremendous pace in the last decade. It has contributed a large proportion of gross

---


domestic capital formation but its impact on production, employment and savings is by no means significant. At the same time, financial profitability ratio and productivity measures suggest that the public sector enterprises are generally inefficient.

**Sanjeev Kumar Malik (1997)** in his article entitled “Growth analysis of sugarcane in Haridwar district of Uttar Pradesh” investigated the growth rate of sugarcane crop in hardware district and visualized the effects of change in areas of cultivation as well as yield potential. To study the growth rate, the exponential function was fitted by the least square method. Hardwar District made significant and positive compound growth rate of sugarcane production per year. He concluded that the growth rate of sugarcane production was found higher than the area and yield growth. Moreover, the increase in the production of sugarcane was mainly caused by the area effect along with the yield effect.

**Sardesara (1975)** stated in his study “Industrial and Economics” that Productivity deserves the attention that it has received for it is a measure of efficiency with which resources are converted into commodities and services that man wants.

**Sastry (1966)** has made a study on “Measurement of productivity and production function in sugar industry in India” attempts a similar exercise for sugar industry for the period 1951-1961 and finds that the growth in productivity in that industry is entirely attributed to the capital available.

**Sathe and Kanwar (1987)** in their study analysed the relative contribution of the factors affecting sugarcane and sugar production in India.

---


77 Sathe and Kanwar (1987),“Relative contribution of the factors affecting sugarcane and sugar production in India”. 
The analysis showed that the inter-correlation among cane acreage, production, number of sugar mills, cane crushed (percent), cane prices and sugar production were computed and found that they are positive and highly significant.

Scott, C.D. (1984)\textsuperscript{78} states that the Policy decisions concerning whether to expand sugar output or to achieve a greater degree of national self-sufficiency in basic foodstuffs are likely to be more illuminated by such concepts as domestic resource costs comparative advantage than they are by the mode of production. Similarly, his final discussion on the design of an optimal institutional structure for the industry would have benefited greatly from a careful and dispassionate evaluation of alternative organizational and juridical forms to be found in the sugar industries of other developing countries.

Sindhu H.S. and Gurpreet Bhatia (1998)\textsuperscript{79} studied the factors affecting profitability in Indian textile industry. In his study an attempt was made to identify the major determinant of profitability in Indian textile industry with the help empirical data taken from Bombay stock exchange directory for the year 1983. To find out the factors affecting profitability regression analysis had been applied. From the analysis, there was no clear-cut relationship between current profitability and capital intensity. The age of the firm was generally negative but statically insignificant relationship with current profitability which points towards the fact that the firms in Indian textile industry are obsolete and need modernization.

Singha and Sawhney (1970)\textsuperscript{80} examines productivity relationship in cotton textiles, sugar, jute, paper and paper products for the year 1950-63.


The study indicates an increase in productivity ranging from 4.7 percent in cement and sugar 1.9 percent per annum. Total factor productivity also increase over a period of time in these industries.

Srinivasa Rao, G. and Indrasen Reddy, P. (1995)\textsuperscript{81} in their study entitled “Financial performance in paper industry – A case study” stated that the financial position of the company has been increasing from year to year. The companies performance in relation to generating internal funds in the form of reserve and surplus was excellent and also sounded as it was revealed by current and quick ratio’s showing that the companies had been following the policy of low capital gearing as these ratios had been decreasing from this year. The performance of the company in relation to its profitability was not up to the expected level. The company’s ability to utilize assets for generation of sales had not been improved much during the study period as it revealed by its turnover ratio.

Stigler, G.J. (1953)\textsuperscript{82} conducted a study on the production function is the name given to the relationship between the rates of input of productive services and the rate of output of product. It is the economist’s summary of technical knowledge.

Sudarsana Reddy, G. (2003)\textsuperscript{83} made a study on the financial performance of paper industry in Andhra Pradesh. He evaluate the financing methods and practices to analyze the investment pattern and utilization of fixed assets, to ascertain the working capital condition, to review the profitability performance and to suggest measures to improve the profitability. The data collected have been examined through ratios, trend, common-size; comparative financial statement analysis and statistical tests have been applied in appropriate context.

The main findings of the study are that Andhra Pradesh paper industry needs the introduction of additional funds along with restriction of finances and modernization of technology for better operating performance.

**Venkatachalam, P. (1999)** in his study on “Options for co-generation in sugar industries” highlighted that the concept of bagasse based co-generation has always been practiced by sugar mills; there has been growing awareness in the sugar industry that the advantages of installing high efficiency bagasse is based on co-generation systems. Co-generation is the concurrent generation of process of heat and motive power in an industry by the sequential use of energy from a common fuel source. Co-generation in comparison to convention energy systems can give a larger output in terms of power and heat for the amount of every input. Co-generation is an important route with a vast potential for generating surplus power to the tune of 4000 MW through bio-mass based co-generation systems in the sugar industry alone.

**Vijaya Kumar, A. (1998)** has studied the relationship between size, profitability and growth of 6 major industrial groups by applying the multiple regression analysis. The study was made for 1995-1996. It revealed that the growth has significant association with profitability.

**Viswanathan and Lalitha (1979)** carried out a study on performance of sugar factories in India – An Inter-state comparison. They assessed the efficiency of the sugar factories in terms of (i) Quantity of sugarcane crushed and sugar produced (ii) installed capacity (iii) Area, production and productivity of sugarcane and (iv) Profit and loss in sugar factories. The study also ranked the factories on the basis of performance.

---


2.3 SUMMARY

The existing studies concentrated either on a particular industry or on a set of industries. The Indian sugar industry has not only achieved as being one of the largest producers of white crystal sugar in the world but has also turned out to be an important place among organized industries in India. Since sugar industry is the only industry in the country to bear financial burden of the Government. Hence, the present study makes an effort in the direction and aims to study the productivity and efficiency of Indian sugar industry in particular. The methodology adopted in carrying out the study is presented in the next chapter.