CHAPTER-II

REVIEW OF LITERATURE

This chapter provides a review of the various studies pertaining to the Iron and Steel Industry, as also the theoretical and empirical work done by various institutions, individual scholars and experts in connection with the several aspects of the evaluation of iron and steel industry. A review of the important empirical studies and concepts relating to the iron and steel industry is presented in this chapter so as to emphasize on the methodology and the inference arrived at hereafter. This review helps to frame a few concepts used in the study and to formulate an analytical frame work.

2.1. Reviews related to Financial Performance

Edward I. Altman (1968)\(^1\) in the Dean of Solvency Predictors. He was the first person to successfully use step-wise multiple discriminate analysis to develop a prediction model with a high degree of accuracy. Using the sample of 66 companies, 33 failed and 33 successful, Altman’s model achieved an accuracy rate of 95 per cent. Altman’s model takes the following form:

\[
Z = 1.2A + 1.4B + 3.3C + 0.6D + 0.99E.
\]

\[Z<2.675; \text{then the firm is classified as “failed”}
\]

Where, \(A=\) Working capital / Total Assets. 
\(B=\) Retained Earnings / Total Assets. 
\(C=\) Earning Before Interest and Taxes / Total assets 
\(D=\) Market value of equity / Book value of total Debt. 
\(E=\) Sales / Total assets.

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Barthwal (1976)\(^2\) in his study on “The Determinants of Profitability in Indian Textile Industry” has examined the factors, which cause variation in the profitability. The explanatory variables used by him are size of the firm, age of the firm, past profitability, past growth, capital-output ratio and changes in the average cost of production. Only the cost of production had been found to be significant determinants of profitability for the firms in the industry in different regions of the country. The other factors like size and age of the firm, capital output ratio and past growth had explained less than 25 per cent of the variation in the profitability and were considered as insignificant.

Banerjee (1982)\(^3\) conducted a study on the corporate liquidity and profitability in India. The study related to the periods 1970-71 to 1977-78. The purpose of the study was to analyze the trend of liquidity position and its relationship with the profitability in the medium and large public limited companies in the corporate sector in India. The study concluded that in India there are some industries where a risk in liquidity will lead to rise in profitability and vice-versa; there are others, where increase in liquidity will be associated with a decline in profitability.

George Paul (1985)\(^4\) studied the financial performance of diversified companies in India: A Comparative Study of diversified and Non-diversified companies. The financial performance of 32 relatively matched pairs of diversifying and non- diversifying companies in five Indian industries were compared. The findings indicate that diversifiers generally outperform non- diversifiers on indicators of growth, profitability, safety

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and market evaluation. However inter-industry differences in the benefits of diversification indicate that diversification is selectively useful.

Sharma S.N. and Reddy A.V. (1985)⁵ made a study on the profitability position of the Nizam Sugar Factories Limited during the year 1972-73 and 1981-82 and to identify the factors influencing the liquidity. The study concludes that the major element that is affecting the liquidity position of the firm is the government policies with respect to the input and output as well.

Pandey (1985)⁶ has conducted a study on The Financial Leverage in India and found that there was no definite structural relationship between the degree of financial leverage, on the one hand and profitability and growth on the other hand, though profitability and growth have improved over time and so had the degree of leverage. He also found out through his study that Indian companies follow a high levered capital structures, the size of the companies are highly associated with leverage and as the leverage increased, the profitability and growth also increased.

Trivedi (1986)⁷ in his study “Public Enterprise in India: If not for profit then for what?” had made an analysis on working of public sector enterprise to construct a criterion for evaluating their financial performance. He has suggested a simple multiple indicator. As per his indicator, the performance is a weighted average of labour productivity and the ratio of production to its capacity. Further, he has suggested an eight step alternative measures for evaluating the performance of a unit in Public sector.

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Misra (1988)\(^8\), in his study entitled, "Performance Evaluation of Public Enterprises in India", intensively examined the physical/financial performance of public enterprises. His study demonstrates that public enterprises have fallen behind the expectations and there is a strong school of thought ascribing the poor performance of public enterprises largely due to the internal factors. This study held that lack of accountability, overinvestment, wrong financing and dividend decisions were responsible for poor public enterprise performance.

Khan and Mohol. Tufail Khan (1990)\(^9\) in their study, "Paper Industry: An appraisal" pointed out that the paper industry is a highly capital-intensive industry. Due to steady rise in the cost of inputs, heavy overheads, paucity of power and adverse impact of control orders over the industry, this industry has been unable to function vigorously. They have selected some of the important companies for the analysis during the period 1980-81 to 1985-86. The statistical analysis shows that the profitability of these companies during the period under review is not satisfactory. The profitability of these companies has been hampered because of controls over prices and production of printing paper. The study concluded that the control over price and production of printing paper should be removed.

Sankar, et al (1990)\(^10\), A study Sponsored by Planning Commission, Government of India, highlighted that the financial performance of state level public enterprises was not satisfactory. The scope of this study was 1981-1982 to 1986-1987. The analysis of state level public enterprises was conducted at three levels. Firstly, all the state level public enterprises in

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India were discussed in terms of investments, borrowings, paid-up equity capital, profit/loss position and their growth in numbers as well as distribution in different sectors. Secondly, the status of state-level public enterprises was reviewed and finally, their sector-wise and state-wise positions were analyzed. The findings of the study were that the state level public enterprises had a long way to go in order to earn optimal rates of return on investment. About one-third of these enterprises were in the red at the gross margin level and other one-third incurred losses at the operating margin level, about one-third of the enterprises showed small amount of surplus. The study showed that the financial performance was unsound and there was poor record in respect of the finalization of accounts.

**Pandey and Ramesh Bhat (1990)**\(^{11}\) studied “Financial Ratio Pattern in Indian Manufacturing Companies”. The socio-technical system approach provides a useful framework for designing and implementing effective performance appraisal system. It is proposed that in designing appraisal system, the appraisal technology should be chosen and operationalised, keeping in mind not only organizational goals, culture, and politics but also the socio – psychological needs of employees as well as other over and unconscious dynamics that would influence the appraisal process.

**Brain K. Boyd (1991)**\(^{12}\), studied “Strategic Planning Financial Performance - A Meta-analytic Review”. After two decades of research, the effect of strategic planning on a firm’s performance is still unclear, while some studies have found no relationship, or even small negative effects. The study used meta-analysis to aggregate the results of 29 samples on a total of 2429 organizations. Analysis of previous studies found modest calculation

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between planning and nine performance measures like profitability, assets productivity, capital structure, solvency, working capital, liquidity, dividend policy, growth rate in operating performance—and social performance. Extensive measurement problems suggest that these findings underestimate the true relationship between planning and performance.

**Kallu Rao (1991)**\(^{13}\) has made a study on “Inter-Company Financial Analysis of Tea Industry Retrospect and Prospect”. An attempt has been made in this study to analyses the important variable of tea industry and projected future trends regarding sales and profit for the next 10 year period, with a view to help the policy makers to take appropriate decisions. The various financial ratios have been calculated for analyzing the financial health of the industry. The forecast of sales and profits of tea manufacturing companies showed that the Indian tea industry has bright prospects. The recent change in the Indian economic policies will boost up the foreign exchange earnings, which will benefit those companies, which are exporting to hard currency areas.

**Mittal and Singla (1992)**\(^{14}\) conducted a research on the Determinant of Debt-Equity Mix. The main variables identified were size, fixed assets, debt service capacity, business risk and growth rate. Twenty five companies from the private sector cement and automobile industries were selected for the study from 1986 to 1990. A multiple regression model was framed to test the effect of debt-equity on the variables. It was reported that in the cement industry the important explanatory variables were size, assets composition, business risk and growth rate. Except business risk variable all other variables were not significant in the automobile industry. In the


cement industry, only asset composition had a positive correlation while other variables were found to be significant in the opposite direction while in the automobile industry business risk was found to be significant. It was concluded that there was no similarity in the determinants of debt-equity mix of the two industries except for the business risk.

**Jagan Mohan Rao (1993)** studied “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 was made to measure and evaluate the financial performance through inter company and inter sectional analysis over a given period of time 1981-1988. The main findings are that fixed assets utilization in many of the tyre company was not as productive as expected and inventory was managed fairly well. The tyre industry’s overall profit performance was subject to inconsistency and ineffectiveness.

**RBI study (1995)** an attempt was made to study the “Financial Performance of Private Corporate Business Sector during the period 1994-95”. Of the 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 also analyzed size-wise (size classified on the basis of 1994-95 paid up capital of the companies) apart from the analysis of the consolidated results for the entire sector. The good corporate performance during 1994-95 was reflected in major profitability ratios registering distinct improvement in the year under review as compared to the previous year.

Pai, Vadivel and K.H. Kamala (1995)\textsuperscript{17} studied, "Diversified Companies and Financial Performance". In this study an effort was made to study the relationship between diversified firms and their financial performance. Seven large firms having different products both related otherwise in their portfolio and operating in diverse industries were analyzed. Basically, a set of performance measures ratios were employed to determine the level of financial performance. Subsequently, Kruskal-wallis test was introduced to rank firms to establish relative superiority of performance. The result reveals that the diversified firms studied have had healthy financial performance; however, the variation in performance from one firm to another has been observed and statistically established.

Raghunathan and Prabina Das (1996)\textsuperscript{18} have made a study of corporate performance of post-Liberalization. In this study, they analyzed the performance of Indian manufacturing sector in the last 8 years since liberalization on the parameters of profitability, liquidity, leverage and solvency. While the solvency and profitability ratios were encouraging till 1996 they have been gradually diminishing after that. This problem gets more pronounced when the EVA is calculated which shows that the Indian manufacturing sector has destroyed wealth, while the MNCs have generated wealth for their shareholders. The study points out that poor corporate performance has led to an economic slowdown and not the other way round. Corporate raised funds during the blacken days of equity markets and ended up investing these funds at below their cost of capital the outcome has been a prolonged economic slowdown.


Vijayakumar (1998)\textsuperscript{19} has examined "Determinants of Corporate Size, Growth and Profitability the Indian Experience". To meet the objectives of the study, Indian Public sector industries were selected. The data relating to size, growth and profitability were collected from their annual reports published by the Bureau of Public Enterprises (BPE), Government of India. The study covers the period from 1980-81 to 1995-96. The technique of average, correlation and linear multiple regression analysis has been used in this study. Inter industry analysis reveals that the growth is positively and significantly associated with the size in all the industry groups except textiles.

Amit Mallick and Debasish Sur (1998)\textsuperscript{20} conducted a case study of tea industry on "Working Capital and Profitability - An interrelation", during the period 1986-87 to 1995-96. The study has the objectives of: 1) To examine the impact of working capital on profitability between Return On Investment (ROI) and some important working capital ratios (nine ratios) by computing simple correlation coefficients and to test the significance of such coefficients, 2) To assess the joint effect of the above ratios upon the profitability with the help of multiple correlation coefficient and multiple regression equation and 3) To ascertain the working capital leverage for examining the sensitivity of ROI to changes in the level of gross working capital of the economy. It concluded that there is a high degree of negative and positive association between the profitability and the working capital ratios. Out of nine ratios selected for the study, among five ratios registered negative correlation with ROI. The remaining four ratios witnessed positive association with ROI. On a detailed analysis, it is

concluded that the increase in the profitability of the company was less than the proportion to decrease in working capital.

Gangadhar V. (1998)\textsuperscript{21} has made an attempt on “Financial Analysis of Companies in Criteria: A Profitability and efficiency focus”, One of the objectives of the study is to analyze the liquidity position of the companies and to point out the factors responsible for such a position. It is concluded that the liquidity position was quite alarming, since these are facing chronic liquidity problems. Their proportion current assets in relation to the current liabilities are very low. It is suggested that, their may be improved by reducing excessive burden of current liabilities or increasing the level of current assets depending upon the requirements.

Raj S. Dhankar (1998)\textsuperscript{22} has studied “A New Looks at the Criteria of Performance Measurement for Business Enterprises in India - a study of Public Sector Undertaking”. The numerous criteria for measuring the performance of business enterprises in India have been developed during the past. But unfortunately, none of the criteria has succeeded in winning general consensus of leaders in industry and academics so far, for their obvious weakness. The author has given a new model for measuring the performance of business enterprises in India, wherein, the basis is to compare its actual rate of return with its expected risk adjusted rate of return. Realizing the importance and controversy of public sector in India, an attempt was made to measure the performance of all public sector undertaking, which were started upto 1964 and were in operation till 1983. It is shocking to know half of them are below average what to talk of


making excess returns have not been able to earn equal to their cost of capital.

**Kuldip Kaur (1998)** studied “Size, Growth and Profitability of Firms in India- an Empirical Investigation”. In this context, the studies of various facts of 235 firms of India have been undertaken, covering the period from 1970-71 to 1980-90. Growth pattern of the firms showed that majority of the firms recorded growth rate from 10 to 20 per cent. Two measures of profitability have been used in the study, the profitability margin (operating profit as percentage of net sales) and the profitability rate (gross profit as percentage of net sales). However, the analysis in case of Indian firms showed that there was no systematic tendency for average profitability to increase / decrease as the size of the firm changed.

**Sakthivel Murgan .M (1999)** in his study on “Working Capital Management – A Case Analysis” revealed that one of the several indicators of efficient management of working capital is to examine whether adequate liquidity is maintained. The ‘Z’ score analysis reveals that the organization maintains the ‘Z’ score above 3 points for all the year taken for the study. This shows that the company is maintaining adequate working capital by investing sufficient funds in its current assets, with the help of adequate current assets, it is also able to meet the current obligations without inviting the risk of bankruptcy.

**Juliet D’ Souza and William. L. Megginson (1999)**, have studied the “Financial and Operating Performance of Privatized Firms during the

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The study compared the pre and post privatization periods for financial and operating performance to 85 companies from 28 industrialized countries that were privatized through public share offerings for the period from 1990 through 1996. The significant increase in profitability also increases output, operating efficiency, and dividend payments. However, significant decreases in leverage ratios for the full sample of firms after privatization were noticed and capital expenditures increased significantly in absolute norms, but not relative to sales. Employment declined but insignificantly. Combined with results, these finding strongly suggest that privatization yields significant performance improvement.

**Agarwal, R.N. (1999)** studied the "Profitability and Growth in Indian Automobile Manufacturing Industry". The objective of this study was to examine if firms have been making super normal profits, since 1975; when price controls were removed. It also evaluated the impact of policy changes since 1981-82 on profitability and growth of firms in the industry using Turban’s square as a measure of profitability. The study finds no evidence to show that firms have made super normal profits. Profitability was found to be explained mainly by age of the firms, vertical integration, diversification, industry policy, dummy variables, gross retained profits and expansion of capacities. Results also should differences in performance between car and other sector of the industry.

**Soumyendra Kishore Dutta (1999)** examined "Analysis of Profitability Trend in the Indian Cotton Mill Industry". The disadvantage situations of a large number of mills were reflected in the haphazard movement of the cotton mill sector’s profitability ratios. Loss of market share of mill made cotton cloth to synthetic substitutes, burden of
unfavorable excise duty, uncertainty in supply of raw cotton, untoward labour legislation, under utilization of capital and high capital cost added to the aforesaid fluctuations in profitability. Lower base of the profitability ratios and the warning financial position of the majority of the mills have left them with resources to undertake renovation and modernization.

**Sahu R.K (2000)** attempted a study on “Analysis of Corporate Profitability – A Multivariate Approach”. This was an empirical based study on the secondary data from a sample of 100 non-financial, non-government, public limited companies in Eastern India for a span of ten years and the composite profitability of a firm by a single Index, thereby facilitating case of comparison and ranking. The main objectives of the study were to study the degree of relationship between the ratios included under each of the main category in order to identify the ratios which overlap in the information they provide about profitability and to integrate the selected ratios into a single profitability the ratios.

**Mahammad Rafiqul Islam (2000)** has studied the “Profitability of Fertilizer Industry in Bangladesh”. The financial statements has collected during the period from 1985-86 to 1994-95 of ten years. The sample included five fertilizer enterprises of the seven fertilizer enterprises in Bangladesh under the control of Bangladesh Chemical Industries Corporation (BCIC). He observed that the study indicate that none of the selected units returns were consistent and all the units were plagued with declining profits. The study concluded with some suggestions and policy implications to enhance the profitability of fertilizer industry in Bangladesh.

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Debassish Sur et al. (2001)\textsuperscript{30} attempted to study the "Liquidity and Profitability of Indian Private Sector Enterprises", as a case study of aluminium producing industry. HINDALCO and INDAL were selected as major aluminium producing units. They observed that there is a very high degree of positive correlation between liquidity and profitability of these companies. They also observed that liquidity variables jointly influence on profitability of the selected units.

Syed Mohammed Ather (2001)\textsuperscript{31} in his study examined "A Profitability of Public Industrial Enterprises in Bangladesh". The profitability of sample enterprises at shadow prices was higher than the prevalent bank rates of interest. So the performance was not poor during the study period. The inefficient use of working capital and fixed assets both seem to contribute greatly to show decreasing trends of public profitability at a constant shadow prices.

Debasis Raj and Sur Debasis (2001)\textsuperscript{32} in their study entitled "Profitability Analysis of Indian Food Products Industry: a case study of Cadbury India Ltd.". Stated that main objectives are 1) To measure the profitability of the company. 2) To assess the degree of relationship between the selected variables. 3) To study the joint effect of the above variables upon the profitability. The data have been collected for his study for the period 1987-88 to 1996-97. For analyzing the data, simple mathematical tools like ratios, percentages. Simple and multiple correlation, and Regression analysis were also applied. The main findings of the study reveal

that gross profit ratio, net profit ratio, return on investment was not stable during the study period. The study also reveals that CR, QR and CTTR registered negative correlation with profitability and FTR, TATR and CETR registered positive association with the profitability. The regression equation witnessed ROI = a + b₁ (QR) + b₂ (TATR) + b₃ (CETR). Only one variable of TATR showed positive influence the profitability.

Debasish Sur (2001)³³ in his study made an attempt to compare the liquidity of all the four enterprises, under study by selecting a few important parameters, relating to liquidity management such as current ratios, inventory turnover ratio and debtors turnover ratios. The companies under study should tighten the debt collection efforts and should reduce the fund tied up in debtors. To promote the collection efficiency in these companies periodical reports of the over dues should be prepared regularly and suitable action should be taken by the management for the recovery of debts.

Amita S.Kantawala (2001-02)³⁴ in his study on financial performance of Non-Banking Financial Corporations (NBFCs) in India concluded that there exists a significant difference in the profitability ratios, leverage ratios and liquidity ratios of various categories of NBFCs. The more number of ratios do not statistically differed from one another in majority of the cases except the trading in shares and investment holding were compared with leasing. The analysis is of variance along with the details of the 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 frame work.

Vijayakumar .A (2002) in study entitled “Financial Appraisal of Salem Co-operative Sugar Mills Limited, Mohanur”. The determinants of profitability; a firm level study of the sugar industry in Tamilnadu, divided into the various factor that influence of profitability viz., growth rate of sales, vertical integration and leverage. Apart from these three variables he has selected current ratio, operating expenses to sales ratio and inventory turnover ratio. Econometric models were used to test the various hypotheses relating to profitability with other variables. The researcher noted in his conclusion that efficiency in inventory management and current assets are important to improve profitability.

Rajeswari (2002) studied the “Liquidity Management of Tamilnadu Cement Corporation Limited, Alangulam – a case study”. To analyze the liquidity position of TANCEM the researcher has collected information from the annual reports of TANCEM for a period of five years. The researcher identified the result of analysis; the liquidity position of TANCEM is not stable regarding liquidity ratios. There was too much of liquidity in the first two years of the study period. A very high degree of liquidity is also bad as idle assets earn nothing and affect profitability. Hence, it can be concluded that the liquidity management of TANCEM is poor and not satisfactory.


Arunageri of Dharwad District. The study attempts to evaluate the financial stability and operational health by applying ‘Z’ score analysis. From the study it was concluded that the textile mills under study were just on the verge of financial collapse. On the other hand, current assets declined because of the negative profitability performance, whereas on the other hand, the current liabilities were on the increase because of poor liquidity performance of the mills.

Nand Kishore Sharma (2002)\textsuperscript{38} has made a study of “Financial Appraisal of Cement Industry in India”. In the present study important tools and techniques have been used for appraisal of financial position of cement industry of our country. The main findings are that current ratio in the cement industry six companies were higher than the average of industry and four companies recorded lower than the average of industry. On comparing the quick ratio of cement industry, six companies recorded higher than the industry average and the remaining four companies recorded lower than average of industry. Three companies have higher ratio while rest of the companies have lower ratios. The final conclusion of the study is that the overall financial performance of the cement industry is satisfactory.

RBI Corporate Studies Division (2003)\textsuperscript{39} has made an attempt to study the performance of corporate business sector during the first half of 2002-2003. The results of 146 private companies of various sectors were analyzed on the various parameters of performance. Aggregation and comparison of the results of the first two quarters was done on these performance parameters. It was concluded that the performance of the private sector was better when compared with the first half of the previous


year (2001-2002). This was indicated by the following parameters viz, higher sales, reduced interest payments and ultimately improved profitability. Sector and industry wise analysis of performance has been done to highlight those areas where the performance has been better vis-à-vis sectors, which have lagged behind in performance.

**Vijayakumar and Kadirvelu (2003)**\(^40\) in their study entitled “Profitability and Size of firm in Indian Minerals and Metals Industry: An empirical evidence” have pointed out the relationship between profitability and size of the industry. Two measures of profitability have been used in the study, firstly profitability rate is the ratio of gross profit to total assets, and secondly profitability margin is gross profit as percentage on sales turnover. Similarly, two different measures of size are used viz., sales and total assets. They have analyzed with the help of multiple correlation and multiple regression analysis applied in this study. For the analysis the secondary data has been collected for the period of 20 years from 1981-2001. It can be concluded that size is found to be significantly associated with the profitability. It is also evident from the analysis that size is positively associated with the profitability.

**Dr. Sudarsana Reddy et. al. (2003)**\(^41\) have mentioned in their study “Debtors Management – a case study of Andhra Pradesh Paper Industry”. The debtors occupy an important position in the structure of current assets of a firm. They are the outcome of rapid growth of trade credit granted by the firms to their customers. That’s why the study aimed at evaluating the performance of the debtor’s management of the paper industry in Andhra Pradesh. The analysis reveals that the sample mills adopted liberal credit


policy, which had a favourable effect on sales. The size of trade debtors as a percentage of current assets had shown declining trend. But the collection period of debtors slowly increased in all the mills, except in one mill. The increasing debtor’s collection period was an indication of slackness in collection efforts of the mills.

Brahmam R. (2004)\(^{42}\) in his study on “Financial Restructuring of Steel Industry – A case study of few select companies” makes an attempt to study the operational and financial performance of four steel companies (TISCO, SAIL, JINDAL and ESSAR) by analyzing various financial ratios. The period of study has been confined to seven years from 1996-97 to 2002-03. The researcher found that operating profit margin of all the companies has shown a positive trend, the net profit margin is negative for all the companies except TISCO. The financial charges coverage ratio of TISCO is very good for the entire period of study. The researcher also observed that among all the companies, only TISCO’s position can be considered as financially satisfactory. The study suggested that due to the potential financial viability of the loss making steel companies the Government of India decided to restructure these companies.

Narware P.C. and Vivek Sharma (2004)\(^{43}\) conducted the study “Liquidity Management of Hindustan Petroleum Corporation Limited – an Empirical Study”, to assess the efficiency of the liquidity management of the company HPCL and to examine the liquidity position of the company by taking measures of cash and bank. It was observed that the analysis liquidity position of the company is very poor and the liquid assets were not


sufficient in meeting short-term liabilities. In sum of the liquidity management of HPCL is very poor and is not satisfactory.

Reddy Y.V. and Patkar S.B. (2004)\textsuperscript{44} attempted to make a comparative study of SBI, Canbank factors on working capital and liquidity management in factoring based on the following objectives: 1) to study the size composition of working capital, 2) to evaluate the liquidity management through ratio analysis and 3) to examine the relationship between liquidity and profitability. It is concluded that the higher liquidity is maintained in Canbank factors than SBI factors. The rank correlations of liquidity and profitability were observed to be inversely related to each other. It implies that as the liquidity increases the profitability decreases.

Hamsalakshmi and Manickam (2004)\textsuperscript{45} have made a study on “Financial Performance Analysis of selected Software Companies”. The study has been focused on examining the structure of liquidity position, leverage and profitability. The study has revealed a favourable position of liquidity and working capital. The study has also pointed out that the companies rely more on internal financing and the overall profitability had been increasing at a moderate rate.

Subbas Chandra Sekar and Amalendru Bhunia (2004)\textsuperscript{46} in their study entitled, “Liquidity Trend Analysis: A case study of TISCO” have pointed out that the steel industry will have to devise strategies for economizing the use of inputs so as to remain competitive in the global trading environment. They have studied comprise between liquidity trends


and liquidity position of the company. They have analyzed the data with the help of following analysis viz., working capital ratios and also used least square trend values, and chi-square test has been applied. The study period comprises of 1990-91 to 1999-00. The results of the chi-square test show that the significant difference between actual values and trend values of current assets, current liabilities and working capital is significant at 5 per cent level. They concluded that the direction of change in liquidity position in the light of change in current assets, current liabilities and working capital is not correlated positively, thus liquidity position of TISCO appears to be satisfactory.

Adolphus (2005)\textsuperscript{47} has made a study entitled ‘Empirical Survey of Corporate Liquidity Management Practices of Nigerian – Quoted manufacturing enterprises’. The study has intended to investigate and subsequently improve the capability of corporate finance executives in handling acute liquidity shortages through optimal cash flow management within a risk return framework. The study is based on three models viz, operating cycle, cash flow cycle and design of marketable securities portfolio. The study revealed that the finance managers in manufacturing enterprises have to redefine their strategy for managing anticipated and unanticipated financing gaps.

Patel, D.M. (2005)\textsuperscript{48} in his study entitled ‘Analysis of Working Capital – A case study of Colour-Chem Limited’ has tried to judge the working capital position of Colour-chem limited. The ratio analysis method and Altman’s ‘Z’ score model have been adapted moreover to support the


findings statistical methods, viz.; student’s t-test and linear model analysis have been done. The objectives aimed at the company’s current position to meet its current obligation. The current and quick ratio gives the satisfactory picture. To examine how efficiently the firm uses its assets; the inventory turnover ratio shows a bright picture. It indicates the company efficiently utilizes its current assets. To examine the linear relationship between current assets and current liabilities, cost of goods sold and inventory, sales and inventory and finally working capital and sales the linear relationship exists. Altman model suggests that the company will never become sick in future (since ‘Z’ score is much greater that of ‘3’), if it will run in the same present trend.

Rajendran P. and Ramesh D. (2006)⁴⁹ in their study entitled “Liquidity management of Tamilnadu Tourism Development Corporation (TTDC) Limited – An empirical study” stated that the main objectives are 1) To assess the efficiency of the liquidity management of TTDC, 2) To examine and evaluate the liquidity position by taking measures of cash and bank, the data for the study have been collected from 1994-95 to 2003-04. The study covers mainly the following aspects of liquidity analysis 1) Analysing level of liquidity 2) analyzing liquidity ratio. Simple statistical techniques were applied in this study. It is concluded that the short-term liquidity is not at all satisfactory. The cash management of company was in poor position. Hence, the liquidity management of TTDC is very poor and is not satisfactory.

Parasuram N.R. (2006)\textsuperscript{50} has made an attempt to identify and study the movement of key financial parameters and their relationship with profitability of automobile industry and he also made an attempt to the 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 to 2004. The data have been taken from the figures supplied by prowess database. On the basis of this data a trend parameter is calculated for the year 2005. The actual figures in respect of the year 2005 are compared with the trend parameter 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.

Debasis Mukherjee and Mallika U.K. (2006)\textsuperscript{51} in their study "Performance of Leasing Industry in West Bengal" studied 14 lease financing companies of West Bengal. An attempt is made to ascertain the profitability and make a comparative analysis of profitability of the selected companies. They suggested that around thirty years of active business many lease financing companies have either diversified their leasing business into other forms of activities or decided to quit the market. It concluded that vast growth potential and the performance of the existing companies may be considered an indicator of the prospects of the industry in the state of West Bengal.


Sanjay J. Bhayani (2006)\textsuperscript{52}, in his study an attempt has been made to study the cost component of cement units under the study. For the purpose of analysis of cost component, all component cost has been calculated as percentage of sales. A study has been made by using data form financial statements of top five cement companies of India, viz., Gujarat Ambuja Cements Ltd. (GALL), Dalmia Cement Ltd. (DCL), Madras Cements Ltd (MCL), India Cements Ltd (ICL), and Shree Cements Ltd. (SCL). The data of total cost in various cement companies under study have been rearranged and classified under the following heads: Raw materials and stores consumed, salaries and wages, indirect taxes, power and fuel, depreciation, administrative, selling and distribution other expenses and financial charges. He found out from his study that the most influencing factor in cost structure of cement industry is power and fuel cost. The portion of this cost in total cost was 21 per cent, where the portion of raw materials cost and selling and distribution and other cost in total cost structure were 19.27 per cent and 16.60 per cent respectively. So it can be concluded that to improve the profitability of units there is a need to give proper attention towards this cost by corporate. The closest view of analysis showed that the average cost in almost all element of GACL was closer to the average of industry

Bardia (2006)\textsuperscript{53} in his study entitled, “Liquidity Management : A case study of Steel Authority of India Limited” has studied the overall quantum of liquidity maintained by steel sector and also to analyze the amount tied-up in various components of working capital. This study has examined the liquidity position of the company by applying Mottal’s comprehensive test. The result of the study mostly affected liquidity for overall ranking in the year 1995-96. The rank correlation between liquidity


and profitability of SAIL was 0.746. It was a positive association between liquidity and profitability. The correlation is significant at the relationship between liquidity and profitability. Twenty three companies were selected for studying data, statistical techniques like simple regression analysis and simple correction analysis and tests like p-values and t-stat values are used. The major findings are: 1) Fourteen companies showed positive correlation coefficient between the liquidity and profitability. The correlation coefficient was found to be statically significant at 5 per cent level. 2) for performing regression analysis, we have taken current ratio as independent variable and ROCE as dependent variable, the regression equation was \( ROCE = a + bt + e \). Out of twenty three companies, ten companies indicated inverse relationship between liquidity and profitability. We concluded that there is no uniform correlationship (positive or negative) between liquidity and profitability.

**Durga Rao S. and Janaki Ramudu (2006)** conducted a study on “Inventory Management of Indian Commercial Vehicles Industry”. The study concentrates on Indian commercial vehicles industry. Only five major players were selected for the purpose. The study period covers ten years from 1994-95 to 2003-04. This study achieves the following objectives: 1) To study the composition of inventory in select units. 2) To assess the efficiency of inventory management in these units. Among all the companies it was only Eicher Motors Ltd., which achieved the highest turnover of inventories. The application of one-way ANOVA revealed that the mean ratios of inventory to sales, the mean inventory turnover ratios and the mean inventory holding period of all select companies differ significantly. It concludes that total inventory and raw material constituted

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the highest part followed by finished goods and work-in-progress across Indian commercial vehicles industry.

**Misra and Mishra (2006)** conducted a study entitled "Factor Influencing Profitability of OSWC: An Econometric Analysis". The main objective of the study is to study the factors influencing the profitability of OSWC. 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. The data has been collected during the period from 1985-86 to 2002-03. The determinant of profitability was analyzed by using the technique of Ordinary Least Square (OLS) and the stepwise regression analysis has been carried out. Their conclusion reveals that the most of the factors namely operating cost ratio, liquidity ratio, fixed assets turnover ratio combined explain around 97 per cent of the variation in profitability. Hence, the profitability of the organization is mostly dependent on the above mentioned factors.

**Amalendu Bhunia (2007)** in his study entitled "Liquidity Management of Public Sector Iron and Steel Enterprises in India" studied on the efficiency in the management of short term liquidity in selected public sector iron and steel enterprises in India. The main objectives of the study are to assess the management of working capital and liquidity position. This study selects two out of nine central public sector iron and steel enterprises operating in India namely, Steel Authority of India (SAIL), and Indian Iron and Steel Company Ltd (IISCO). The study covers a period of 12 years from 1991-92 to 2002-03. For this purpose financial ratios and statistical tools like mean, median, mode and Sendler’s A-test prove the differences

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between actual and estimated values of working capital are significant. The study revealed that actual values of working capital have been found to be lower than the estimated values of working capital for both the companies under study. There was poor liquidity position in case of both SAIL and IISCO, inefficient inventory management in case of SAIL and inefficient receivable management in case of both the enterprises. It suggested that increased in additional investment specifically in raw materials, reduction in the burden of current liabilities in order to improve liquidity position, improve inventory management and investment in loans and advances should be minimized.

Debasis Sur et al. (2007)\textsuperscript{57} conducted a study titled “Measuring the efficiency of Asset Management of Private Sector Enterprises in India during the Pre and Post liberalization periods: A study on Colgate – Palmolive (India) Limited”. The main objectives of the study are to assess the operating efficiency of the selected company in respect of its asset management during the pre and post liberalization period. The study period covered from 1980-81 to 2003-04. For the purpose of analysis, ratio analysis, descriptive statistics, Kendall’s correlation of concordance, t test, F test, multiple correction and regression have been used. It is concluded that the efficiency of the inventory management was observed that 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 declined considerably during the post-liberalization period as compared to the pre-liberalization era. It reflects in various assets during the post-liberalization period. It also signifies that the select company failed to adapt

itself to the challenging and competitive environment resulting from liberalization.

Rathore G.S. and Pinki Roi (2007) in their study entitled, “Financial Performance of Air India” have analyzed pointed out capital structure, working capital, profitability position, operating performance and over all financial performance. The study period is 2002-03 to 2004-05. It is concluded that Air India shows better performance of capital structure and improves the capital structure in the study period. The working capital is showing a negative trend. The profitability position of the company is showing fluctuating trend. The operating performance of the company reveals that there was an increase in operating expenses. Hence, the operating profit is showing a decreasing trend. The overall financial position of Air India limited reveals the fact that the company’s financial performance is good as well as the efficiency of the organization has increased.

Siddharth Mahajan and Mainak Sarkar (2007), in his study, an attempt has been made to compare the financial performance of three Indian companies, Tata motors, Maruti and Mahindra & Mahindra with two MNCs, Honda and Hyundai. Ten ratios have been used. There are four profitability ratios, four liquidity ratios and two solvency ratios. The profitability ratios used are profit margin, asset turnover, return on assets, and return on equity. The liquidity ratios used are current ratio, quick ratio, debtor turnover and inventory turnover ratio. The solvency ratios used are debt to equity ratio and interest coverage ratio. In profitability ratio, the

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profit margin is roughly the same for the Indian companies and for the MNCs. The asset turnover and return on assets of the MNCs are roughly double that of Indian Companies. This indicates that the MNCs are more efficient at utilizing their assets to generate profits. However, the return on equity of the Indian Companies is about ten times that of the MNCs. In liquidity ratios, the current ratio, the quick ratio and the inventory turnover ratio are roughly the same for the Indian Companies and for the MNCs. This indicates that the Indian companies and the MNCs both follow similar practices and have similar performance in working capital management of inventories. In solvency ratios, the debt to equity ratio of the Indian companies is about one-and-half times that of the MNCs. This is because the Indian Companies use much less equity capital that the MNCs. Also the interest coverage ratio of the MNCs is about four times that of the Indian Companies. This is because the MNCs use much more equity financing and less debt financing.

Ganesan S. (2007)\textsuperscript{60} in his study entitled “A study on Commercial Efficiency of Tamilnadu Cooperative Sugar Mills” aimed at this study to assess the commercial efficiency and productive resources of cooperative sugar mills in Tamilnadu. The commercial efficiency estimated various financial ratios employed like leverage ratios, turnover ratios and profitability ratios. In order to analyze 12 cooperative sugar mills were selected during the period form 1990-91 to 1999-2000. This study has found that Tamilnadu cooperative sugar mills faced problems of inefficient asset utilization, low productivity of resources, poor performances of debt management and heavy debt interest burden. He suggested that the cooperative sugar mills may establish the ancillary units in which the by-

\textsuperscript{60} Ganesan S., “A study on Commercial Efficiency of Tamilnadu Cooperative Sugar Mills”, \textit{Indian Journal of Marketing}, Vol.XXXVII, No.9, September 2007, pp. 46-54.
products are used as main raw materials and they could gain additional income so as to either increase their profits or reduce losses.

**Manor Selvi and Vijayakumar A. (2007)** in their study an attempt has been made to examine the trends in rates of profit of selected Indian automobile industries over the period 1991-92 to 2003-04. In this study ratio of profits to capital employed and express it in percentage terms has been used for this purpose. In sum, the profitability trends in Indian automobile industry reveal that most of these industries have a tendency for rates of profits to fall over a long period. Moreover, time explains this fall in profitability at various degrees. Further, most of the industries, 44.44 per cent experienced erratic fluctuation in profitability series while 33.33 per cent had highly fluctuating series.

**Sudipta Ghosh (2008)** conducted a case study “Liquidity Management: A case study of TISCO” based on the objectives: 1) To examine the liquidity position of the company 2) To study the liquidity position of the company more precisely by a comprehensive test and 3) To measure the closeness association between liquidity and profitability. The study period was from 1996-97 to 2000-01. During the above period, it was found that the liquidity position of the company on the basis of current ratio as well as quick ratio was not satisfactory. It indicates that the share of current assets in total assets of the company on an average was 29.1 during the period under study. The fluctuation in the liquidity position over different years of the study period may be a point for investigation into the financial efforts of the company. It is suggested that to maintain overall control over liquidity position the company should give special attention to

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the management of current assets. He finds out that the degree of influence of liquidity on its profitability was low and insignificant.

Rajamohan S. and Vijayaragavan T. (2008)\(^6\) his study conducted “Production Performance of Madras Cement Limited and that of All Cement Units in India – A Comparative Analysis”. In order to analyze the comparative production performance of Madras Cements Limited and all cement units in India, Mann-Whitney U-test was applied. The results of analysis indicates that the production performance of selected unit is equal to production performance of all cement units in India.

Adolphus J. Toby (2008)\(^6\) conducted his study entitled “Liquidity Performance Relationship in Nigerian Manufacturing Companies (1990-2002)”. This study aimed at determining the empirical relationship between company liquidity measures and profitability. The data were collected from 87 quoted manufacturing companies, Ten (10) multiple regression models were estimated with liquidity measures as independent variables and then covering profitability efficiency and leverage measures as dependent variables. The results of the study reveal statistically significant relationship between liquidity and profitability efficiency and leverage measures. The study has also made an attempt to suggest that in order to target money supply, monetary policy could be used to facilitate the monetary transmission mechanism by integrating a minimum liquidity requirement for the manufacturing industry as one of the objectives of macroeconomic policy.


2.2. Reviews related to EVA and MVA

**Easton, P. Harrish, T. Ohlson, J (1992)** observed that Economic Value Added (EVA) is an increasingly popular corporate performance measure that is often used by companies not only for evaluating performance, but also as a basis for determining incentive pay. Like other performance measures, EVA attempts to cope with the basic tension that exists between the need to come up with a performance measure that is highly co-related with shareholders’ wealth, but at the same time somewhat less subject to the random fluctuations in stock prices. This is a difficult tension to resolve and it explains the relatively low correlation of all accounting based performance measures with stock returns at least on a year to year basis.

**Loeb (1993)** in his study, ‘How We All Learned About Economic Value Added’ looks at the economic value added as a tool for evaluating the performance of almost any business operation from a giant company to a small division by focusing on its use of capital. He adds that the business people use economic value added report enthusiastically to uncover hidden problems. He concludes that those companies that adopt the concept of economic value added often become super performers.

**Stewart (III) and Bennett G. (1994)** observed that “EVA is a powerful new management tool that has gained growing international acceptance as the standard of corporate governance. It serves as the centerpiece of a completely integrated frame-work of financial management and incentive compensation.” In essence, EVA is a way both to legitimize

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and to institutionalize the running of a business in accordance with basic microeconomics and corporate finance principles. The experience of a long list of adopting companies throughout the world strongly supports the nation that an EVA system, by providing such an integrated decision making framework, can refocus energies and redirect resources to create sustainable value for companies customers, employees, shareholders and for management.

**McConville (1994)** in his study, "All About Economic Value Added" refers the term Economic Value Added as a financial tool that enables companies to do more with less by spotlighting the cost of capital. To determine the EVA of any operation, a company simply subtracts from the net operating profit after taxes the cost of the capital employed to produce that profit. He emphasizes that the value is increased by earning a return greater than share owners or lenders require; Economic Value Added is diminished when the return is less. He also stresses that the Economic Value Added really gets increasing because it is being used by business to equate manager salaries and bonuses with performance, replacing return on investment, sales goals or budget-based percentages.

**Thackray (1995)** emphasizes the important strategy tools such as 'Value Based Planning' and 'Economic Value Added' in his study entitled 'What's New in Financial Strategy?'. He has added one more financial concept that has come to exert a powerful influence on corporate strategy. He emphasizes that the Economic Value Added and Block-Scholes options pricing theory will determine the corporate strategy and they are the best measures of financial performance.

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Thenmozhi M (2000) conducted a study in order to have understanding of how the traditional performance measures are comparable to EVA. Data of three financial years between 1996 and 1999 were chosen from 28 companies. Only 6 out of the 28 companies have positive EVA while the others have negative. The EVA as a percentage of capital employed (EVA/CE) has been found to indicate the true return on capital employed. Comparing EVA with other traditional performance measures the study indicates that all the companies depict a rosy picture in terms of EPS, RONA and ROCE for all the three years. The study shows that the traditional measures do not reflect the real value of shareholders and EVA has to be measured to have an idea about the shareholders value.

Ray, Russ (2001), observed that the missing link between EVA and improved financials is actually productivity. EVA can be a powerful tool. When properly applied, it allows a firm to ascertain where it is creating value and where it is not. More specifically it allows a firm to identify where the return on its capital is outstripping the cost of that capital. For those areas of the firm where the former is indeed greater than the latter EVA analysis then allows the firm to concentrate on the firm's productivity in order to maximize the value created by the firm. Finally, as investors buy more shares in the firm in order to have more claims on its increased value, they automatically bid up and eventually maximize the firms share price. And as any good capitalist knows, maximizing share price is the name of the game in a free market economy. Thereafter marginal increases in value added can be attained by either decreasing the firm's cost of capital or by increasing its productivity.

70 Thenmozhi M. "Economic Value Added as Measure of Corporate Performance", The Indian Journal of Commerce, Vo.52, No.4, April 1999, pp. 72-85.
Dyal Bhatnagar and Chandra Shekhar (2001)\textsuperscript{72} in their study have made an attempt to measure the financial performance through MVA analysis. For the purpose of research, a total sample of 56 companies listed on Bombay Stock Exchange (BSE) were drawn and classified into five industrial categories. The data pertains to ten years viz. 1988-89 to 1997-98. The multiple regression modal was used to explore as to which of the independent variables viz. Economic Value Added (EVA), Earning Per Shore (EPS), Return on Capital Employed (ROCE), Net present Value (NPV) Capital Productivity (CP) and Labour Productivity (LP) was more capable of explaining movements in share prices in each industry. The analysis revealed that EVA was the most significantly related variable with MVA in case of chemical and Pharmaceutical Industry. In case of Infrastructure Industry Capital Productivity (CP) was most significantly related to MVA. The analysis with regard to miscellaneous industry revealed that both EPS and EVA were significant variables which explained movements in MVA.

Riceman S.S. and Cahan S.F. (2002)\textsuperscript{73} observed that “previously we used several measurements to gauge our financial outlook from earning per share to discounted cash flow and return on average assets. With EVA, we saw a way to meet our business objectives and create a new corporate culture. It permeates every level from boardroom to the shop floor. Bonuses of all managers are determined solely by whether variety achieves its EVA targets. At our company every decision and every action results from analysis that uses EVA principles. We focus on ensuring that every investment produces return that exceeds our cost of capital. We believe this


approach enables us to directly align management and shareholders interest".

Debdas Rakshit, (2006)\textsuperscript{74}, observed that “EVA is advocated as a new measure of corporate performance that focuses on clear surplus in contrast to the traditionally used profit based indicators. For evaluation of the efficiency of any decision, value creation or value addition aspect is of utmost importance in the present backdrop of corporate governance. Although adopting a holistic approach safeguarding the interests of all stakeholders is being emphasized and rightly so, it should be kept in mind that value creation or value addition aspect is of prime consideration in the assessment of the corporate policy guidelines. If that is not satisfied, wrong signals will be emitted from securities market and the continuance of the operations of the entity will be at stake.”

Ali. M. Ghanbari and V.S. More (2007)\textsuperscript{75} entitled their study “The Relationship between Economic Value Added and Market Value Added: An Empirical Analysis in Indian Automobile Industry”. This study empirically tests the strength of the relationship between EVA and MVA in Indian Automobile Companies for the period between 2001 and 2005. The results indicate that there is strong evidence to support Stern-Stewart’s claim that EVA is superior to the traditional performance measures, and it is the best internal measure of corporate success in adding value to shareholders’ investments. It concluded that EVA is more associated with MVA and presents a more transparent and clear picture of firm value in comparison to the other performance measures.


Ramachandra Reddy and Yuvaraja Reddy (2007)\textsuperscript{76} in their study, an attempt has been made to examine the effect of selected variables on MVA of selected Cement Companies in India from 01.04.2003 to 31.03.2004. For the purpose of the study 3 Major Cement Units and 7 mini plants were selected. The MVA has been taken as a dependent variable and Return on Net Worth, Capital Productivity, Labour Productivity, Earning per Share, Economic Value Added, Return on Sales (or) Turnover, Return on Total Assets and Cash Profit have been selected as independent variables. It can be inferred from regression analysis that none of the factors was found to have significant impact on MVA. But EPS was found to have a negative and significant effect on MVA. This implies that the MVA of cement companies is not only affected by selected independent variables but also influenced by other factors.

Ramana D.V. (2007)\textsuperscript{77}, in his study "Economic value added and other Accounting performance Indicators: An Empirical Analysis of Indian companies" examines the relationship between economic profit, cash profit and Accounting profit and also the relevance of these earnings by using the 12 years data of the companies forming a part of NIFTY of the National Stock Exchange (NSE) of India. This study concludes that the association between EVA and accounting based earning is very weak. A very small percentage of MVA can be explained by EVA and other accounting profits. So EVA or any other accounting profit cannot be a good proxy for MVA. The changes in market capitalization may be attributed to factors other than the fundamental factors like accounting profit or economic profits.

\textsuperscript{76} Dr.B.Ramachandra Reddy and Dr.B.Yuvaraja Reddy, Financial performance through market value added (MVA) approach, \textit{The Management Accountant}, Jan 2007, Vo.42, No.1, pp.56-59.

Sakthivel N. (2008)\(^{78}\) observed that "Market value of the firm’s shares is a measurement of the shareholders wealth. Again ‘market value’ is influenced by investors objectives, purely based on the profitability and financial performance of the company. Profitability measures include ROI, ROE, EPS, ROCE and DPS etc. Shareholders’ valued based measures include EVA, MVA and SVA. Maximizing the shareholders’ value is considered as one of the fundamental goals for all business. Shareholders value analysis is the process of predicating how business decisions will impact a corporation’s market value of equity.”

Niranjan Mandal et al. (2008)\(^{79}\) suggested that value added is an alternative measure for the evaluation of corporate performance with the implied emphasis on new philosophy that a firm exists, operates and grows not only for its owners but also for all other beneficiaries treating them all as a corporating team.

Bardia, S.C., (2008)\(^{80}\) in his study entitled “Evaluation of Financial Performance: A Dialectics” examines from selected companies like Infosys and Satyam Computers have been able to create value for their shareholders. The study reveals that both Infosys and Satyam have been able to generate value for their shareholders, but during 2002-03 both the companies could not maintain the pace with the growth in value creation. However, Infosys created more value for its shareholders in comparison to Satyam. EVA as a percentage of average capital employed (EVACE) marked a fluctuating trend during the period of the study in both the companies. It concluded that

the financial performance of Infosys is much better than Satyam from all different parameters of financial analysis.

Mandeep Kaur and Sweety Narang (2008)\textsuperscript{81} in their study "Economic Value Added Reporting and Corporate Performance: A study of Satyam Computer Services Ltd.," pointed out that EVA better measures the wealth created by a firm. 'Maximizing share holder value' is a popular refrain in the corporate world today. In India, only a few companies like HLL, Infosys, Satyam Computers etc, go about measuring their shareholders' value, although they don't calculate it scientifically. This study compares the EVA statement as disclosed by Satyam Computer Services and actual EVA created by it after considering all the adjustments given by Stern Stewart of EVA concept. The study concludes that traditional measures like ROCE, RONW, EPA, Growth in EPS don't reflect the real value of shareholders' wealth and thus EVA has to be measured scientifically to have a real idea about shareholders' value.

Ramana Reddy and Rajesh M (2008)\textsuperscript{82} conducted study entitled "The relationship between EVA, MVA and Dividend paid – An Empirical Study". EVA is an attempt to measure the true economic profit. It measures whether the operating profits are sufficient enough to cover the cost of capital. If EVA is positive, then the firm has created value for the shareholders over the period and if the EVA is negative, it connotes the firm is destroying shareholders' wealth even though it may report a positive and growing EPS and ROCE. The data were collected from the financial report of Shipla Medicare Ltd., Raichur for the period 2002-2007. The calculated


co-efficient of correlation between EVA and MVA, EVA and Dividend paid, MVA and Dividend paid are strong positive association between the variables. This study concludes a positive EVA and MVA value of a company is being added to value of investors.

2.3. Review related to Iron and Steel industry

DHL India Trade out look (2004)\textsuperscript{83} did a study on “Iron and Steel: The Strength of India”. The study pointed out that the iron steel sector is highly diversified, with production ranging form basic raw materials to semi-finished and finished products. The iron and steel sector has received various promotional incentives to promote exports in the current EXIM policy. With the prices firming up and global economy on a gradual recovery, the Indian export market is expected to grow further. Given the cheap availability of inputs (raw materials, man power) and the various incentive schemes, the exporters have immense opportunities, not only to increase their share in the existing markets but also to diversify into other markets. The study concludes that the government tried to enhance domestic production by reducing the import of raw materials and a steel export forum has also been setup to resolve problems and bottlenecks related to exporters.

Lakshmipathi Raju and Raju, B.S.N (2007)\textsuperscript{84} in his study entitled “Performance of Ferro alloy industry: Impediments and impetus” point out that Ferro alloys are alloys of iron in which one or more chemical elements are added, then melded and usually used in steel making. The industry is facing some problems such as high power rates, infrastructure bottlenecked, low stagnant demand and excess capacity, etc. He observed that its capacity


has increased substantiality meeting the requirements of steel industry in the
country. At present there are 105 units in the country with a total capacity
of 2 million tonnes of Ferro alloys produced. This study concluded that the
industry is facing several problems, having said that there are solution viz.,
viable captive power, location close to ports as to reduce international
transportation cost etc., besides other issues such as high operating cost and
other are all being addressed slowly but surely as reform gathers pace, the
industry is going to consolidate its position.

Raja B.V.R (2007)\textsuperscript{85} in his study “SWOT Analysis of Aluminum &
Special Steel for various applications” point out that steel is key consuming
sectors which include construction, automobile, consumer durables, capital
goods, engineering industry etc. The end use analysis of stainless steel
reveal that the largest consuming sector is kitchenware (75 per cent)
followed by process industry (10 per cent), construction and transportation
contributing 2 per cent each, engineering industry 5 per cent. The study
concludes that stainless steel market is expected to grow at 11 per cent per
annum in the next coming decade.

Uday Telang (2007)\textsuperscript{86} studied “Specialty Steels – Consumers and
Producers Unite” believed that the percentage share of total non-flat
products in the total consumption of finished steel gives an indication of the
state of economy. He pointed out that while the world’s total consumption
of finished steel has crossed 1000 metric tonnes mark, the Indian steel
consumption is at around 44 metric tonnes representing 4.4 per cent share of
total consumption. During nineties this share was around 3 per cent. His
study reveals that alloy steels and carbon steels are today produced and also

\textsuperscript{85} B.V.R. Raja, “SWOT Analysis of Aluminum & Special Steel for various applications’, Steel World,
\textsuperscript{86} Uday Telang, “Specialty Steels: Consumers and Producers unite”, Steel World, Vol.14, No.9, September
supply prices to this producer are almost 5 to 10 per cent lower than the steel supplied through electric arc route.

Muthuraman B. (2007)\textsuperscript{87} stated that the steel industry has entered into different era, compared to what it was during the 25 years from 1975 to 2005. The industry grew on an average of just 1 per cent. In the 1990s the growth was even lower at just 0.4 per cent. This was largely due to the economic growth witnessed in the US and Europe. The growing level of consumption in China and India will ensure a strong demand and sustain growth for more than 50 years.

Sanjay Sen Gupta (2007)\textsuperscript{88} in his study “An outline of Indian Iron Ore Industry” that the Indian iron ore is characterized by high alumina and silica ratio. The alumina content in Indian iron ore lies between 2-4 per cent in lumps and 4-6 per cent in fines. He observed that iron ore mining in India has been characterized in the past by methods developed for high grade deposits and relatively small outputs of up to 2 metric tonnes per annum, selective mining in high grade and fines. He suggested that modern benefaction process allows for effective and low cost upgrading of lump, fines and lump, fines and ultra fines and at the same price levels existing deposits become more profitable. In this study he concluded that the Government should encourage trading in order to make this essential raw material available to the iron and steel industry, throughout the country. The government would positively support investments in adding value to the iron ore mines.


Muthuraman and Amit Chatterjee (2007)\textsuperscript{89} entitled their study “Growth of Primary Steel Industry in India”. As India develops the factor intensity of steel in the GDP, the amount of steel required to produce one unit of gross national output is likely to increase. To support eight per cent growth rate of the economy a completely different kind of infrastructure (in terms of industrial complexes, railways, ports factories) will be required, all of which are very steel intensive. So, even if the GDP remains at 7-8 per cent, more steel will be required each year to service the nation’s industries. When all the green field projects of Indian steel industries projects are completed, India’s position would become higher in the world steel league. To cater to import export of steel products and raw materials, ports like the Dharma port on Orissa are being developed. But much more needs to be done on the infrastructure front, if bulk production of steel in India is to become globally competitive.

Gulhati V.K. (2008)\textsuperscript{90} attempted to study “SAIL Expansion Plan Envisages Big Hike in Bhilai Plant Capacity”. Bhilai has now entered the third phase of expansionist steel making capabilities and has introduced new products into its basket. Bhilai’s capabilities in the long product category will be further strengthened with a 0.9 MT new bar and rod mill and a 1.2 MT universal beam mill and raw material handling facilities are being strengthened.