CHAPTER VI

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Paper industry in India is one of the 15th largest industry in the world. It provides employment to more than 0.12 million people directly and 0.34 million people indirectly. The paper industry is a priority sector for foreign collaboration and foreign equity participation upto 100 per cent receives automatic approval by Reserve Bank of India. After globalization, the Government has completely delicensed the paper industry, to enhance the productivity. Paper industry is highly energy intensive industry and is closely linked to the buoyancy in the economic development of a country.

The first chapter has dealt with the introduction and design of the study. The thirteen large scale paper mills are considered for the present study. A period of ten years from 1997-1998 to 2006-2007 has been considered for the study. The following are the main objectives of the study.

1. To trace out the growth and progress of the paper industry in India.
2. To evaluate the trend of efficiency of the paper mills in India.
3. To analyze the profitability position of the paper mills in India.
4. To analyze the liquidity and solvency position of the paper mills in India.
5. To recapitulate the key findings of the study and to offer suitable suggestion for improving the performance of paper mills in India.

To analyze the performance of large scale paper companies, various techniques like ratio analysis, mean, standard deviation, co-efficient of variation,
annual growth rate and compound annual growth rate have been computed. The second chapter reveals the previous study undertaken by other researches. The third chapter has traced out the profile of paper industry in India. The fourth chapter has dealt with trend analysis of paper mills in India. The trend of capacity utilized, production and sales have been analyzed.

The fifth chapter reveals the analysis of the profitability. Various profitability ratios have been analyzed by using mean, standard deviation, co-efficient of variation, annual growth rate, compound annual growth rate, 't' test, correlation and analysis of variance. Numerical scoring system is measured to rank the companies on the basis of selected performance indicators and the companies have been ranked. The second part of this chapter has dealt with the liquidity and solvency analysis of select paper mills in India. Altman's model is applied to assess the financial position of the paper industry. The sixth chapter recapitulates the findings and suggestions are offered.

**FINDINGS**

**Trend analysis**

Trend analysis reveals that the selected companies have enhanced the level of capacity utilization except Pudumjee paper, Shreyans paper, Star paper and Sirpur paper whose level of capacity utilization was found to be declined. The performance of these companies related to capacity utilization level was below that of other companies. It is found to be significant at 1 percent level in relation to capacity utilized.

The productions have an increasing trend for all the companies except Orient paper. Analysis of variance indicates that there is a significant difference at 1 per cent level in respect to production.
The sales have an increasing trend for all the companies except Orient paper. The result of analysis of variance was found to have significant difference at 1 per cent level.

Analysis of Profitability

Profitability ratios are calculated to measure the overall efficiency of the business.

Analysis of profit margin in relation to sales

The company wise analysis of profit margin in relation to sales revealed that TNPL has the highest gross profit ratio (18.08 per cent), net profit ratio (6.85 per cent), operating profit ratio (24.88 per cent), earnings before depreciation, interest and tax to net sales ratio (0.24 per cent), earnings before interest and tax to net sales ratio (0.15 per cent) and operating cash flow to net sales ratio (0.15 per cent). Orient paper has the highest operating ratio (130.16 per cent).

The compound annual growth rate is positive for Andhraphadesh paper, Seshasayee paper, Sirpur paper, West coast paper, Ballarpur paper and Mysore paper in case of gross profit ratio and net profit ratio. Operating ratio, for Pudumjee paper and Seshasayee paper has registered a positive growth rate. Rama paper, West coast paper, Orient paper, Ballarpur paper and JK paper have registered a positive growth rate in operating profit ratio. Orient paper has registered a highest positive growth rate in earnings before depreciation, interest and tax to net sales ratio. For operating cash flow to net sales ratio, Ballarpur paper has registered a highest positive growth rate.
Analysis of variance has been applied to test the significant differences among the companies and between years. The analysis of variance indicates that gross profit ratio, net profit ratio, operating ratio, operating profit ratio and earnings before depreciation, interest and tax to net sales ratio have significant difference at 1 per cent level.

**Analysis of profit margin in relation to return on total assets**

West Coast paper and Rama paper have the highest and lowest margin of return on total assets (14.26 per cent and 3.313 per cent) earnings before depreciation, interest tax to total tangible assets ratio (0.22 per cent and 0.08 per cent), earnings before interest and tax to total assets ratio (0.16 per cent and 0.03 per cent). For earnings before depreciation, interest and tax to gross total assets ratio, the West Coast paper and Mysore paper have recorded the highest and lowest contribution of 0.15 per cent and 0.03 per cent respectively. West Coast paper has recorded 0.10 per cent and Shreyans paper, Orient paper and Mysore paper with 0.01 per cent as the highest and lowest contribution of operating cash flow to gross total asset ratio.

The compound annual growth rate of return on total assets, earnings before depreciation, interest and tax to total tangible assets ratio, earnings before interest and tax to total asset ratio, earning before depreciation, interest and tax to gross total asset ratio and operating cash flow to gross total assets ratio are positive for Seshasayee paper, TNPL, Ballarpur paper, Orient paper and Rama paper. Seshasayee papers has the highest growth rate and the lowest growth rate has been seen by Pudumjee paper.

The analysis of variance results indicates that there is a significant difference at 1 per cent level in the earning before depreciation, interest and tax to
total tangible asset ratio, operation cash flow to gross total asset ratio and profit after tax to total tangible asset ratio and do not differ significantly for between years at 5 per cent level in return on total asset and earnings before, interest and tax to gross total asset. Earnings before depreciation, interest and tax to gross total assets ratio is a significant difference at 5 per cent level for between years on an average.

**Analysis of profit margin in relation to return on capital employed**

West Coast paper and Mysore paper have the highest and the lowest margin of return on capital employed (22.57 per cent and 6.96 per cent), retained cash flow to gross capital employed (0.09 per cent and 0.01 per cent) and net profit before interest to capital employed (0.14 per cent and 0.03 per cent).

The compound annual growth rate for return on capital employed shows the highest for Orient paper (28.70 per cent) and lowest for West Coast paper (0.93 per cent). In case of retained cash flow to gross capital employed ratio it has been high for Ballarpur paper and low for Seshasayee paper (5.39 per cent). The net profit before interest to capital employed ratio is highest for Seshasayee paper and lowest for Ballarpur paper (3.31 per cent).

The analysis of variance for return on capital employed and retained cash flow to gross capital employed ratio shows that there is a significant difference among companies and between years at 1 per cent level. Net profit before interest to capital employed ratio, the analysis of variance shows that there is no significant difference between years and there is significant difference between companies at 1 per cent level.
Analysis of profit margin in relation to return on shareholders’ equity

The analysis of profit margin in relation to return on net worth is the highest for West Coast paper (20.84 per cent) and the lowest for Star paper (4.15 per cent). West Coast paper and Seshasayee paper have registered the highest and the lowest mean of retained earnings to shareholders’ equity ratio. West Coast paper is the highest scorer of operating cash flow to tangible portion of shareholders’ equity and Sirpur paper is the lowest ratio.

The compound annual growth rate is positive for Seshasayee paper, Sirpur paper, and West Coast paper in case of return on net worth ratio. For retained earnings to shareholders’ equity ratio, Sirpur paper, and West Coast paper have registered a positive growth rate. In case of operating cash flow to tangible portion of shareholders’ equity ratio, all companies except Pudumjee paper have registered a positive growth rate.

The analysis of variance results indicates that there is a significant difference for between companies at 1 per cent level and do not differ significantly for between years at 5 per cent level in the return on net worth ratio and retained earnings to shareholders’ equity ratio on an average. The operating cash flow to tangible portion of shareholders’ equity ratio shows that there is a significant difference for between years at 1 per cent level and do not differ significantly for between companies on an average.

Correlation analysis

Relationship between Profitability ratios

A high degree of positive correlation between OCF/S ratios and GP/S ratio (.98) which is significant at 1 per cent level followed by PAT/S and EBDIT/TTA
ratio and EBDIT/GTA ratio (.959) has a high degree of positive correlation. High
correlation is observed with NPBI/TA, PAT/TA ratio. Low correlation is
observed with OCF/TPSHE ratio and EBDIT/S ratio (.339) which is significant at
1 per cent level. It is observed that there is a high degree of positive correlation
between current ratio and quick ratio(0.934) which is significant at 1 per cent level
and indicates that increase in either of these ratio’s will also result in the increase
of other. Low correlation is observed with current ratio and absolute liquid ratio
(0.415). There is a high degree of positive ratio and fixed assets turnover
turnover ratio(0.770) which is significant at 1 per cent level and indicated that increase in
either of there ratios will also result in the increase of the other. A negative
correlation is observed with inventory turnover ratio and debtor’s turnover ratio
(-0.81). Low correlation is observed with debtor’s turnover ratio and fixed assets
turnover ratio (0.062) and working capital turnover ratio and fixed assets turnover
ratio (0.179). It is observed that there is a high degree of positive correlation
between debt equity ratio and fixed assets to net worth ratio which is significant at
1 per cent level and indicated that increase in either of these ratios will also result
in the increase of the other. A high degree of negative correlation is observed
between debt equity ratio and equity ratio (-0.667) and funded debt to
capitalisation fund ratio and equity ratio (1-0.874). Low correlation is observed
with funded debt to capitalisation ratio and solvency ratio (.293), and current
assets to proprietors fund ratio and solvency ratio (.032).

Regression analysis

Regression analysis is applied to understand the extent of relationship
between dependent variable and independent variables. The multiple regression
analysis between the dependent variable net profit and the set of independent
variables taken together is found to be 0.732. The high value of R indicated that
there is a very good correlation between the set of independent variables and the
dependent variable net profit. The $R^2$ value above 0.536 indicates the goodness of fit of the model. The current assets to proprietor’s fund ratio, inventory turnover ratio, working capital turnover ratio, total assets turnover ratio have positive effect on net profit ratio. Fixed assets to long term funds ratio, debtors turnover ratio, fixed assets turnover ratio, funded debt to capitalisation fund ratio have negative impact on net profit ratio. ‘T’ test applied to test the significance for these ratios have indicated no significant effect on fixed assets to net worth ratio, fixed assets to long term funds ratio, inventory turnover ratio, debtors turnover ratio and fixed assets turnover ratio. Debt equity ratio and total assets turnover ratio have indicated significant effect at 5 per cent level and current assets to proprietor’s fund ratio, working capital turnover ratio, funded debt to capitalisation ratio have indicated significant effect at 1 per cent level. The multiple correlation co-efficient between the dependent variable return on total assets and the set of independent variables taken together is found to be 0.750. The high value of $R$ indicates that there is a very good correlation between the set of independent variables and the dependent variable return on total assets. The $R^2$ value above 0.562 indicates the goodness of fit of the model. The debt equity ratio, fixed assets to net worth ratio, inventory turnover ratio and total assets turnover ratio have positive effect on return on total assets. Fixed assets to long term funds ratio, current assets to proprietor’s funds ratio, debtors turnover ratio, working capital turnover ratio, fixed assets turnover ratio, funded debt to capitalisation fund ratio have negative effect on return on total assets. ‘T’ test applied to test the significance of these ratios has indicated no significant effect in debt-equity ratio, fixed assets to net worth ratio, current assets to proprietor’s fund ratio.

Numerical scoring system

The numerical scoring system is used to determine the profitability of a firm by assigning weights to the variables having less degree of association. The
main purpose of numerical scoring system is to rank the companies based on the performance of the company. For this purpose, the profitability ratios were used. The highest overall score have been revealed by West Coast paper followed by TNPL, Andhra Pradesh paper, JK paper and the lowest is scored by Mysore paper.

**Analysis of Short -Term Financial Position**

**Liquidity Ratios**

The average current ratio is the highest ratio in the case of Pudumjee paper (3.86) and the lowest ratio for Andhrapradesh paper (1.6). The overall ratio is found to be 2.30 and standard norms is 2:1. The average quick ratio is the highest ratio for Pudumjee paper (2.45) and the lowest ratio for Andhrapradesh paper (0.76). The overall ratio is found to be 1.48 and this ratio is a stringent measure of liquidity, as inventories are excluded from current assets. The average absolute liquid ratio for all the companies except Ballarpur paper (0.62) is below the standard forms (0.50:1). The lowest ratio is by (0.03).

The compound annual growth rate for current ratio is found to be highest at Ballarpur paper (16.04) and the lowest for Seshasayee paper (-2.53). The compound annual growth rate for quick ratio indicates that it is high for Ballarpur paper (17.13per cent) and low for TNPL (-6.75per cent) indicating a negative variation. The overall average for compound annual growth rate is 1.4 per cent. The compound annual growth rate for absolute liquid ratio indicates that it is high for Ballarpur paper (38.38 per cent) and low for JK paper (-13.6 per cent). The overall average for compound annual growth rate is 9.65 per cent.
The analysis of variance result indicates that there is no significant difference between years during the study period for current ratio, quick ratio and absolute liquid ratio. But there is a significant difference between the companies at 1 per cent level for all the ratios.

**Efficiency ratios /Activity Ratios**

The average inventory turnover ratio of the industry is found to be 6.62 times and the highest for Seshasayee paper (11.49 times). The debtor’s turnover ratio is found to be the highest for Star paper (22.33 times) and lowest for Shreyans paper (5.16 times). The working capital turnover ratio is found to highest for Andhrapradesh paper (9.47 times) and lowest for Pudumjee paper (2.09 times). The fixed assets turnover ratio is found to be the highest for West Coast paper (2.59 times) and the lowest for Rama paper (0.51 times). The overall average is measured to be 1.53 times. The average total assets turnover ratio of the industry is found to be 0.98 times and highest for Shreyans paper (1.43 times).

The compound annual growth rate for working capital turnover ratio is found to be highest at Sirpur paper 12.77 times and lowest for Ballarpur paper (-16.52) indicates negative average. A higher compound annual growth rate is observed by Rama paper and lower growth rate was observed by Sirpur paper in case of total asset turnover ratio and fixed assets turnover ratio. The highest compound annual growth rate was achieved by Rama paper and was followed by Orient paper in case of inventory turnover ratio. The compound growth rate implies that the growth was greater in Star paper (13.76 per cent) and lower in Rama paper (1.64 per cent).

Analysis of variance result indicates that there is no significant difference between years for working capital turnover ratio, total asset turnover ratio and
inventory turnover ratio during the study period but there is a significant difference between companies at 1 per cent level. Debtors turnover ratio indicates that there is a significant difference at 1 per cent level for both between years and between companies. Fixed assets turnover ratio indicates that there is a significant difference at 5 per cent level for between years and at 1 per cent level for between companies.

Analysis of Long-Term Financial Position

The long term solvency ratios indicated a firms' ability to meet the fixed interest and costs and repayment schedules associated with its long term borrowings. The average debt equity ratio is highest for Shreyans paper (9.78 per cent) and the lowest for Pudumjee paper (0.60 per cent). In case of funded debt to capitalisation fund ratio, the highest ratio is Mysore paper (114.73) and lowest is Sirpur paper (41.38). The average equity ratio was found to be 0.46 per cent and the highest for Sirpur paper (0.69 per cent). The average solvency ratio is found to be 0.12 times and highest for Mysore paper 0.32 times. The fixed asset to net worth ratio indicates that the mean is high for Orient paper (446.88) and low for Pudumjee paper (100.70). The fixed assets to long term funds ratio is found to be high for Andhrapradesh paper (154.38 per cent) and low for Mysore paper (67.94 per cent). The average ratio of current asset to proprietors' funds ratio is 158.21 per cent.

The compound annual growth rate of debt equity ratio indicates higher for Mysore paper (14.44 per cent) and lower for Rama paper (-17.98) with negative growth. It is high for Rama paper (13.62 per cent) and low for Shreyans paper (-13.89 per cent) with a negative growth for equity ratio. For fixed assets to net worth ratio the Mysore paper (19.75 per cent) has the highest rate and lowest rate is for TNPL (-1.85 per cent) with a negative growth rate. In case of solvency ratio,
it is high for West Coast paper (12.38 per cent) and low for Pudumjee paper (3.09 per cent). The compound annual growth rate reveals that the highest growth of 11.18 per cent was achieved by Rama paper and followed by Seshasayee paper with 11.13 per cent. For funded debt to capitalisation fund, the Sirpur paper has the highest rate and the lowest rate for Mysore paper. It is high for Shreyans paper (18.95 per cent) and low for Mysore paper (12.73 per cent) for current assets to proprietors fund ratio.

The analysis of variance result indicates that there is no significant difference at 5 per cent level for between years for all the long term solvency ratios but indicates significant difference at 1 per cent level for between companies.

**Altman’s model**

The financial strength or weakness can be identified through this model. Altman has found that five financial ratios are able to discriminate rather effectively between bankrupt and non bankrupt companies.

The Z scores for Andhrapradesh paper was in too healthy zone (3 and above) during the study period 1997-1998 to 2006-2007. The Z scores for Pudumjee paper (1.8 and 2.99) was in the healthy zone during the period from 2000-2001 to 2001-2002. It touched too healthy zone (3 and above) during the period 1997-1998 to 1999-2000 and 2002-2003 to 2006- 2007. The Z scores of Rama paper was found that too healthy zone (3 and above) during the period 2002-2003 to 2006-2007.

The Z score for TNPL touched too healthy zone (3 and above) during the period 1998-1999 to 2006-2007. The Z scores for West Coast paper was in too healthy zone (3 and above) during the period 1997-1998 to 1999-2000. The Z scores of Orient paper was in bankruptcy zone (below 1.8) during the period 1998-1999 to 1999-2000 and it touched too healthy zone (3 and above) during the period 2004-2005 and 2006-2007.

SUGGESTIONS

For improving the performance of paper industry the following suggestions may be adopted.

1. Industry has to go for plantation programmes for self sufficiency in raw materials. The Government should encourage growth of large scale plantations of eucalyptus plants.

2. In era of tech-savvy and global competition quality products can alone survey in the market. In order to provide world class quality the existing technology should be changed to ultra modern technology to fulfills the demand in the market.

3. It is suggested that Indian paper board should practice dog-watching of neighbouring countries progress especially China, Korea pricing strategies and quality of paper supplied by them. Accordingly these paper mills may implement timely strategy growth in production in the marketing of goods.

4. While analyzing the capacity utilization of paper Industry is disheartening to know that majority of plants are not fully utilized due to scarce in raw material, unskilled labour and outdated technology. Hence it is suggested that a good replenishment technique should be practiced at the time of material handling and due care should be taken by employing highly skilled labour. With these support the paper mills can utilized at the optimum level.

5. For the improvement of financial health, paper industry should adopt effective control of operating costs. Adoption of profit planning and control techniques may enable the mills to push down the operating costs and boost up the profits.
6. Product mix is the way of improving profitability of the mills. Instead of selling paper it can convert them into paper products like note books so that marketability will be more effective.

7. It is necessary to restore the industry health through the effective management of finances.

CONCLUSION

Paper industry in India will certainly flourish and touch the new heights in future, by overcoming the problems and bring back the industry into the profitable position. Indian paper industry is undergoing rapid modernisation and is using advanced machines that demand consistent and high quality of paper. With the competitive financial market offering funds at very competitive interest rates, the Indian paper industry seems poised for recovery.