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Journal of Financial Markets Research
ISSN 1986-4310 Issue 2 (2011)
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http://www.journaloffinancialmarketsresearch.com

Financial Performance of Indian Manufacturing Companies during Pre and Post Merger

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Abstract

Corporate Restructuring has become a major component in the financial and economic environment all over the world. Industrial restructuring has raised important issues for business decisions as well as for public policy formulation. Since 1991, Indian industries have been increasingly exposed to both domestic and international competition and competitiveness. Hence, in recent times, companies have started restructuring their operations around their core business activities through M & As. But M & A is an area of potential good as well as potential harm in corporate strategy. It is necessary that an analysis has to be made to compare the financial performance of the pre and post – merger. In India, there are totally 58 manufacturing companies which have undergone mergers and acquisitions during 2000, 2001 & 2002. Thirty percent from the total population was taken as sample size (i.e. 17 companies out of 58). The present study is mainly based on secondary data. In order to evaluate the financial performance, ratio analysis, mean, standard deviation and 't' test have been used as tools of analysis. The study found that in India merging companies were taken over by companies with reputed and good management.

Keywords: Corporate Restructuring, Financial Performance, Ratio Analysis.

1. Introduction

A company may grow internally, or externally. The objective of the firm in either case is to maximize the wealth of the existing shareholders. Most corporate growth occurs by internal expansion, which takes place when a firm's existing divisions grow through normal capital budgeting activities. The mergers, takeovers, divestitures, spin-offs and so on, referred to collectively as **Corporate Restructuring,** have become a major force in the financial and economic environment all over the world. The industrial restructuring has raised important issues both for business decisions as well as for public policy formulation. On the more positive side, M & As may be critical to the healthy expansion of business firms as they evolve through successive stages of growth and development. The successful

entry into new product markets and into new geographical markets by a firm may require M & As at some stage in the firm's development. The successful competition in international markets may depend on capabilities obtained in a timely and efficient fashion through M & As.

2. Mergers in Manufacturing Sector in India

Since 1991, Indian industries have been increasingly exposed to both domestic and international competition. The competitiveness has become an imperative for survival. Hence, in recent times, companies have started restructuring their operations around their core business activities through M & As. Indian manufacturing industry is classified into seven categories - Food & Beverages, Textiles, Chemicals, Non-Metallic Mineral Products, Metal and Metallic Products, Machinery, Miscellaneous Manufacturing and Diversified.

2.1. Statement of the Problem

It is true that dramatic events like mergers, takeovers, restructuring and corporate controls occupy the Indian business newspapers almost daily. Further they have become central focus of public and corporate policy issues. Some assert that the activities of mergers and acquisitions represent a new force in creativity and productivity. Some others view it as a blight on our economy. Regardless of these views, they do represent a major trend in the contemporary and economic environment. This is an area of potential good as well as potential harm in corporate strategy including manufacturing industry. Mergers take place due to various motives. Therefore an analysis has to be made to compare the financial performance of the pre and post merger of firms to gain some insights into the factors that might have possibly induced the merger.

2.2. Significance of the Study

It is important to improve the competitiveness and quality of the manufacturing sector in order to enhance its efficiency. Mergers take place in the Indian context in line with the trend of consolidation that has characterized the financial services industry and, in particular, the manufacturing industry. Companies the world over have been merging at a furious pace, driven by the urge to gain synergies in their operation, derive economies of scale and offer one-stop facilities to a growingly more demanding clientele. Hence the desire to grow quickly through mergers rather than through the slow and tortuous path of normal expansion in business. Merger seems to lead to financial and strategic growth. The financial and strategic management aspect of merger is to be analyzed from several angles. The present study is about the evaluation of financial performance of mergers before and after mergers in the manufacturing industry.

2.3. Review of Literature

In this study an attempt has been made to briefly review the work already undertaken and methodology employed. A brief review of select studies has been presented in the following pages.

David C. Cheng, et.al (1989) in their paper, **'Financial Determinants of Bank Takeovers'** found that several studies have examined the determinants of bank merger pricing. Those studies focused on the characteristics of the target, and to downplay the characteristics of the acquiror. Their study found that the purchase price is a negative function of the target's capital- to- asset ratio. The only variable used in their model is the ratio of acquiror- to- target assets. This study is different from earlier studies of bank mergers pricing in the sense that it provided greater consideration of bidder related variables, used multiple proxies for certain theoretical determinants of merger pricing, and used principal components regression to control potential multicollinearity problems.

The study entitled, **'The New Economic Package and the Agenda for Restructuring the Financial Sector'** by Raghunathan.V. et.al (1991) discusses the emerging issues relating to new economic policy in the financial sector. This article strongly argues that agenda for restructuring the

financial sector includes the integration of various financial markets, new instruments required for hedging risk, measures for investor protection, appropriate legislation, relevant tax reforms, development of financial infrastructure and the role of regulatory agencies.

The study entitled, **'LBOs, Corporate Restructuring and The Incentive- Intensity Hypothesis'** investigated the argument that corporate restructuring is an intended outcome of LBO transactions directly. Using a detailed database on corporate operations, the study investigated four aspects of corporate restructuring, namely, corporate downsizing, corporate refocusing, portfolio reorganization and changes in the industry characteristics of portfolio business. The results of this study strongly suggest that the governance structure of LBO firms enables the managers to forge growth more effectively than the governance structure of public firms. This study analyzed the effects of LBOs on corporate restructuring activity by analyzing differences in restructuring activity between 33 large LBO firms and 33 closely matched public corporations. The evidences presented in the study show that certain types of corporate restructuring are more prevalent and extensive in LBO firms than similar ones in public firms.

An empirical study entitled, **'Takeovers as a Strategy of Turnaround'** by Ravi Sanker and Rao K.V. (1998) analyses the implications of takeovers from the financial point of view with the help of certain parameters like liquidity, leverage, profitability etc. They observe that if a sick company is taken over by a good management and makes serious attempts, it is possible to turn it around successfully.

Ruhani Ali and Gupta G S (1999) in their paper entitled, **'Motivation and Outcome of Malaysian Takeovers: An International Perspective'** examine the potential motives and effects of corporate takeovers in Malaysia. The Muller's methodology, which involves the use of accounting measures like size, growth, profitability, risk and leverage, is employed for the study to analyze the performance characteristics of takeover firms in the pre – and post – takeover periods.

Jayakumar. S. (1999) in his dissertation entitled, **'Mergers and Acquisitions: An Evaluation Study'** examines the relative benefits expected by a corporate enterprise when they adopt mergers and acquisitions as a strategy. The author studies the extent to which the security prices reacted to the announcement of merger.

The working paper entitled, '**An Analysis of Mergers in the Private Corporate Sector in India'** by Beena P.L. (2000), attempts to analyse the significance of mergers and their characteristics. The paper establishes that acceleration of the merger movement in the early 1990s was accompanied by the dominance of mergers between firms belonging to the same business group or houses with similar product lines.

The dissertation entitled, **'An Evaluation of Mergers and Acquisitions'** by Canagavally. R. (2000), measures the performance in terms of size, growth, profitability and risk of the companies before and after merger. The dissertation also investigates the share prices of sample companies in response to the announcement of merger.

The paper entitled, **'M&A Unlocking Value'** by Huzifa Husain (2000), explains that takeovers (hostile or non-hostile) may be beneficial to the shareholders if they help unlock the hidden value of a company. They also help the existing management to be more receptive to shareholders. Economically, takeovers make sense if the 'Private Market Value' of a company is higher than the market capitalization of the company. Further, if takeovers are used as a ploy to prevent competition, it becomes harmful to the economy. Therefore, proper checks and balances have to be put in place to ensure that takeover facilitation improves overall efficiency of the economy.

The study, conducted by Ajay Pandey (2001) in the context of developed countries, points out the substantial valuation gains for target firms, particiularly in the case of successful takeovers. The primary motivation for the study was to test whether takeovers are seen by capital market as creating value to the firm by improving performance following change in management or as mere replacement of existing management without any expectation of concomitant improved managerial and firm performance.

The study entitled, **Trumps for M & A - Information Technology Management in a Merger and Acquisition Strategy** (2001), found that success of mergers and acquisitions depends on proper integration of employees, organization culture, IT, products, operations and service of both the companies. Proper IT integration in mergers plays a critical role in determining how effectively merged organizations are able to integrate business processes and people, and deliver products and services to both internal and external customers of the organization. The study suggests that to address the challenges, Chief Information Officers (CIOs) should be involved from the earliest phase.

Ms. Surjit Kaur (2002) in her dissertation entitled, **A Study of Corporate Takeovers in India,** examines the M & A activity in India during the post liberalization period. The study tested the usefulness of select financial ratios to predict corporate takeovers in India. The study suggests further research areas that are to be explored.

The above literature provides an overview of different valuation models associated with the valuation of mergers and acquisitions along with some empirical studies. An attempt has been made in this study to evaluate the impact of mergers and acquisitions taking the models used in the above studies. But earlier studies did not cover group of companies. Hence this study aims to cover group of companies.

2.4. Objectives of the Study

The present study is proposed to carry out the following two objectives.

- To evaluate the financial performance of the manufacturing companies before and after mergers and acquisitions
- To summarize the findings and offer a conclusion.

2.5. Hypotheses of the Study

The present study tests the following null hypotheses.

1. The merged manufacturing companies did not achieve better liquidity, better solvency and improve profitability after merger.
2. The merged manufacturing companies did not expand their business activities after merger.

2.6. Methodology of the Study

a. **Selection of the Sample.** While selecting sample companies, all industries coming under manufacturing sector were taken into consideration to formulate the total population. In the manufacturing sector, there are totally 58 companies, which have undergone mergers and acquisitions during 2000, 2001 & 2002. The sample companies were identified at random with the help of Lottery Method and accordingly 30% from the total population was taken as sample size (i.e. 17 companies out of 58). The details of sample size are given in **Table-A**.

Table A: List of Manufacturing Companies Merged between 01.04.2000 and 31.03.2002

S. No.	Name of the Sector	Total Merged Companies	Sample Merged Companies (30%)
1.	Food & Beverages	8	2
2.	Textiles	11	3
3.	Chemicals	11	3
4.	Non-Metallic Mineral Products	4	1
5.	Metal & Metallic Products	9	3
6.	Machinery	12	4
7.	Miscellaneous Manufacturing & Diversified	3	1
Total		58	17

Source: Prowess Database Software in CMIE.

a) **Source and Collection of Data**: The present study is mainly based on secondary data which were collected from the Prowess Corporate Database Software. Further, the available secondary data were collected from the Annual Reports, published Research Reports by various industries, and research organization, books, periodicals and websites like www.sebi.gov.in, www.indiainfoline.com and www.rbi.org.in.
b) **Period of the Study:** The present study is mainly intended to examine the financial performance of merged companies three years before merger and three years after merger.
c) **Tools used for Analysis**: The present study has analyzed the financial performance of sample manufacturing company. In order to evaluate the financial performance, tools like ratio analysis, mean, standard deviation and 't' test have been used.

2.7. Analysis of Financial Performance of Manufacturing Companies in India

The financial performance of the 17 sample acquiring firms before and after the announcement of M & A have been analyzed with the help of various financial ratios.

2.7.1. Test of Hypothesis –1

In order to test the validity of the null hypothesis, "The merged manufacturing companies did not achieve better liquidity, better solvency and improve profitability after the merger", the following parameters have been selected to test the results of pre and post merger periods (average of three years).

A **Liquidity Parameters**: I.Current ratio, II. Quick ratio, III. Net working capital and IV. Diversion of short-term funds.
B **Leverage Parameters:** V.Total debt and equity to total assets, VI. Total borrowings and equity to EBITD and VII. Interest coverage ratio
C **Profitability and Other Parameters:** VIII. Operating profit, IX. Net profit, X. ROI and XI. Net worth.

2.7.2. Test of Hypothesis -2

To test the validity of the null hypothesis, **"The merged manufacturing companies did not expand business activities after merger',** the following two ratios are used. XII. Capital formation and XIII. Increase in the investment.

For the purpose of testing the two hypotheses stated above, this study is classified into two sections.

Section A. Liquidity, Solvency and Profitability of Merged Manufacturing Companies,
Section B. Capital Formation and Investment of Merged Manufacturing Companies.

3. Section – A

3.1. Liquidity, Solvency and Profitability of Merged Manufacturing Companies

3.1.1. Liquidity Parameters

Liquidity parameters indicate liquidity position of a manufacturing sector. A manufacturing sector is deemed to be sound if it is in a position to carry on its business smoothly and meet all its obligations both long-term as well as short term without any strain. It is a sound principle of finance that long-term and short –term requirements of funds are fulfilled out of long-term funds. The commonly used liquidity parameters are: current ratio and quick ratio, networking capital and diversion of short- term funds.

I. Current Ratio: The current ratio is the most commonly used ratio for measuring liquidity position of manufacturing sectors. It is also called 'working capital ratio'. It expresses the relationship between current assets and current liabilities. A higher current ratio shows that the manufacturing company is able to pay its debts maturing within a year. From the management point of view, a higher current ratio

is an indication of poor planning since an extensive amount of funds would lie idle. On the contrary, a low ratio would mean inadequacy of working capital, which may later interfere with the smooth functioning of an enterprise. In a sound business, a current ratio of 2:1 is considered an ideal one. In this study, current assets include cash and cash equivalent, inter assets, short- term investments and deposits. The current liabilities include trade creditors, bills payable, accrued expenses, short-term bank loan, income tax liabilities and long –term debt. The following formula is applied for calculating current ratio.

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

The result of the comparison of current ratio (CR) of sample acquiring firms before and after merger have been presented in **Table-I.** It can be noted that current ratio of Saptarishi Agro Industries Ltd declined from 3.5167 in pre-period to 1.8233 in post-period and the difference in current ratio between the two periods is significant at 10 percent level (t-value= 2.175, $p < 0.10$). Similarly, the current ratio of Sri Vishnu Cement Ltd (Pre=1.2467 and Post=0.9133, t= 2.82, $p< 0.05$) between pre and post merger period differs significantly and it declined in the post period. The above significant decline in current ratio has revealed that these firms incurred debt after M & A.

Table I: Current Ratio of Sample Merged Manufacturing Companies (Rs. in crore)

S. No.	Name of the Company	Current Ratio		't' Value
		Before	After	
1	Saptarishi Agro Industries Ltd	3.5167 (1.31592)	1.8233 (0.29400)	2.175*
2	Cadbury India Ltd	1.2433 (0.11590)	1.2733 (0.20033)	0.225(NS)
3	My Fellow Fashions (Exp) Ltd	0.2300 (0.27185)	0.4833 (0.34064)	1.007(NS)
4	DCL Polyesters Ltd	12.8767 (13.23489)	13.6267 (8.45566)	0.083(NS)
5	Forbes Gokak Ltd	1.2400 (0.15395)	1.7100 (0.06245)	4.900***
6	Modi Rubber Ltd	1.0133 (0.12097)	0.7667 (0.24786)	1.549(NS)
7	Castrol India Ltd	2.2267 (0.64065)	1.5967 (0.28885)	1.553(NS)
8	Matrix Laboratories Ltd	1.4167 (0.24028)	1.3767 (0.23116)	0.208(NS)
9	Sri Vishnu Cement Ltd	1.2467 (0.04163)	0.9133 (0.20033)	0.063(NS)
10	Indian Aluminium Co. Ltd	3.0667 (0.71696)	7.6767 (3.42193)	2.822**
11	Sandvik Asia Ltd	1.4667 (0.17898)	1.4533 (0.31880)	2.284*
12	Wartsila India Ltd	1.3733 (0.14468)	1.4567 (0.15044)	0.692(NS)
13	Philips India Ltd	1.1167 (0.05033)	1.6333 (0.37899)	1.968(NS)
14	Otis Elevator Co. (INDIA) Ltd	1.0100 (0.01000)	1.0833 (0.06506)	1.930*
15	Skanska Cementation India Ltd	1.1933 (0.18502)	1.2800 (0.14526)	0.638(NS)
16	Alfa Laval (INDIA) Ltd	1.7933 (0.15177)	2.2767 (0.11719)	4.366***
17	Foseco India Ltd	2.4833 (0.64516)	1.1467 (0.04619)	0.761(NS)

Source: Computed from Prowess.

Note: 1. Figures given in parenthesis indicate standard deviation.

2. * Significant at 10% Level, ** Significant at 5% Level and *** Significant at 1% Level. 3. NS- Not Significant Level.

But, it is interesting to note that there was a significant increase in the current ratio during post-merger period for Forbes Gokak Ltd (from 1.2400 in pre period to 1.7100 in post- period, t- value= 4.90, p< 0.10), Indian Aluminium Co. Ltd (from 3.0667 in pre period to 7.6767 in post-period, t- value =2.284, p<0.10) and for Alfa Laval (INDIA) Ltd (from 1.7933 in pre period to 2.2767 in post period, t-value=4.37, p<0.01). The increase in current ratio after merger might have been due to addition of current assets of the acquired firms. For other acquiring firms under study, (Cadbury India Ltd, My Fellow Fashions (Exp) Ltd, DCL Polyesters Ltd, Modi Rubber Ltd, Castrol India Ltd, Matrix Laboratories Ltd, Sandvik Asia Ltd, Philips India Ltd, Otis Elevator Co. India Ltd, Skanska Cementation India Ltd and Foseco India Ltd), the obtained 't' values are not significant at the required probability level, indicating that the increase/decrease in current ratio between pre and post merger is quite negligible. In other words, it can be said that the increase/ decrease in assets as well as increase /decrease in liabilities is not related to M & A.

II. Quick Ratio: The quick ratio is also known as liquid ratio, acid test ratio or near money ratio. It is the ratio between quick or liquid assets and quick liabilities. This ratio is ascertained by comparing the liquid assets (i.e. assets which are immediately convertible to cash without much loss) with current liabilities. The prepaid expenses and investment are not taken as liquid assets. Generally speaking, quick ratio of 1:1 is considered satisfactory since a firm can easily meet all immediate claims. This is expressed as:

$$\text{Current Ratio} = \frac{\text{Quick (or) Liquid Assets}}{\text{Liquid Liabilities}}$$

The quick ratio of merged company during pre and post merger periods is given in **Table-II**. It can be noted that quick ratio (QR) of Forbes Gokak Ltd declined from 0.3500 in pre-period to 0.7300 in post- period, and the difference in quick ratio between the two periods is significant at one percent level (t-value= 4.586, p< 0.01). Similarly, the quick ratio of Modi Rubber Ltd (pre=0.4533 and post= 0.1900, t-value= 2.986, p<0.05) between pre and post merger period differs significantly and it declined in the post period. The significant decline in quick ratio has further confirmed that these firms incurred more debt after M & A.

Table II: Quick Ratio of Sample Merged Manufacturing Companies (Rs. in crore)

S. No.	Name of the Company	Quick Ratio		't' Value
		Before	After	
1	Saptarishi Agro Industries Ltd	1.1600 (0.77737)	0.8500 (0.47127)	0.591(NS)
2	Cadbury India Ltd	0.3133 (0.06429)	0.5467 (0.20404)	1.889(NS)
3	My Fellow Fashions (Exp) Ltd	0.0233 (0.03215)	0.1233 (0.09815)	1.677(NS)
4	DCL Polyesters Ltd	3.0400 (1.33626)	1.4867 (0.74218)	1.760(NS)
5	Forbes Gokak Ltd	0.3500 (0.13000)	0.7300 (0.06083)	4.586***
6	Modi Rubber Ltd	0.4533 (0.05859)	0.19 (0.14107)	2.986**
7	Castrol India Ltd	1.1633 (0.35501)	0.6967 (0.18230)	2.025(NS)
8	Matrix Laboratories Ltd	0.3000 (0.14422)	0.4367 (0.14844)	1.144(NS)
9	Sri Vishnu Cement Ltd	0.3100 (0.13000)	0.3733 (0.18148)	0.491(NS)
10	Indian Aluminium Co. Ltd	1.6633 (0.53144)	4.8033 (2.18106)	2.423*

Table II: Quick Ratio of Sample Merged Manufacturing Companies (Rs. in crore) - continued

11	Sandvik Asia Ltd	0.7567 (0.23352)	0.6867 (0.15308)	0.434(NS)
12	Wartsila India Ltd	0.5600 (0.02646)	0.5733 (0.09713)	0.229(NS)
13	Philips India Ltd	0.5067 (0.06429)	0.9967 (0.32868)	1.800(NS)
14	Otis Elevator Co. (INDIA) Ltd	0.2433 (0.01155)	0.3567 (0.09018)	2.159*
15	Skanska Cementation India Ltd	0.6300 (0.22068)	0.5200 (0.25632)	0.563(NS)
16	Alfa Laval (INDIA) Ltd	0.9700 (0.10536)	1.5700 (0.13748)	6.000***
17	Foseco India Ltd	1.5267 (0.39004)	0.5000 (0.29462)	0.038(NS)

Source: Computed from Prowess.

Note: 1. Figures given in parenthesis indicate standard deviation.

2. * Significant at 10% Level, ** Significant at 5% Level and *** Significant at 1% Level.

3. NS- Not Significant Level.

But it is interesting to note that there was a significant increase in the quick ratio during post merger period for Indian Aluminium Ltd (from 1.6633 in pre period to 4.8033 in post period, t-value=2.423, $p< 0.10$), Otis Elevator Co. (INDIA) Ltd (from 0.2433 in pre period to 0.3567 in post period, t-value= 2.159, $p<0.10$) and Alfa Laval (INDIA) Ltd (from 0.9700 in pre period to 1.5700 in post period, t-value = 6.000, $p< 0.01$). The increase in quick ratio after merger might have been due to addition of quick ratio of acquiring firms. For other acquiring firms under study, (Saptarishi Agro Industries Ltd, Cadbury India Ltd, My Fellow Fashions (Exp) Ltd, DCL Polyesters Ltd, Castrol India Ltd, Matrix Laboratories Ltd, Sri Vishnu Cement Ltd, Sandvik Asia Ltd, Wartsila India Ltd, Philips India Ltd, Skanska Cementation India Ltd and Foseco India Ltd), the obtained 't' values are not significant at the required probability level, indicating that the increase/ decrease in quick ratio between pre and post merger was quite negligible. In other words, it can be said that the increase / decrease in quick ratio as well as increase/ decrease in quick ratio is not related to M & A.

III. Net Working Capital : The net working capital refers to the difference between current assets and current liabilities. There is always a time gap between the receipt of cash and repayment of loan and working capital is required for this intervening period in order to sustain the activities. In case adequate working capital is not available, the manufacturing company may not be in a position to sustain its activities. The amount of working capital required depends on the length of operating cycle. The operating cycle of manufacturing company refers to time taken for conversion of cash into debtors and vice versa.

Net Working Capital = Current Assets – Current Liabilities

Table-III illustrates the net working capital of sample merged companies during pre and post merger periods. The average amount of net working capital of 17 sample merged companies during post merger period was higher than that of pre merger period. From the analysis, it is understood that the average net working capital of all sample companies had increased after the takeover by the new management. This means that all sample units did have sufficient current assets to meet current liabilities, which is a sign of turnaround. The standard deviation has demonstrated that the variation in the growth of net working capital during post merger period was higher than that of pre merger period in the case of Saptarishi Agro Industries Ltd (from 2.9333 in pre period to 4.5167 in post period, t-value=9.430, $p<0.01$), Otis Elevator Co.(INDIA) Ltd (from 16.1533 in pre period to 56.1400 in post period, t-value=2.193, $p<0.10$) and Alfa Laval (INDIA) Ltd (from 80.2567 in pre period to 142.8067 in post period, t-value= 4.660, $p<0.01$). The increase in the net working capital after merger might have been due to addition of assets of the acquired firms. For other acquiring firms under study, (Cadbury

India Ltd, My Fellow Fashions (Exp) Ltd, DCL Polyesters Ltd, Modi Rubber Ltd, Castrol India Ltd, Matrix Laboratories Ltd, Indian Aluminium Co. Ltd, Sandvik Asia Ltd, Wartsila India Ltd, Philips India Ltd, Otis Elevator Co.(INDIA) Ltd, Skanska Cementation India Ltd and Foseco India Ltd), the obtained 't' values are not significant at the required probability level, indicating that the increase and decrease in the net working capital between pre and post merger is quite negligible. In other words, it can be said that the increase/ decrease in assets as well as liabilities is not related to mergers and acquisitions.

Table III: Net Working Capital of Sample Merged Manufacturing Companies (Rs. in crore)

S. No.	Name of the Company	Net Working Capital		't' Value
		Before	After	
1	Saptarishi Agro Industries Ltd	2.9333 (0.20526)	4.5167 (0.20599)	9.430***
2	Cadbury India Ltd	3.6300 (0.42332)	2.5233 (0.84583)	2.027(NS)
3	My Fellow Fashions (Exp) Ltd	-0.6333 (1.05396)	-1.5033 (2.90731)	0.487(NS)
4	DCL Polyesters Ltd	2.0333 (2.33207)	0.6200 (0.16523)	1.047(NS)
5	Forbes Gokak Ltd	97.5167 (10.2475)	177.0200 (15.99125)	7.250***
6	Modi Rubber Ltd	71.9333 (39.46128)	6.7367 (59.05085)	1.590(NS)
7	Castrol India Ltd	313.5467 (59.00836)	297.0833 (52.47640)	0.361(NS)
8	Matrix Laboratories Ltd	11.8933 (3.52466)	98.5533 (80.02853)	1.874(NS)
9	Sri Vishnu Cement Ltd	24.3800 (10.65166)	16.4233 (1.84462)	1.275(NS)
10	Indian Aluminium Co. Ltd	75.8700 (22.11096)	97.9067 (19.18050)	1.304(NS)
11	Sandvik Asia Ltd	69.0933 (20.77174)	81.3467 (13.28889)	0.861(NS)
12	Wartsila India Ltd	96.1733 (7.12703)	117.9600 (29.30931)	1.251(NS)
13	Philips India Ltd	43.7867 (6.76666)	37.4367 (4.37962)	1.365(NS)
14	Otis Elevator Co. (INDIA) Ltd	16.1533 (3.32014)	56.1400 (31.40659)	2.193*
15	Skanska Cementation India Ltd	43.7567 (21.76812)	60.3167 (4.85215)	1.286(NS)
16	Alfa Laval (INDIA) Ltd	80.2567 (12.86789)	142.8067 (19.36384)	4.660***
17	Foseco India Ltd	4.1133 (0.51189)	3.7567 (0.51033)	0.855(NS)

Source: Computed from Prowess.
Note: 1. Figures given in parenthesis indicate standard deviation.
2. * Significant at 10% Level, ** Significant at 5% Level and *** Significant at 1% Level.
3. NS- Not Significant Level.

IV. Diversion of Short- Term Funds : It refers to diversion of funds from short-term sources to long-term uses. According to sound financial principles, diversion of short-term funds to long-term use is considered to be an unhealthy practice. Therefore, this ratio should be negative.

Table-IV unveils the diversion of short term funds of sample merged companies during pre and post merger periods. It is significant to note that the average amount of diversion of short-term funds of

all sample 17 merged companies during post merger period was higher than that of pre merger period. This clearly evidenced the fact that all sample merged companies for this study had not diversified their funds from short-term sources to long- term use after merger. This is good as the diversion of short term funds to long term use is considered as an unhealthy practice. It could be noted from the result of standard deviation that there is more variation in the use of short-term funds by all sample companies during post merger period than that of pre merger period. The application of 't' test clearly indicates that Saptarishi Agro Industries Ltd at one percent level, Cadbury India Ltd at 10 percent level, Wartsila India Ltd at 10 percent level and Otis Elevator Co.(INDIA) Ltd at 5 percent level, achieved significant growth in diverting the short term funds. For other acquiring firms under study, My Fellow Fashions (Exp) Ltd, DCL Polyesters Ltd, Forbes Gokak Ltd, Modi Rubber Ltd, Castrol India Ltd, Matrix Laboratories Ltd, Sri Vishnu Cement Ltd, Indian Aluminium Co. Ltd, Philips India Ltd, Sandvik Asia Ltd, Skanska Cementation India Ltd, Alfa India Ltd and Foseco India Ltd, the obtained 't' values are not significant.

Table IV: Diversion of Short Terms Funds of Sample Merged Manufacturing Companies (Rs. in crore)

S. No.	Name of the Company	Diversion of Short Term Funds		't' Value
		Before	After	
1	Saptarishi Agro Industries Ltd	0.5667 (0.41016)	2.2633 (0.31533)	5.680***
2	Cadbury India Ltd	2.8400 (0.58284)	1.8367 (0.41645)	2.426*
3	My Fellow Fashions (Exp) Ltd	0.3033 (0.30006)	1.7800 (1.35244)	1.846(NS)
4	DCL Polyesters Ltd	0.0567 (0.03215)	0.0200 (0.03464)	1.344(NS)
5	Forbes Gokak Ltd	61.6533 (19.6806)	54.1800 (3.03432)	0.650(NS)
6	Modi Rubber Ltd	67.1067 (3.26114)	76.3467 (14.9134)	1.048(NS)
7	Castrol India Ltd	88.4833 (89.12177)	126.4767 (45.90769)	0.656(NS)
8	Matrix Laboratories Ltd	5.1567 (0.42618)	60.5567 (67.28788)	1.426(NS)
9	Sri Vishnu Cement Ltd	15.6100 (7.88862)	20.3133 (5.05301)	0.870(NS)
10	Indian Aluminium Co. Ltd	12.1967 (11.85606)	2.9033 (3.26773)	1.309(NS)
11	Sandvik Asia Ltd	27.8500 (13.55054)	42.3400 (31.61615)	0.730(NS)
12	Wartsila India Ltd	40.6167 (1.20968)	52.9833 (9.39480)	2.261*
13	Philips India Ltd	3.3800 (0.54028)	3.0233 (0.44049)	0.886(NS)
14	Otis Elevator Co. (INDIA) Ltd	12.9267 (4.51876)	23.7733 (3.68556)	3.222**
15	Skanska Cementation India Ltd	17.7333 (3.43782)	16.0500 (5.49239)	0.450(NS)
16	Alfa Laval (INDIA) Ltd	19.1833 (6.99214)	15.8067 (12.87349)	0.399(NS)
17	Foseco India Ltd	8.0900 (5.99043)	18.5000 (8.97240)	1.671(NS)

Source: Computed from Prowess.

Note: 1. Figures given in parenthesis indicate standard deviation.

2. * Significant at 10% Level, ** Significant at 5% Level and *** Significant at 1% Level.

3. NS- Not Significant Level.

Test of Hypothesis- Liquidity Parameters: In the above discussion, the liquidity parameters, namely, current ratio, quick ratio, net working capital, and diversion of short term funds have been analyzed. The null hypothesis-**'The merged companies did not achieve better liquidity after merger'** is accepted in a few sample companies. The Saptarishi Agro Industries Ltd, Forbes Gokak Ltd, Modi Rubber Ltd, Indian Aluminium Co. Ltd, Otis Elevator Co.(INDIA) Ltd and Alfa Laval (INDIA) Ltd achieved better liquidity after merger in all respects. Other companies - (Cadbury India Ltd, My Fellow Fashions (Exp) Ltd, DCL Polyesters Ltd, Castrol India Ltd, Matrix Laboratories Ltd, Sri Vishnu Cement Ltd, Sandvik Asia Ltd, Wartsila India Ltd, Skanska Cementation India Ltd, Philips India Ltd and Foseco India Ltd) did not achieve better liquidity after merger in all respects.

3.1.2. Leverage Parameters (Solvency)

The leverage is the ability of a company to use funds to enhance the returns to its investors. Leverage results from the company employing funds or source of funds, which has a fixed cost (or returns). It should be noted that the fixed cost or the returns is the fulcrum of leverage. If a manufacturing company is not required to pay fixed cost or fixed returns, there will be no leverage. Since fixed cost or returns has to be paid or incurred, such cost or returns may influence the amount of profits available to the shareholders. A high degree of leverage implies that there will be a large change in profits due to a relatively small change in interest. Thus, higher the leverage, higher the risk and higher the expected returns. To know the degree of leverage of manufacturing sectors, the ratios used are total debt and equity to total assets, total borrowings and equity to EBITD and interest coverage ratio.

V. Total Debt and Equity to Total Assets : The assets represent economic resources that are the valuable possessions owned by a firm. The assets are mainly used to generate earnings. Total assets refer to net fixed assets and current assets. This ratio indicates the extent of coverage of total assets by both total debt and equity. Normally it is expected that the total assets should be more than the total of debt and equity as a result of reserves and surplus. Therefore, this ratio should be less than one. The debt refers to debt while equity includes equity capital alone.

$$\text{Total Debt and Equity to Total Assets} = \frac{\text{Total Debt and Equity}}{\text{Total Assets}}$$

Total debt and equity to total assets of sample merged companies during pre and post merger period is exhibited in **Table-V**. The standard deviation has shown that the variation in the growth of debt and equity to total assets during post merger period was higher than that of pre merger period in the case of Saptarishi Agro Industries Ltd, Cadbury India Ltd, My Fellow Fashions (Exp) Ltd, Forbes Gokak Ltd, Modi Rubber Ltd, Martix Laboratories Ltd, Otis Elevator Co. (INDIA) Ltd and Alfa Laval (INDIA) Ltd. Its variation in the case of all other companies during pre merger was not higher than that of post merger. The 't' test clearly shows that except DCL Polyesters Ltd (from 0.5994 in pre period to 0.0726 in post period, t-value= 2.139, $p<0.10$), other firms achieved growth in the ratio of total debt and equity to total assets during the post merger period than during the pre merger period. In the case of DCL Polyesters Ltd, the ratio of total debt and equity to total assets was lower during pre merger period than that of post merger period. The growth of debt and equity to total assets of sample companies like Saptarishi Agro Industries Ltd, Cadbury India Ltd, My Fellow Fashions, Forbes Gokak Ltd. Modi Rubber Ltd, Castrol India Ltd, Matrix Laboratories Ltd, Sri Vishnu, Indian Aluminium, Sandvik Asia Ltd, Wartsila India Ltd, Philips India Ltd, Otis Elevator Co. (INDIA) Ltd, Skanska Cementation India Ltd, Alfa Laval (INDIA) Ltd and Foseco India Ltd, is statistically insignificant.

Table V: Total Debt and Equity to Total Assets of Sample Merged Manufacturing Companies (Rs. in crore)

S. No.	Name of the Company	Total Debt and Equity to Total Asset		't' Value
		Before	After	
1	Saptarishi Agro Industries Ltd	0.1041 (0.02176)	0.1217 (0.11663)	0.257(NS)

Table V: Total Debt and Equity to Total Assets of Sample Merged Manufacturing Companies (Rs. in crore) - continued

2	Cadbury India Ltd	0.2855 -0.025	0.3171 (0.05990))	0.842(NS)
3	My Fellow Fashions (Exp) Ltd	0.2501 (0.21663)	0.3678 (0.01205)	0.939(NS)
4	DCL Polyesters Ltd	0.5994 (0.40775)	0.0726 (0.12575)	2.139*
5	Forbes Gokak Ltd	0.2394 (0.2300)	0.2663 (0.04999)	0.845(NS)
6	Modi Rubber Ltd	0.2615 (0.06253)	0.3026 (0.01200)	1.117(NS)
7	Castrol India Ltd	0.2224 (0.11218)	0.2050 (0.07079)	0.227(NS)
8	Matrix Laboratories Ltd	0.3568 (0.02451)	0.3713 (0.07616)	0.315(NS)
9	Sri Vishnu Cement Ltd	0.6603 (0.07558)	0.5899 (0.05460)	1.307(NS)
10	Indian Aluminium Co.Ltd	0.1531 (0.13056)	0.0150 (0.02465)	1.800(NS)
11	Sandvik Asia Ltd	0.2533 (0.04398)	0.2339. (0.03938)	0.568(NS)
12	Wartsila India Ltd	0.0877 (0.03366)	0.0434 (0.04306)	1.403(NS)
13	Philips India Ltd	0.4115 (0.01917)	0.3822 (0.06303)	0.771(NS)
14	Otis Elevator Co. (INDIA) Ltd	0.0204 (0.00631)	0.0271 (0.00320)	1.640(NS)
15	Skanska Cementation India Ltd	0.0827 (0.05503)	0.0379 (0.03055)	1.235(NS)
16	Alfa Laval (INDIA) Ltd	0.0889 (0.01309)	0.1306 (0.03328)	2.020(NS)
17	Foseco India Ltd	0.3130 (0.06474)	0.2765 (0.03890)	0.839(NS)

Source: Computed from Prowess.
Note: 1. Figures given in parenthesis indicate standard deviation.
2. * Significant at 10% Level, ** Significant at 5% Level and *** Significant at 1% Level.
3. NS- Not Significant Level.

VI. Total Borrowings and Equity to EBITD : The ratio of total borrowings to equity to EBITD examines the relationship between earnings available before interest, tax and depreciation to the repaying obligations of a manufacturing sector. This ratio should be positive and higher the ratio, better the manufacturing sectors.

$$\text{Total Borrowings and Equity to EBITD} = \frac{\text{EBITD}}{\text{Total Borrowing and Equity}}$$

Table-VI explains total borrowings and equity to EBITD of 17 sample merged companies during pre and post merger periods. The sample acquiring firms before and after merger have been presented in the above **Table.** From the Table, it can be noted that total borrowings and equity to EBITD of Saptarishi Agro Industries Ltd declined from 1.4289 in pre merger period to -0.0122 in post merger period and the difference in this ratio between the two periods is significant at 10 percent level (t-value= 6.492, p< 0.10). Similarly, the ratio of Forbes Gokak Ltd (Pre=0.5667 and post 0.3290 , t-value= 3.298, p< 0.05) and Modi Rubber Ltd (pre=0.4216 and post=-0.0731, t-value=4.045, p>0.05) between pre and post merger period differs significantly and declined in the post merger period. The

above significant decline in the ratio reveals that these firms incurred more debt after mergers and acquisitions.

Table VI: Total Borrowings Equity to EBITD of Sample Merged Manufacturing Companies (Rs. in crore)

S. No.	Name of the Company	Total Borrowing Equity to EBITD		't' Value
		Before	After	
1	Saptarishi Agro Industries Ltd	1.4289 (0.31499)	-0.0122 (0.2205)	6.492***
2	Cadbury India Ltd	0.3704 (0.46415)	0.0014 (0.11434)	1.337(NS)
3	My Fellow Fashions (Exp) Ltd	0.0424 (0.03805)	0.1048 (0.16934)	0.622(NS)
4	DCL Polyesters Ltd	0.3508 (0.34689)	0.3182 (0.55108)	0.087(NS)
5	Forbes Gokak Ltd	0.5667 (0.11063)	0.3290 (0.05792)	3.298**
6	Modi Rubber Ltd	0.4216 (0.16240)	-0.0731 (0.13596)	4.045**
7	Castrol India Ltd	2.0229 (0.85115)	1.4856 (0.24288)	1.051(NS)
8	Matrix Laboratories Ltd	0.1456 (0.45510)	0.7760 (0.18817)	2.217*
9	Sri Vishnu Cement Ltd	0.1976 (0.10615)	0.1201 (0.11498)	0.857(NS)
10	Indian Aluminium Co. Ltd	24.041 (41.56218)	203.9654 (-172.17925)	1.759(NS)
11	Sandvik Asia Ltd	0.6140 (0.32001)	0.8181 (0.10781)	1.047(NS)
12	Wartsila India Ltd	1.3645 (0.58286)	5.8026 (3.63080)	2.090*
13	Philips India Ltd	0.1100 (0.20112)	0.4062 (0.56584)	0.854(NS)
14	Otis Elevator Co. (INDIA) Ltd	3.6976 (1.63169)	3.6647 (0.43325)	0.034(NS)
15	Skanska Cementation India Ltd	2.7948 (1.51496)	8.5281 (10.21516)	0.962(NS)
16	Alfa Laval (INDIA) Ltd	1.1847 (0.39091)	2.0257 (0.53701)	2.193*
17	Foseco India Ltd	0.3568 (0.22274)	0.3614 (0.50360)	0.014(NS)

Source: Computed from Prowess.
Note: 1. Figures given in parenthesis indicate standard deviation.
2. * Significant at 10% Level, ** Significant at 5% Level and *** Significant at 1% Level.
3. NS- Not Significant Level.

But it is interesting to note that there was a significant increase in the EBITD during post merger period for Matrix Laboratories Ltd (from 0.1456 in pre period to 0.7760 in post period, t-value 4.045, $p<0.10$), Wartsila India Ltd (from 1.3645 in pre period to 5.8026 in post period, t-value=2.090, $p<0.10$) and Alfa Laval (INDIA) Ltd (from 1.1847 in pre period to 2.0257 in post period, t-value 2.193, $p<0.10$). The increase in total borrowings equity to EBITD after merger might have been due to addition of assets to the acquiring firms. For other acquiring firms under study (Cadbury India Ltd, My Fellow Fashions (Exp) Ltd, DCL Polyesters Ltd, Castrol India Ltd, Sri Vishnu Cement Ltd, Indian Aluminium Co. Ltd, Sandvik Asia Ltd, Philips India Ltd, Otis Elevator Co. (INDIA) Ltd, Skanska Cementation India Ltd and Foseco India Ltd), the obtained 't' values are insignificant at the required probability level, indicating that the increase/decrease in total borrowings equity to EBITD between

pre and post merger is quite negligible. In other words, it can be said that the increase/decrease in EBITD as well as increase/ decrease in total borrowings is not related to mergers and acquisitions.

VII. Interest Coverage Ratio (ICR): The interest coverage ratio indicates the number of times interest is covered by the profits available to pay the interest charges. The long term creditors of manufacturing sector are much interested in knowing the ability of manufacturing sectors to pay interest on long term borrowing. Generally, higher the ratios, safer are the long-term creditors because even if the earnings of the manufacturing sector fall, the companies may be able to meet their commitment of fixed interest charges. But too high a ratio may not be good for the manufacturing sector because it may imply that manufacturing sector is not using debt as a source of finance in order to increase the earnings per share. The interest coverage ratio does not take into consideration the other fixed obligations like payment of preference dividend and repayment of loan installments.

$$\text{Interest Coverage Ratio}\ (\text{ICR}) = \frac{\text{EBI}}{\text{Interest}}$$

The interest coverage ratio of sample merged companies during pre and post merger period is exhibited in **Table-VII**. From the analysis of interest coverage ratio (average for three years), it can be noted that variation in the growth of Interest Coverage Ratio (ICR) during post merger period was higher than that of pre merger period in the case of Forbes Gokak Ltd, Matrix Laboratories Ltd, Indian Aluminium Co. Ltd, Sandvik Asia Ltd, Otis Elevator Co. (INDIA) Ltd, Skanska Cementation India Ltd and Alfa Laval (INDIA) Ltd. In the case of other merged companies (Saptarishi Agro Industries Ltd, Cadbury India Ltd, My Fellow Fashions (Exp) Ltd, DCL Polyesters Ltd, Modi Rubber Ltd, Castrol India Ltd, Sri Vishnu Cement Ltd, Philips India Ltd, Wartsila India Ltd and Foseco India Ltd), variation during pre merger period was higher than that of post merger period. The 't' test brought out the fact that six merged companies (Modi Rubber Ltd, Matrix Laboratories Ltd, Indian Aluminium Co. Ltd, Wartsila India Ltd, Otis Elevator Co.(INDIA) Ltd and Alfa Laval Ltd) achieved statistically significant growth of interest coverage ratio after merger. But other companies obtained insignificant 't' value after merger.

Table VII: Interest Coverage Ratio of Sample Merged Manufacturing Companies (Rs. in crore)

S. No.	Name of the Company	Interest Coverage Ratio		't' Value
		Before	After	
1	Saptarishi Agro Industries Ltd	11.6100 (13.43768)	2.1333 (1.85831)	1.210(NS)
2	Cadbury India Ltd	2.5167 (3.49589)	0.9633 (0.03215)	0.770(NS)
3	My Fellow Fashions (Exp) Ltd	0.4900 (0.45902)	-0.6300 (0.50269)	0.356(NS)
4	DCL Polyesters Ltd	1.3967 (1.98586)	-0.0467 (0.08083)	1.258(NS)
5	Forbes Gokak Ltd	0.6100 (0.89236)	1.9233 (0.93050)	1.764(NS)
6	Modi Rubber Ltd	0.9067 (0.25325)	-0.3833 (0.15275)	7.555***
7	Castrol India Ltd	61.1100 (53.14504)	25.7067 (5.99046)	1.147(NS)
8	Matrix Laboratories Ltd	0.7567 (2.11673)	5.2667 (2.61064)	2.324*
9	Sri Vishnu Cement Ltd	1.0067 (0.83243)	0.2900 (0.76269)	1.099(NS)
10	Indian Aluminium Co. Ltd	-0.0167 (3.35822)	18.5900 (7.38677)	3.972**
11	Sandvik Asia Ltd	2.4833 (1.90799)	2.7000 (0.74646)	0.183(NS)

Table VII: Interest Coverage Ratio of Sample Merged Manufacturing Companies (Rs. in crore) - continued

12	Wartsila India Ltd	6.1100 (1.90071)	3.5900 (0.63380)	2.178*
13	Philips India Ltd	-0.6700 (0.73082)	-0.2800 (1.28690)	0.456(NS)
14	Otis Elevator Co. (INDIA) Ltd	29.5433 (1.64604)	44.8033 (7.27222)	3.545**
15	Skanska Cementation India Ltd	1.2300 (0.34598)	1.5833 (0.26083)	1.412(NS)
16	Alfa Laval (INDIA) Ltd	7.2500 (6.17243)	49.6400 (21.40153)	3.296**
17	Foseco India Ltd	3.5767 (4.03951)	2.4667 (5.08661)	0.296(NS)

Source: Computed from Prowess.
Note: 1. Figures given in parenthesis indicate standard deviation.
2. * Significant at 10% Level, ** Significant at 5% Level and *** Significant at 1% Level.
3. NS- Not Significant Level.

3.1.3. Test of Hypothesis- Leverage Parameters (Solvency)

From the above analysis of leverage parameters (total debt and equity to total assets, borrowings and equity of EBITD and interest coverage ratio), it is evidenced that the first hypothesis- **'The merged companies did not achieve better solvency after merger'** is not fully rejected. In the case of Saptarishi Agro Industries Ltd, Forbes Gokak Ltd, Modi Rubber Ltd, Matrix Laboratories Ltd, Otis Elevator Co.(INDIA) Ltd and Alfa Laval (INDIA) Ltd, they achieved better solvency in all respects. But all other sample companies did not achieve better solvency after merger.

3.1.4. Profitability Parameters

The primary objective of manufacturing companies is to earn profits. Profit earning capacity is considered to be essential for the survival of the manufacturing sector. A manufacturing sector needs profits not only for its existence but also for expansion and diversification. Investors want adequate returns on their investments while the workers want higher wages and the creditors want higher security for their interest and loan. A manufacturing sector can discharge its obligations to the various segments of the society only through earnings of profits. The profit is, thus, a useful measure to examine the overall efficiency of a manufacturing sector. The profit to the management is the test of efficiency and a measurement of control to owners, the measure of worth of their investment to the creditors, the margin of safety to employees as a source of benefits, to Government a measure of tax paying capacity and the basis of legislative action to demand better quality and price cuts and to an enterprise less cumbersome source of finance. Profits are an index of economic progress. Hence the profitability ratios are calculated to measure the overall efficiency of the manufacturing sector. The ratios, like operating profit, net profit, ROI and net worth, are used to test the profitability of a manufacturing sector.

VIII. Operating Profit: The operating profit or loss is made by a manufacturing sector from its business activities in a given period. This is further reduced or augmented by adding the business overheads and any ancillary investments to arrive at the profit (loss) before interest and tax (PBIT). The net operating income includes net interest income and non-interest income and non- interest expenses.

$$\text{Operating Profit} = \frac{\text{Profit}}{\text{Income}}$$

Table-VIII discloses the operating profit of sample merged companies during pre and post merger period. It is interesting to note from the given **Table** that the average amount of operating profit after merger was higher. The standard deviation has shown the fact that variation in the growth of

operating profit during post merger period was higher than that of pre merger period in the case of Modi Rubber Ltd, Castrol India Ltd, Matrix Laboratories Ltd, Otis Elevator Co.(INDIA) Ltd, Alfa Laval(INDIA) Ltd and Foseco India Ltd. In the case of other ten merged companies (Saptarishi Agro Industries Ltd, Cadbury India Ltd, My Fellow Fashions (Exp) Ltd, DCL Polyesters Ltd, Forbes Gokak Ltd, Sri Vishnu Cement Ltd, Indian Aluminium Co. Ltd, Sandvik Asia Ltd, Wartsila India Ltd, Philips India Ltd and Skanska Cementation India Ltd), the variation during pre merged period was higher than that of post merged period. The 't' test brought out the fact that six merged companies (Modi Rubber Ltd, Matrix Laboratories Ltd, Indian Aluminium Co. Ltd, Wartsila India Ltd, Otis Elevator Co.(INDIA) Ltd and Alfa Laval (INDIA) Ltd) achieved statistically significant growth of operating profit after merger. The growth of operating profit for other sample companies is statistically insignificant.

Table VIII: Operating Profit of Sample Merged Manufacturing Companies (Rs. in crore)

S. No.	Name of the Company	Operating Profit		't' Value
		Before	After	
1	Saptarishi Agro Industries Ltd	0.7200 (0.60556)	0.2033 (0.15275)	1.433(NS)
2	Cadbury India Ltd	0.2600 (0.88606)	-0.0533 (0.03215)	0.612(NS)
3	My Fellow Fashions (Exp) Ltd	-0.6600 (0.62386)	-1.1533 (0.61044)	0.979(NS)
4	DCL Polyesters Ltd	-0.2400 (0.44193)	-0.0200 (0.01000)	0.862(NS)
5	Forbes Gokak Ltd	-16.6767 (12.52778)	-8.4867 (11.30421)	0.841(NS)
6	Modi Rubber Ltd	-1.5133 (13.90288)	-56.9133 (16.28984)	4.481***
7	Castrol India Ltd	212.2367 (23.14693)	176.8600 (45.29292)	1.205(NS)
8	Matrix Laboratories Ltd	-0.3767 (6.49186)	86.0333 (69.89484)	2.132*
9	Sri Vishnu Cement Ltd	5.1800 (6.24049)	-0.8600 (6.03301)	1.205(NS)
10	Indian Aluminium Co. Ltd	-2.4000 (20.03178)	26.5000 (10.40481)	2.218*
11	Sandvik Asia Ltd	11.2367 (13.91587)	15.5100 (3.20829)	0.518(NS)
12	Wartsila India Ltd	12.5433 (5.10122)	22.9433 (3.27781)	2.971**
13	Philips India Ltd	-1.8200 (0.99985)	-0.6467 (0.83644)	1.559(NS)
14	Otis Elevator Co. (INDIA) Ltd	20.2933 (2.60776)	29.7800 (6.17515)	2.451*
15	Skanska Cementation India Ltd	5.7133 (5.40487)	10.0167 (1.03079)	1.355(NS)
16	Alfa Laval (INDIA) Ltd	7.8067 (11.94776)	42.0733 (15.75635)	3.001**
17	Foseco India Ltd	3.0933 (3.47463)	-0.3667 (7.82147)	0.700(NS)

Source: Computed from Prowess.

Note: 1. Figures given in parenthesis indicate standard deviation.
2. * Significant at 10% Level, ** Significant at 5% Level and *** Significant at 1% Level.
3. NS- Not Significant Level.

3.1.5. Test of Hypothesis- Profitability Parameters

It is evidenced from the analysis of variables like operating profit, net profit, returns on investment and net worth of sample companies during pre and post merger period that the first hypothesis, **'The merged companies did not improve profitability after merger'** is not fully rejected. The Saptarishi Agro Industries Ltd, Modi Rubber Ltd, Skanska Cementation India Ltd and Alfa Laval (INDIA) Ltd achieved better and improved profitability after merger while other sample companies failed.

IX. Net Profit (NP): Net profit ratio establishes a relationship between net profit (after tax) and income. It indicates overall efficiency of the manufacturing sector. If the profit is not sufficient, the firm will not be able to achieve satisfactory returns on investment. This ratio also indicates the firms' capacity to face adverse economic conditions such as price competition, low demand etc. Obviously, higher the ratio, better the profitability. While interpreting the ratio, it should be kept in mind that the performance of profits must also be seen in relation to investments or capital of the firm:

$$\text{Net Profit } (\text{NP}) = \frac{\text{EBIT}}{\text{Income}}$$

The average net profit of sample merged companies during pre and post merger period is displayed in **Table- IX**. The analysis of the above **Table** indicates that the average net profit of sample merged companies after merger was higher. According to standard deviation, the variation in the net profit after merger was higher in the case of Saptarishi Agro Industries Ltd, My Fellow Fashions (Exp) Ltd, Martix Laboratories Ltd, Philips India Ltd, Otis Elevator Co.(INDIA) Ltd and Foseco India Ltd and lower in the case of Cadbury India Ltd, DCL Polyesters Ltd, Forbes Gokak Ltd, Modi Rubber Ltd, Castrol India Ltd, Sri Vishnu Cement Ltd, Indian Aluminium Co. Ltd, Sandvik Asia Ltd, Wartsila India Ltd, Skanska Cementation India Ltd and Alfa Laval (INDIA) Ltd. The application of 't' test shows that the variation in the net profit after merger was significant in the case of Saptarishi Agro Industries Ltd (5% Level at $p<0.05$), Modi Rubber Ltd (5% level at $p<0.05$), Castrol India Ltd (5% Level at $p<0.05$) and Alfa Laval (INDIA) Ltd (1% Level at 0.01, highly significant 99% confidence level).

Table IX: Net Profit of Sample Merged Manufacturing Companies (Rs. in crore)

S. No.	Name of the Company	Net Profit		't' Value
		Before	After	
1	Saptarishi Agro Industries Ltd	0.5367 (0.20817)	-0.0700 (0.29052)	2.940**
2	Cadbury India Ltd	0.2633 (0.68821)	0.2633 (0.21548)	0.0000(NS)
3	My Fellow Fashions (Exp) Ltd	-1.0167 (0.88365)	-1.8700 (1.95123)	0.690(NS)
4	DCL Polyesters Ltd	0.1167 (0.17673)	-0.0033 (0.00577)	1.175(NS)
5	Forbes Gokak Ltd	14.4167 (14.49566)	12.1733 (3.20038)	0.262(NS)
6	Modi Rubber Ltd	-6.3133 (17.13304)	-50.9267 (12.40825)	3.653**
7	Castrol India Ltd	180.3100 (23.16538)	134.5633 (18.29531)	2.684**
8	Matrix Laboratories Ltd	-1.3233 (6.57080)	68.0467 (60.37043)	1.979(NS)
9	Sri Vishnu Cement Ltd	0.3633 (7.10116)	-6.8800 (6.63998)	1.290(NS)
10	Indian Aluminium Co. Ltd	-3.9500 (20.78425)	21.3600 (5.40512)	2.041(NS)
11	Sandvik Asia Ltd	5.2500 (7.83799)	12.8667 (5.00176)	1.419(NS)

Table IX: Net Profit of Sample Merged Manufacturing Companies (Rs. in crore) - continued

12	Wartsila India Ltd	11.3700 (3.06078)	15.6733 (2.72555)	1.819(NS)
13	Philips India Ltd	-0.8567 (0.67397)	0.2900 (1.10653)	1.533(NS)
14	Otis Elevator Co. (INDIA) Ltd	18.6200 (2.86294)	25.9400 (5.46545)	2.055(NS)
15	Skanska Cementation India Ltd	4.0967 (3.68619)	7.0033 (1.85786)	1.220(NS)
16	Alfa Laval (INDIA) Ltd	(0.1900) -9.75500	40.7600 (4.00334)	5.021***
17	Foseco India Ltd	3.3200 (3.39718)	-0.8467 (10.52185)	0.653(NS)

Source: Computed from Prowess.
Note: 1. Figures given in parenthesis indicate standard deviation.
2. * Significant at 10% Level, ** Significant at 5% Level and *** Significant at 1% Level.
3. NS- Not Significant Level.

X. Returns on Investment (ROI): This ratio is one of the most important ratios used for measuring the overall efficiency of a manufacturing sector. As the primary objective of a manufacturing sector is to maximize its earnings, this ratio indicates the extent to which the primary objective of manufacturing sector is being achieved. This ratio is of great importance to the present and prospective shareholders as well as the management of the manufacturing sector. It reveals how well the resources of a manufacturing sector are being used. Higher the ratio, better the results. The investment is compared with the returns and net investment refers to the returns on investment.

$$\text{Returns on Investment } (\text{ROI}) = \frac{\text{EBIT}}{\text{Net Investment}}$$

Table-X portrays ROI of sample merged companies during pre and post merger periods. It could be noted from the analysis that Castrol India Ltd, Matrix Laboratories Ltd, Indian Aluminum Co.Ltd, Sandvik Asia Ltd, Otis Elevator Co.(INDIA) Ltd and Alfa Laval (INDIA) Ltd earned higher ROI during post merger period than during pre merger period. But other sample companies did not earn higher profit during post merger period. The analysis indicates that majority of sample companies had lesser and not better ROI after merger. The standard deviation unfolds the fact that the variation in the ROI during post merger was seen in the case of Saptarishi Agro Industries Ltd, Cadbury India Ltd, My Fellow Fashions (Exp) Ltd, DCL Polyesters Ltd, Forbes Gokak Ltd, Sri Vishnu Cement Ltd, Wartsila India Ltd and Skanska Cementation India Ltd. In the case of other companies (Modi Rubber Ltd, Castrol India Ltd, Indian Aluminium Co. Ltd, Sandvik Asia Ltd, Philips India Ltd, Otis Elevator Co.(INDIA) Ltd and Foseco India Ltd), greater variation was recorded during pre merger period. The variation, according to ‘t’ test, was statistically significant in the case of Saptarishi Agro Industries Ltd (5% Level at $p<0.05$), Modi Rubber Ltd (1% Level at $p<0.01$) and Skanska Cementation India Ltd (1% Level at $p<0.01$, highly significant 99% confidence level) when compared to other sample companies.

Table X: ROI of Sample Merged Manufacturing Companies (Rs. in crore)

S. No.	**Name of the Company**	**ROI**		**‘t’ Value**
		Before	**After**	
1	Saptarishi Agro Industries Ltd	0.6236 (0.36369)	0.0078 (0.10923)	2.809**
2	Cadbury India Ltd	0.5512 (0.69874)	-0.3107 (0.52339)	1.710(NS)
3	My Fellow Fashions (Exp) Ltd	0.0000 (0.00000)	0.0000 (0.00000)	Nil (NS)

Table X: ROI of Sample Merged Manufacturing Companies (Rs. in crore) - continued

4	DCL Polyesters Ltd	0.3950 (0.59473)	0.0000 (0.00000)	1.150(NS)
5	Forbes Gokak Ltd	0.3975 (0.14827)	0.2378 (0.06312)	1.716(NS)
6	Modi Rubber Ltd	0.5278 (0.10775)	-0.2243 (0.18547)	6.073***
7	Castrol India Ltd	2.6159 (0.50855)	155.0219 (266.34195)	0.991(NS)
8	Matrix Laboratories Ltd	12.3467 (48.02780)	32.6233 (18.97954)	0.680(NS)
9	Sri Vishnu Cement Ltd	0.4763 (0.65537)	0.0000 (0.00000)	1.259(NS)
10	Indian Aluminium Co. Ltd	18.0767 (662.0425)	791.66 (730.98854)	1.359(NS)
11	Sandvik Asia Ltd	5.6610 (4.03264)	42.8084 (54.59575)	1.175(NS)
12	Wartsila India Ltd	2.2568 (1.02566)	1.6015 (0.94946)	0.812(NS)
13	Philips India Ltd	0.0000 (0.00000)	13.3333 (44.52340)	0.519(NS)
14	Otis Elevator Co. (INDIA) Ltd	1.7535 (0.10674)	14.9994 (14.52039)	1.580(NS)
15	Skanska Cementation India Ltd	2786.0000 (741.49646)	0.0000 (0.00000)	6.508***
16	Alfa Laval (INDIA) Ltd	0.6533 (0.30185)	0.8663 (0.07979)	1.181(NS)
17	Foseco India Ltd	235.9433 (61.87911)	38.2233 (439.26469)	0.772(NS)

Source: Computed from Prowess.
Note: 1. Figures given in parenthesis indicate standard deviation.
2. * Significant at 10% Level, ** Significant at 5% Level and *** Significant at 1% Level.
3. NS- Not Significant Level.

XI. Net Worth : The term 'net worth' refers to the total share capital and reserves or the difference between the total assets and external liabilities. This is one of the most important ratios used for measuring the overall efficiency of the firm. Greater amount of networth is good for shareholders as well as management of the manufacturing sector.

Net worth = Share Capital + Reserve and Surpluses.

Or

= Total Assets – External Liabilities.

The net worth of sample merged companies during pre and post merger period is furnished in **Table-XI**. It is interesting to note that the average amount of net worth of sample companies after merger was higher than that of pre merger period. Among the sample, 13 companies had registered positive net worth after merger. In other words, most of the companies improved their net worth after merger. The standard deviation throws light on the fact that variation in the net worth was higher after merger in the case of Saptarishi Agro Industries Ltd, Cadbury India Ltd, Modi Rubber Ltd, Martix Laboratories Ltd, Sri Vishnu Cement Ltd, Indian Aluminium Co.Ltd, Sandvik Asia Ltd, Wartsila India Ltd, Otis Elevator Co.(INDIA) Lltd and Alfa Laval (INDIA) Ltd. But the variation after merger was lower in the case of other companies - My Fellow Fashions (Exp) Ltd, DCL Polyesters Ltd, Castrol India Ltd, Skanska Cementation India Ltd, Alfa Laval (INDIA) Ltd and Foseco India Ltd. The application of 't' test unfolds the fact that the variation was statistically significant in the case of Cadbury India Ltd, Alfa Laval (INDIA) Ltd (1% level at $p<0.01$, highly significant 99% confidence

level) Modi Rubber Ltd, Wartsila India Ltd (5% Level at p<0.05), Sandvik Asia Ltd and Indian Aluminium Co. Ltd (10% Level at p<0.10).

Table XI: Net Worth of Sample Merged Manufacturing Companies (Rs. in crore)

S. No.	Name of the Company	Net Worth		't' Value
		Before	After	
1	Saptarishi Agro Industries Ltd	4.6833 (0.11504)	4.5600 (0.17349)	1.026(NS)
2	Cadbury India Ltd	3.2733 (0.14640)	2.5867 (0.20232)	4.762***
3	My Fellow Fashions (Exp) Ltd	5.8500 (5.12220)	6.4667 (2.03237)	0.194(NS)
4	DCL Polyesters Ltd	0.4300 (0.18193)	0.5267 (0.01528)	0.917(NS)
5	Forbes Gokak Ltd	181.57 (10.8764)	184.2033 (5.36960)	0.376(NS)
6	Modi Rubber Ltd	144.8733 (5.01911)	49.1500 (55.66809)	2.966**
7	Castrol India Ltd	394.0533 (42.36504)	372.1100 (40.14720)	0.651(NS)
8	Matrix Laboratories Ltd	10.5833 (3.98942)	100.4333 (78.34629)	1.984(NS)
9	Sri Vishnu Cement Ltd	14.3700 (4.02896)	13.3433 (6.95024)	0.221(NS)
10	Indian Aluminium Co. Ltd	101.2600 (12.97812)	132.2933 (20.75994)	2.195*
11	Sandvik Asia Ltd	51.6600 (5.28345)	88.9867 (27.55226)	2.305*
12	Wartsila India Ltd	81.7800 (7.61143)	112.2400 (13.10699)	3.481**
13	Philips India Ltd	1.5867 (0.85337)	2.0900 (0.38314)	0.932(NS)
14	Otis Elevator Co. (INDIA) Ltd	65.4600 (13.48395)	81.1233 (17.66798)	1.221(NS)
15	Skanska Cementation India Ltd	55.7567 (28.23878)	79.7467 (4.18249)	1.456(NS)
16	Alfa Laval (INDIA) Ltd	124.3933 (5.18257)	154.9867 (7.86575)	5.625***
17	Foseco India Ltd	33.8933 (11.69043)	35.8600 (2.06959)	0.287(NS)

Source: Computed from Prowess.
Note: 1. Figures given in parenthesis indicate standard deviation.
2. * Significant at 10% Level, ** Significant at 5% Level and *** Significant at 1% Level.
3. NS- Not Significant Level.

4. Section-B

4.1. Capital Formation and Investment of Merged Manufacturing Sectors

XII. Capital Formation: Capital formation refers to the aggregate value of net fixed assets and the inventory. The analysis of capital formation seeks to find out whether the units have increased their capital formation from the year of mergers.

Table-XII gives capital formation of sample merged companies during pre and post merger period. The remarkable feature is that the average amount of capital formation by sample merged companies in the case of My Fellow Fashions (Exp) Ltd, Forbes Gokak Ltd, Castrol India Ltd, Matrix Laboratories Ltd, Sandvik Asia Ltd, Wartsila India Ltd,Philips India Ltd,Otis Elevator Co.(INDIA)

Ltd, Skanska Cementation India Ltd and Foseco India Ltd was higher during post merger period than during pre merger period. The comparison of capital formation of sample companies during pre and post merger period reveals the fact that sample units significantly increased their capital formation after merger. This is a good sign because sample companies after merger improved their capacity. The application of standard deviation explains that the variation in the amount of capital formation during post merger period was higher in the case of Saptarishi Agro Industries Ltd, Cadbury India Ltd, Forbes Gokak Ltd, Modi Rubber Ltd, Castrol India Ltd, Matrix Laboratories Ltd, Sri Vishnu Cement Ltd, Sandvik Asia Ltd, Wartsila India Ltd, Philips India Ltd, Otis Elevator Co. (INDIA) Ltd and Skanska Cementation India Ltd. In the same way, the 't' test also indicates that the variation in the capital formation was statistically significant in the case of Saptarishi Agro Industries Ltd, Cadbury India Ltd and Alfa Laval (INDIA) Ltd (1% Level at $p<0.01$, highly significant 99% confidence level).

Table XII: Capital Formation of Sample Merged Manufacturing Companies (Rs. in crore)

S. No.	Name of the Company	Capital Formation		't' Value
		Before	After	
1	Saptarishi Agro Industries Ltd	3.9400 (0.30447)	3.1800 (0.37000)	2.747**
2	Cadbury India Ltd	3.7333 (0.14503)	2.9633 (0.29501)	4.057**
3	My Fellow Fashions (Exp) Ltd	11.2100 (9.70923)	16.4867 (0.92652)	0.937(NS)
4	DCL Polyesters Ltd	0.0867 (0.00000)	0.06658 (0.00000)	Nil (NS)
5	Forbes Gokak Ltd	187.2933 (9.30987)	209.6800 (55.39372)	0.690(NS)
6	Modi Rubber Ltd	250.8000 (16.74788)	206.5533 (34.56798)	1.995(NS)
7	Castrol India Ltd	310.6600 (18.75513)	347.0533 (21.43951)	2.213*
8	Matrix Laboratories Ltd	26.8767 (2.29766)	203.9433 (158.06074)	1.940(NS)
9	Sri Vishnu Cement Ltd	68.2167 (7.35613)	61.2867 (8.13164)	1.095(NS)
10	Indian Aluminium Co. Ltd	73.0233 (10.01532)	61.4600 (4.64293)	1.814(NS)
11	Sandvik Asia Ltd	60.0800 (3.16601)	110.6233 (43.90149)	1.989(NS)
12	Wartsila India Ltd	76.7300 (1.68021)	84.7767 (8.25925)	1.654(NS)
13	Philips India Ltd	4.9533 (0.25384)	3.5167 (0.17786)	8.028***
14	Otis Elevator Co. (INDIA) Ltd	238.7600 (5.06116)	239.6533 (14.05779)	0.104(NS)
15	Skanska Cementation India Ltd	78.7000 (10.00545)	86.1700 (32.59003)	0.380(NS)
16	Alfa Laval (INDIA) Ltd	96.5567 (7.69634)	78.6133 (6.16550)	3.152**
17	Foseco India Ltd	26.3967 (10.02488)	29.8367 (7.20390)	0.413(NS)

Source: Computed from Prowess.
Note: 1. Figures given in parenthesis indicate standard deviation.
2. * Significant at 10% Level, ** Significant at 5% Level and *** Significant at 1% Level.
3. NS- Not Significant Level.

XIII. Increased Investment in Fixed Assets : The investment refers to investment of funds in the securities of another companies. They are long-term assets invested in the business of manufacturing sector. The main purpose of such investments is either to earn returns or/ and to control another

manufacturing sector. It is usual that investments are shown in the assets side of balance sheet of manufacturing sectors. Further they are shown at market value. The investments are made in government securities, assisted companies, subsidiaries/ associated, mutual funds and others.

The increased investment in fixed assets by sample merged companies is provided in **Table-XIII**. From the analysis, it is interesting to note that the average amount of increased investment in fixed assets by sample merged companies taken for this study was greater during post merger period than that of pre merger period. It is a clear proof that the sample companies after merger had undertaken expansion or modernization through increasing their investment in fixed assets. Further, the sample 15 companies after merger attempted to turn around positively. The standard deviation shows that the variation in the increased investment in fixed assets during post merger was greater in the case of Saptarishi Agro Industries Ltd, Forbes Gokak Ltd, Matrix Laboratories Ltd, Sandvik Asia Ltd, Wartsila India Ltd and Alfa Laval (INDIA) Ltd. The application of 't' test is statistically significant in the case of Modi Rubber Ltd, Castrol India Ltd and Otis Elevator Co.(INDIA) Ltd (5% Level at $p<0.05$), Sri Vishnu Cement Ltd and Skanska Cementation India Ltd (10% Level at $p< 0.10$).

Table XIII: Increased in Investment in Fixed Assets of Sample Merged Manufacturing Companies (Rs. in crore)

S. No.	Name of the Company	Increased in Investment in Fixed Assets		't' Value
		Before	After	
1	Saptarishi Agro Industries Ltd	1.9100 (0.24980)	2.3800 (0.30643)	2.059(NS)
2	Cadbury India Ltd	1.8567 (0.20526)	2.0600 (0.06928)	1.626(NS)
3	My Fellow Fashions (Exp) Ltd	11.9667 (10.36344)	19.1067 (1.02051)	1.188(NS)
4	DCL Polyesters Ltd	0.0033 (0.00577)	0.0000 (0.00000)	1.000(NS)
5	Forbes Gokak Ltd	257.5567 (9.09489)	302.7000 (53.23919)	1.448(NS)
6	Modi Rubber Ltd	280.6433 (7.53864)	293.9567 (1.15743)	3.023**
7	Castrol India Ltd	191.1000 (19.41539)	241.0200 (16.25428)	3.415**
8	Matrix Laboratories Ltd	15.3500 (0.69195)	187.0133 (157.63629)	1.886(NS)
9	Sri Vishnu Cement Ltd	106.8233 (6.84217)	115.7467 (0.62581)	2.249*
10	Indian Aluminium Co. Ltd	84.9600 (4.45309)	82.3267 (4.11208)	0.752(NS)
11	Sandvik Asia Ltd	94.8100 (8.97608)	181.3733 (98.54412)	1.515(NS)
12	Wartsila India Ltd	44.2100 (4.26170)	61.1633 (15.94329)	1.779(NS)
13	Philips India Ltd	2.8733 (0.41630)	3.1033 (0.11240)	0.9239(NS)
14	Otis Elevator Co. (INDIA) Ltd	84.8033 (1.63124)	88.6800 (0.99232)	3.517**
15	Skanska Cementation India Ltd	54.3000 (7.25465)	77.4600 (16.9304)	2.178*
16	Alfa Laval (INDIA) Ltd	81.7467 (1.07156)	82.7667 (14.08548)	0.125(NS)
17	Foseco India Ltd	27.8800 (6.56313)	30.2533 (3.23415)	0.562(NS)

Source: Computed from Prowess.

Note: 1. Figures given in parenthesis indicate standard deviation.

2. * Significant at 10% Level, ** Significant at 5% Level and *** Significant at 1% Level.

3. NS- Not Significant Level.

4.1.1. Test of Hypothesis- Other Parameters

From the above analysis of ratio of capital formation and increased investment in fixed assets, it is evident that the second hypothesis, **'The merged companies did not expand their business activities after merger'** is rejected. All sample companies expanded their activities after merger.

Table-XIV consolidates 't' values for different variables used for the purpose of this study. As stated earlier, there are 13 variables in four groups. The Saptarishi Agro Industries Ltd obtained significant 't' value for all variables except Quick Ratio, Total Debt and Equity to Total Assets, Interest Coverage Ratio, Net Profit and Net Worth. In the case of Cadbury India Ltd, variables like Current Ratio, Quick Ratio, Net Working Capital, Total Debt and Equity to Total Assets, Total Borrowings and Equity to EBITD, Interest Coverage Ratio, Operating Profit, Net Profit, Returns on Investment and increased Investment in Fixed Assets obtained insignificant 't' value and statistically significant 't' value for other variables. My Fellow Fashions (Exp) Ltd obtained insignificant value for all variables expect Returns on Investment. The DCL Polyesters Ltd received insignificant 't' value for all variables expect Total Debt and Equity to EBITD. Forbes Gokak Ltd obtained significant 't' value for Current Ratio, Quick Ratio and Net Working Capital and Modi Rubber Ltd received significant 't' value for all variables except Current Ratio, Diversion of Short Term Funds, Total Debt and Equity to Total Assets and Capital Formation. The significant 't' value was received for only three variables (out of 13 variables) like Net Worth, Capital Formation and Increased Investment in Fixed Assets in the case of Castrol India Ltd. In the case of Matrix Laboratories Ltd, variables like Current Ratio, Quick Ratio, Net Working Capital, Diversion of Short Term Funds, Total Debt and Equity to Total Assets, Net Profit, Returns on Investment and Net Worth received insignificant 't' value.

Table XIV: “t” Value of Different Variables

S. No.	Name of the Manufacturing Company	Liquidity Parameter				Leverage Parameter			Profitability Parameter				Other Parameter	
		CR	**QR**	**NWC**	**DSTF**	**TDETD**	**TBEB**	**ICR**	**OP**	**NP**	**ROI**	**NW**	**CF**	**IIFA**
1.	Saptarishi Agro Industries Ltd	S	NS	S	S	NS	S	NS	NS	S	S	NS	S	NS
2.	Cadbury India Ltd	NS	NS	NS	S	NS	NS	NS	NS	NS	NS	S	S	NS
3.	My Fellow Fashions (Exp) Ltd	NS	NS	NS	NS	NS	NS	NS	NS	NS	NIL	NS	NS	NS
4.	DCL Polyesters Ltd	NS	NS	NS	NS	S	NS	NS	NS	NS	NS	NS	NS	NS
5.	Forbes Gokak Ltd	S	S	S	NS	NS	S	NS	NS	NS	NS	NS	NS	NS
6.	Modi Rubber Ltd	NS	S	NS	NS	NS	S	S	S	S	S	S	NS	S
7.	Castrol India Ltd	S	NS	NS	NS	NS	NS	NS	NS	S	NS	NS	S	S
8.	Matrix Laboratories Ltd	NS	NS	NS	NS	NS	S	S	S	NS	NS	NS	NS	NS
9.	Sri Vishnu Cement Ltd	S	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	S
10.	Indian Aluminium Co. Ltd	S	S	NS	NS	NS	NS	S	S	NS	NS	S	NS	NS
11.	Sandvik Asia Ltd	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	S	NS	NS
12.	Wartsila India Ltd	NS	NS	NS	S	NS	S	S	S	NS	NS	S	NS	NS
13.	Philips India Ltd	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	S	NS
14.	Otis Elevator Co. (INDIA) Ltd	NS	S	S	S	NS	NS	S	S	NS	NS	NS	NS	S
15.	Skanska Cementation India Ltd	NS	NS	NS	NS	NS	NS	NS	NS	NS	S	NS	NS	S
16.	Alfa Laval (INDIA) Ltd	S	S	S	NS	NS	S	S	S	S	NS	S	S	NS
17.	Foseco India Ltd	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Source: **Computed from Table – 1 to 13.** S- Significant Level, NS- Not Significant Level.

Note: 1. CR- Current Ratio, 2. QR- Quick Ratio, 3. NWC- Net Working Capital, 4. DSTF-Diversion of Short Term Funds, 5. TDETA- Total Debt and Equity to Total Assets, 6. TBEB- Total Borrowings and Equity to EBITD, 7. ICR- Interest Coverage Ratio, 8. OP- Operating Profits, 9. NP- Net Profits, 10. ROI-Returns on Investment, 11. NW- Net Worth, 12. CF-Capital Formation and 13. IIFA- Increased Investment in Fixed Assets.

The Sri Vishnu Cement Ltd obtained insignificant ‘t’ values for Quick Ratio, Returns on Investment, Net Worth and Capital Formation. In the case of Sandvik Asia Ltd, it received insignificant ‘t’ value for all variables expect Current Ratio and Capital Formation. The Indian Aluminium Co. Ltd recorded insignificant value for Net Working capital, Diversion of Short Term Funds, Total Debt and Equity to Total Assets, Total Borrowings and Equity to EBITD, Net Profit, Returns on Investment and Increased Investment in Fixed Assets, but other variables registered significant values. In the case of Wartsila India Ltd, only five variables like Diversion of Short Term Funds, Total Borrowing and Equity to EBITD, Interest Coverage Ratio, Operating Profit and Net Worth registered significant level of ‘t’ values.

The Otis Elevator Co.(INDIA) Ltd recorded insignificant value for seven variables (Current Ratio, Diversion of Short Term Funds, Total Borrowings and Equity to EBITD, Interest Coverage Ratio, Net Profit, Returns on Investment and Capital Formation), but other variables registered significant level of ‘t’ values. In the case of Skanska Cementation India Ltd, variables like Returns on Investment and Increased Investment in Fixed Assets received significant ‘t’ value and Alfa Laval (INDIA) Ltd obtained insignificant ‘t’ value for all except Diversion of Short Term Funds, Total Debt and Equity to Total Assets, Returns on Investment and Increased Investment in Fixed Assets. With regard to Philips India Ltd, it obtained insignificant level of ‘t’ value for all variables except Capital Formation. In the case of Foseco India Ltd, it registered insignificant ‘t’ values for all variables.

The above analysis clearly indicates the fact that the performance of merged companies in respect of 13 variables taken for this study was not significantly different from the expectations. However, Saptarishi Agro Industries Ltd, Forbes Gokak Ltd, Modi Rubber Ltd, Otis Elevator Co.(INDIA) Ltd and Alfa Laval (INDIA) Ltd achieved significant value for all liquidity related variables. No sample company of this study achieved significant ‘t’ value for all leverage and profitability related variables. In the case of other parameters, Saptarishi Agro Industries Ltd, Cadbury India Ltd, DCL Polyesters Ltd, Forbes Gokak Ltd, Modi Rubber Ltd ,Castrol India Ltd and other companies achieved significant ‘t’ value.

4.2. Findings of the Study

1. The quick ratio of merged company during pre and post merger periods was in conformity with the standard quick ratio of 1:1. This means that all sample units did have sufficient quick assets to meet current liabilities. This is an indication of the health of the firms.
2. The analysis shows that the average net working capital of all sample companies had increased after the takeover of administration by the new management. The increase in the net working capital after merger might have been due to addition of assets of the acquired firms.
3. The growth of operating profit of 11 companies out of 17 sample companies was statistically insignificant, but other six companies achieved statistically significant growth of operating profit after merger.
4. Returns on Investment is one of the most important ratios used for measuring the overall efficiency of a manufacturing sector. Hence ROI (Returns on Investment) is used in this study.
5. It is interesting to note that the average amount of net worth of sample companies after merger was higher than that of pre merger period.
6. The comparison of capital formation of sample companies during pre and post merger period reveals the fact that sample units significantly increased their capital formation after merger. This is a good sign because sample companies of the manufacturing sector improved their capacity after merger.
7. The analysis clearly indicates the fact that the overall financial performance of merged companies in respect of 13 variables taken for this study were not significantly different from the expectations.

4.3. Limitations of the Study

The study is mainly based on secondary data. The study is confined to only manufacturing sectors that are categorized into food & beverages, textiles, chemicals, non-metallic mineral products, metal & metallic products, machinery and miscellaneous manufacturing & diversified. This study is limited to 17 companies (30% of total companies) out of 58 companies, which have undergone mergers and acquisitions during 2000, 2001 and 2002. In the absence of more reliable data, CMIE data on M & As are used in this study. The study is undertaken only for the pre merger period of three years and post merger period of three years.

5. Conclusion

It is evident from the above analysis that both the hypotheses set for validation are not fully accepted. The conclusion emerging from the point of view of financial evaluation is that the merging companies were taken over by companies with reputed and good management. Therefore, it was possible for the merged firms to turn around successfully in due course. However it should be tested with a bigger sample size before coming to a final conclusion.

5.1. Scope for Further Research

Scope for further research is outlined.

1. Studies with similar objectives could be initiated with reference to other sectors like banking sector, IT sector etc.
2. The study with similar objectives could be made from time to time.
3. The reasons for the peculiar behaviour of manufacturing company stocks may be examined.
4. Impact of mergers and acquisitions on financial performance and shareholders' wealth of acquirer and acquiring firms may also studied.
5. One important implication for research concerning M & As is to take the integration issues into consideration along with the human factors.

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