Mergers and Acquisitions – Is It A Sustainable Tool For Economic Gains?

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Abstract:-

Mergers and Acquisitions are the choicest tool of corporations across the globe to effectuate their growth plans. The various forms in which acquisitions can take place are buying out the key brands, purchasing a strategic asset, procuring one or many manufacturing units from ailing firms. Tackling with the competition, access to ready or strategic assets, addition to existing sales are the few benefits that an acquiring firm derives through this technique but does it gives immediate results or sustainable long-term results can be obtained. The current research work is an attempt to check as to whether mergers and acquisitions affect the financial performance of the companies in the long run or not. To do so, ratios as per Du Pont Return on Assets Framework has been computed and compared for twelve years - six years before and six years after the merger on the sample of 21 companies, that have been acquired and merged with the acquirers in the F.Y. 2006 -2007 and carrying their operations as on today. The results showed the mixed effect of M&A on the financial performance of the companies. Afterwards, Auto-Regressive Moving Average technique was applied on post-merger data of ten years to forecast the values of those companies who manifested the noteworthy effect of M&A in either of the directions.

Keywords: - Mergers and Acquisitions, Du Pont Return on Assets Framework, Financial Performance, Long-term results. JEL Classification: - G 34

1. Introduction:-

Change is the constant factor that brings new dynamics to the business world and to deal with it corporates always think upon the new ways or at times make corrections in existing plans so that they can sustain and grow their businesses. However, the pace at which technology advancement is taking place, customers' needs are changing, increasing number of players entering in different sectors has forced companies to devise and implement the various strategies with the best possible manner and in lesser time. As a result, business organizations always gaze for better opportunities in the outer world that suffice their purpose.

Mergers and Acquisitions (M&A) is one of the instruments that has helped the firms not only within national borders but cross borders as well to propel their progress engines. Though M&A comes with numerous advantages but does every acquirer has gained economically from it or not. Also, whether such economic benefits are for shorter duration or sustain for a longer period.

Thus, the present research work has been carried out to find out the impact of M&A on the financial performance of the companies and whether this effect is for a short time or long time. To do so three ratios - return on assets, net profit margin and asset turnover ratio as per Du Pont framework has been calculated and compared in before and after merger situation.

2.0 Literature Review:-

Chari (2006) applied event study as well as accounting ratios method to the selected 12 companies from the time frame of 1999 – 2005 acquisitions deals to assess the success or failure of M&A. Based on the event study results it was deduced that shareholders of the target companies benefited immediately because of high premium paid by the acquirer for buying the company and acquirer companies' shareholders reap abnormal returns within the time frame of two years. As per accounting ratios, ROCE and RONW were improved. However only half of the companies were able to take advantage of cost reduction and made better use of fixed assets.

Irfan and Akhtar (2006) estimated the value of 10 companies listed on BSE S&P BSE 500 Shariah by deploying various valuation techniques with the duration from January 2010 – December 2014. The result was obtained that discounted cash flow techniques were the good estimator for the valuation of the companies.

Kumar (2009) studied the firms that did acquisition during 1999- 2002. He shortlisted 30 companies as a sample, assessed their results by computing and comparing profitability, operating, and leverage ratios for three years pre and three years' post-acquisition. Kumar assessed that there was no significant improvement in the financial performance of the companies after the merger.

Ramakrishnan (2010) inferred from his study that mergers have proven to be beneficial for the performance of the Indian corporate in the long run. He conducted his study on a sample of 87 firms from the merger deals of January 1996 to March 2002 and determined pre-tax operating cash flows for three years before and after the merger.

Dhinaiya (2012) selected 35 companies from 6 sectors and compared the operating performance of the companies by computing operating profit, gross profit, net profit, debt-equity, current, return on capital and return on net worth ratios for four years before and two years after the merger for each company. He found that overall industry performance has revamped concerning operational efficiency and profitability but failed to improve their results on return on capital.

Leepsa and Mishra (2013) conducted their study specific to Indian manufacturing sectors by selecting the deals during 2003-2004 to 2006-2007. They computed liquidity, profitability and solvency ratios and compared the effect with pre and post-merger taking the time frame of three years for each. Their research findings were that M&A impact was reflected in the immediate years categorically in the event and the first year after M&A.

Lakhwani, Tiwari and Jauhari (2017) undertook a study to assess the impact of M&A in the long run by computing and comparing Return on Assets (ROA) as per Du Pont Framework for twelve years – six years pre and six years post-merger on a sample of eleven companies that have done M&A in F.Y. 2004-2005 and continuing their operations. The results found were representing the mixed impact of mergers and acquisitions on the overall financial performance of the companies.

Lakhwani, Tiwari and Jauhari (2017) applied Du Pont Framework Return on Assets (ROA) on the sample of seven companies that catered to Consumer Goods and Information Technology sector and have done M&A in F.Y. 2004-2005, 2005-2006 and 2006 -2007 and are yet operating. They took a time frame of six years for each - before and after the merger. The outcome revealed the mixed effect of M&A on all three ratios and was company-centric and not particular to any sector.

3.0 Purpose of the Study:-

In continuation with the points discussed in the previous section, the current study has been done to seek the answer as to whether the financial performance of the companies become better after M&A or not by comparing the ratios before and after the merger. Accordingly, the following hypothesis has been formed:-

H0 = There is no significant effect on Return on Assets (ROA) before and after M&A.
H1 = There is a significant effect on Return on Assets (ROA) before and after M&A.

H0 = There is no significant effect on the Net Profit Margin (NPM) before and after M&A.
H1 = There is a significant effect on the Net Profit Margin (NPM) before and after M&A.

H0 = There is no significant effect on Asset Turnover Ratio (ATR) before and after M&A.
H1 = There is a significant effect on Asset Turnover Ratio (ATR) before and after M&A.

4.0 Collection of Data and Application of Tools and Techniques:-

The entire research is based absolutely on secondary data. Extensive information about M&A deals of F.Y. 2006-2007 along with sectorial classification, financial data concerning sales, net profit and total assets for computing ratios has been garnered from Prowess – Centre For Monitoring Indian Economics (CMIE)

Database. Besides the deals has been corroborated from annual reports and websites of the companies and stock exchanges. Moreover to have accuracy in results, M&A pacts between the companies possessing holding – a subsidiary relationship from the beginning has been precluded. From 158 deals, only 32 deals covering 29 companies were taken for further examination. Afterwards, companies that served to banking, financial services sectors and about whom financial data was not available were also dropped. Lastly, a sample of 21 companies covering 24 M&A deals from 10 different sectors was frozen for the study purpose.

Table I: Companies Finalized For the Study

S. No	Name of Acquirer	Main Sector of Acquirer	Name of Company(ies) Targeted & Merged	Main Sector of Target
1	A C C Ltd.	Construction Materials	Tarmac (India) Pvt. Ltd.	Construction Materials
2	Chettinad Cement Corpn. Ltd.	Construction Materials	High-Tech Lime Products Ltd.	Construction Materials
			Sabari Cements (Chennai) Ltd.	
3	Coromandel International Ltd.	Chemical and Chemical Products	Ficom Organics Ltd.	Chemical and Chemical Products
			Rasilah Investments Ltd.	Other Fund Based Financial Services
4	Crisil Ltd.	Miscellaneous Services	Irevna Research Services Ltd.	Miscellaneous Services
5	Hindustan Unilever Ltd.	Consumer Goods	Modern Food & Nutrition Inds. Ltd.	Food & Agro Based Prodcuts
			Modern Food Inds. (India) Ltd.	
6	Hotel Leelaventure Ltd.	Hotels and Tourism	Kovalam Hotels Ltd.	Hotels and Tourism
7	India Cements Ltd.	Construction Materials	Visaka Cement Industry Ltd.	Construction Materials
8	Indian Hotels Co. Ltd.	Hotels and Tourism	Taj Lands End Ltd.	Hotels and Tourism
9	Jain Irrigation Systems Ltd.	Chemical and Chemical Products	Orient Vegetexpo Ltd.	Food & Agro Based Prodcuts
10	Khaitan Chemicals & Fertilizers Ltd.	Chemical and Chemical Products	Mahadeo Fertilizers Ltd.	Chemical and Chemical Products
11	Megasoft Ltd.	Information Technology	Visualsoft Technologies Ltd.	Information Technology
12	N M D C Ltd.	Minerals	Sponge Iron India Ltd.	Metals and Metal Prodcuts
13	Peninsula Land Ltd.	Real Estate	Dawn Mills Co. Ltd.	Textiles
14	Pioneer Embroideries Ltd.	Textiles	Crystal Lace (India) Ltd.	Textiles
15	Punjab Chemicals & Crop Protection Ltd.	Chemical and Chemical Products	I A & I C Chem Pvt. Ltd.	Minerals
16	Reliance Industries Ltd.	Chemical and Chemical Products	Indian Petrochemicals Corpn. Ltd.	Chemical and Chemical Products
17	Spentex Industries Ltd.	Textiles	Indo Rama Textiles Ltd.	Textiles

18	Steel Authority Of India Ltd.	Metals and Metal Products	Bharat Refractories Ltd.	Construction Materials
19	Taj G V K Hotels & Resorts Ltd.	Hotels and Tourism	Sri Tripurasundari Hotels Ltd.	Hotels and Tourism
20	Thomas Cook (India) Ltd.	Hotels and Tourism	L K P Forex Ltd.	Other Financial Services
21	Wanbury Ltd.	Chemical and Chemical Products	Doctors Organic Chemicals Ltd.	Chemical and Chemical Products

Table II: Acquirers' Sector wise Classification

S. No	**Sectors**	**No. of M&A Deals**	**No. of Companies**
1	Chemical and Chemical Products	7	6
2	Construction Materials	4	3
3	Consumer Goods	2	1
4	Hotels and Tourism	4	4
5	Information Technology	1	1
6	Metals and Metals Products	1	1
7	Minerals	1	1
8	Miscellaneous Services	1	1
9	Real Estate	1	1
10	Textiles	2	2
	Total	*24*	*21*

Overall fourteen years data was amassed out of which six years were for the pre-merger period and eight years for post-merger period. For comparing the performance before and after merger six years data for each was utilized. Forecasting technique was deployed on after merger eight years' data. The window of six years was taken due to pre-merger data availability in Prowess for the specified duration only.

Thereafter all three ratios were calculated for both - prior and post-merger period and were analyzed with the help of mean, standard deviation and coefficient of variation to gauge the M&A effect on the profitability and efficiency of the firms. To check the significance paired t-test at 5% was applied. Finally, the values of the ratios were forecasted for the companies that have a noteworthy impact of M&A in either way by using Autoregressive Integrated Moving Average (ARIMA) technique.

4.1 Du Pont Return on Assets (ROA) Framework:-

In the 1920s, Du Pont took over General Motors and F. Donaldson Brown who started his career with the company in 1909 as an explosive salesman and later on promoted to company's finance section was appointed as a treasurer of General Motors. The task allocated to him was to clean up the chaotic finance of frail auto manufacturing company. While working, he found that Return on Assets (ROA) is the integration of Net Profit Margin (NPM) and Assets Turnover Ratio). Henceforth the model gained popularity and known as Du Pont Analysis.

Both ROA and NPM manifests profitability in relative terms. Former calculates the return earned by the firm concerning its assets as on particular duration and latter depicts the profit being earned concerning total sales made during a given period. Assets Turnover Ratio displays the productivity of assets for generating sales.

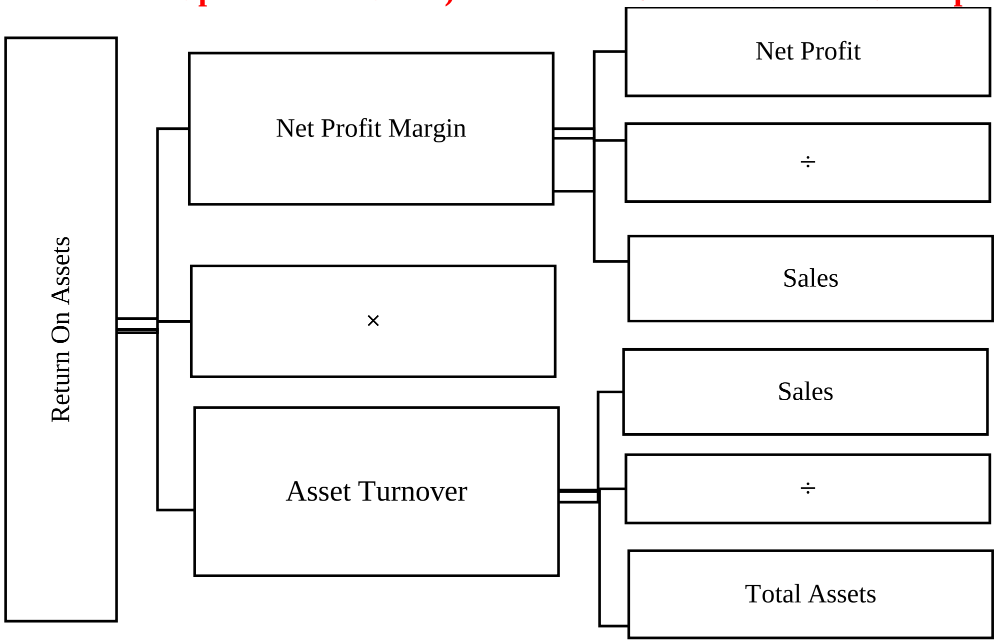

Figure I: Du Pont ROA Framework

5.0 Results and Analysis:-

5.1 Effect on Return on Assets:-

The mean values of ROA (Table III) show that 11 firms have been benefited from M&A as their returns have improved post-merger. Out of these, the standard deviation (Table IV) of 6 firms has gone up whereas the coefficient of variation values (Table V) portray different picture wherein the value of 4 firms has fallen and for remaining 2 it is on the higher side. The rest 5 firms have experienced a dip in both values - standard deviation as well as coefficient of variation. This exhibits that though the firms have been able to get better returns after the merger concerning deviations in returns few have been able to achieve steadiness but few are still vulnerable to variability in returns. From 10 companies that have seen fall in ROA after the merger, the standard deviation values of 8 firms have increased and for 2 firms it has decreased. In the case of former the coefficient of variation values of 6 firms have grown and 2 firms it has fallen. Concerning the latter, the coefficient of variation values has increased and decreased for each firm respectively. This highlights that following the merger majority of the companies have lost on two counts – better returns and firmness in earnings.

A paired t-test (Table VI) revealed that ROA of Crisil Ltd. and India Cements Ltd. has significantly improved and the ROA of Pioneer Embroideries Ltd. and Thomas Cook (India) Ltd. has notably fallen after M&A.

5.2 Impact on Net Profit Margin:-

After observing the mean values from Table III, it was found that post-merger the NPM of 13 companies have become better out of which the standard deviation (Table IV) of 10 firms has plunged and of 3 firms has scaled up. Out of 10 firms, the coefficient variation values (Table V) of 9 firms have seen a dip and that of 3 firms, 2 companies have a higher coefficient of variation values. This delineates that along with improved profit margins, most of the companies have less variability in earnings in absolute and relative terms. Thus M&A has brought both growth and consistency in their earnings. From 8 companies that have experienced a drop in profit margins, the standard deviation and coefficient of variation as well of 6 firms have grown after the merger. This manifests that these companies along with dwindling profits were tackling with fluctuation in earnings too.

Crisil Ltd., India Cements Ltd., N M DC Ltd. and Peninsula Land Ltd. have noteworthily enhanced their NPM whereas the NPM of Pioneer Embroideries Ltd. and Thomas Cook (India) Ltd has fallen significantly following the merger (Table VII).

5.3 Influence on Asset Turnover Ratio:-

Concerning ATR mean values, 9 firms have enhanced their efficiency in asset utilization after the merger. From these 9 firms, both standard deviation and coefficient of variation values of 5 firms have been on the higher side and that of 4 firms it is on the lower end. This indicates that post-merger firms are making effective use of their assets but also same time there exists instability as the degree of variation is quite high from one period to another period. Out of 12 companies whose ATR has descended following the merger, the standard deviation and coefficient of variation of 8 firms have enhanced which evince that after the merger, besides lower efficiency they have also come across the volatility in the usage of assets.

Chettinad Cement Corpn. Ltd., Crisil Ltd., Hindustan Unilever Ltd. and India Cements Ltd. are the companies whose ATR has remarkably become better after the merger. On the other hand, Megasoft Ltd., N M DC Ltd., Pioneer Embroideries Ltd., Punjab Chemicals & Crop Protection Ltd. and Thomas Cook (India) Ltd. are the companies who have seen a sizeable fall in ATR after the merger (Table VIII).

5.4 Forecasting using ARIMA model

The values of different ratios have been forecasted by using ARIMA method for four companies that have significantly impacted after the merger. Out of this, the ATR values of India Cements Ltd. (Table X) and Pioneer Embroideries Ltd. (Table XI) will become better in future. However, the value of all three ratios of Crisil Ltd. (Table IX) and Thomas Cook (India) Ltd. (Table XII) will be showing a downturn trend.

6.0 Discussion:-

The results obtained from the study shown that there is a mixed impact of M&A on the performance of the companies. Chettinad Cement Corpn. Ltd., Hindustan Unilever Ltd. are the companies whose ATR has significantly enhanced after the merger. Contrary to that the ATR of Megasoft Ltd. and Punjab Chemicals & Crop Protection Ltd. has fallen remarkably after the merger. N M DC Ltd. has an appreciable increase in NPM but falls in ATR following the merger. Opposite to that post-merger, the NPM of Peninsula Land Ltd. has enhanced significantly. Crisil Ltd. and India Cements Ltd. are the companies who have benefited from M&A with improvement in all three ratios. For Pioneer Embroideries Ltd. and Thomas Cook (India) Ltd. M&A has been disadvantageous as the values of all three ratios have fallen.

7.0 Epilogue

The current study was done to investigate the long term impact of M&A on the firms. The results evince that those firms who can integrate the target firms properly after the merger get succeed in reaping the fruits of M&A and those are not remain deprived of its gains. Withal M&A is a long term strategy and the outcome demonstrate a mixed impact on companies and not on sectors. It also shows the relationship between ROA, NPM and ATR as explained by Du Pont model that variation in any one ratio will affect other ratios as well.

8.0 Direction for Future Work:-

The present research work has been carried out to inspect the long term effect of M&A on the financial performance of the companies by deploying the Du Pont ROA framework. With the same companies, one can apply other Du Pont frameworks like ROI or ROE. Researchers can also study the liquidity, profitability, efficiency, solvency of these companies by calculating various ratios. A similar study can also be done with a bigger sample size by combining M&A deals of two or more years. Also, the quantitative model can be developed to find out the factors other than M&A that affects the performance of the companies.

Table III: Pre and Post Mean Values of All Three Ratios

Company Name	Return on Assets		Net Profit Margin		Asset Turnover Ratio	
	Pre-Merger Mean	Post-Merger Mean	Pre-Merger Mean	Post-Merger Mean	Pre-Merger Mean	Post-Merger Mean
A C C Limited	5.4617	13.1233	6.1883	14.2217	0.9117	0.9183
Chettinad Cement Corporation Limited	1.8517	5.755	2.015	6.46	0.65	0.8717

Coromandel Fertilizers Limited	6.7233	9.575	5.3567	6.5367	1.2633	1.475
Crisil Limited	13.9217	27.7167	23.4617	31.715	0.59	0.8783
Hindustan Unilever Limited	21.8317	26.44	13.3933	12.1567	1.6483	2.17
Hotel Leela Ventures Limited	1.5483	0.405	10.86	1.9617	0.1233	0.1
India Cements Limited	-1.0867	4.4783	-3.575	8.1717	0.4015	0.545
Indian Hotels Company Limited	4.3183	2.7883	12.665	7.99	0.3267	0.285
Jain Irrigation Systems Limited	1.2333	4.36	1.9783	6.6067	0.5267	0.6433
Khaitan Chemicals and Fertilizers Limited	1.275	3.855	0.6533	2.695	1.37	1.295
Megasoft Limited	2.735	2.4767	4.135	8.1483	0.8233	0.285
N M D C Limited	18.8167	21.8567	30.7417	58.4617	0.6017	0.375
Peninsula Land Limited	-6.245	9.2233	-2.07	38.13	0.8883	0.2483
Pioneer Embroideries Limited	8.125	-4.4233	8.5217	-6.1083	0.9367	0.4867
Punjab Chemicals & Crop Protection Limited	3.5067	-6.3617	2.5717	-8.8083	1.3183	0.785
Reliance Industries Limited	7.865	7.695	9.4133	8.6617	0.8333	0.9233
Spentex Industries Limited	-5.6517	-7.36	-7.1367	-5.7083	1.0933	1.28
Steel Authority of India Limited	5.93	8.6783	4.5267	11.0283	0.8867	0.7383
Taj G V K Hotels and Resorts Limited	8.5167	8.4417	15.5933	16.2	0.5333	0.4833
Thomas Cook (India) Limited	9.0583	4.7767	19.145	13.28	0.47	0.3567
Wanbury Limited	3.2333	-0.8417	4.96	-3.3133	0.6359	0.5467

Table IV: Pre and Post Standard Deviation Values of All Three Ratios

Company Name	Return on Assets		Net Profit Margin		Asset Turnover Ratio	
	Pre-Merger Std. Dev.	Post-Merger Std. Dev.	Pre-Merger Std. Dev.	Post-Merger Std. Dev.	Pre-Merger Std. Dev.	Post-Merger Std. Dev.
A C C Limited	3.5745	4.4147	4.6653	3.7393	0.0986	0.1426
Chettinad Cement Corporation Limited	3.1147	4.3888	4.4561	4.9817	0.1908	0.1126
Coromandel Fertilizers Limited	2.3645	2.545	1.9524	1.5861	0.167	0.2961
Crisil Limited	2.7025	5.5749	2.2387	4.666	0.0809	0.1643
Hindustan Unilever Limited	3.0928	4.0055	2.3927	1.0663	0.2306	0.2434
Hotel Leela Ventures Limited	1.4114	3.8593	9.1269	35.6637	0.0377	0.0316
India Cements Limited	3.1903	3.3021	8.7829	5.9406	0.0696	0.0339
Indian Hotels Company Limited	2.0047	4.4054	3.9582	12.198	0.0615	0.0898
Jain Irrigation Systems Limited	2.895	2.167	5.7808	3.2122	0.116	0.0668
Khaitan Chemicals and Fertilizers Limited	3.8434	3.3336	2.7824	2.3808	0.2317	0.4033
Megasoft Limited	10.9953	1.8198	19.1148	4.6214	0.2441	0.072
N M D C Limited	7.7858	5.6046	10.0099	3.2108	0.057	0.1036
Peninsula Land Limited	15.3407	3.4006	27.3821	10.0554	0.7779	0.0928
Pioneer Embroideries Limited	2.3813	6.9344	1.11291	11.4143	0.1557	0.2

ISSN: 2278-4632
Vol-10 Issue-9 No.03 September 2020

Punjab Chemicals & Crop Protection Limited	4.0021	10.6375	3.1322	13.3556	0.2065	0.2699
Reliance Industries Limited	1.666	2.6118	1.5825	3.1453	0.0778	0.2163
Spentex Industries Limited	10.6356	14.3028	10.8123	9.0491	0.5123	0.3781
Steel Authority of India Limited	11.5424	5.4974	12.1247	4.7366	0.2066	0.1989
Taj G V K Hotels and Resorts Limited	3.9253	5.8601	5.5723	8.3018	0.0561	0.1013
Thomas Cook (India) Limited	2.1037	1.3353	3.2686	2.8014	0.0513	0.0683
Wanbury Limited	2.3061	4.6926	3.6501	9.7873	0.1098	0.1451

Table V: Pre and Post Coefficient of Variations Values of All Three Ratios

Company Name	Return on Assets		Net Profit Margin		Asset Turnover Ratio	
	Pre-Merger C.V.	Post-Merger C.V.	Pre-Merger C.V.	Post-Merger C.V.	Pre-Merger C.V.	Post-Merger C.V.
A C C Limited	65.38	33.64	75.4	26.28	10.82	15.49
Chettinad Cement Corporation Limited	168.17	76.28	221.2	77.07	29.32	13.24
Coromandel Fertilizers Limited	35.19	26.61	36.46	24.28	13.01	20.05
Crisil Limited	19.41	20.11	9.54	14.72	13.67	18.54
Hindustan Unilever Limited	14.17	15.15	17.85	8.75	14.01	11.1
Hotel Leela Ventures Limited	91.19	953.42	84.04	1817.08	30.49	31.62
India Cements Limited	-293.54	73.76	-245.62	72.68	17.32	6.35
Indian Hotels Company Limited	46.43	158.07	31.25	152.65	18.08	31.68
Jain Irrigation Systems Limited	234.22	49.69	292.26	48.62	21.87	10.34
Khaitan Chemicals and Fertilizers Limited	301.07	86.52	424.61	88.32	16.91	31.19
Megasoft Limited	402.2	73.55	462.38	56.72	29.38	25.39
N M D C Limited	41.38	25.63	32.56	5.49	9.5	27.01
Peninsula Land Limited	-245.69	36.89	-1322.41	26.37	87.76	38.06
Pioneer Embroideries Limited	29.31	-156.72	13.04	-186.81	16.68	40.76
Punjab Chemicals & Crop Protection Limited	114.15	-167.18	121.76	-151.6	15.74	33.99
Reliance Industries Limited	21.18	33.93	16.8	36.3	9.36	23.41
Spentex Industries Limited	-188.19	-194.33	-151.51	-158.53	46.91	29.66
Steel Authority of India Limited	194.62	63.33	267.87	42.92	23.15	26.85
Taj G V K Hotels and Resorts Limited	46.08	69.41	35.73	51.24	10.66	21.37
Thomas Cook (India) Limited	23.23	27.94	17.08	21.11	10.93	19.42
Wanbury Limited	71.3	-556.67	73.61	-295.47	17.27	26.55

Table VI: Paired Sample Test Results for Return on Asset Ratio

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 A C C Limited Post and Pre Merger	-7.6616	7.6225	3.1118	-15.661	0.3376	-2.462	5	0.057
Pair 2 Chettinad Cement Corporation Limited Post and Pre Merger	-3.9033	4.4806	1.8292	-8.6054	0.7987	-2.134	5	0.086
Pair 3 Coromandel Fertilizers Limited Post and Pre Merger	-2.8516	4.0045	1.6348	-7.0542	1.3508	-1.744	5	0.142
Pair 4 Crisil Limited Post and Pre Merger	*-13.795*	*5.0952*	*2.0801*	*-19.1421*	*-8.4478*	*-6.632*	*5*	*0.001*
Pair 5 Hindustan Unilever Limited Post and Pre Merger	-4.6083	4.7555	1.9414	-9.5989	0.3823	-2.374	5	0.064
Pair 6 Hotel Leela Ventures Limited Post and Pre Merger	1.1433	4.9791	2.0327	-4.0819	6.3685	0.562	5	0.598
Pair 7 India Cements Limited Post and Pre Merger	*-5.565*	*3.9109*	*1.5966*	*-9.6692*	*-1.4607*	*-3.485*	*5*	*0.018*

Pair 8 Indian Hotels Company Limited Post and Pre Merger	1.53	4.6794	1.9103	-3.3807	6.4407	0.801	5	0.46
Pair 9 Jain Irrigation Systems Limited Post and Pre Merger	-3.1266	4.3548	1.7778	-7.6967	1.4434	-1.759	5	0.139
Pair 10 Khaitan Chemicals and Fertilizers Limited Post and Pre Merger	-2.58	4.35	1.7759	-7.1451	1.9851	-1.453	5	0.206
Pair 11 Megasoft Limited Post and Pre Merger	0.2583	11.2454	4.5909	-11.543	12.0596	0.056	5	0.957
Pair 12 N M D C Limited Post and Pre Merger	-3.04	11.9716	4.8874	-15.6034	9.5234	-0.622	5	0.561
Pair 13 Peninsula Land Limited Post and Pre Merger	-15.4683	17.8301	7.2791	-34.1798	3.2432	-2.125	5	0.087
Pair 14 Pioneer Embroideries Limited Post and Pre Merger	*12.5483*	*8.1175*	*3.3139*	*4.0294*	*21.0671*	*3.786*	*5*	*0.013*
Pair 15 Punjab Chemicals & Crop Protection Limited Post and Pre Merger	9.8683	13.6688	5.5802	-4.4762	24.2128	1.768	5	0.137
Pair 16 Reliance Industries Limited Post and Pre Merger	0.17	2.5974	1.0603	-2.5558	2.8958	0.16	5	0.879
Pair 17 Spentex Industries Limited Post and Pre Merger	1.7083	20.4527	8.3498	-19.7555	23.1721	0.205	5	0.846
Pair 18 Steel Authority of India Limited Post and Pre Merger	-2.7483	16.1613	6.5978	-19.7086	14.2119	-0.417	5	0.694
Pair 19 Taj G V K Hotels and Resorts Limited Post and Pre Merger	0.075	9.457	3.8608	-9.8495	9.9995	0.019	5	0.985
Pair 20 Thomas Cook (India) Limited Post and Pre Merger	*4.2816*	*2.6972*	*1.1011*	*1.451*	*7.1122*	*3.888*	*5*	*0.012*
Pair 21 Wanbury Limited Post and Pre Merger	4.075	6.0459	2.4682	-2.2698	10.4198	1.651	5	0.16

Table VII: Paired Sample Test Results for Net Profit Margin Ratio

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 A C C Limited Post and Pre Merger	-8.0333	8.2596	3.3719	-16.7012	0.6346	-2.382	5	0.063
Pair 2 Chettinad Cement Corporation Limited Post and Pre Merger	-4.445	5.0344	2.0553	-9.7283	0.8383	-2.163	5	0.083
Pair 3 Coromandel Fertilizers Limited Post and Pre Merger	-1.18	3.2319	1.3194	-4.5717	2.2117	-0.894	5	0.412
Pair 4 Crisil Limited Post and Pre Merger	*-8.2533*	*4.1852*	*1.7086*	*-12.6454*	*-3.8611*	*-4.83*	*5*	*0.005*
Pair 5 Hindustan Unilever Limited Post and Pre Merger	1.2366	3.0835	1.2588	-1.9993	4.4726	0.982	5	0.371
Pair 6 Hotel Leela Ventures Limited Post and Pre Merger	8.8983	42.7171	17.4392	-35.9306	53.7272	0.51	5	0.632
Pair 7 India Cements Limited Post and Pre Merger	*-11.7466*	*9.3808*	*3.8297*	*-21.5913*	*-1.902*	*-3.067*	*5*	*0.028*
Pair 8 Indian Hotels Company Limited Post and Pre Merger	4.675	13.3675	5.4572	-9.3534	18.7034	0.857	5	0.431
Pair 9 Jain Irrigation Systems Limited Post and Pre Merger	-4.6283	7.4404	3.0375	-12.4366	3.1799	-1.524	5	0.188

Pair 10 Khaitan Chemicals and Fertilizers Limited Post and Pre Merger	-2.0416	3.0612	1.2497	-5.2542	1.1708	-1.634	5	0.163
Pair 11 Megasoft Limited Post and Pre Merger	-4.0133	21.3889	8.7319	-26.4596	18.4329	-0.46	5	0.665
Pair 12 N M D C Limited Post and Pre Merger	*-27.72*	*9.1489*	*3.735*	*-37.3211*	*-18.1188*	*-7.422*	*5*	*0.001*
Pair 13 Peninsula Land Limited Post and Pre Merger	*-40.2*	*31.5168*	*12.8667*	*-73.2749*	*-7.125*	*-3.124*	*5*	*0.026*
Pair 14 Pioneer Embroideries Limited Post and Pre Merger	*14.63*	*11.8571*	*4.8406*	*2.1866*	*27.0733*	*3.022*	*5*	*0.029*
Pair 15 Punjab Chemicals & Crop Protection Limited Post and Pre Merger	11.38	15.1269	6.1755	-4.4947	27.2547	1.843	5	0.125
Pair 16 Reliance Industries Limited Post and Pre Merger	0.7516	3.3432	1.3648	-2.7569	4.2602	0.551	5	0.606
Pair 17 Spentex Industries Limited Post and Pre Merger	-1.4283	15.0959	6.1628	-17.2705	14.4138	-0.232	5	0.826
Pair 18 Steel Authority of India Limited Post and Pre Merger	-6.5016	16.101	6.5732	-23.3987	10.3954	-0.989	5	0.368
Pair 19 Taj G V K Hotels and Resorts Limited Post and Pre Merger	-0.6066	13.7217	5.6018	-15.0067	13.7934	-0.108	5	0.918
Pair 20 Thomas Cook (India) Limited Post and Pre Merger	*5.865*	*3.124*	*1.2754*	*2.5864*	*9.1435*	*4.599*	*5*	*0.006*
Pair 21 Wanbury Limited Post and Pre Merger	8.2733	11.2524	4.5937	-3.5353	20.082	1.801	5	0.132

Table VIII: Paired Sample Test Results for Asset Turnover Ratio

	Paired Differences							
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
				Lower	Upper			
Pair 1 A C C Limited Post and Pre Merger	-0.0066	0.2273	0.0928	-0.2452	0.2318	-0.072	5	0.946
Pair 2 Chettinad Cement Corporation Limited Post and Pre Merger	*-0.2216*	*0.1282*	*0.0523*	*-0.3562*	*-0.087*	*-4.233*	*5*	*0.008*
Pair 3 Coromandel Fertilizers Limited Post and Pre Merger	-0.2116	0.2985	0.1218	-0.5249	0.1016	-1.737	5	0.143
Pair 4 Crisil Limited Post and Pre Merger	*-0.2883*	*0.1935*	*0.079*	*-0.4914*	*-0.0852*	*-3.649*	*5*	*0.015*
Pair 5 Hindustan Unilever Limited Post and Pre Merger	*-0.5216*	*0.2115*	*0.0863*	*-0.7436*	*-0.2997*	*-6.041*	*5*	*0.002*
Pair 6 Hotel Leela Ventures Limited Post and Pre Merger	0.0233	0.0531	0.0217	-0.0324	0.0791	1.075	5	0.331
Pair 7 India Cements Limited Post and Pre Merger	*-0.145*	*0.0459*	*0.0187*	*-0.1932*	*-0.0967*	*-7.732*	*5*	*0.001*
Pair 8 Indian Hotels Company Limited Post and Pre Merger	0.0416	0.0793	0.0324	-0.0416	0.1249	1.286	5	0.255
Pair 9 Jain Irrigation Systems Limited Post and Pre Merger	-0.1166	0.1763	0.072	-0.3017	0.0684	-1.62	5	0.166
Pair 10 Khaitan Chemicals and Fertilizers Limited Post and Pre Merger	0.075	0.4991	0.2037	-0.4488	0.5988	0.368	5	0.728

Pair 11 Megasoft Limited Post and Pre Merger	*0.5383*	*0.2261*	*0.0923*	*0.301*	*0.7756*	*5.831*	*5*	*0.002*
Pair 12 N M D C Limited Post and Pre Merger	*0.2266*	*0.1243*	*0.0507*	*0.0961*	*0.3571*	*4.464*	*5*	*0.007*
Pair 13 Peninsula Land Limited Post and Pre Merger	0.64	0.7566	0.3088	-0.154	1.434	2.072	5	0.093
Pair 14 Pioneer Embroideries Limited Post and Pre Merger	*0.45*	*0.2939*	*0.12*	*0.1415*	*0.7584*	*3.75*	*5*	*0.013*
Pair 15 Punjab Chemicals & Crop Protection Limited Post and Pre Merger	*0.5333*	*0.2943*	*0.1201*	*0.2244*	*0.8422*	*4.439*	*5*	*0.007*
Pair 16 Reliance Industries Limited Post and Pre Merger	-0.09	0.1676	0.0684	-0.2659	0.0859	-1.315	5	0.246
Pair 17 Spentex Industries Limited Post and Pre Merger	-0.1866	0.4328	0.1767	-0.6409	0.2675	-1.056	5	0.339
Pair 18 Steel Authority of India Limited Post and Pre Merger	0.1483	0.3927	0.1603	-0.2638	0.5605	0.925	5	0.397
Pair 19 Taj G V K Hotels and Resorts Limited Post and Pre Merger	0.05	0.1378	0.0562	0-.0946	0.1946	0.889	5	0.415
Pair 20 Thomas Cook (India) Limited Post and Pre Merger	*0.1133*	*0.1065*	*0.0434*	*0.0015*	*0.2251*	*2.606*	*5*	*0.048*
Pair 21 Wanbury Limited Post and Pre Merger	0.09	0.2186	0.0892	-0.1394	0.3194	1.008	5	0.36

Table IX : Forecasted Values for Crisil Ltd.

Model		2016	2017	2018	2019	2020
Return on Assets (%)-Model_1	Forecast	15.05	9.89	5.98	3.31	1.68
	UCL	24.7	16.44	10.03	5.55	2.82
	LCL	8.94	5.79	3.47	1.92	0.98
Net Profit Margin (%)-Model_2	Forecast	19.01	14.25	10.14	6.85	4.39
	UCL	38.98	29.25	20.79	14.02	8.97
	LCL	8.78	6.57	4.68	3.16	2.03
Asset Turnover Ratio (times)-Model_3	Forecast	0.8	0.7	0.59	0.48	0.38
	UCL	1.19	1.05	0.89	0.72	0.57
	LCL	0.53	0.46	0.39	0.31	0.25

Table X : Forecasted Values for India Cements Ltd.

Model		2016	2017	2018	2019	2020
Asset Turnover Ratio (times)-Model_3	Forecast	0.64	0.68	0.74	0.81	0.9
	UCL	0.79	0.86	0.94	1.03	1.14
	LCL	0.51	0.54	0.59	0.64	0.71

Table XI : Forecasted Values for Pioneer Embroideries Ltd.

Model		2016	2017	2018	2019	2020
Asset Turnover Ratio (times)-Model_3	Forecast	2.09	4.29	9.29	21.97	57.46
	UCL	10.38	24.48	54.49	129.53	338.22
	LCL	.31	.52	1.08	2.55	6.67

Table XII : Forecasted Values for Thomas Cook (India) Ltd.

Model		2016	2017	2018	2019	2020
Return on Assets	Forecast	1.30	.80	.44	.22	.10

(%)-Model_1	UCL	6.36	4.36	2.41	1.20	.54
	LCL	.20	.11	.06	.03	.01
Net Profit Margin (%)-Model_2	Forecast	6.45	4.81	3.27	2.08	1.25
	UCL	20.73	16.50	11.34	7.22	4.32
	LCL	1.72	1.18	.79	.51	.30
Asset Turnover Ratio (times)-Model_3	Forecast	.19	.16	.12	.09	.07
	UCL	.43	.35	.28	.21	.16
	LCL	.08	.06	.05	.04	.03

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