CHAPTER - 4

ANALYSIS

AND

INTERPRETATION

OF DATA

CHAPTER 4 – ANALYSIS AND INTERPRETATION OF DATA

In this chapter the Financial Performance of the each of the Seven selected cases are analysed and interpreted.

The chapter is divided into two sections. In the first section the financial performance of each of the selected acquirer companies is analysed and interpreted individually.

In the second section an attempt is made to analyse and interpret the consolidated financial performance of all the seven selected acquirer companies together

SECTION – I

This section deals with analysis and interpretation of Financial Performance of each single company during Pre-Merger and Post-Merger Period separately. Pre-Merger and Post-Merger period differs from case to case. Following tools and techniques of analysis are applied

[1] Ratio Analysis

Profitability, Liquidity, Long term solvency and Efficiency of each sample company is measured with the help of different ratios viz Gross profit ratio, Net Profit ratio, Operating Ratio, Cash Profit Margin, Return on Capital Employed, Return on Total assets, Return on Equity, Earnings per Share, Equity Dividend Coverage ratio, Price Earnings Ratio Dividend Yield Ratio, Current Ratio Quick Ratio, Super Quick Ratio, Debt Equity Ratio, Fixed Asset Ratio, Proprietary Ratio Interest Coverage ratio, Capital Turnover Ratio, Inventory Turnover ratio, Inventory to Current Asset ratio, Working Capital Turnover Ratio, Fixed Asset Turnover Ratio, Debtors Turnover Ratio.

Hypothesis framed are tested using one sample t-test for all individual sample company.

[2] Composite Index score

Composite Index score represents overall index for selected parameter. In case of Profitability higher the composite Index score better the performance and Vice-Versa. In case of Liquidity and Long term solvency Composite index score represent combine index considering selected ratios. Composite Index score for Pre- Merger and Post- Merger period has been computed for each selected company.

Composite Index Score has been built up for Measuring Profitability, Liquidity and Long Term Solvency of each selected company for Pre-Merger and Post-Merger period with selected ratios during period of study. Composite Index Score for Profitability has been built up with Gross profit ratio, Net Profit ratio, Operating Ratio, Cash Profit Margin, Return on Capital Employed, Return on Total Assets, Return on Equity, Earnings per share. Composite Index score for Liquidity has been computed with Current Ratio, Quick Ratio, Super Quick Ratio, Inventory Turnover Ratio, Working

Capital Turnover Ratio, Debtors Turnover Ratio. Composite Index Score for Long Term Solvency is calculated on the basis of Debt Equity Ratio, Fixed Asset Ratio, Proprietary Ratio

All ratios for period of study except merger year had been converted on a scale between 0 to 1 so that comparisons could be made on common grounds. All ratios except operating ratio had been converted with following formula-

$$\text{Score} = \frac{X\,(I) - minimum\ X\,(I)}{Maximum\ X\,(i) - Minimum\ X\,(I)}$$

Operating Ratio converted with below formula as lower the operating ratio being better profitability and Vice-Versa

$$\text{Score} = 1 - \frac{X\,(I) - minimum\ X\,(I)}{Maximum\ X\,(i) - Minimum\ X\,(I)}$$

X (I) = Value of financial ratio in each year of study period

Maximum X (I) = Maximum value of financial ratio during entire period of study except Merger year

Minimum X (I) = Minimum value of financial ratio during entire period of study except Merger year

Combination of all ratios based on Index Score as calculated above was done by computing averages for each year for each sample company.

Later on Average Composite Index Score had been calculated based on combine average scores during Pre-Merger and Post- Merger Period

Average Composite Index Score for Pre- Merger and Post-Merger period was compared for each sample company.

Higher the composite Index score the better is the performance and vice versa. Success or failure of each Acquirer company was determined on the basis of change in average Composite Index Score.

Each score has been tested applying Independent Sample t- test.

[3] Shareholders wealth Measurement

Economic Value Added "EVA" is one of the measure to see if ultimate objective of any company i.e. to attain wealth maximization has been achieved or not. Various Corporate actions are planned and undertaken to increase profitability and wealth of said business. Mergers and Acquisitions is also one of the corporate restructuring activity with ultimate goal to achieve wealth maximization.

Attempt has been made in said study to measure what is change in EVA on account of Merger and acquisition in each case.

EVA is a measurement which shows company's earning in excess of cost of capital.

Formula to calculate EVA

EVA = Operating Profit-Cost of Capital Employed

= NOPAT- (WACC*Capital employed)

= NOPAT- [Equity *Ke/Kr+ Preference capital*Kp+ Debt*Kd (1-t)]

- Preference capital=Preference share capital issued by company if any
- Kp=cost of Preference share capital
- Debt=Debt funds employed by company
- Kd=Cost of Debt after adjusting tax i.e 1-t
- Equity=Equity share capital and Reserves and Surplus
- Ke /Kr=Cost of equity capital and Reserves and surplus assumed to be same
- Ke was estimated using Capital Asset Pricing Model:
- $Ke = Rf + \beta i\ (Rm-Rf)$
- Where Ke = Cost of Equity
- Rf = Risk Free Rate of Return
- Rm= Rate of Return on Market Index
- βi = Beta coefficient

The Rf was taken as 7.97% while Rm was taken as 14%. For the purpose of calculating risk free rate of return, the Central Government Securities [Weighted AVG] yield on the 16year government bond from 2000- 01 till 2015-16 was considered using the average of central government securities (Per cent per annum) for the sample period of study. Data was collected from Reserve Bank of India records. For calculating the market rate of return, the Compounded Annual Growth Rate (CAGR) in BSE Sensex was taken from in 2000-01 to in 2015-16. Data was collected from CMIE Prowess database regarding S&P BSE Sensex

Beta Values were also collected from the CMIE Prowess database. It shows the slope of the regression line derived by regressing the weekly returns of scrip against the weekly returns on the 'CMIE Overall Share Price Index.

MVA is modified version of EVA as the value is more related to market. MVA is calculated as Market Value of the capital employed in the firm less book value of capital employed. Economic Value Added and Market Value Added has been computed to examine impact of Merger on

Shareholders wealth in Post-Merger period. Hypothesis framed are tested using one sample t-test for all individual sample company.

[4] Altman Z Score

It is very important to do overall financial health assessment of any company to understand if particular strategic decision taken by company helps to improve overall financial health of company or not? An attempt has been made in this study to check financial health of company prior to merger or acquisition and after merger and acquisition.

A financial health reflects company's health in financial aspects, such as health in terms of profitability, financing, liquidity, asset utilization, and market value. Financial statements are a prime source of information about financial health (Ross et al., 2013) It is imperative to do financial health assessment to measure company's health so that required action can be taken and it helps in investment decision. Managers will therefore be able to identify the factors that may improve company's financial health. There are at present various measures which help to make assessment of financial health of companies like Bonitu B Index, The Springate mode etc. but oldest and renowned one is Altman Z score.

Altman's Z-Score model is measurement that is used to predict the chances of a business going bankrupt in near future. This model was developed by American finance professor Edward Altman in 1968 helps to check financial stability of companies.

Usually, the lower the Z-score, the more probability that a company is heading for bankruptcy. A Z-score lower than 1.8 means that the company is in financial distress and with a high chance of going bankrupt. On the other hand, a score of 3 and above means that the company is in a safe zone and is not likely to file for bankruptcy. A score of between 1.8 and 3 means that the company is in a grey area and with a moderate chance of bankruptcy.

(https://corporatefinanceinstitute.com/resources/knowledge/credit/altmans-z-score-model/Retrieved on 19/01/2022, 2022)

The Altman's Z-score formula is written as follows

ζ =1.2A+1.4B+3.3C+0.6D+1.0E

Where:

Z is the Altman's Z-score

A= Working Capital/Total Assets ratio

B= Retained Earnings/Total Assets ratio

C= Earnings Before Interest and Tax/Total Assets ratio

D= Market Value of Equity/Total Liabilities ratio

E= Total Sales/Total Assets ratio

For calculating above ratios averages of Pre-Merger and Post-Merger period for each variable has been taken in to account. The Period of study is from 2001-2016. The merger or acquisition completion year denoted as year 0. Years prior to merger or acquisition are considered Pre-Merger deal years; and years after merger or acquisition are taken as Post-Merger deal years while doing study on individual acquirer firm. An attempt has been made to assess company's financial health and changes in same due to Merger.

[5] Regression Analysis

In order to understand impact of merger and acquisition on financial performance of selected sample companies one dependent variable i.e. Net Profit and 9 Independent variables viz Cost of Goods Sold, Operating Expenses, Finance Cost, Capital Employed, Long Term Borrowings, Shareholders Fund, Working Capital, Current Assets, Fixed Assets have been selected. Multiple Linear Regression equation for each sample company for pre and Post-Merger period has been framed to understand how it has been affected and which variables dominantly changed on account of merger. In this step wise regression approach was considered. In this variables which significantly contributed in the models were considered.

[B] Consolidated performance of all selected 7 companies

All selected sample company's financial performance in the form of ratios have been combined in the form of averages and compared for Pre-Merger and Post-Merger period. For the purpose of analysis Pre-Merger period [2000-2001 to 2004-2005] and Post-Merger period [2011-2012 to 2015-2016] has been considered.

Paired t test has been applied to test the hypothesis framed for consolidated data One way annova has been applied to study difference of means during Pre-Merger period [2000-2001 to 2004-2005], during the Merger period [2005-2006 to 2010-2011] i.e. sample selection period and Post-Merger period [2011-2012 to 2015-2016].

The succeeding part of chapter includes detailed analysis & interpretation of each of the selected sample acquirer companies (referred as case for the purpose of study.)

4.1 CASE 1-ACQUIRER COMPANY: DR. REDDYS LABORATORIES LTD.

4.1.1 Background of the Company

Dr Reddy’s Laboratories Ltd. was established by Dr. Anji Reddy at Hyderabad in 1984. It is unified global pharmaceutical company providing medicines at reasonable rates and undertakes inventions for better and healthy life of people.

As a part of restructuring Dr. Reddy’s laboratories Ltd. acquired, Perlecan Pharma Private Ltd. in the Year 2009. It was a Drug developing and Private company at Hyderabad. It was involved in Manufacture of Metals and chemical and products thereof. Dr. Reddy’s hold majority stake i.e. 99.99% in Perlecan Pharma Pvt Ltd. Perlecan helped Dr. Reddy's in Drug Discovery program and searched for out-licensing, co-development or joint commercialization opportunities thereby enhancing the value of the business. Apart it also enabled Dr. Reddy's to aggressively speed up its new discoveries to clinical development in the areas of Metabolic Disorders and Cardiovascular. The Court approved the Scheme vide its order dated 12 June 2009.

The subsequent part of chapter covers analysis of the financial performance of Dr Reddy’s Laboratories ltd for Pre-Merger and Post-Merger period.

The period of study covers 16 years commencing from 2000-2001 to 2015-2016.

Period of study - 2000-2001 to 2015-2016

Pre-Merger period - 2000-2001 to 2008-2009

Post- Merger period - 2010-2011 to 2015-2016

Merger Year/Zero Year-2009-2010

Table No 4.1.1. on the next page shows calculation of various profitability ratios of the sample acquirer company for the period under study.

4.1.2 Profitability Ratios of Dr Reddys Laboratories ltd during Pre-Merger and Post-Merger Period

Table T.4 1.1 Profitability Ratios in Pre-Merger and Post- Merger period

Pre- Merger period (2000-01 to 2008-09)- 9 years												Post- Merger period (2010-11 to 2015-16)- 6 years							
Profitability Ratios	**Mar 2000-2001**	**Mar 2001-2002**	**Mar 2002-2003**	**Mar 2003-2004**	**Mar 2004-2005**	**Mar 2005-2006**	**Mar 2006-2007**	**Mar 2007-2008**	**Mar 2008-2009**	**Average ratio**	**Standard Deviation**	**Mar-2010-2011**	**Mar-2011-2012**	**Mar-2012-2013**	**Mar-2013-2014**	**Mar-2014-2015**	**Mar-2015-2016**	**Average ratio**	**Standard Deviation**
GP Ratio[%]	53.79	64.87	61.41	57.74	55.73	52.86	62.19	52.83	54.86	57.37	4.45	59.08	60.73	58.94	65.54	60.15	61.07	60.92	2.42
NP Ratio[%]	15.83	31.08	25.9	17.05	4.23	10.57	31.48	14.39	14.16	18.3	9.31	17.33	13.93	15.8	20.48	17.11	13.65	16.38	2.53
Operating ratio [%]	77.76	71.95	74.84	83.61	95.98	90.85	69.86	89.29	87.45	82.4	9.19	82.39	78.95	82.92	75.44	81.77	88.55	81.67	4.38
Cash profit margin[%]	24.09	34.29	29.77	21.36	10.2	16.15	35.05	19.3	19.05	23.25	8.38	22.13	18.53	19.7	24.51	22.11	20.19	21.2	2.15
ROCE[%]	41.87	32.93	24	14.86	2.61	12.59	32.31	12.34	14.22	20.86	12.66	16.17	18.28	23.29	24.74	18.31	12.99	18.96	4.39
ROTA[%]	24.26	29.16	21.79	16.17	2.22	9.42	30.29	14.15	13.68	17.9	9.28	15.54	16.82	18.88	21.64	16.86	12.03	16.96	3.23
ROE[%]	31.5	31.53	21.7	13.83	3.16	9.33	26.91	9.88	10.67	17.61	10.54	14.84	13.58	16.26	20.72	15.79	11.67	15.48	3.06
EPS[Rs]	45.73	60.07	51.24	37.01	8.55	27.53	70.09	28.26	33.29	40.2	18.72	52.79	53.81	74.51	113.62	98.57	79.39	78.78	24.18
Equity dividend coverage ratio[Times]	11.43	8.01	10.25	7.4	1.71	5.5	18.68	7.52	5.32	8.43	4.78	1.28	3.91	4.96	6.31	4.92	3.97	4.22	1.69
Price earnings ratio[Times]	20.19	14.95	27.87	23.38	114.38	29.47	10.49	16.62	34.35	32.41	31.66	29.89	33.98	34	28.56	30.54	38.52	32.58	3.66
Dividend yield ratio[%]	0.43	0.84	0.35	0.58	0.51	0.62	0.51	0.8	0.55	0.58	0.16	2.62	0.75	0.59	0.56	0.67	0.65	0.97	0.80

Source – Annexure I, II and III

Profitability Analysis

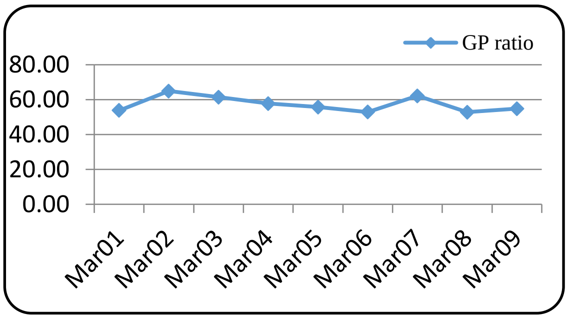
Table 4.1.1 reveals the calculation of various profitability ratios of Dr Reddys laboratories ltd during Pre-Merger Period and Post-Merger Period.

The Profitability of sample company is analyzed and interpreted using various profitability ratios based on Sales and Investment.

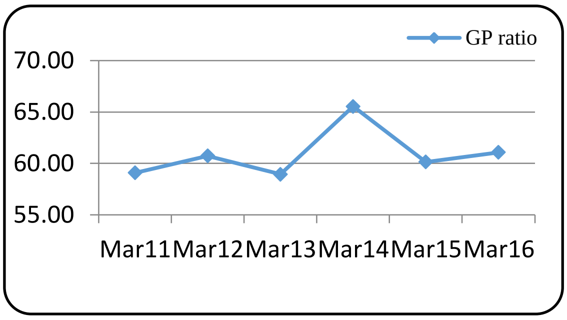
Gross profit Ratio [GPR]

As exhibited in table T. 4.1.1 and figure G1.1, GP ratio showed fluctuating trend in Pre-Merger period and it was highest in 2006-2007 due to sudden spurt in sales as compared to previous year. The sales increased from Rs.19968.01millions in the year 2005-2006 to Rs.37383.8 millions in year 2006-2007 as a result of increase in sales of generic products of Active Pharmaceutical Ingredients and Intermediates [API], Formulations and special Pharmaceuticals Services thereafter it again started declining. The average GP ratio in Pre-Merger period was 57.37%.

G 1.1 GPR in Pre-Merger Period



G 1.1.1 GPR in Post-Merger period



Source- Table T.4 1.1

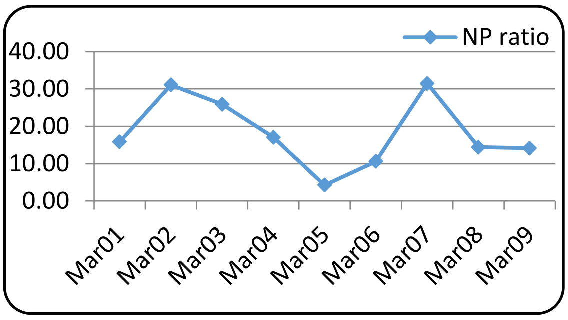
In Post-Merger period too, fluctuating trend was observed for the same as indicated in Table T.4 1.1 and figure G1.1.1, Highest GP ratio was noticed in year 2013-2014 which was due to higher contribution from new products launched in Global Generics segments and overall average GP Ratio in Post-Merger period was 60.92%. It could be observed that there was a marginal growth in GP ratio of company in Post-Merger period as compared to Pre-Merger period. The Standard Deviation of Pre-Merger period was higher as compared to Post-Merger period indicating that ratio was more fluctuating in Pre-Merger period as compared to Post-Merger period.

Net Profit Ratio [NPR]

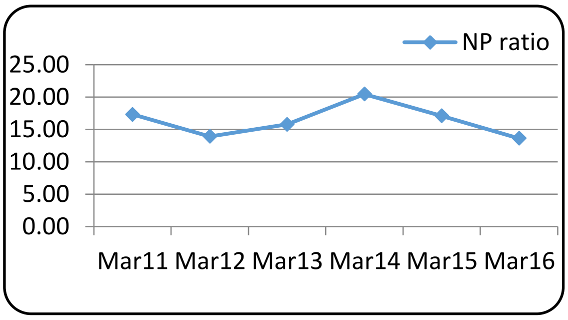
As revealed in Table T. 4.1.1 and figure G1.2, The NP ratio showed a fluctuating trend in Pre-Merger period and was highest in 2006-2007 due to sudden spurt in sales as compared to previous year The sales increased from Rs 19968.01millions in the year 2005-2006 to Rs 37383.8 millions in year 2006-2007 as a result of increase in sales of generic products of Active Pharmaceutical Ingredients and

Intermediates [API], Formulations and special Pharmaceuticals Services. In Later period ratio declined sharply. The overall Average NP ratio in Pre-Merger period was 18.30%

G.1.2 NPR in Pre-Merger Period



G.1.2.1.NPR in Post-Merger Period



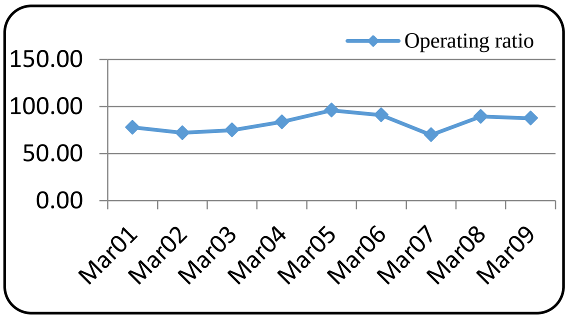
Source- Table T.4 1.1

In Post-Merger period also the ratio showed a relative constant trend as indicated in Table T.4.1.1 and figure 1.2.1, The Highest NP ratio noticed in 2013-2014 due to higher contribution from new products launched in Global Generics segments and overall Average NP Ratio in Post-Merger period was 16.38%. It could be observed that there was overall decline in NP ratio of company during Post-Merger period. Though Average GP ratio increased in Post-Merger period but Average NP ratio declined due to increase in operating and finance cost. The Standard Deviation of Pre-Merger period was higher as compared to Post-Merger period indicating that ratio was more fluctuating in Pre-Merger period as compared to Post-Merger period.

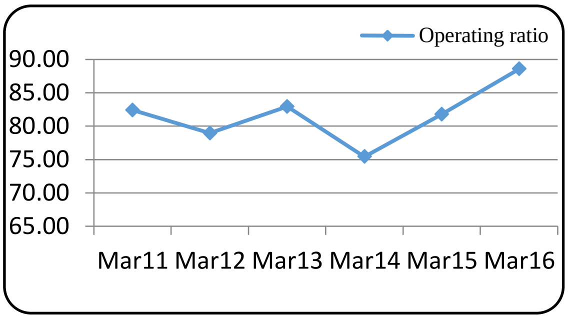
Operating Ratio [OR]

In the Pre-Merger period, as evident in table T.4.1.1 and figure.G.1.3, Operating ratio showed fluctuating trend and on an average it was 82.40%.

G.1.3 OR in Pre-Merger Period



G.1.3.1. OR in Post-Merger Period



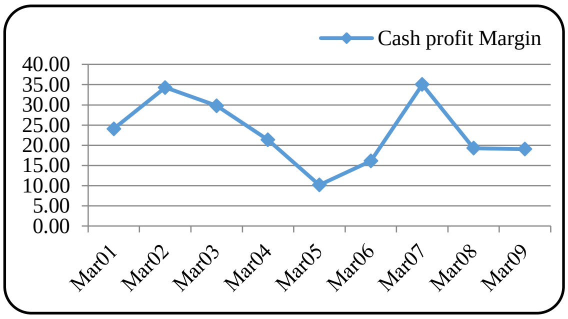
Source- Table T.4 1.1

In the Post-Merger period also, as depicted by table T.4.1.1 and figure G.1.3.1, it showed a fluctuating trend and on an average it was 81.67%. The Overall Operating ratio decreased during Post-Merger period. The Standard Deviation of Pre-Merger period was higher as compared to Post-Merger period indicating that ratio was more fluctuating in Pre-Merger period as compared to Post-Merger period.

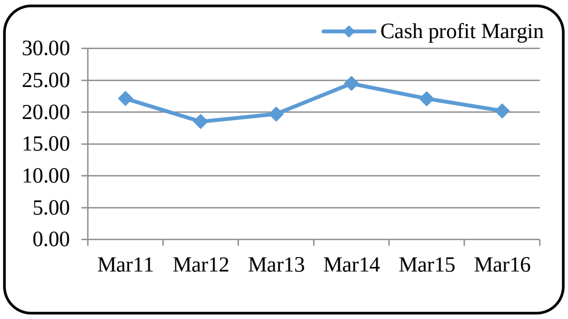
Cash Profit Margin [CPM]

As disclosed in table T.4.1.1 and figure G.1.4, Cash profit margin showed fluctuating trend during Pre-Merger period and was lowest in 2004-2005 whereas highest in year 2006-2007.In 2004-2005 sales from branded formulations and exports decreased substantially while operating expenses increased as compared to previous year. In 2006-2007, it was highest due to substantial increase in cash flows from operating activities as a result of spurt in sales as compared to previous year. The overall Average cash profit margin in Pre-Merger period was 23.25%.

G.1.4 CPM in Pre-Merger Period



G.1.4.1. CPM in Post-Merger Period



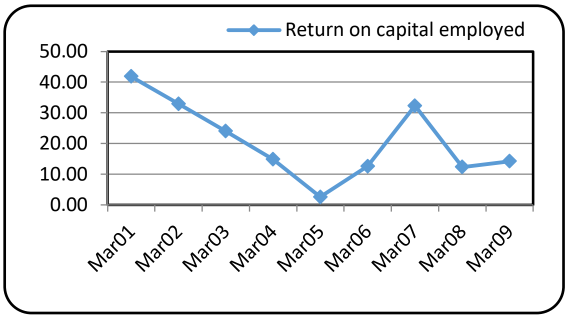
Source- Table T.4 1.1

During Post-Merger period also as shown in Table T4.1.1 and figure G.1.4.1, the ratio was relatively constant. The Average cash profit margin in post-period was 21.20% being lower as compared to Pre-Merger Period. The Standard Deviation of Pre-Merger period was higher as compared to Post-Merger period indicating that the ratio was more fluctuating in Pre-Merger period as compared to Post-Merger period.

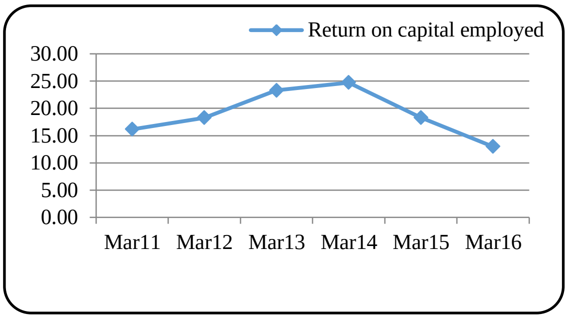
Return on Capital employed [ROCE]

As observed in table T.4.1.1 and figure G.1.5, Return on capital employed ratio showed a fluctuating trend during Pre-Merger period and was lowest in March 2004-2005 because of increase in Operating expenses and reduction in revenues as mentioned earlier. In 2006-2007, The ratio was highest due to substantial increase in sales as compared to previous year as mentioned earlier. On an average Return on capital employed ratio was 20.86% in Pre-Merger period.

G.1.5 ROCE in Pre-Merger Period



G.1.5.1. ROCE in Post-Merger Period



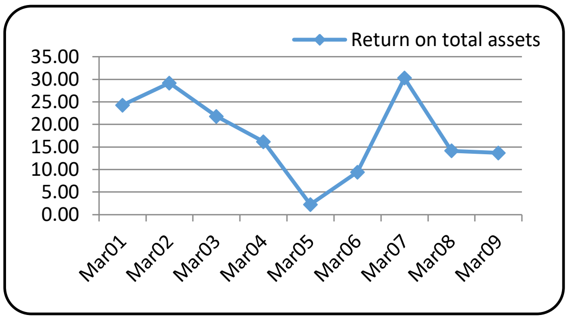
Source- Table T.4 1.1

During the Post-Merger period, as seen in table T.4.1.1 and in figure G.1.5.1., Return on capital employed ratio increased up to 2014 and thereafter declined and was highest in the year 2013-2014 due to increase in sales of newly launched products. On an average Return on capital employed ratio was 18.96%in Post-Merger period which was lower as compared to that in Pre-Merger period. The Standard Deviation of Pre-Merger period was higher as compared to post -merger period indicating that ratio was more fluctuating in Pre-Merger period as compared to Post-Merger period.

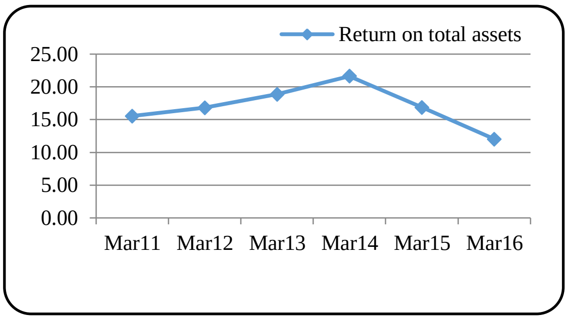
Return on Total Assets [ROTA]

In Pre-Merger period as exhibited in table T.4.1.1. and figure G.1. 6, Return on Total assets showed fluctuating trend and was lowest in 2004- 2005 due to increase in Operating expenses and reduction in revenues. The ratio was highest in 2006-2007 due to substantial growth in revenue. The overall Average Return on Total assets in Pre-Merger period was 17.90%.

G.1.6 ROTA in Pre-Merger Period



G.1.6.1. ROTA in Post-Merger Period



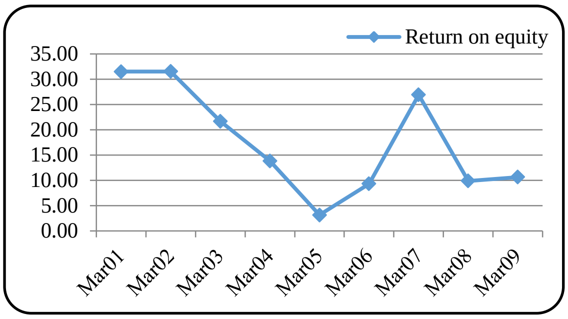
Source- Table T.4 1.1

During Post-Merger period, as indicated by in table T.4.1.1 and figure G.1.6.1, Return on Total assets increased up to 2013- 2014 and was highest in said year due to new product launched as mentioned earlier. The overall Average Return on Total assets ratio in Post-Merger period was 16.96%. During Post-Merger Period Return on Total assets declined. The Standard Deviation of Pre-Merger period was higher as compared to post merger period indicating that ratio was more fluctuating in Pre-Merger period as compared to Post-Merger period.

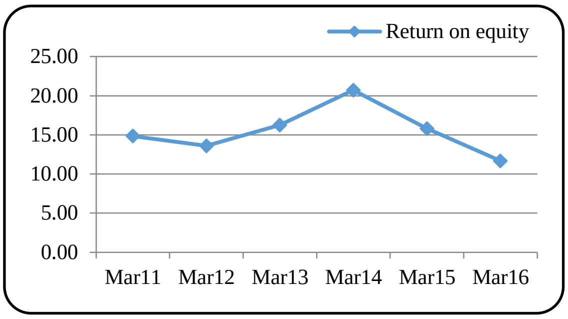
Return on Equity [ROE]

In Pre-Merger period as observed in table T.4.1.1 and figure G.1.7, Return on Equity fluctuated and was lowest in 2004-2005 because of increase in Operating expenses and reduction in revenues. In 2006-2007, Profit enhanced. The overall Average Return on Equity in Pre-Merger period was 17.61%.

G.1.7 ROE in Pre-Merger Period



G.1.7.1. ROE in Post-Merger Period



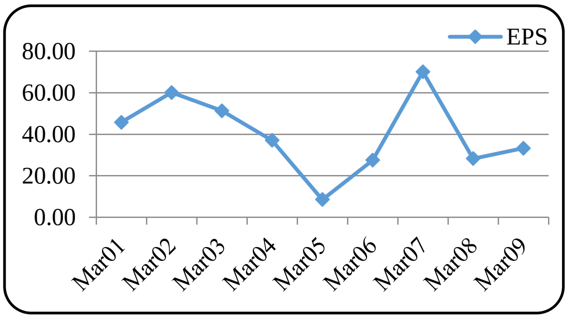
Source – Table T.4 1.1

During Post-Merger period, as observed by in table T.4.1.1 and figure G.1.7.1 Return on Equity increased up to 2013- 2014 and thereafter declined later. Overall Average Return on Equity in Post-Merger period was 15.48%. During Post-Merger Period Return on Equity declined. The Standard Deviation of Pre-Merger period was higher as compared to post merger period indicating that ratio was more fluctuating in Pre-Merger period as compared to Post-Merger period.

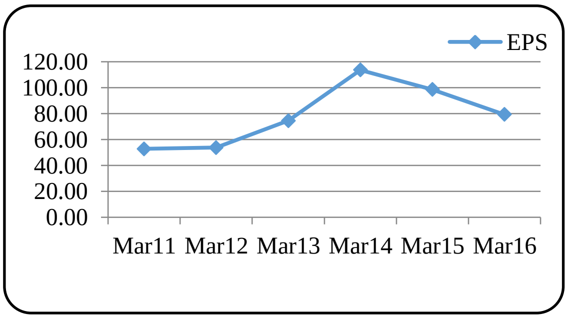
Earnings per Share [EPS]

In Pre-Merger period as revealed in table T.4.1.1 and figure G.1. 8, Earnings per share was fluctuating however it was on peak in 2006-2007 amounting to Rs 70.09. In 2001-2002, due to share split though EPS actually increased at higher rate but lower increase was on records. Considering share split last year's EPS would be Rs 22.83 inspite of Rs45.73 in 2000-2001 and turned to Rs 60.07 in 2001-2002 thus resulted in higher rate of increase. In 2006-2007, though there was Bonus issue still EPS had remarkably raised, if retrospectively calculated to compare EPS with last year it would be Rs13.7 inspite of Rs27.53 in the year 2005-2006 thus resulted to higher rate of increase in 2006-2007 which was Rs70.9. In 2006-2007, it was high due to increase in revenues [as mentioned before]. The overall Average Earnings per share in Pre-Merger period was Rs 40.20.

G.1.8 EPS in Pre-Merger Period



G.1.8.1. EPS in Post-Merger Period



Source- Table T.4 1.1

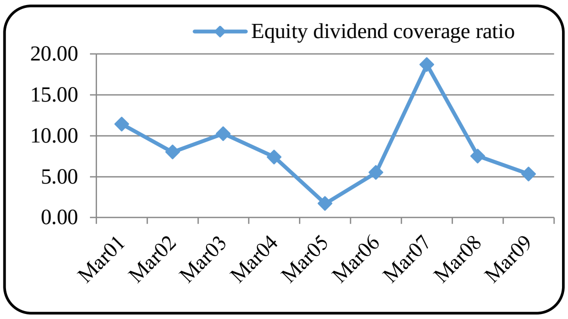
During Post-Merger period, as depicted in in table T.4.1.1 and figure G.1.8.1, Earnings per share was increased up to 2013- 2014 and thereafter declined. In 2013-2014 high revenue generated as specified earlier. The overall Average Earnings per share in Post-Merger period was Rs 78.78. During Post-

Merger period overall Average Earnings per share raised. The Standard Deviation during Pre-Merger period was lower as compared to post merger period indicating that ratio was more fluctuating in Post-Merger period as compared to Pre-Merger period.

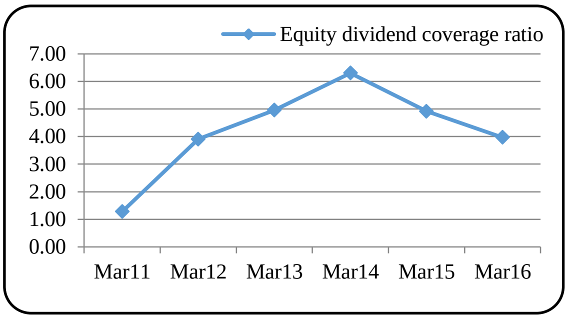
Equity Dividend Coverage Ratio [EDCR]

In Pre-Merger period as depicted in table T.4.1.1 and figure G.1.9, Equity dividend coverage ratio showed a fluctuating trend and was Highest in year 2006-2007 due to high revenue, figured out 18.68 times. The Average Equity Dividend coverage ratio in Pre-Merger period was 8.43 times.

G.1.9 EDCR in Pre-Merger Period



G.1.9.1. EDCR in Post-Merger Period



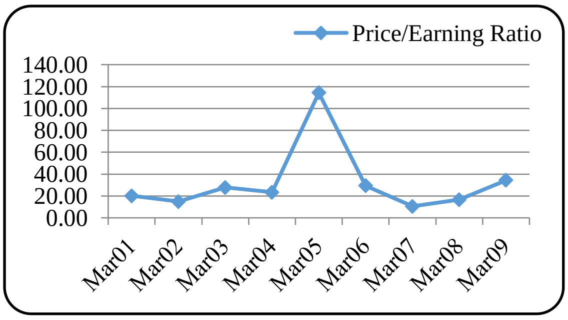
Source- Table T.4 1.1

During Post-Merger period, as indicated by in table T.4.1.1 and figure G.1.9.1, Equity Dividend coverage ratio was fluctuating. The overall Average Equity dividend coverage ratio in Post-Merger period was 4.22 times. The Average ratio in Post-Merger period was low. This exhibits that company not able to manage to maintain stable dividend policy in future due to reduction in Equity dividend coverage ratio. The Standard Deviation of Pre-Merger period was higher as compared to post merger period indicating that ratio was more fluctuating in Pre-Merger period as compared to Post-Merger period.

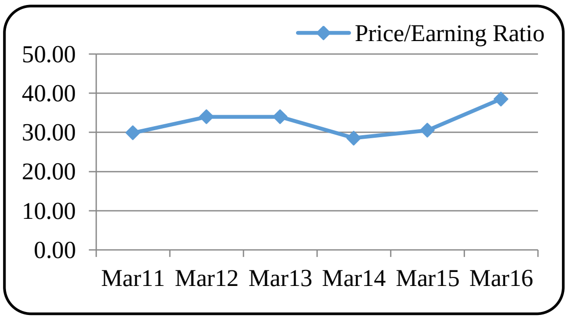
Price / Earnings Ratio [PE ratio]

In Pre-Merger period as exhibited in table T.4.1.1. and figure G.1.10, Price earnings ratio showed a fluctuating trend. It was highest in2004- 2005. The Average Price earnings ratio in Pre-Merger period was 32.41times.

G.1.10 PE Ratio in Pre-Merger Period



G.1.10.1. PE ratio in Post-Merger Period



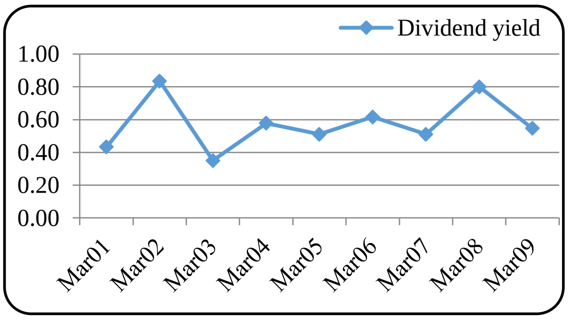
Source- Table T.4 1.1

During Post-Merger period, as observed by in table T.4.1.1 and figure G.1.10.1, Price earnings ratio registered a fluctuating trend. The overall Average Price earnings ratio during Post-Merger period was 32.58 times. The overall average Price earnings ratio slightly increased in Post-Merger period. This exhibits that more or less there is no high impact on perception of investors regarding potential earnings of the company. The Standard Deviation of Pre-Merger period was higher as compared to post merger period indicating that ratio was more fluctuating in Pre-Merger period as compared to Post-Merger period.

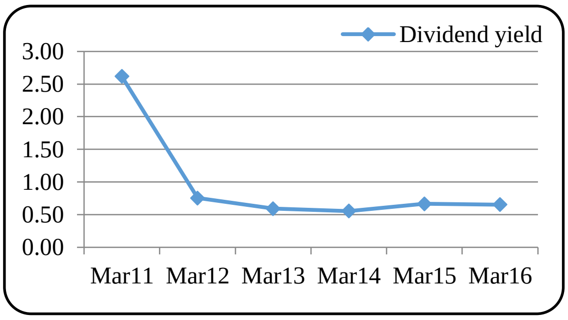
Dividend Yield Ratio [DY ratio]

In Pre-Merger period as exhibited in table T.4.1.1. and figure G.1.11, Dividend yield ratio showed fluctuating trend. The overall average Dividend yield ratio during Pre-Merger period was 0.58 %.

G.1.11 DY ratio in Pre-Merger Period



G.1.11.1. DY Ratio in Post-Merger Period



Source- Table T.4 1.1

During Post-Merger period, as indicated in table T.4.1.1 and figure G.1.11.1, Dividend yield ratio registered overall declining trend. The overall average Dividend yield ratio in Post-Merger period was 0.97 %. The Average ratio increased in Post-Merger period as compared to Pre-Merger period. This indicates that dividend per share increased more in proportion to market price per Equity share in Post-Merger period as compared to Pre-Merger period. The Standard Deviation of Pre-Merger period was lower as compared to post merger period indicating that ratio was more fluctuating in Post-Merger period as compared to Pre-Merger period.

Table No 4.1.2. on the next page shows calculation of various liquidity ratios of the sample acquirer company for the period under study.

4.1.3 Liquidity Ratios of Dr Reddys Laboratories Ltd During Pre-Merger and Post-Merger Period

Table T.4.1.2 Liquidity Ratios in Pre-Merger and Post-Merger Period

Pre- Merger period (2000-01 to 2008-09)- 9 years											Post- Merger period (2010-11 to 2015-16)- 6 years							
Liquidity Ratios	Mar 2000-2001	Mar 2001-2002	Mar 2002-2003	Mar 2003-2004	Mar 2004-2005	Mar 2005-2006	Mar 2006-2007	Mar 2007-2008	Mar 2009	Average ratio	Standard Deviation	Mar-2010-2011	Mar-2011-2012	Mar-2012-2013	Mar-2013-2014	Mar-2014-2015	Mar-2015-2016	Average ratio	Standard Deviation
Current ratio [Proportion]	1.22	6.20	5.41	3.40	2.64	1.55	3.50	2.42	2.12	3.16	1.68	1.40	1.61	1.63	2.17	2.22	2.10	1.85	0.35
Quick ratio [Proportion]	0.87	5.25	4.57	2.73	2.21	1.26	3.04	1.90	1.72	2.62	1.47	0.99	1.17	1.25	1.78	1.86	1.75	1.47	0.37
Super Quick ratio [Proportion]	0.05	2.69	2.84	1.18	1.38	0.44	1.48	0.47	0.23	1.19	1.02	0.03	0.39	0.31	0.48	0.73	0.80	0.45	0.28

Source – Annexure II and III

Liquidity Analysis

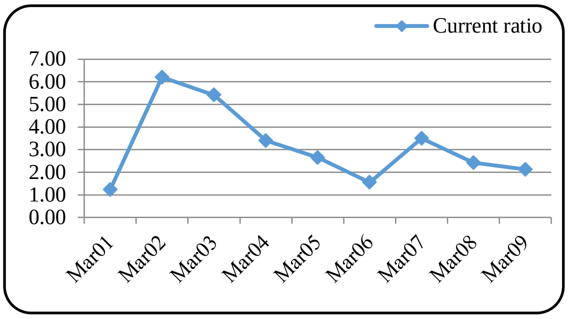
Table 4.1.2 reveals the calculation of various Liquidity ratios of Dr Reddys laboratories ltd during Pre-Merger Period and Post-Merger Period.

The Liquidity of Sample Company is analyzed and interpreted using various Liquidity ratios based on Current Assets and Current Liabilities.

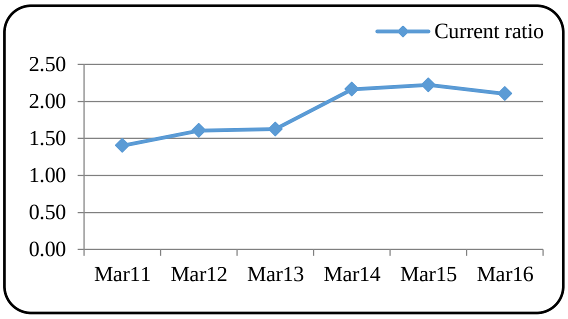
Current Ratio [CR]

During Pre-Merger period as indicated in table T.4.1.2 and figure G.1.12, Current ratio registered fluctuating trend and was highest in 2001-2002 at 6.20:1 due to increase in investment in raw materials and finished stock for mitigating the increased sales forecast. The ratio was lowest in 2005-2006. The overall Average Current ratio in Pre-Merger period was 3.16:1.

G.1.12 CR in Pre-Merger Period



G.1.12.1. CR in Post-Merger Period



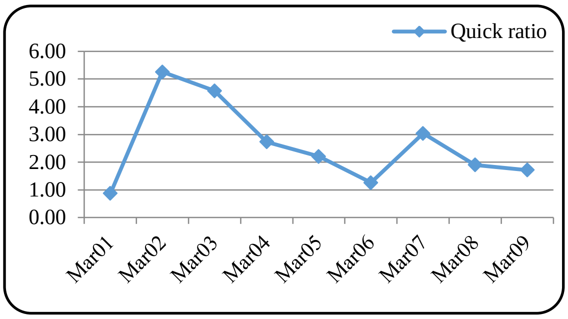
Source- Table T.4.1.2

During Post-Merger period, as indicated in table T.4.1.2 and figure G.1.12.1., Current ratio increased up to 2014- 2015 and then marginally declined. The overall Average Current ratio in Post-Merger period was 1.85:1. The average ratio declined in post period indicating decline in liquidity. The Standard Deviation during Pre-Merger period was higher as compared to post merger period indicating that ratio was more fluctuating in Pre-Merger period as compared to Post-Merger period.

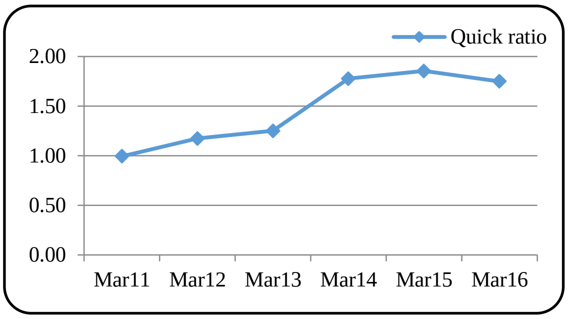
Quick Ratio [QR]

During Pre-Merger period as revealed in table T.4.1.2 and figure G.1.13, Quick ratio exhibited fluctuating trend and was highest in 2001-2002 resulted to 5.25:1 due to increase in investment in raw materials and finished stock. The ratio was lowest in 2005-2006. The overall Average Quick ratio during Pre-Merger period was 2.62:1.

G.1.13 QR in Pre-Merger Period



G.1.13.1. QR in Post-Merger Period



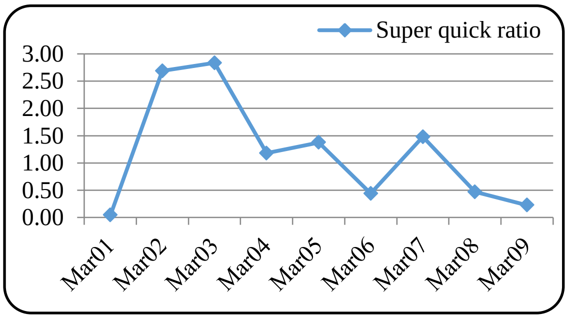
Source- Table T.4.1.2

During the Post-Merger period, as indicated by table T.4.1.2 and figure G.1.13.1, Quick ratio increased up to 2014-2015 and then marginally declined. The overall Average Quick ratio in Post-Merger period was 1.47:1. During period of study, average Quick ratio declined in post period. This shows there was reduction in liquidity position of sample company. The Standard Deviation during Pre-Merger period was higher as compared to post merger period indicating that ratio fluctuated more in Pre-Merger period as compared to Post-Merger period.

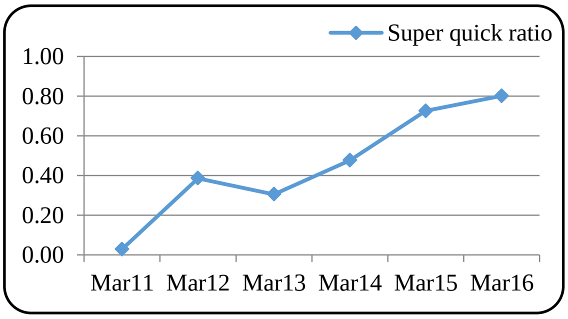
Super Quick Ratio [SQR]

In Pre-Merger period as exhibited in table T.4.1.2 and figure G.1.14, Super Quick ratio fluctuated during the period of study and was highest at 2.84:1 in the year 2002-2003 while it was lowest in 2005-2006. The overall Average Super Quick ratio in Pre-Merger period was 1.19:1.

G.1.14 SQR in Pre-Merger Period



G.1.14.1. SQR in Post-Merger Period



Source- Table T.4.1.2

During the Post-Merger period, as indicated in table T.4.1.2 and figure G.1.14.1, Super Quick ratio was fluctuating. The overall Average Super Quick ratio in Post-Merger period was 0.45:1. The average ratio declined in post period as compared to Pre-Merger indicating reduction in absolute liquidity position of sample company. The Standard Deviation of Pre-Merger period was higher as compared to post merger period indicating that ratio was more fluctuating in Pre-Merger period as compared to Post-Merger period.

Table No 4.1.3. on the next page shows calculation of various long term solvency ratios of the sample acquirer company for the period under study.

4.1.4 Long Term Solvency Ratios of Dr Reddys Laboratories Ltd During Pre-Merger and Post-Merger Period

Table T.4.1.3 Long Term Solvency Ratios in Pre-Merger and Post-Merger Period

	Pre- Merger period (2000-01 to 2008-09)- 9 Years											Post- Merger Period (2010-11 to 2015-16)- 6 Years							
Long term solvency Ratios	**Mar 2000-2001**	**Mar 2001-2002**	**Mar 2002-2003**	**Mar 2003-2004**	**Mar 2004-2005**	**Mar 2005-2006**	**Mar 2006-2007**	**Mar 2007-2008**	**Mar 2008-2009**	**Average ratio**	**Standard Deviation**	**Mar-2010-2011**	**Mar-2011-2012**	**Mar-2012-2013**	**Mar-2013-2014**	**Mar-2014-2015**	**Mar-2015-2016**	**Average ratio**	**Standard Deviation**
Debt Equity Ratio [Proportion]	0.12	0.003	0.002	0.002	0.001	0.001	0.000	0.001	0.00	0.01	0.04	0.09	0.08	0.001	0.09	0.09	0.09	0.07	0.04
Fixed asset Ratio [Proportion]	0.64	0.27	0.24	0.27	0.30	0.30	0.22	0.26	0.31	0.31	0.13	0.34	0.35	0.36	0.32	0.32	0.40	0.35	0.03
Proprietary Ratio [Proportion]	1.56	4.25	4.72	4.88	3.90	4.37	6.65	4.93	4.39	4.41	1.32	3.56	3.54	3.33	3.46	3.40	3.23	3.42	0.13
Interest coverage ratio [Times]	7.23	48.55	143.13	254.35	14.74	18.51	32.26	74.23	50.90	71.54	80.021	246.25	25.53	34.65	37.21	40.97	35.94	70.09	86.45

Source – Annexure I, II and III

Long term Solvency Analysis

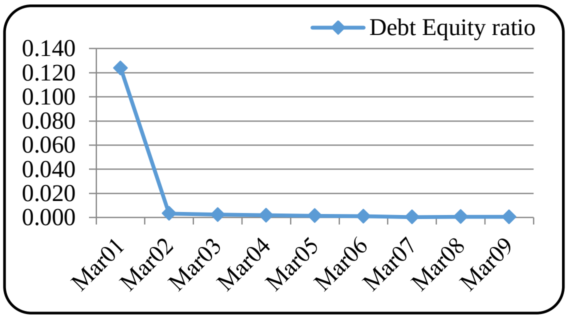
Table 4.1.3 reveals the calculation of various Long term solvency ratios of Dr Reddys laboratories ltd during Pre-Merger Period and Post-Merger Period.

The Long term solvency of Sample Company is analyzed and interpreted using various Long Term Solvency Ratios based on Long Term Debt, Share Capital, Fixed Assets, Equity Shareholders Fund.

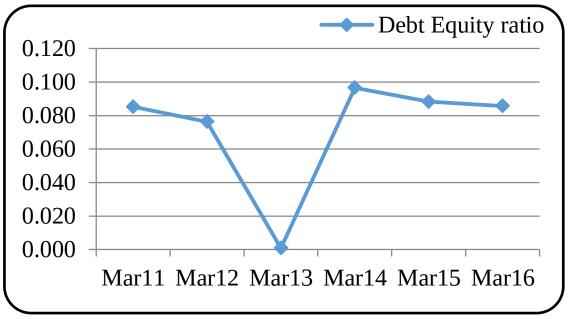
Debt Equity Ratio [DER]

In Pre-Merger period as exhibited in table T.4.1.3 and figure G1.15, Debt Equity ratio was very low however steep fall was observed in debt equity ratio 2001-2002 onwards. Dr. Reddy's had used the American depository receipts [ADR] proceeds to liquidate certain high cost debt liabilities, which had helped to substantially reduce the annual interest expenditure. The overall Average Debt Equity ratio in Pre-Merger period was 0.01:1.

G.1.15 DER in Pre-Merger Period



G.1.15.1 DER in Post-Merger Period



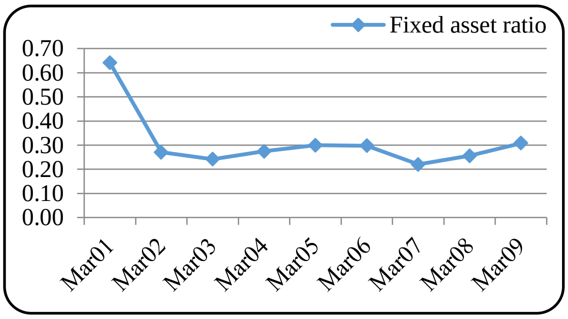
Source – Table T.4.1.3

During Post-Merger period, as indicated in table T.4.1.3 and figure G.1.15.1, Debt Equity ratio registered a fluctuating trend. A sudden fall in 2012-2013 was due to redemption of debentures worth Rs 5078 Million. The overall Average Debt Equity ratio in Post-Merger period was 0.07:1. During period of study, average ratio increased. This shows that Debt funds were gradually raised during Post-Merger period. The Standard Deviation was almost same in the pre and Post-Merger period indicating similar variability in ratio.

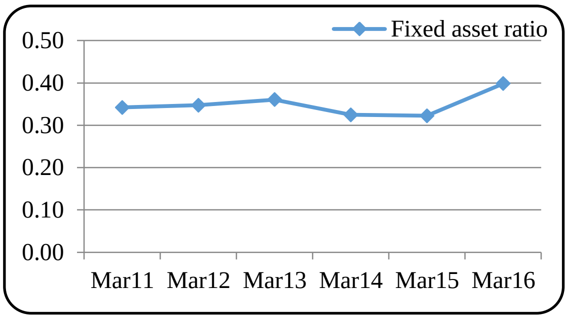
Fixed Asset Ratio [FAR]

In the Pre-Merger period as disclosed in table T.4.1.3 and figure G.1.16, Fixed asset ratio showed fluctuating trend. The overall Average Fixed asset ratio in Pre-Merger period was 0.31:1.

G.1.16 FAR in Pre-Merger Period



G.1.16.1 FAR in Post-Merger Period



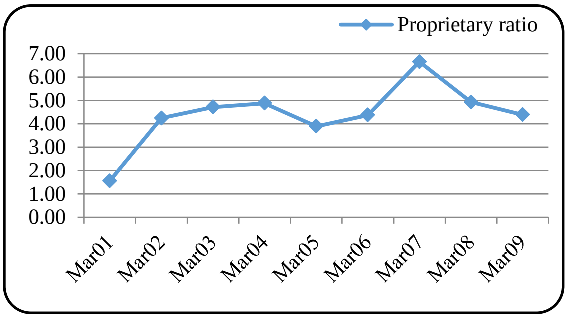
Source – Table T.4.1.3

During Post-Merger period, as indicated in table T.4.1.3 and figure G.1.16.1, Fixed asset ratio almost remain constant. The overall Average Fixed asset ratio in Post-Merger period was 0.35:1. During period of study, Average ratio increased in Post-Merger period which indicates that proportionately more long term funds were used to finance fixed assets requirements during Post-Merger period as compared to Pre-Merger period. The Standard Deviation of Pre-Merger period was higher as compared to post merger period indicating that ratio was more fluctuating in Pre-Merger period as compared to Post-Merger period.

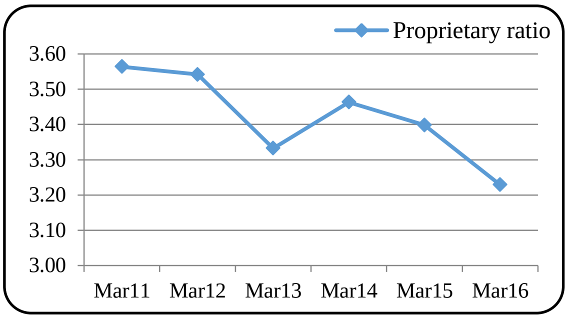
Proprietary Ratio [PR]

In Pre-Merger period as depicted in table T.4.1.3 and figure G.1.17, Proprietary ratio exhibited increasing trend. Highest Proprietary ratio was observed in 2006-2007. The overall Average Proprietary ratio in Pre-Merger period was4.41:1.

G.1.17 PR in Pre-Merger Period



G.1.17.1 PR in Post-Merger Period



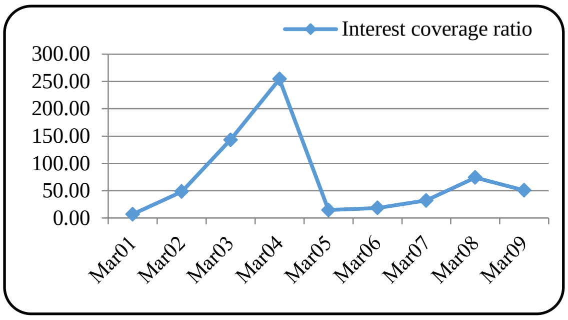
Source – Table T.4.1.3

As indicated in table T.4.1.3 and figure G.1.17.1, during the Post-Merger period, proprietary ratio showed declining trend. The overall Average Proprietary ratio in Post-Merger period was 3.42:1. During period of study, Average ratio had been declined in Post-Merger period as compared to Pre-Merger period. This indicates there was more dependence on external funds in Post-Merger period as compared to Pre-Merger period. The Standard Deviation of Pre-Merger period was higher as compared to post merger period indicating that ratio was more fluctuating in Pre-Merger period as compared to Post-Merger period.

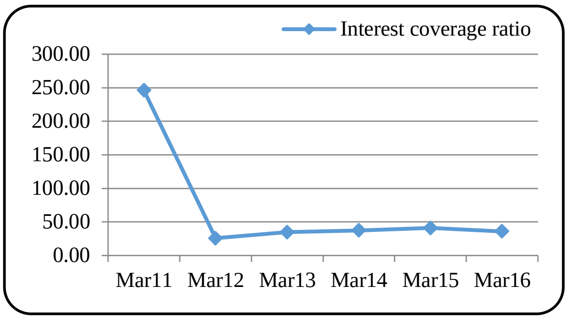
Interest Coverage Ratio [ICR]

During Pre-Merger period as revealed in table T.4.1.3 and figure G.1.18, Interest coverage ratio increased up to 2003-2004 and thereafter it declined. The overall Average Interest coverage ratio in Pre-Merger period was 71.54 times.

G.1.18 ICR in Pre-Merger Period



G.1.18.1 ICR in Post-Merger Period



Source – Table T.4.1.3

As indicated in table T.4.1.3 and figure G.1.18.1, during Post-Merger period Interest coverage ratio declined from 246.25 times in 2010-2011 to 35.94 times in 2015-2016. The overall Average Interest coverage ratio in Post-Merger period was 70.09 times. During period of study, Average ratio decreased in Post-Merger period as compared to Pre-Merger period. This exhibits that the sample company was able to absorb the interest charges but was left out with lower earnings during the Post-Merger period as compared to that in Pre-Merger period. The Standard Deviation of Pre-Merger period was lower as compared to post merger period indicating that ratio was more fluctuating in Post-Merger period as compared to Pre-Merger period.

Table No 4.1.4 on the next page shows calculation of various efficiency ratios of the sample acquirer company for the period under study.

4.1.5 Efficiency Ratios of Dr. Reddys Laboratories Ltd During Pre-Merger and Post-Merger Period

Table T.4.1.4 Efficiency Ratios in Pre-Merger Period and Post- Merger Period

	Pre- Merger period (2000-01 to 2008-09)- 9 years											Post- Merger period (2010-11 to 2015-16)- 6 years							
Efficiency Ratios	**Mar 2000-2001**	**Mar 2001-2002**	**Mar 2002-2003**	**Mar 2003-2004**	**Mar 2004-2005**	**Mar 2005-2006**	**Mar 2006-2007**	**Mar 2007-2008**	**Mar 2008-2009**	**Average ratio**	**Standard Deviation**	**Mar-2010-2011**	**Mar-2011-2012**	**Mar-2012-2013**	**Mar-2013-2014**	**Mar-2014-2015**	**Mar-2015-2016**	**Average ratio**	**Standard Deviation**
Capital turnover Ratio[Times]	1.77	1.01	0.84	0.81	0.75	0.88	0.85	0.69	0.753	0.927	0.330	0.79	0.91	1.03	0.92	0.85	0.78	0.88	0.093
Inventory turnover ratio [Times]	3.71	2.99	2.72	2.82	2.44	2.52	3.04	2.76	2.60	2.84	0.381	2.15	2.15	2.31	2.09	2.36	2.25	2.22	0.104
Inventory to current asset ratio[%]	28.93	15.25	15.51	19.52	16.62	18.83	13.16	21.59	19.10	18.72	4.622	29.11	26.95	23.04	17.87	16.56	16.84	21.73	5.456
Working capital turnover ratio [Times]	7.85	1.39	1.16	1.70	1.31	2.27	1.37	1.81	1.83	2.30	2.109	3.89	3.00	2.69	1.79	1.57	1.69	2.44	0.919
Fixed asset turnover ratio [Times]	2.76	3.73	3.46	2.95	2.49	2.96	3.88	2.68	2.44	3.04	0.531	2.31	2.61	2.85	2.84	2.63	1.97	2.53	0.341
Debtors Turnover ratio [Times]	4.42	4.05	3.45	3.79	3.59	4.00	4.57	3.38	3.42	3.85	0.438	3.64	3.53	3.26	2.51	2.12	2.31	2.89	0.663

Source – Annexure I, II and III

Efficiency Analysis

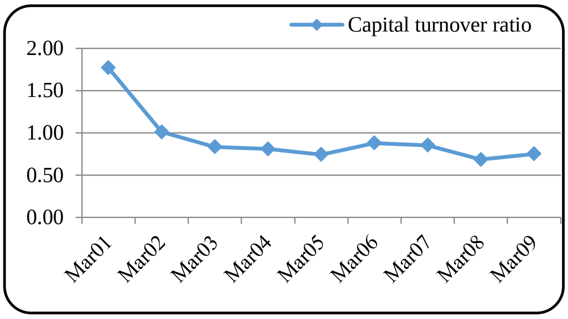
Table 4.1.4 reveals the calculation of various Efficiency ratios of Dr Reddys laboratories ltd during Pre-Merger Period and Post-Merger Period.

The efficiency ratios of sample company is analyzed and interpreted using various efficiency ratios based on Sales and Investment in Inventories, Fixed Assets, Working Capital, Debtors, Total Capital Employed etc.

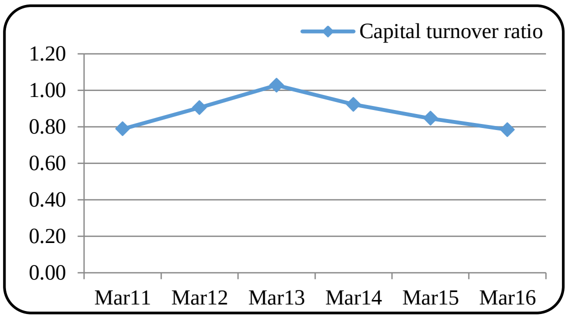
Capital turnover Ratio [CTOR]

As disclosed in table T.4.1.4 and figure G.1.19, Capital Turnover ratio registered an overall declining trend during the Pre-Merger period under study whereas highest ratio was noticed in the year 2000-2001.The overall Average Capital Turnover ratio in Pre-Merger period was 0. 927 times.

G.1.19 CTOR in Pre-Merger Period



G.1.19.1 CTOR in Post-Merger Period



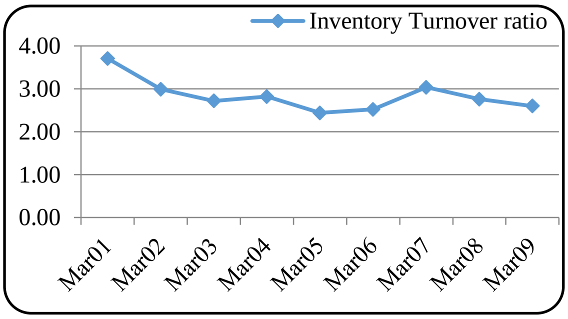
Source – Table T.4.1.4

As indicated in table T.4.1.4 and figure G.1.19.1, during Post-Merger period also Capital Turnover ratio showed a fluctuating trend. The overall Average Capital Turnover ratio in Post-Merger period was 0.88 times. Highest ratio was noticed in the year 2012-2013.During Post-Merger period overall average Capital Turnover ratio decreased as compared to Pre-Merger period. This indicates inefficient utilization of capital employed for generating revenue in post period. The Standard Deviation of Pre-Merger period was higher as compared to post merger period indicating that ratio was more fluctuating in Pre-Merger period as compared to Post-Merger period.

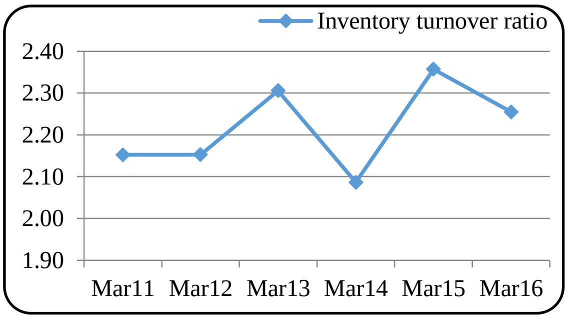
Inventory Turnover Ratio [ITOR]

In Pre-Merger period as revealed in table T.4.1.4 and figure.G.1.20, Inventory Turnover ratio was fluctuating however it was highest in the year 2000-2001. Overall Average Inventory Turnover ratio in Pre-Merger period was 2.84 times.

G .1.20 ITOR in Pre-Merger Period



G.1.20.1 ITOR in Post-Merger Period



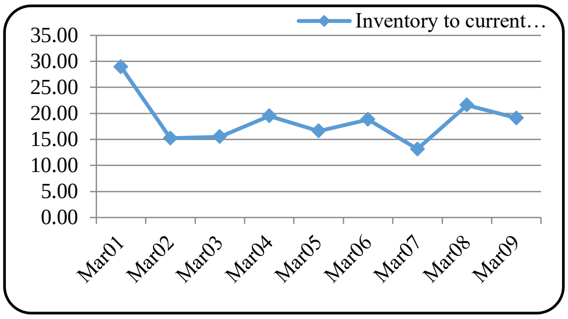
Source – Table T.4.1.4

As indicated in table T.4.1.4 and figure G.1.20.1, During Post-Merger period also, Inventory turnover ratio registered fluctuating trend however highest Inventory turnover ratio was observed in the year 2014-2015.The overall Average Inventory Turnover ratio in Post-Merger period was 2.22 times. During period of study Average ratio decreased in Post-Merger period. This indicates inefficient utilization of inventory or merchandise. The Standard Deviation of Pre-Merger period was higher as compared to post merger period indicating that ratio was more fluctuating in Pre-Merger period as compared to Post-Merger period.

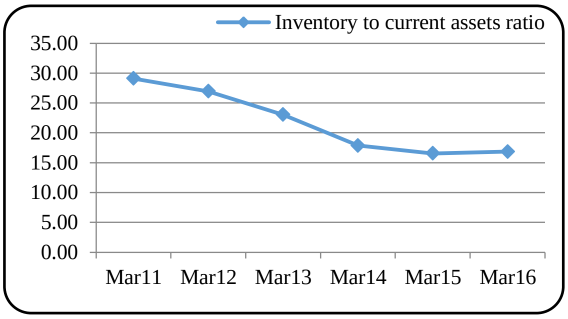
Inventory to current asset ratio [ICAR]

In Pre-Merger period as depicted in table T.4.1.4 and figure G.1.21, Inventory to current asset ratio was fluctuating however was Highest in the year 2000-2001.The overall Average Inventory to current asset ratio in Pre-Merger period was 18.72%.

G.1.21 ICAR in Pre-Merger Period



G.1.21.1 ICAR in Post-Merger Period



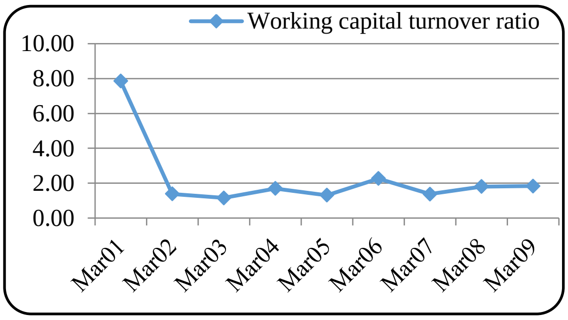
Source-Table T.4.1.4

As revealed in table T.4.1.4 and figure G.1.21.1 during the Post-Merger period, Inventory to current asset ratio registered declining trend. The overall Average Inventory to current asset ratio in Post-Merger period was 21.73%. During the Post-Merger period of study Average ratio increased as compared to Pre-Merger period. This exhibits that there was increased investment in inventory The Standard Deviation of Pre-Merger period was lower as compared to post merger period indicating that ratio was more fluctuating in Post-Merger period as compared to Pre-Merger period.

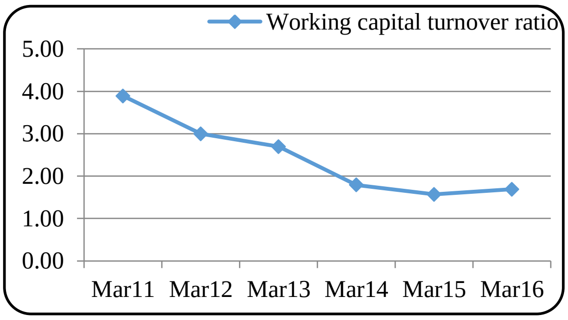
Working Capital Turnover Ratio [WCTOR]

In Pre-Merger period as exhibited in table T.4.1.4 and figure G.1.22, Working capital turnover ratio steeply declined from 2000-2001 7.85 times to 2001-2002 1.39 times thereafter marginally fluctuated during Pre-Merger Period. The Average Working capital turnover ratio in Pre-Merger period was 2.30 times.

G .1.22 WCTOR in Pre-Merger Period



G.1.22.1 WCTOR in Post-Merger Period



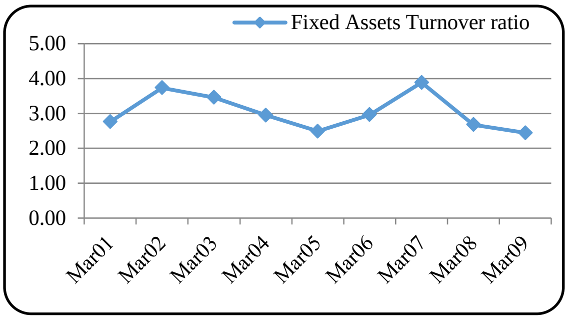
Source – Table T.4.1.4

During Post-Merger period as disclosed in table T.4.1.4 and figure G.1.22.1, Working capital turnover ratio was declined except for year 2015- 2016 where it was increased marginally. Average working capital turnover ratio in Post-Merger period was 2.44 times. Average Ratio increased during Post-Merger period as compared to Pre-Merger period. This reveals that the company was more efficient in utilizing working capital for generating sales in post period as compared to Pre-Merger period. The Standard Deviation of Pre-Merger period was higher as compared to post merger period indicating that ratio was more fluctuating in Pre-Merger period as compared to Post-Merger period.

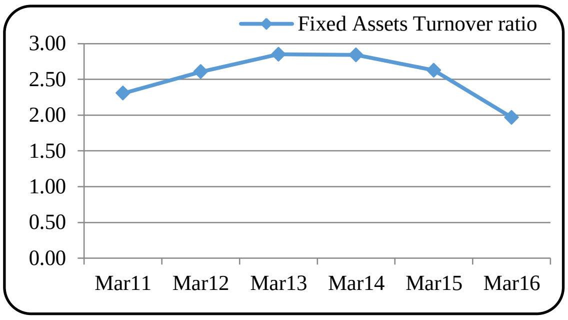
Fixed Asset Turnover Ratio [FATR]

In Pre-Merger period as disclosed in table T.4.1.4 and figure G.1.23, fixed asset turnover ratio registered a fluctuating trend. The overall average Fixed asset turnover ratio in Pre-Merger period was 3.04 times.

G .1.23 FATR in Pre-Merger Period



G .1.23.1 FATR in Post-Merger Period



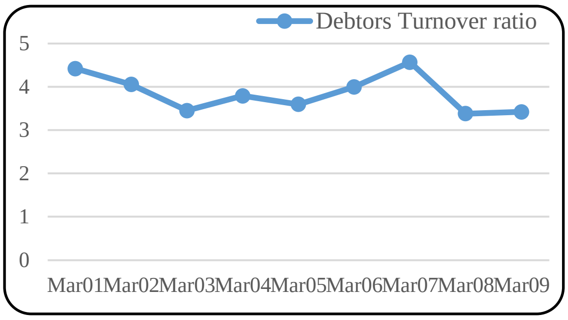
Source – Table T.4.1.4

As indicated in table T.4.1.4 and figure G.1.23.1, during Post-Merger period, fixed asset turnover ratio was initially increasing but later in the year 2014- 2015 and 2015-2016 it declined. The Average fixed asset turnover ratio in Post-Merger period was 2.53 times. During period of study, Average ratio decreased in Post-Merger as compared to Pre-Merger period. This exhibits inefficient utilization of fixed assets in generating revenue of sample company. The Standard Deviation of Pre-Merger period was higher as compared to Post-Merger period indicating that ratio was more fluctuating in Pre-Merger period as compared to Post-Merger period.

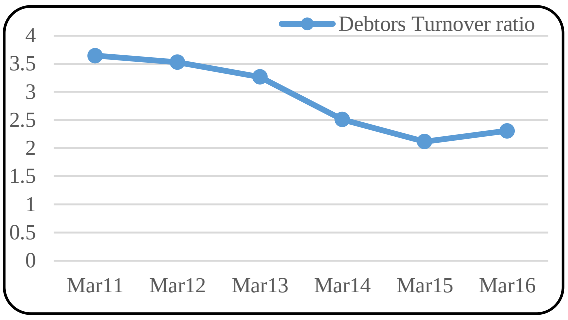
Debtors Turnover Ratio [DTOR]

In Pre-Merger period as revealed in table T.4.1.4 and figure G.1.24, Debtors turnover ratio declined from 4.42 times to 3.42 times during Pre-Merger Period. The Average Debtors turnover ratio in Pre-Merger period was 3.85 times.

G .1.24 DTOR in Pre-Merger Period



G .1.24.1 DTOR in Post-Merger Period



Source – Table T.4.1.4

As exhibited in table T.4.1.4 and figure G.1.24.1, during Post-Merger period, Debtors Turnover ratio decreased up to 2015 and marginally increased in 2016. The Average Debtors turnover ratio in Post-Merger period was 2.89 times. During period of study, Average ratio decreased in Post-Merger as compared to Pre-Merger period. This exhibits liberal credit policy adopted by sample company. The Standard Deviation of Post-Merger period was higher as compared to pre- merger period indicating that ratio was more fluctuating in Post-Merger period as compared to Pre-Merger period.

4.1.6 Testing of Hypothesis

The hypothesis framed with reference to various Ratios [as mentioned in chapter 3, Hypothesis no 1 to 24] is tested applying One Sample t- test at 5 % level of significance for measuring impact of merger. The table T4.1.5 shows hypothesis test results

Table T.4.1.5 Hypothesis Test Results

Sr. No.	Ratio	Pre-Merger average	Post-Merger average	P value	Null/Alternate hypothesis accepted
Profitability Ratio					
1	GP ratio	57.37	60.92	*0.044	Alternate
2	NP ratio	18.30	16.38	0.553	NULL
3	Operating ratio	82.40	81.67	0.818	NULL
4	Cash profit margin	23.25	21.20	0.484	NULL
5	Return on capital employed	20.86	18.96	0.665	NULL
6	Return on Total assets	17.90	16.96	0.768	NULL
7	Return on Equity	17.61	15.48	0.561	NULL
8	Earnings per share	40.20	78.78	*0.001	Alternate
9	Equity dividend coverage ratio	8.43	4.22	*0.001	Alternate
10	Price earnings ratio	32.41	32.58	0.988	NULL
11	Dividend Yield ratio	0.58	0.97	*0.001	Alternate
Liquidity Ratios					
12	Current Ratio	3.16	1.85	*0.048	Alternate
13	Quick Ratio	2.62	1.47	*0.048	Alternate
14	Super Quick Ratio	1.19	0.45	0.061	NULL
Long Term Solvency					
15	Debt Equity ratio	0.015	0.072	*0.003	Alternate
16	Fixed asset Ratio	0.31	0.35	0.396	NULL
17	Proprietary Ratio	4.41	3.42	0.056	NULL
18	Interest coverage ratio	71.54	70.09	0.958	NULL
Efficiency Ratios					
19	Capital Turnover ratio	0.927	0.88	0.675	NULL
20	Inventory Turnover ratio	2.84	2.22	*0.001	Alternate
21	Inventory to current asset ratio	18.72	21.73	0.087	NULL
22	Working capital turnover ratio	2.30	2.44	0.846	NULL
23	Fixed asset turnover ratio	3.04	2.53	*0.02	Alternate
24	Debtors Turnover Ratio	3.85	2.89	*0.001	Alternate

Source – Table T.4.1.1, T.4.1.2, T.4.1.3 and T.4.1.4

Profitability analysis

As observed from the above table GP ratio, Earnings per share, Equity dividend coverage ratio and dividend Yield ratio changed significantly in Post-Merger period as compared to Pre-Merger period. In each of the above ratios the calculated 'P' value is less than 0.05 thus alternate hypothesis is accepted. However other Profitability ratios did not change significantly as the calculated 'P' value is more than 0.05 thus null hypothesis is accepted.

Liquidity analysis

Current ratio, Quick ratio & Super quick ratio all indicates reduction in liquidity position of Dr. Reddy's Laboratories limited during period of study. It was due to huge rise in current liabilities and provisions as compared to current assets in Post-Merger period. Liquidity significantly changed in form of Current ratio and Quick ratio as the calculated 'P' value is less than 0.05 & thus alternate hypothesis is accepted whereas Super quick ratio did not change significantly as the calculated 'P' value is more than 0.05 & thus null hypothesis is accepted.

Long term solvency analysis

As depicted in tablet.4.1.5 Debt equity ratio changed significantly in Post-Merger period as compared to Pre-Merger period. As the calculated 'P' value is less than 0.05 thus alternate hypothesis is accepted. However other long term solvency ratios did not change significantly as the calculated 'P' value is more than 0.05 thus null hypothesis is accepted.

Efficiency ratios analysis

As observed from the above table that Inventory turnover ratio, fixed asset turnover ratio and Debtors turnover ratio changed significantly in Post-Merger period as compared to Pre-Merger period. In each of the above ratios the calculated 'P' value is less than 0.05 thus alternate hypothesis is accepted. However other Efficiency ratios were not changed significantly as the calculated 'P' value is more than 0.05 thus null hypothesis is accepted.

4.1.7 Composite Index Score

Composite Index score represents overall index for selected parameter. In case of Profitability higher the composite Index score better the performance and Vice-Versa. In case of Liquidity and Long term solvency Composite index score represent combine index considering selected ratios.

4.1.7.1 Composite Index score Based on Profitability

Table T.4.1.6 Composite Index score based on Profitability

Pre-Merger Period Profitability Index scores and Composite Index score									
year	**GPR**	**NPR**	**OR**	**CPM**	**ROCE**	**ROTA**	**ROE**	**EPS**	**Average**
2000-2001	0.08	0.43	0.70	0.56	1.00	0.79	1.00	0.35	0.61
2001-2002	0.95	0.99	0.92	0.97	0.77	0.96	1.00	0.49	0.88
2002-2003	0.67	0.80	0.81	0.79	0.54	0.70	0.65	0.41	0.67
2003-2004	0.39	0.47	0.47	0.45	0.31	0.50	0.38	0.27	0.40
2004-2005	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
2005-2006	0.00	0.23	0.20	0.24	0.25	0.26	0.22	0.18	0.20
2006-2007	0.74	1.00	1.00	1.00	0.76	1.00	0.84	0.59	0.86
2007-2008	0.00	0.37	0.26	0.37	0.25	0.42	0.24	0.19	0.26
2008-2009	0.16	0.36	0.33	0.36	0.30	0.41	0.26	0.24	0.30
Average	**0.36**	**0.52**	**0.52**	**0.53**	**0.46**	**0.56**	**0.51**	**0.30**	**0.47**
Post-Merger Period Profitability Index scores and Composite Index score									
2010-2011	0.49	0.48	0.52	0.48	0.35	0.47	0.41	0.42	0.45
2011-2012	0.62	0.36	0.65	0.34	0.40	0.52	0.37	0.43	0.46
2012-2013	0.48	0.42	0.50	0.38	0.53	0.59	0.46	0.63	0.50
2013-2014	1.00	0.60	0.79	0.58	0.56	0.69	0.62	1.00	0.73
2014-2015	0.58	0.47	0.54	0.48	0.40	0.52	0.45	0.86	0.54
2015-2016	0.65	0.35	0.28	0.40	0.26	0.35	0.30	0.67	0.41
Average	**0.64**	**0.45**	**0.55**	**0.44**	**0.42**	**0.53**	**0.43**	**0.67**	**0.51**

Source – Table no T.4.1.1

From the table T.4.1.6 it could be observed that Average index scores of Gross Profit Ratio, Operating Ratio and Earning Per share improved in Post-Merger period as compared to Pre-Merger Period while the average index scores of other Profitability ratios declined in Post- merger period as compared to Pre-Merger period.

The Average Composite Index score based on profitability ratios increased marginally from 0.47 in the Pre-Merger period to 0.51 in the Post-Merger period. This increase proved to be insignificant when tested applying Independent t-test at 5 % level of significance. As disclosed in Table no.4.1.7 below, the Calculated 'P' value is 0.678 indicating that Null hypothesis is accepted.

Table T.4.1.7 Independent t- test results of Profitability composite index score

Index score based on profitability	Pre-Merger Period	Post-Merger Period	P. value based on Independent t- test	Hypothesis accepted
Composite Index score	0.47	0.51	0.678	NULL

Source – Table T.4.1.6

4.1.7.2 Composite Index Score Based on Liquidity

Table T.4.1.8 Composite Index Score Based on Liquidity

Pre-Merger Period Liquidity Index scores and Composite Index score							
YEAR	**CR**	**QR**	**SQR**	**ITOR**	**WCTOR**	**DTOR**	**AVERAGE**
2000-2001	0.00	0.00	0.01	1.00	1.00	0.94	0.49
2001-2002	1.00	1.00	0.95	0.56	0.03	0.79	0.72
2002-2003	0.84	0.84	1.00	0.39	0.00	0.54	0.60
2003-2004	0.44	0.43	0.41	0.45	0.08	0.68	0.41
2004-2005	0.29	0.30	0.48	0.22	0.02	0.60	0.32
2005-2006	0.07	0.09	0.15	0.27	0.17	0.77	0.25
2006-2007	0.46	0.49	0.52	0.59	0.03	1.00	0.51
2007-2008	0.24	0.24	0.16	0.42	0.10	0.52	0.28
2008-2009	0.18	0.19	0.07	0.32	0.10	0.53	0.23
Average	**0.39**	**0.40**	**0.42**	**0.47**	**0.17**	**0.71**	**0.42**
Post-Merger Period Liquidity Index scores and Composite Index score							
2010-2011	0.04	0.03	0.00	0.04	0.41	0.62	0.19
2011-2012	0.08	0.07	0.13	0.04	0.27	0.58	0.19
2012-2013	0.08	0.09	0.10	0.14	0.23	0.47	0.18
2013-2014	0.19	0.21	0.16	0.00	0.09	0.16	0.14
2014-2015	0.20	0.22	0.25	0.17	0.06	0.00	0.15
2015-2016	0.18	0.20	0.28	0.10	0.08	0.08	0.15
Average	**0.13**	**0.14**	**0.15**	**0.08**	**0.19**	**0.32**	**0.17**

Source – Table T.4.1.2 and T.4.1.4

From the above table it could be seen that almost all average liquidity index scores based on ratios declined except average index score based on working capital turnover ratio in Post-Merger period as compared to Pre-Merger period. However, Average Composite Index score based on liquidity ratios declined from 0.42 in Pre-Merger period to 0.17 in Post-Merger period. This decrease proved to be significant when tested applying Independent t- test at 5 % level of significance. As disclosed in Table no.4.1.9 below, the Calculated 'P' value is 0.05 indicating that Alternate hypothesis is accepted.

Table T.4.1.9 Independent t- Test Results of Liquidity Composite Index Score

Index score based on liquidity ratios	Pre-Merger Period	Post-Merger Period	Probability value based on Independent t- test	Hypothesis accepted
Composite Index score	0.39	0.13	*0.05	Alternate

Source – Table T.4.1.8

4.1.7.3 Composite Index Score Based on Long Term Solvency

Table T.4.1.10 Composite Index Score Based on Long Term Solvency

Pre-Merger Period Long Term Solvency Index scores and Composite Index score				
YEAR	**DER**	**FAR**	**PR**	**AVERAGE**
2000-2001	1.00	1.00	0.00	0.67
2001-2002	0.02	0.12	0.53	0.22
2002-2003	0.02	0.05	0.62	0.23
2003-2004	0.01	0.13	0.65	0.26
2004-2005	0.01	0.19	0.46	0.22
2005-2006	0.01	0.18	0.55	0.25
2006-2007	0.00	0.00	1.00	0.33
2007-2008	0.00	0.09	0.66	0.25
2008-2009	0.00	0.21	0.55	0.25
Average	**0.12**	**0.22**	**0.56**	**0.30**
Post-Merger Period Long Term Solvency Index scores and Composite Index score				
2010-2011	0.69	0.29	0.39	0.46
2011-2012	0.62	0.30	0.39	0.44
2012-2013	0.00	0.33	0.35	0.23
2013-2014	0.78	0.25	0.37	0.47
2014-2015	0.71	0.24	0.36	0.44
2015-2016	0.69	0.42	0.33	0.48
Average	**0.58**	**0.31**	**0.36**	**0.42**

Source – Table T.4.1.3

From the above table it could be observed that average index scores based on Debt equity ratio and Fixed asset ratio increased in Post-Merger period whereas average index score based on proprietary ratio declined in Post-Merger period as compared to Pre-Merger period.

Average composite index score based on Long term solvency increased from 0.30 in Pre-Merger period to 0.42 in Post-Merger period. This increase proved to be insignificant when tested applying independent t- test at 5 % level of significance. As disclosed in Table no.4.1.11 below, the Calculated 'P' value is 0.091 indicating that Null hypothesis is accepted.

Table T.4.1.11 Independent t- Test Results of Long Term Solvency Composite Index Score

Index score based on Long term solvency ratios	Pre-Merger Period	Post-Merger Period	Probability value based on Independent t- test	Hypothesis accepted
Composite Index score	0.30	0.42	0.091	Null

Source – Table T.4.1.10

4.1.8 Economic Value Added [EVA] and Market Value Added [MVA]

The shareholder's wealth measurement has been carried out by calculating EVA and MVA of the sample company for Pre-Merger and Post-Merger period of study**.**

4.1.8.1 Economic Value Added [EVA]

The Table no T.4.1.12shows the calculation of EVA of the sample company for Pre and Post-Merger period of study. The Table depicts that the average EVA in Pre-Merger period was (Rs 142.01 Millions) while the average EVA in the Post-Merger period amounted to Rs1697.97 Million**.** The Post-Merger Average EVA turned Positive as compared to Pre-Merger period which indicates that the merger helped the company to improve its performance in terms of EVA there by enhanced shareholder's wealth.

Table T.4.1.12 Economic Value Added [EVA] of Dr. Reddys Laboratories ltd [Rs in Millions]

Particulars	NOPAT[RS]	Ke	Kp	Kd	EVA
2000-2001	1719.1	661.5417	0	245.9094	811.6489
2001-2002	4036.146	1962.057	0	70.07736	2004.011
2002-2003	3417.041	2300.878	0	21.79279	1094.37
2003-2004	2521.576	2359.739	0	9.492325	152.3449
2004-2005	833.437	2428.462	0	63.13797	-1658.16
2005-2006	1301.245	2757.777	0	142.1275	-1598.66
2006-2007	9378.287	5331.559	0	316.6381	3730.09
2007-2008	2447.074	5517.889	0	67.25297	-3138.07
2008-2009	3287	5840.546	0	122.1185	-2675.66
Total	28940.91	29160.45	0	1058.55	-1278.09
Average EVA in Pre-Merger period					**-142.01**
2010-2011	7496	6395.379	0	35.8068	1064.814
2011-2012	10320	7136.453	0	429.618	2753.929
2012-2013	8802	8127.66	0	405.3014	269.0388
2013-2014	17971	9910.383	0	516.8583	7543.758
2014-2015	14088	10847.85	0	417.1882	2822.962
2015-2016	9109	12958.47	0	417.1882	-4266.66
Total	67786	55376.195	0	2221.96	10187.84
Average in Post-Merger period					**1697.97**

Source – Annexure - I, II, III and VI

4.1.8.2 Market Value Added [MVA]

The Table no T.4.1.13shows the calculation of MVA of the sample company for Pre and Post-Merger period of study. The Table depicts that the average MVA in Pre-Merger period was Rs 54652.29 Millions while the average MVA in the Post-Merger period amounted to 317195.8 Million. The Post-Merger Average MVA increased as compared to Pre-Merger period from and can be concluded that merger helped the company to improve its performance in terms of MVA there by enhanced shareholder’s wealth.

Table T.4.1.13 Market Value Added [MVA] of Dr. Reddys Laboratories ltd [Rs in Millions]

Year	Market Capitalization	Share cap	Res and surplus	SF	MVA
2000-2001	39367.52	316.5	4270.5	4587	34780.52
2001-2002	83739.05	382.58	14197.29	14579.87	69159.18
2002-2003	70126.87	382.58	17686.62	18069.2	52057.67
2003-2004	74540.93	382.595	20087.57	20470.16	54070.77
2004-2005	56557.07	382.595	20358.24	20740.84	35816.23
2005-2006	108971.5	383.473	22237.94	22621.42	86350.06
2006-2007	122219.1	839.561	42894.01	43733.57	78485.51
2007-2008	99406.91	840.865	47277.18	48118.05	51288.86
2008-2009	82452.83	842	51749	52591	29861.83
Total	737381.78	4752.749	240758.35	245511.11	491870.63
Average MVA in Pre-Merger period					**54652.29**
2010-2011	277371.4	846	59356	60202	217169.4
2011-2012	298714.5	848	66330	67178	231536.5
2012-2013	299999.2	849	76985	77834	222165.2
2013-2014	435878.5	851	92439	93290	342588.5
2014-2015	594306.6	852	105488	106340	487966.6
2015-2016	517802.8	853	115201	116054	401748.8
Total	2424073	5099	515799	520898	1903175
Average MVA in Post-Merger period					**317195.8**

Source – Annexure – I, II and III

The hypothesis framed with reference to EVA and MVA [as mentioned in chapter 3, Hypothesis no 28 and 29] is tested applying one sample t-test at 5 % level of significance. The table below depicts that calculated ‘P’ value is less than 0.05. The ‘P’ value for EVA is 0.042 while that for MVA is 0.001. Hence alternate hypothesis is accepted. It can be concluded that the merger had significant impact on EVA and MVA of the sample company.

Table T.4.1.14 Hypothesis One Sample t- Test Results

Particulars	Pre-Merger Average[Rs Millions]	Post-Merger Average[Rs Millions]	p value	Hypothesis accepted
EVA	-142.01	1697.97	*0.042	Alternate
MVA	54652.29	317195.8	*< .001	Alternate

Source – Table T.4.1.12 and T. 4.1.13

4.1.9 Altman Z score

The financial health of the sample company in Pre and Post merger period is also assessed using Altman Z score model. The Altman Z score calculated using following formula- $\zeta = 1.2A + 1.4B + 3.3C + 0.6D + 1.0E$ The calculated the Altman Z score as depicted in annexure IV and V for Pre-Merger period was 3.444463 while that of Post-Merger Period was 3.727223.

The financial health of the sample company in Pre and Post-Merger period is sound as the Altman Z score is more than 3. In other words, the sample company falls in safe zone in Pre as well as post-merger period of study. The increase in ALTMAN Z score in the Post- Merger period as compared to Pre-Merger period indicates that the Merger has helped the company to improve the financial health as also reflected by increase in Market price of share during Post-Merger period.

4.1.10 Regression Analysis

Considering one dependent variable i.e. Net profit and 9 independent variables viz Cost of goods sold, operating expenses, Finance cost, Capital employed, Long term borrowings, Shareholders fund, working capital, Current assets, fixed assets of the sample company during Pre and Post-Merger period , regression analysis is carried out in this part of study.

Using Regression Model the multiple linear regression for Pre and Post merger was constructed.

4.1.10.1 Pre- Merger Period Regression Equation

Table T.4.1.15 Model summary of Pre-Merger Period

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.848[a]	0.719	0.678	1861.38583

a. Predictors: (Constant), WC

Source – Annexure – I, II and III

If we evaluate overall performance of the model based on the ANOVA table, observing the significant value we conclude that model is significant as the value is less than 0.05. as shown in the table below

Table T.4.1.16 ANOVA [Pre-Merger Period]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	61950354.194	1	61950354.194	17.880	0.004[b]
	Residual	24253300.386	7	3464757.198		
	Total	86203654.580	8			

a. Dependent Variable: NP

b. Predictors: (Constant), WC

Source – Annexure – I, II and III

Table T.4.1.17 Coefficients [Pre-Merger Period]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-714.556	1314.940		-.543	0.604
	WC	0.361	0.085	0.848	4.228	0.004

a. Dependent Variable: NP

Source – Annexure – I, II and III

Pre-Merger period regression equation

NP= -714.556+0.361WC

4.1.10.2 Post-Merger period Regression equation

Table T.4.1.18 Model Summary [Post-Merger Period]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.834[a]	0.696	0.619	2550.44556

a. Predictors: (Constant), WC

Source – Annexure – I, II and III

If we evaluate overall performance of the model based on the ANOVA table, observing the significant value we conclude that model is significant as the value is less than 0.05. as shown in the table below

Table T.4.1.19 ANOVA [Post-Merger Period]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	59446645.042	1	59446645.042	9.139	0.039[b]
	Residual	26019090.291	4	6504772.573		
	Total	85465735.333	5			

a. Dependent Variable: NP

b. Predictors: (Constant), WC

Source – Annexure – I, II, and III

Table T.4.1.20 Coefficients [Post-Merger Period]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	6813.822	2413.671		2.823	0.048
	WC	0.165	0.055	0.834	3.023	0.039

a. Dependent Variable: NP

Source – Annexure – I, II and III

Post – Merger period regression equation

NP = 6813.822 + 0.165 WC

Considering the output, the final model for the Post-Merger time would be given as per above. From the above facts it could be analyzed that Working capital is the only independent variable affecting profitability in terms of Net profit of Dr Reddys laboratories ltd being identified by multiple linear regression equation. Correlation coefficient between NP and working capital in Pre-Merger period is 0.85 and in Post-Merger period it is 0.83. It was positive and slightly declined in Post-Merger period as compared to pre- merger period thus it could be said that lower investment in working capital resulted reduction in net profit generation of company in Post-Merger period as compared to pre-merger period.

R^2 during Pre-Merger period is marginally higher than Post-Merger period.

4.2 CASE 2 – ACQUIRER COMPANY : HIKAL LTD.

4.2.1 Background of the Company

Hikal Limited was established on 08 July 1988. Hikal Limited is involved in the manufacturing of several chemical intermediates, specialty chemicals, active pharmaceutical ingredients (APIs) and contract research activities. The Company sales pharmaceuticals and agrochemicals. The segments include Crop Protection and Pharmaceuticals.

Hikal Pharmaceuticals Limited was a Private company. It was classified as Non-govt company and was registered at Mumbai. It was involved in Manufacture of non-metallic mineral products. Merger of Hikal ltd with Hikal Pharmaceuticals Ltd. was approved on 25/6/2009 effective from March 31, 2009.

The subsequent part of chapter covers analysis of the financial performance of Hikal Ltd for Pre-Merger and Post-Merger period.

The period of study covers 16 years commencing from 2000-2001 to 2015-2016.

Period of study - 2000-2001 to 2015-2016

Pre-Merger period - 2000-2001 to 2007-2008

Post- Merger period - 2009-2010 to 2015-2016

Merger Year-2008-2009

Table No 4.2.1 on the next page shows calculation of various profitability ratios of the sample acquirer company for the period under study.

4.2.2 Profitability Ratios of Hikal ltd During Pre-Merger and Post-Merger Period

Table T.4 2.1 Profitability Ratios in Pre-Merger and Post- Merger Period

Pre- Merger period (2000-01 to 2007-08)- 8 years											**Post- Merger period (2009-10 to 2015-16)- 7years**								
Profitability Ratios	Mar 2000-2001	Mar 2001-2002	Mar 2002-2003	Mar 2003-2004	Mar 2004-2005	Mar 2005-2006	Mar 2006-2007	Mar 2007-2008	Average ratio	Standard Deviation	Mar 2009-2010	Mar 2010-2011	Mar 2011-2012	Mar 2012-2013	Mar 2013-2014	Mar 2014-2015	Mar 2015-2016	Average ratio	Standard Deviation
GP Ratio [%]	42.29	43.72	44.95	38.88	39.73	42.20	40.45	35.78	41.00	2.92	42.61	36.01	36.08	37.43	34.30	29.70	29.87	35.14	4.49
NP Ratio [%]	17.60	17.38	18.19	17.81	18.24	17.93	14.45	16.42	17.25	1.272	11.22	8.98	7.79	3.86	7.73	4.74	4.55	6.98	2.70
Operating Ratio [%]	74.38	76.81	78.28	80.69	81.21	79.42	80.45	85.40	79.58	3.271	71.69	83.59	81.93	86.73	84.02	88.00	89.10	83.58	5.83
Cash profit Margin [%]	31.58	30.55	27.19	24.44	25.56	24.30	21.02	22.54	25.90	3.692	17.37	16.71	13.90	11.29	14.36	12.25	11.95	13.98	2.36
ROCE [%]	24.68	25.28	21.69	20.96	21.95	18.03	17.84	21.35	21.47	2.683	16.31	13.29	18.07	13.89	21.86	16.32	13.41	16.16	3.09
ROTA [%]	13.39	13.73	14.82	14.47	13.34	12.73	11.27	10.88	13.08	1.405	9.07	8.39	11.06	7.84	13.12	9.30	9.07	9.69	1.81
ROE [%]	43.94	36.25	38.26	33.91	32.57	23.52	17.20	26.53	31.52	8.640	15.08	10.50	11.76	5.65	12.67	7.59	7.31	10.08	3.37
EPS [Rs]	17.70	19.77	23.18	18.38	22.62	26.60	19.87	32.36	22.56	4.9111	36.60	26.94	32.90	15.51	38.98	4.93	5.03	22.98	14.49
Equity dividend coverage Ratio[Times]	3.54	3.04	3.57	3.68	3.48	4.09	3.06	4.63	3.64	0.5230	4.57	4.49	5.48	6.21	8.66	4.93	5.03	5.62	1.46
Price earnings Ratio[Times]	4.27	6.83	15.01	22.28	25.86	13.96	23.60	7.44	14.91	8.322	9.99	8.80	15.22	29.83	19.41	35.10	42.30	22.95	12.97
Dividend yield Ratio [%]	6.62	4.81	1.87	1.22	1.11	1.75	1.39	2.90	2.71	1.996	2.19	2.53	1.20	0.54	0.60	0.58	0.47	1.16	0.86

Source – Source – Annexure I, II and III

Profitability Analysis

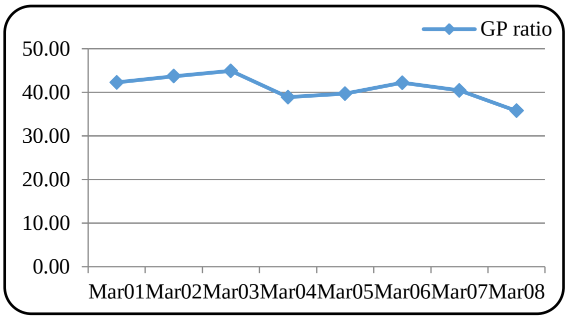
Table 4.2.1 reveals that calculation of various profitability ratios of Hikal ltd during Pre-Merger Period and Post-Merger Period.

The Profitability of Sample Company is analyzed and interpreted using various profitability ratios based on sales and Investment

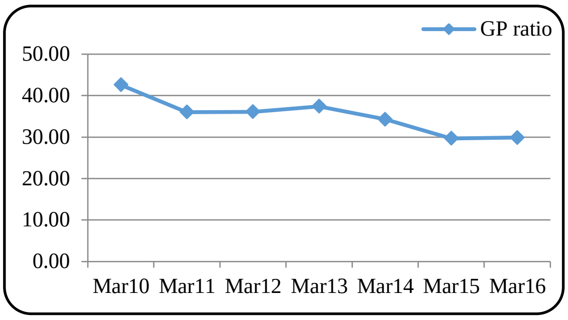
Gross profit Ratio [GPR]

As depicted in table T.4.2.1 & figure G.2.1 GP ratio fluctuated in Pre-Merger period. On an average it was 41 %.

G 2.1 GPR in Pre-Merger Period



G 2.1.1 GPR in Post-Merger Period



Source – Table T.4 2.1

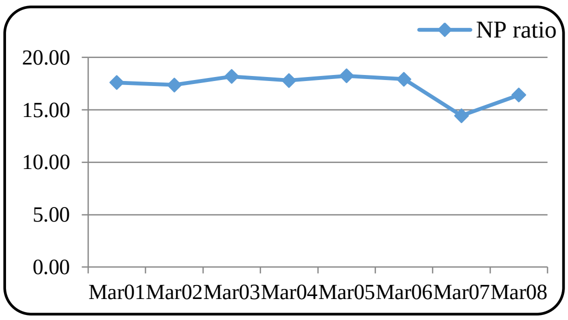
As depicted in table T.4.2.1 & Figure G.2.1.1, in Post-Merger period also fluctuating trend was observed. The average GP Ratio in Post-Merger period was 35.14% which was lower in comparison to Pre-Merger period.

The Standard Deviation of Post-Merger period was higher as compared to Pre-Merger period indicating that ratio was more fluctuating in Post-Merger period as compared to Pre-Merger period.

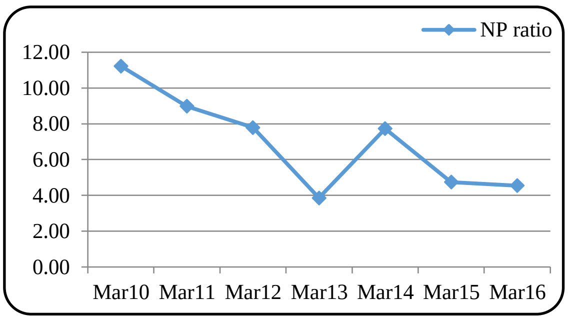
Net Profit Ratio [NPR]

As revealed in table T.4.2.1 & figure G.2.2 the Net Profit ratio showed fluctuating trend in Pre-Merger period. The average NP ratio in Pre-Merger period was 17.25%

G.2.2 NPR in Pre-Merger Period



G.2.2.1 NPR in Post-Merger Period



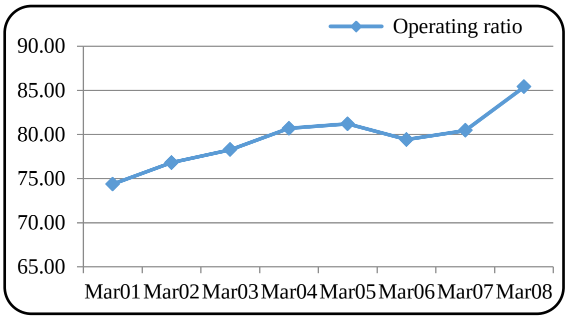
Source – TableT.42.1

In Post-Merger period too fluctuating trend was observed however, lowest NP ratio was noticed in 2012-2013. It was primarily due to a loss on foreign exchange hedging of Rs 484 million. The average NP Ratio in Post-Merger period was 6.98%. Overall it could be observed from table T.4.2.1 & Figure G.2.2.1 that there was decline in average NP ratio of Sample Company during Post-Merger period of study. The Standard Deviation of Post-Merger period was higher as compared to pre- merger period indicating that ratio fluctuated more in Post-Merger period as compared to Pre-Merger period.

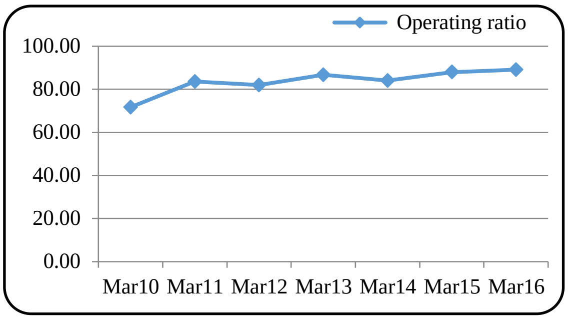
Operating Ratio [OR]

In the Pre-Merger period as exhibited in table T.4.2.1 & figure G.2.3, Operating ratio registered a fluctuating on an average Operating ratio was 79.58 %.

G.2.3 OR in Pre-Merger Period



G.2.3.1 OR in Post-Merger Period



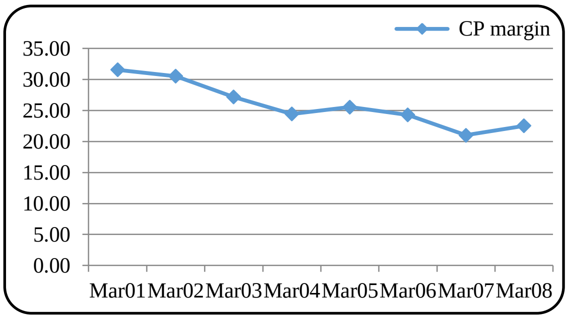
Source – Table T.4 2.1

During Post-Merger period also as revealed from table T.4.2.1 & figure G.2.3.1, that the Operating Ratio showed a fluctuating trend. The Average Operating ratio in Post-Merger period was 83.58%. Overall average Operating ratio increased during Post-Merger period. This shows that operating expenses were high in Post-Merger period as compared to Pre-Merger period. The Standard Deviation of Post-Merger period was higher as compared to Pre-Merger period indicating that ratio was more fluctuating in Post-Merger period as compared to Pre-Merger period.

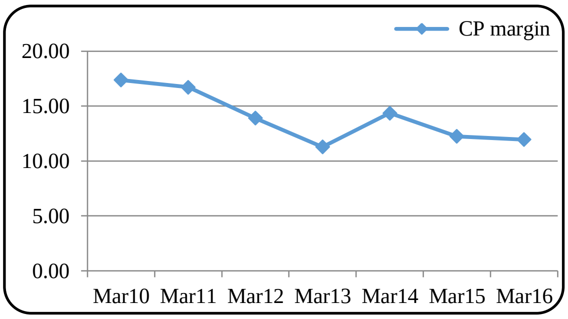
Cash Profit Margin [CPM]

In pre- merger period as disclosed in table T.4.2.1 & figure 2.4 Cash profit margin registered a fluctuating trend and on an Average it was 25.90%.

G.2.4 CPM in Pre-Merger Period



G.2.4.1. CPM in Post-Merger Period



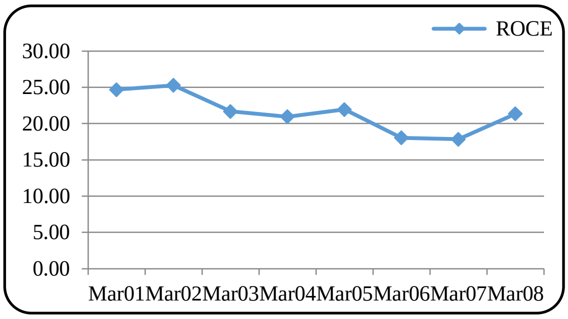
Source – Table T.4 2.1

During Post-Merger period also, exhibited by table T.4.2.1 & figure 2.4.1, Cash profit margin fluctuated. The Average cash profit margin in post period was 13.98 %. On an Average Cash profit margin declined in Post-Merger period. The Standard Deviation of Pre-Merger period was higher as compared to post merger period indicating that ratio was more fluctuating in Pre-Merger period as compared to Post-Merger period.

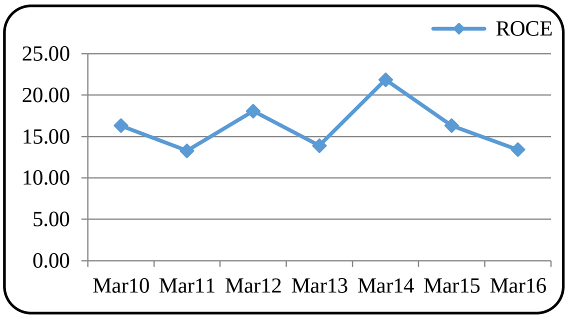
Return on Capital Employed [ROCE]

During the pre- merger period as exhibited in table T.4.2.1 & figure G.2.5, return on capital employed Ratio registered a fluctuating trend and on an Average it was 21.47%.

G.2.5 ROCE in Pre-Merger Period



G.2.5.1 ROCE in Post-Merger Period



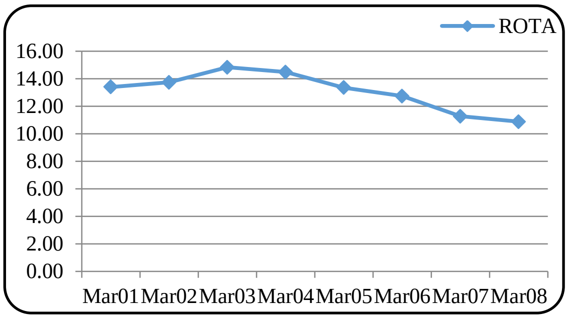
Source – Table T.4 2.1

During Post-Merger period also, as revealed in table T.4.2.1 & figure G.2.5.1, the ratio showed a fluctuating trend. The Average Return on capital employed ratio in Post-Merger period was 16.16 %. The Overall average ratio declined in Post-Merger period. The Standard Deviation of Post-Merger period was higher as compared to Pre-Merger period indicating that ratio was fluctuated more in Post-Merger period as compared to Pre-Merger period.

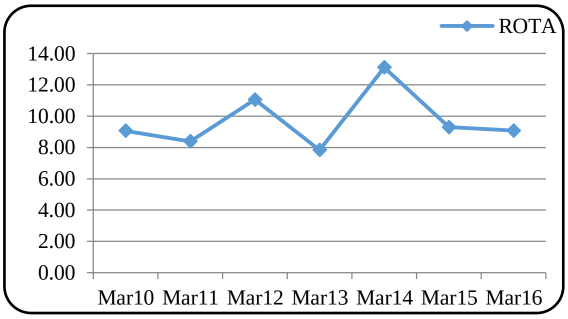
Return on Total Assets [ROTA]

In Pre-Merger period as depicted in table T.4.2.1 and figure G.2.6, return on Total assets ratio registered fluctuating trend overall Average Return on Total assets ratio 13.08%.

G.2.6 ROTA in Pre-Merger Period



G.2.6.1 ROTA in Post-Merger Period



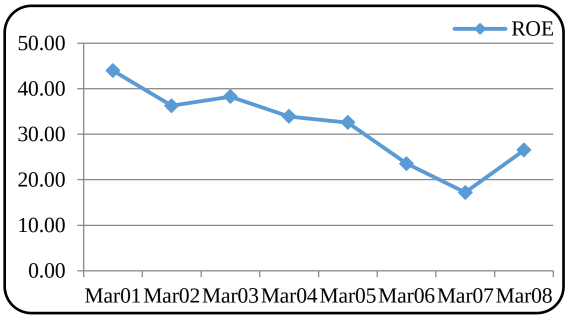
Source – Table T.4 2.1

As revealed in table T.4.2.1 & figure G.2.6.1, during Post-Merger period also the ratio fluctuated. The Average Return on Total assets in Post-Merger period was 9.69%. Average Return on Total assets declined in Post-Merger period. The Standard Deviation of Post-Merger period was higher as compared to Pre-Merger period indicating that ratio was more fluctuating in Post-Merger period as compared to Pre-Merger period.

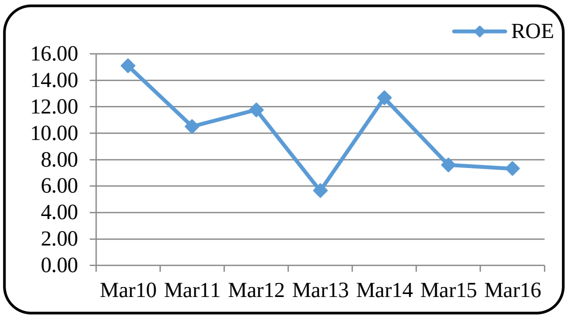
Return on Equity [ROE]

During the Pre-Merger period, as disclosed in table T.4.2.1 and figure G.2.7, the Return on Equity ratio was fluctuating and overall Average ratio was 31.52.

G.2.7 ROE in Pre-Merger Period



G.2.7.1 ROE in Post-Merger Period



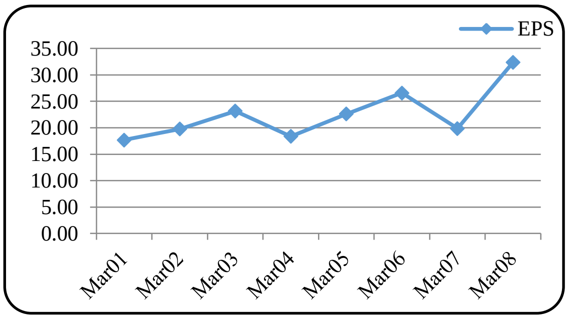
Source – Table T.4 2.1

As indicated in table T.4.2.1 & figure G.2.7.1, return on Equity registered a declining trend during post- merger period. Step decline was noticed in the year 2012- 2013 due to loss on foreign exchange hedging of Rs 484 million. The Average Return on Equity in Post-Merger period was 10.08 % which was quite low as compare to Pre-Merger period. The Standard Deviation of Pre-Merger period was higher as compared to post merger period indicating that ratio was more fluctuating in Pre-Merger period as compared to Post-Merger period.

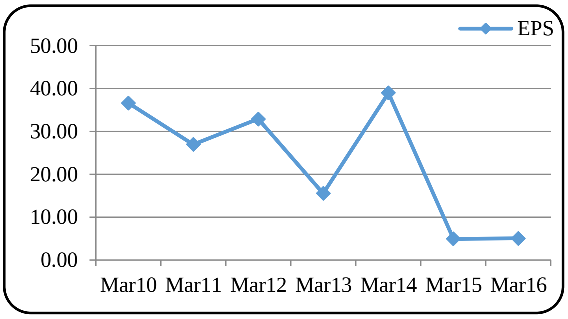
Earnings per Share [EPS]

In Pre-Merger period as exhibited in table T.4.2.1 and figure G.2.8, earnings per share registered a fluctuating trend. The decline in the year 2003- 2004 was due to issue of Bonus shares. The Average Earnings per share in Pre-Merger period was Rs 22.56.

G.2.8 EPS in Pre-Merger Period



G.2.8.1 EPS in Post-Merger Period



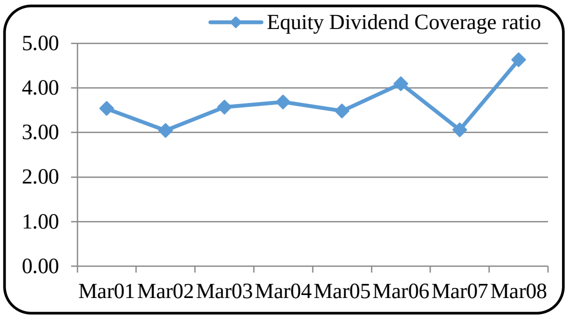
Source – Table T.4 2.1

During the Post-Merger period as revealed in table T.4.2.1 & figure G.2.8.1, EPS registered an overall declining trend. Overall Average Earnings per share in Post-Merger period was Rs 22.98. The Steep decline in EPS in the year 2014-2015 was due to subdivision of equity shares of Rs 10 each in to share of Rs 2 each. It was also observed that EPS had marginally increased in Post-Merger period & had no significant positive impact of merger on earnings of shareholders. The Standard Deviation of Pre-Merger period was lower as compared to post merger period indicating that ratio was more fluctuating in Post-Merger period as compared to Pre-Merger period.

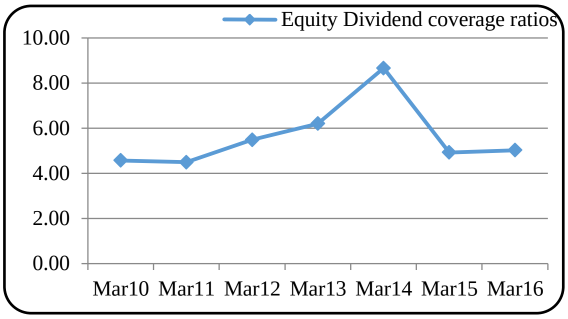
Equity Dividend Coverage Ratio [EDCR]

As revealed in table T.4.2.1 and figure G.2.9, the Equity dividend coverage ratio registered a fluctuating trend and ranged between 3 – 5 times during Pre-Merger period. The Average Equity Dividend coverage ratio in Pre-Merger period was 3.64 times.

G.2.9 EDCR in Pre-Merger Period



G.2.9.1 EDCR in Post-Merger Period



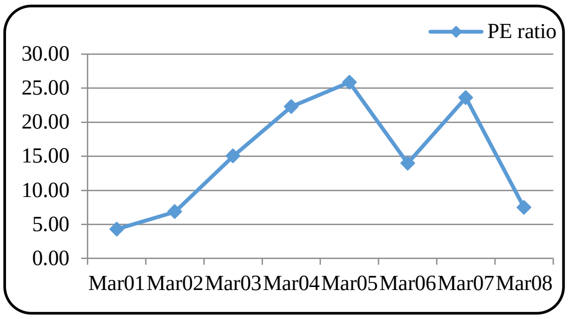
Source – Table T.4 2.1

During the Post-Merger period, as observed in table T.4.2.1 & figure G.2.9.1, equity Dividend coverage ratio fluctuated. The Average Equity dividend coverage ratio in Post-Merger period was 5.62 times. The ratio Increased in Post-Merger period. This showed that company maintain stable dividend policy in future due to improvement in Equity dividend coverage ratio. The Standard Deviation of Pre-Merger period was lower as compared to post merger period indicating that Equity dividend coverage ratio was more fluctuating in Post-Merger period as compared to Pre-Merger period.

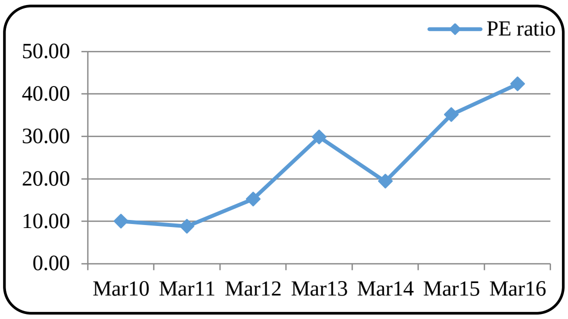
Price/Earnings Ratio [PE ratio]

In Pre-Merger period as exhibited in table T.4.2.1 and figure G.2.10, price earnings ratio increased up to 2004-2005 then fluctuated. Highest price earnings ratio noticed in 2004- 2005. The overall Average Price earnings ratio in Pre-Merger period was 14.91 times.

G.2.10 P/E ratio in Pre-Merger Period



G.2.10.1 P/E ratio in Post-Merger Period



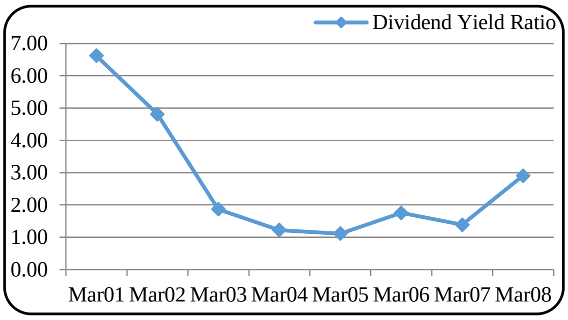
Source – Table T.4 2.1

As observed in table T.4.2.1 & in figure G.2.10.1, Price earnings ratio registered an overall increasing trend and was on an average 22.35 times. The steep rise in PE ratio during the year 2014-2015 and 2015-2016 was due to decrease in EPS as a result of share split. The Average Price earnings ratio was higher in Post-Merger period showing positive impact on perception of investors as shown by increase in market price per share. The Standard Deviation of Pre-Merger period was lower as compared to Post-Merger period indicates ratio fluctuated more in Post-Merger period as compared to Pre-Merger period.

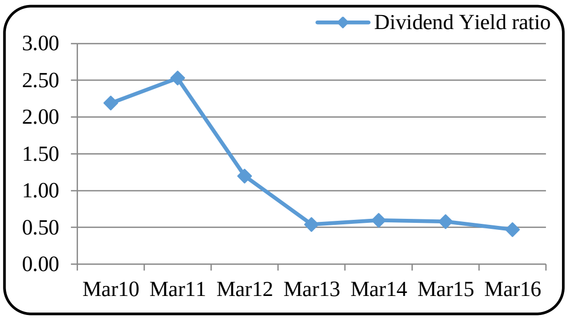
Dividend Yield Ratio [DY ratio]

In Pre-Merger period as disclosed in table T.4.2.1 and figure G.2.11, Dividend yield ratio registered an overall declining trend and was on an average 2.71 %.

G.2.11 DY ratio in Pre-Merger Period



G.2.11.1 DY Ratio in Post-Merger Period



Source – Table T.4 2.1

The declining trend continued in Post-Merger period also as exhibited by table T.4.2.1 & figure G.2.11.1. The Average Dividend yield ratio in Post-Merger period was 1.16 % which was lower as compared to Pre-Merger period. This shows that market price of share increased more in proportion to dividend per Equity share in Post-Merger period as compared to Pre-Merger period. The Standard Deviation of Pre-Merger period was higher as compared to post merger period indicating that ratio was more fluctuating in Pre-Merger period as compared to Post-Merger period.

Table No 4.2.2. on the next page shows calculation of various liquidity ratios of the sample acquirer company for the period under study.

4.2.3 Liquidity Ratios of Hikal ltd in Pre-Merger and Post-Merger Period

Table T.4 2.2 Liquidity Ratios in Pre-Merger and Post- Merger Period

Pre- Merger period (2000-01 to 2007-08)- 8 years											Post- Merger period (2009-10 to 2015-16)- 7years								
Liquidity Ratios	**Mar 2000-2001**	**Mar 2001-2002**	**Mar 2002-2003**	**Mar 2003-2004**	**Mar 2004-2005**	**Mar 2005-2006**	**Mar 2006-2007**	**Mar 2007-2008**	**Average ratio**	**Standard Deviation**	**Mar 2009-2010**	**Mar 2010-2011**	**Mar 2011-2012**	**Mar 2012-2013**	**Mar 2013-2014**	**Mar 2014-2015**	**Mar 2015-2016**	**Average ratio**	**Standard Deviation**
Current Ratio [Proportion]	0.61	0.56	1.13	1.13	0.91	1.46	1.04	0.81	0.96	0.29	0.89	0.79	0.79	0.81	1.06	0.97	1.25	0.94	0.17
Quick ratio [Proportion]	0.23	0.22	0.40	0.48	0.50	0.82	0.45	0.37	0.43	0.19	0.49	0.35	0.35	0.30	0.39	0.36	0.47	0.39	0.07
Super quick Ratio [Proportion]	0.07	0.01	0.04	0.03	0.02	0.28	0.05	0.01	0.06	0.09	0.03	0.02	0.01	0.03	0.06	0.03	0.05	0.03	0.017

Source – Annexure II and III

Liquidity Analysis

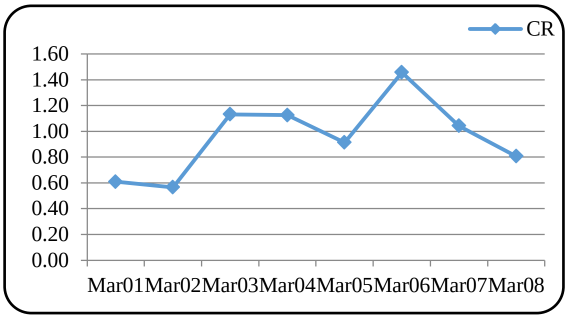
Table 4.2.2 reveals that calculation of various Liquidity ratios of Hikal Ltd. during Pre-Merger Period and Post-Merger Period.

The Liquidity of sample company is analyzed and interpreted using various Liquidity ratios based on Current assets and Current liabilities.

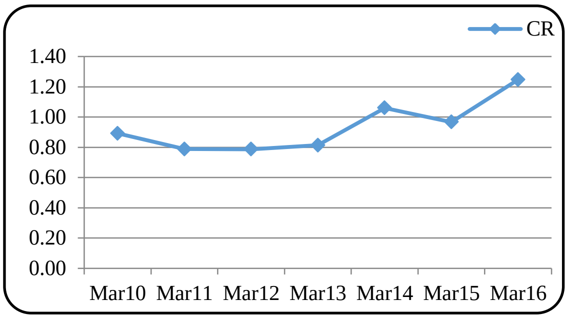
Current Ratio [CR]

In Pre-Merger period as exhibited in table T.4.2.2 & figure G.2.12, current ratio registered a fluctuating trend. It was highest in 2005- 2006 amounted at 1.46:1 owing to increase in cash and cash equivalent due to issue of preference share capital and foreign currency convertible bonds. The overall Average Current ratio in Pre-Merger period was 0.96:1.

G.2.12 CR in Pre-Merger Period



G.2.12.1. CR in Post-Merger Period



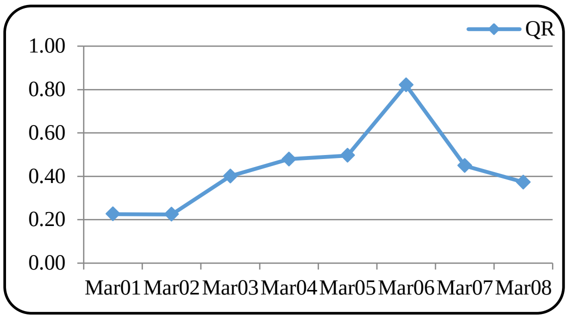
Source – Table T.4 2.2

As indicated in table T.4.2.2 & figure G.1.12.1, current ratio registered a fluctuating trend in Post-Merger Period. It was high at 1.25:1 in 2015-2016 which was due to reduction in short term borrowings. The Average Current ratio in Post-Merger period was 0.94:1. Average Current ratio in Post-Merger which was lower as compared to pre- merger period indicating decrease in liquidity position of sample company. The Standard Deviation of pre- merger period was higher as compared to post merger period indicating that ratio fluctuated in Pre-Merger period as compared to Post-Merger period.

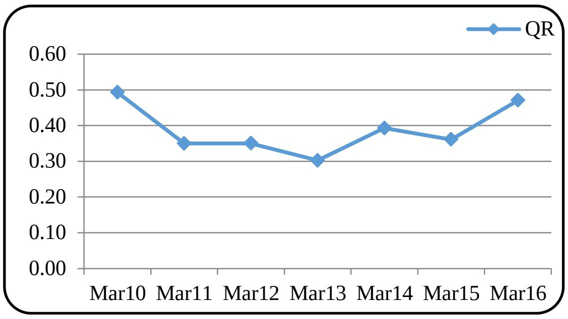
Quick Ratio [QR]

In Pre-Merger period as revealed in table T.4.2.2 and figure G.2.13., Quick ratio fluctuated and was highest in 2005-2006 at 0.82:1 owing to increase in cash and cash equivalent. The overall Average Quick ratio in Pre-Merger period was 0.43:1.

G.2.13 QR in Pre-Merger Period



G.2.13.1 QR in Post-Merger Period



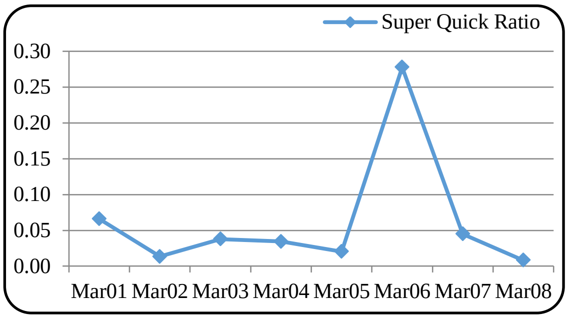
Source – Table T.4 2.2

During the Post-Merger period also as revealed in table T.4.2.2 & figure G.2.13.1, Quick ratio fluctuated and was highest in 2015-2016 on account of reduction in short term borrowings. The Average Quick ratio in was 0.39:1 lower as compared to Pre-Merger period indicating reduction in liquidity position. The Standard Deviation of Pre-Merger period was higher as compared to post merger period indicating that ratio was more fluctuating in Pre-Merger period as compared to Post-Merger period.

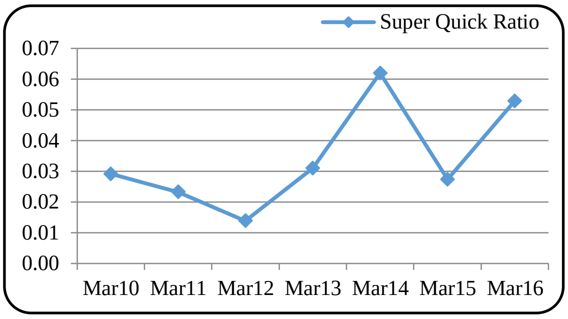
Super Quick Ratio [SQR]

During the Pre-Merger period as depicted in table T.4.2.2. and figure G.2.14, Super Quick ratio fluctuated and was highest in the year 2005- 2006 at 0.28:1. The overall Average Super Quick ratio in Pre-Merger period was 0.06:1.

G.2.14 SQR in Pre-Merger Period



G.2.14.1 SQR in Post-Merger Period



Source – Table T.4 2.2

During the post -merger period also, as disclosed in table T.4.2.2 & figure G.2.14.1, the ratio showed fluctuating trend. It was highest in 2015-2016 at 0.05:1. The Average Super Quick ratio in Post-Merger period was 0.03:1 which was quite low as compared to Pre-Merger period. This showed there was substantial decrease in absolute liquidity position of sample company. The Standard Deviation of Pre-Merger period was higher as compared to post merger period indicating that ratio fluctuated more in Pre-Merger period as compared to Post-Merger period.

Table No 4.2.3. on the next page shows calculation of various long term solvency ratios of the sample acquirer company for the period under study.

4.2.4 Long Term Solvency Ratios of Hikal Ltd during Pre-Merger and Post-Merger Period

Table T.4 2.3 Long Term Solvency Ratios in Pre-Merger and Post- Merger Period

Pre- Merger period (2000-01 to 2007-08)- 8 years											Post- Merger period (2009-10 to 2015-16)- 7years								
Long term solvency Ratios	**Mar 2000-2001**	**Mar 2001-2002**	**Mar 2002-2003**	**Mar 2003-2004**	**Mar 2004-2005**	**Mar 2005-2006**	**Mar 2006-2007**	**Mar 2007-2008**	**Average ratio**	**Standard Deviation**	**Mar 2009-2010**	**Mar 2010-2011**	**Mar 2011-2012**	**Mar 2012-2013**	**Mar 2013-2014**	**Mar 2014-2015**	**Mar 2015-2016**	**Average ratio**	**Standard Deviation**
Debt equity Ratio [Proportion]	1.70	1.01	1.14	0.77	0.69	0.60	0.35	0.61	0.86	0.42	0.40	0.55	0.49	0.49	0.50	0.38	0.53	0.48	0.06
Fixed asset Ratio [Proportion]	1.33	1.35	0.99	0.98	0.92	0.65	0.80	1.04	1.01	0.24	1.07	0.96	0.95	1.06	0.93	0.95	0.80	0.96	0.08
Proprietary Ratio [Proportion]	0.29	0.38	0.69	0.67	0.71	1.25	1.02	0.92	0.74	0.32	0.71	0.73	0.79	0.68	0.79	0.83	0.91	0.78	0.08
Interest coverage Ratio[Times]	4.46	5.41	6.08	9.52	7.23	5.22	5.80	6.85	6.32	1.57	3.57	3.03	2.60	2.38	3.25	3.07	2.94	2.98	0.39

Source – Annexure I, II and III

Long Term Solvency Analysis

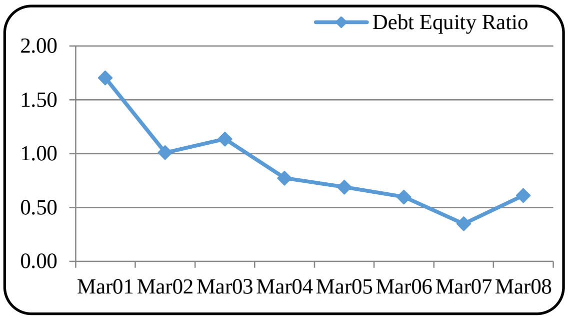
Table 4.2.3 reveals that calculation of various Long term solvency ratios of Hikal ltd during Pre-Merger Period and Post-Merger Period.

The Long term solvency of Sample Company is analyzed and interpreted using various Long term solvency ratios based on Long term debt, share capital, fixed assets, and Equity shareholders fund**.**

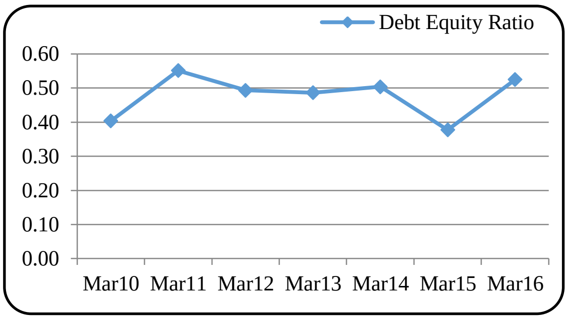
Debt Equity Ratio [DER]

In the Pre-Merger period as exhibited in table T.4.2.3 & figure G.2.15, Debt Equity ratio registered a declining trend and on average was 0.86:1.

G.2.15 DER in Pre-Merger Period



G.2.15.1 DER in Post-Merger Period



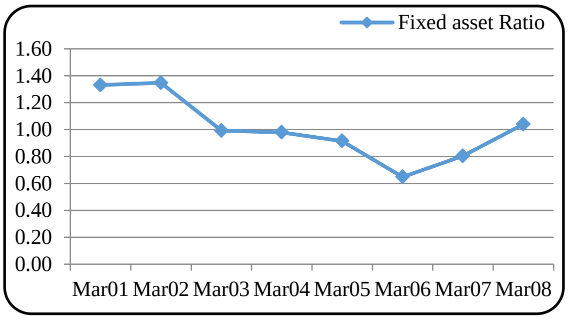
Source – Table T.4 2.3

During the Post-Merger period the ratio showed a fluctuating trend as revealed in table T.4.2.3 & figure G.2.15.1 and on an Average it was 0.48:1. During period of study the Average Debt Equity ratio was decreased in Post-Merger period which indicates that Debt funds gradually declined proportionately as compared to equity funds. The Standard Deviation of Pre-Merger period was higher as compared to post merger period indicating that the ratio fluctuated more in Pre-Merger period as compared to Post-Merger period.

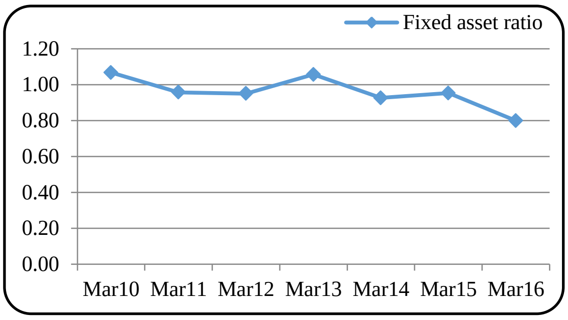
Fixed asset Ratio [FAR]

In Pre-Merger period as depicted in table T.4.2.3 and figure G.2.16, Fixed asset ratio showed a fluctuating trend and on an Average was 1.01:1.

G.2.16 FAR in Pre-Merger Period



G.2.16.1 FAR in Post-Merger Period



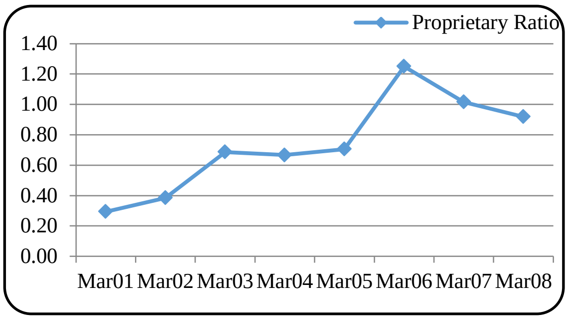
Source – Table T.4 2.3

As disclosed in table T.4.2.3 & figure G.2.16.1, during the Post-Merger period Fixed asset ratio fluctuated and on an average it was 0.96:1. The Average ratio decreased in the Post-Merger period indicating decrease in the usage of long term funds for financing fixed assets. The Standard Deviation of Pre-Merger period was higher as compared to post merger period indicating that ratio fluctuated more in Pre-Merger period as compared to Post-Merger period.

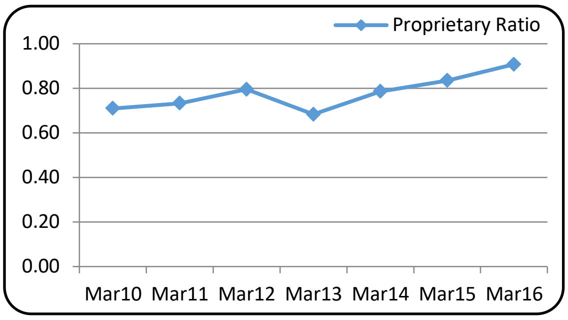
Proprietary Ratio [PR]

During the Pre-Merger period as revealed in table T.4.2.3 and figure G.2.17, Proprietary ratio showed a fluctuating trend and on an average ratio was 0.74:1.

G.2.17 PR in Pre-Merger Period



G.2.17.1 PR in Post-Merger Period



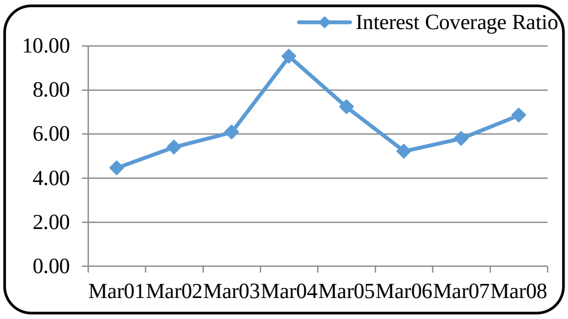
Source – Table T.4 2.3

During the Post-Merger period, as depicted in table T.4.2.3 & figure G.2.17.1, Proprietary ratio was increasing except for the year 2012- 2013 where marginal decline was observed. The Average Proprietary ratio in Post-Merger period was 0.78:1 indicating marginally increase in Post-Merger period leads to lower dependence on external funds. The Standard Deviation of pre- merger period was higher as compared to post merger period indicating that ratio fluctuated more in Pre-Merger period as compared to Post-Merger period.

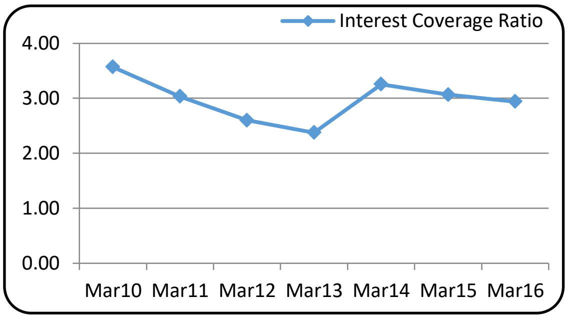
Interest Coverage Ratio [ICR]

In Pre-Merger period as disclosed in Table T.4.2.3 and figure G.2.18, Interest coverage ratio fluctuated. The ratio increased up to2003-2004 and thereafter with marginal up and down it was 6.85 times in 2007-2008.and on an average it was 6.32 times.

G.2.18 ICR in Pre-Merger Period



G.2.18.1 ICR in Post-Merger Period



Source – Table T.4 2.3

During the post- merger period the ratio was fluctuated, as disclosed in table T.4.2.3 & figure G.2.18.1 and on an Average ratio was 2.98 times indicating decrease in earnings after the merger. The Standard Deviation of pre -merger period was higher as compared to post merger period indicating that ratio fluctuated more in Pre-Merger period as compared to Post-Merger period.

Table No 4.2.4. on the next page shows calculation of various efficiency ratios of the sample acquirer company for the period under study.

4.2.5 Efficiency Ratios of Hikal ltd during Pre-Merger and Post-Merger Period

Table T.4.2.4 Efficiency Ratios in Pre-Merger period and Post- Merger Period

	Pre- Merger period (2000-01 to 2007-08)- 8 years										**Post- Merger period (2009-10 to 2015-16)- 7years**								
Efficiency Ratios	Mar 2000-2001	Mar 2001-2002	Mar 2002-2003	Mar 2003-2004	Mar 2004-2005	Mar 2005-2006	Mar 2006-2007	Mar 2007-2008	Average ratio	Standard Deviation	Mar 2009-2010	Mar 2010-2011	Mar 2011-2012	Mar 2012-2013	Mar 2013-2014	Mar 2014-2015	Mar 2015-2016	Average ratio	Standard Deviation
Capital turnover Ratio[Times]	0.92	1.04	0.98	1.07	1.06	0.82	0.88	1.00	0.97	0.089	0.96	0.75	1.01	0.98	1.09	1.16	1.05	1.00	0.13
Inventory turnover Ratio[Times]	1.99	1.91	1.99	2.43	2.30	1.75	1.32	1.45	1.89	0.380	1.75	1.78	2.44	1.84	1.92	1.92	2.11	1.97	0.24
Inventory to current asset Ratio[%]	62.90	60.24	64.57	57.44	45.72	43.68	56.99	53.80	55.67	7.592	44.68	55.62	55.53	62.83	62.94	62.68	62.31	58.09	6.79
Working capital turnover ratio[Times]	-3.31	-3.24	8.48	11.64	-36.67	2.99	13.40	-5.06	-1.47	15.904	-28.79	-7.07	-8.66	-7.54	17.36	718.09	8.62	98.86	273.44
Fixed asset TO Ratio[Times]	0.69	0.77	0.99	1.10	1.15	1.27	1.10	0.96	1.00	0.193	0.90	0.79	1.06	0.93	1.18	1.22	1.32	1.06	0.19
Debtors Turnover ratio[Times]	29.26	21.47	14.14	5.69	4.30	5.20	4.59	4.27	11.12	9.61	5.83	5.36	7.57	7.62	7.65	7.11	16.18	8.19	3.64

Source – Annexure I, II and III

Efficiency Analysis

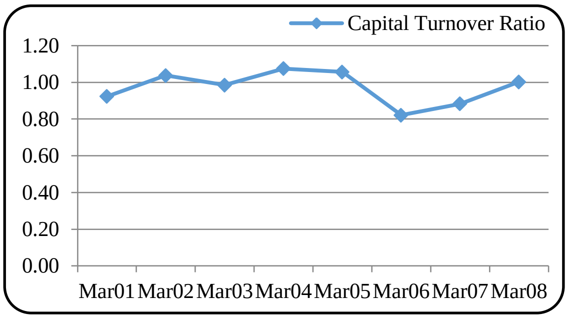
Table 4.2.4 reveals that calculation of various efficiency ratios of Hikal ltd during Pre-Merger Period and Post-Merger Period.

The efficiency ratios of sample company is analyzed and interpreted using various efficiency ratios based on sales and investment in Inventories, Fixed assets, working capital, debtors, total capital employed etc.

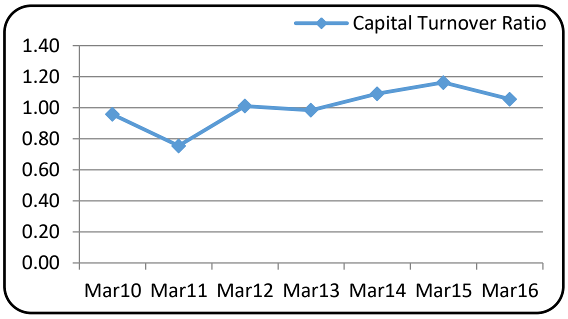
Capital turnover Ratio [CTOR]

In Pre-Merger period as exhibited in Table T.4.2.4 & figure G.2.19, Capital Turnover ratio remain almost the same with marginal variation. The Average Capital Turnover ratio in Pre-Merger period was 0.97 times.

G.2.19 CTOR in Pre-Merger Period



G.2.19.1 CTOR in Post-Merger Period



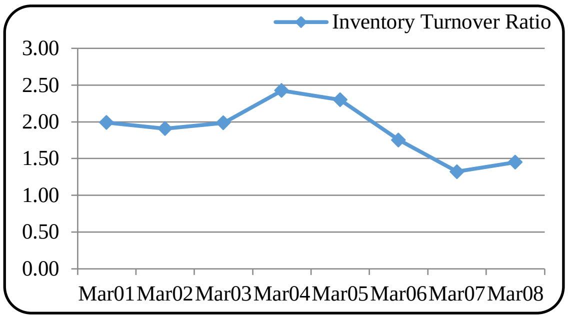
Source – Table T.4 2.4

During post- merger period also Capital Turnover Ratio remained constant, as depicted in Table T.4.2.4 & figure G.2.19.1. The Average Capital Turnover ratio in post- merger period was 1 times. The ratio showed marginal increase in the Post-Merger period as compared to Pre-Merger period. This indicated efficiency on the part of Hikal limited regarding effective utilization of capital employed for generating sales in post period. The Standard Deviation of pre -merger period was lower as compared to post merger period indicating that Capital turnover ratio was more fluctuating in Post-Merger period as compared to Pre-Merger period.

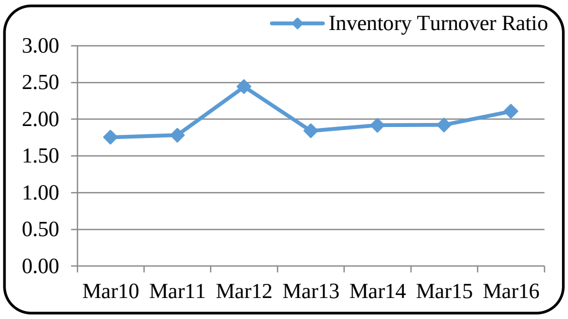
Inventory Turnover Ratio [ITOR]

In Pre-Merger period as disclosed in table T.4.2.4 and figure G.2.20, Inventory Turnover ratio fluctuated and on an average it was 1.89 times.

G .2.20 ITOR in Pre-Merger Period



G.2.20.1 ITOR in Post-Merger Period



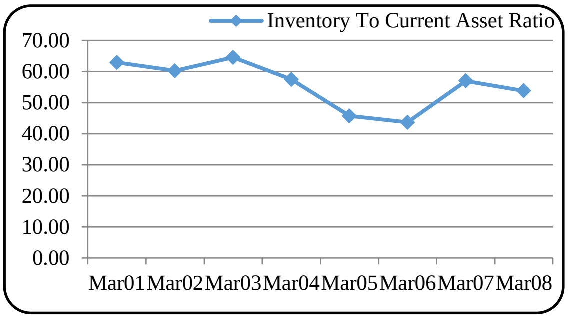
Source – Table T.4 2.4

During Post-Merger Period Inventory turnover ratio with marginal fluctuations almost remain same, as revealed in Table T.4.2.4 & figure G.3.20.1. The Average ratio in Post-Merger period was 1.97 times which was higher as compared to Pre-Merger period. This indicated efficient utilization of inventory in Post-Merger period. The Standard Deviation of Pre-Merger period was higher as compared to post merger period indicating that ratio fluctuated more in Pre-Merger period as compared to Post-Merger period.

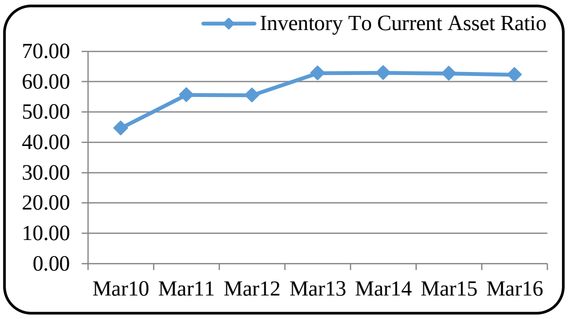
Inventory to Current Asset Ratio [ICAR]

In Pre-Merger period as exhibited in table T.4.2.4 and figure G.2.21., Inventory to current asset ratio showed fluctuating trend and on an Average it was 55.67%.

G.2.21 ICAR in Pre-Merger Period



G.2.21.1 ICAR in Post-Merger period



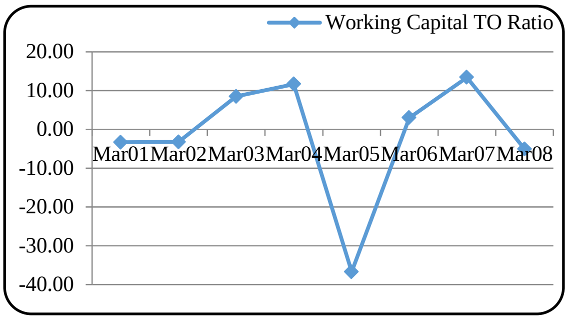
Source – Table T.4 2.4

As indicated in Table T.4.2.4 & figure G.2.21.1., During the Post-Merger period ratio was increasing marginally and on an Average it was 58.09%. This showed that there was increased investment in inventory over other current assets during Post-Merger period. The Standard Deviation of Pre-Merger period was higher as compared to post merger period indicating that ratio was more fluctuating in Pre-Merger period as compared to Post-Merger period.

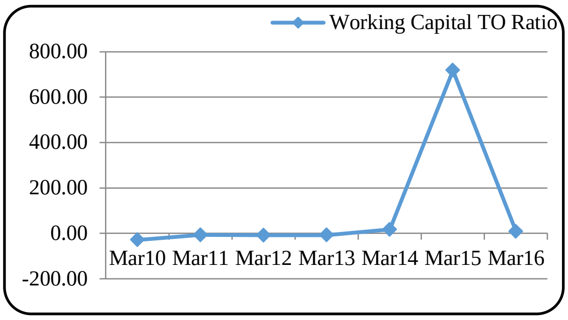
Working Capital Turnover Ratio [WCTOR]

In Pre-Merger period as revealed in table T.4.2.4 and figure G.2.22, Working capital turnover ratio was negative in majority of the years under study and on an Average it was-1.47 times.

G .2.22 WCTOR in Pre-Merger Period



G.2.22.1 WCTOR in Post-Merger Period



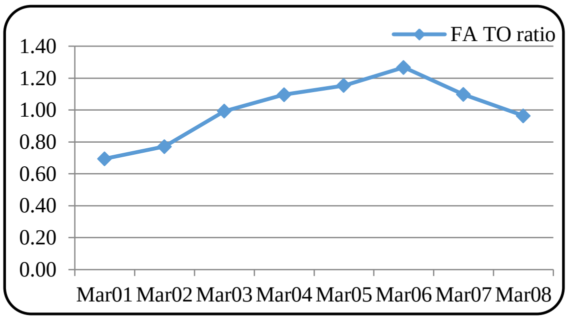
Source – Table T.4 2.4

As indicated in Table T.4.2.4 & figure G.2.22.1, during Post-Merger period, working capital turnover ratio was negative till 2012-2013 and thereafter steeply increased in 2014- 2015 due to change in net working capital. The Average working capital turnover ratio in post- merger period was 98.86 times. During period of study, in post- merger period Working capital turnover ratio was drastically increased as compared to pre- merger period. During Pre-Merger period average working capital turnover ratio was negative which showed more amount of current liabilities as compared to current assets however it had been significantly raised in Post-Merger period. However, working capital turned positive in post- merger period. The Standard Deviation of Pre-Merger period was lower as compared to post merger period indicating that working capital turnover ratio was more fluctuating in Post-Merger period as compared to Pre-Merger period.

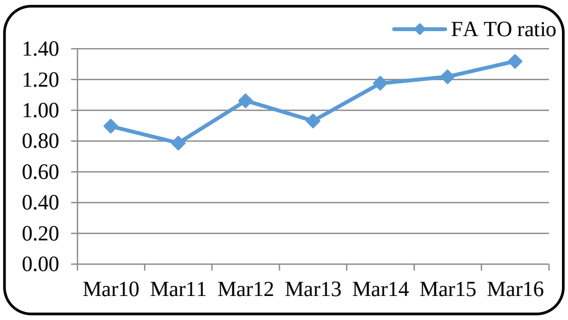
Fixed Asset Turnover Ratio [FATR]

In Pre-Merger period as depicted in table T.4.2.4 and figure G.2.23, Fixed asset turnover ratio showed overall increasing trend and on an Average it was 1 time.

G .2.23 FATR in Pre-Merger Period



G .2.23.1 FATR in Post-Merger Period



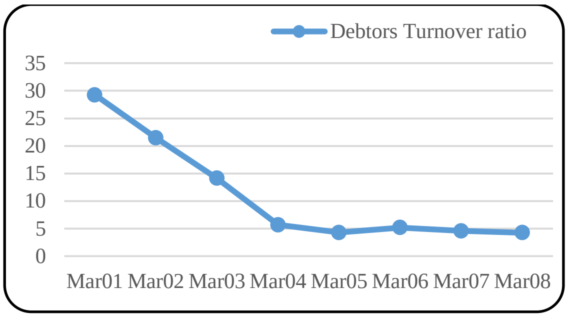
Source – Table T.4 2.4

As revealed in Table T.4.2.4 & figure G.2.23.1, During the Post-Merger period the ratio was registered an increasing trend. The Average ratio was 1.06 times which was marginally higher as compared to Pre-Merger period. This exhibited efficiency of sample company in using fixed assets to generate revenue. The Standard Deviation for both periods was almost same as fluctuations in both periods.

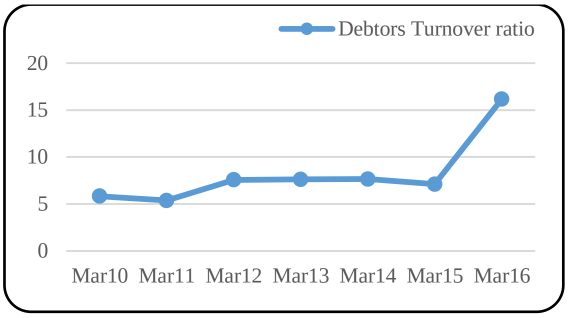
Debtors Turnover Ratio [DTOR]

In Pre-Merger period as disclosed in table T.4.2.4 and figure G.2.24, Debtors turnover ratio was declining till 2004-2005 and thereafter it remained stable and on an Average it was 11.12 times.

G .2.24 DTOR in Pre-Merger Period



G .2.24.1 DTOR in Post-Merger Period



Source – Table T.4 2.4

As indicated in Table T.4.2.4 & figure G.2.24.1, during Post-Merger period, Debtors turnover ratio fluctuated and on an Average was 8.19 times. The ratio decreased in post- merger as compared to pre-merger period exhibiting inefficiency of company in managing Debtors in Post-Merger period The Standard Deviation was higher in Pre-Merger period as compared to post merger period indicating that ratio was more fluctuating in Pre-Merger period as compared to Post-Merger period

4.2.6 Testing of Hypothesis

The hypothesis framed with reference to various Ratios [as mentioned in chapter 3, Hypothesis no 1 to 24] is tested applying one sample t- test at 5 % level of significance for measuring impact of merger. The table T4.2.5 shows hypothesis test results

Table T.4.2.5 Hypothesis Test Results

Sr. No	Ratio [HIKAL Limited]	Pre-Merger Average	Post-Merger Average	P Value	Null/Alternate Hypothesis Accepted
Profitability ratio					
1	GP ratio	41.00	35.14	*0.001	Alternate
2	NP margin	17.25	6.98	*0.001	Alternate
3	Operating ratio	79.58	83.58	*0.011	Alternate
4	Cash profit margin	25.90	13.98	*0.001	Alternate
5	Return on capital employed	21.47	16.16	*0.001	Alternate
6	Return on Total assets	13.08	9.69	*0.001	Alternate
7	Return on Equity	31.52	10.08	*0.001	Alternate
8	Earnings per share	22.56	22.98	0.816	Null
9	Equity dividend coverage ratio	3.64	5.62	*0.001	Alternate
10	Price earnings ratio	14.91	22.95	*0.029	Alternate
11	Dividend Yield ratio	2.71	1.16	0.064	Null
Liquidity ratios					
12	Current Ratio	0.96	0.94	0.882	Null
13	Quick Ratio	0.43	0.39	0.532	Null
14	Super Quick Ratio	0.06	0.03	0.323	Null
Long term solvency					
15	Debt Equity ratio	0.86	0.48	*0.038	Alternate
16	Fixed asset Ratio	1.01	0.96	0.593	Null
17	Proprietary Ratio	0.74	0.78	0.741	Null
18	Interest coverage ratio	6.32	2.98	*0.001	Alternate
Efficiency Ratios					
19	Capital Turnover ratio	0.97	1.00	0.398	Null
20	Inventory Turnover ratio	1.89	1.97	0.583	Null
21	Inventory to current asset ratio	55.67	58.09	0.397	Null
22	Working capital turnover ratio	-1.47	98.86	*0.001	Alternate
23	Fixed asset turnover ratio	1.00	1.06	0.441	Null
24	Debtors Turnover Ratio	11.12	8.19	0.417	Null

Source – Table T.4.2.1, T.4.2.2, T.4.2.3 and T.4.2.4

Profitability analysis

It could be clearly observed that merger did not improve the profitability of sample company in the Post-Merger Period as GP ratio, NP ratio, cash profit margin, return on capital employed ratio, return on total asset ratio and return on equity ratio declined on the other hand Operating ratio increased significantly. The Operating expenses increased more proportionately than sales resulting in overall reduction in the profitability was seen. Equity dividend coverage ratio and Price earnings ratio increased and changed significantly. In each of the above ratios the calculated ‘P’ value is less than 0.05 thus alternate hypothesis is accepted. However, other Profitability ratios did not change significantly as the calculated ‘P’ value is more than 0.05 thus null hypothesis is accepted.

Liquidity analysis

All three ratios viz current ratio, Quick ratio and super quick ratio declined in Post-Merger period but change was not significant as the calculated ‘P’ value is more than 0.05 thus null hypothesis is accepted.

Long term solvency analysis

As observed from the above table that Debt equity ratio and Interest coverage ratio declined and changed significantly in Post-Merger period as compared to Pre-Merger period. As the calculated ‘P’ value is less than 0.05 thus alternate hypothesis is accepted. However, other long term solvency ratios were not changed significantly as the calculated ‘P’ value is more than 0.05 thus null hypothesis is accepted.

Efficiency Ratios analysis

As observed from the above table that Inventory turnover ratio changed significantly in Post-Merger period as compared to Pre-Merger period. In the above ratio the calculated ‘P’ value is less than 0.05 thus alternate hypothesis is accepted. However, other Efficiency ratios were not changed significantly as the calculated ‘P’ value is more than 0.05 thus null hypothesis is accepted.

4.2.7. Composite Index Score

Composite Index score represents overall index for selected parameter. In case of Profitability higher the composite Index score better the performance and Vice-Versa. In case of Liquidity and Long term solvency Composite index score represent combine index considering selected ratios

4.2.7.1 Composite Index Score based on Profitability

Table T.4.2.6 Composite Index Score based on Profitability

Pre-Merger Period Profitability Index scores and Composite Index score									
YEAR	**GPR**	**NPR**	**OR**	**CPM**	**ROCE**	**ROTA**	**ROE**	**EPS**	**AVERAGE**
2000-2001	0.83	0.96	0.85	1.00	0.95	0.80	1.00	0.37	0.84
2001-2002	0.92	0.94	0.71	0.95	1.00	0.84	0.80	0.44	0.82
2002-2003	1.00	1.00	0.62	0.78	0.70	1.00	0.85	0.54	0.81
2003-2004	0.60	0.97	0.48	0.65	0.64	0.95	0.74	0.40	0.68
2004-2005	0.66	1.00	0.45	0.70	0.72	0.79	0.70	0.52	0.69
2005-2006	0.82	0.98	0.56	0.64	0.40	0.70	0.47	0.64	0.65
2006-2007	0.71	0.74	0.50	0.48	0.38	0.49	0.30	0.44	0.50
2007-2008	0.40	0.87	0.21	0.55	0.67	0.43	0.55	0.81	0.56
Average	**0.74**	**0.93**	**0.55**	**0.72**	**0.68**	**0.75**	**0.68**	**0.52**	**0.70**
Post-Merger Period Profitability Index scores and Composite Index score									
2009-2010	0.85	0.51	1.00	0.30	0.25	0.18	0.25	0.93	0.53
2010-2011	0.41	0.36	0.32	0.27	0.00	0.08	0.13	0.65	0.28
2011-2012	0.42	0.27	0.41	0.13	0.40	0.46	0.16	0.82	0.38
2012-2013	0.51	0.00	0.14	0.00	0.05	0.00	0.00	0.31	0.13
2013-2014	0.30	0.27	0.29	0.15	0.72	0.76	0.18	1.00	0.46
2014-2015	0.00	0.06	0.06	0.05	0.25	0.21	0.05	0.00	0.09
2015-2016	0.01	0.05	0.00	0.03	0.01	0.18	0.04	0.00	0.04
Average	**0.36**	**0.22**	**0.32**	**0.13**	**0.24**	**0.27**	**0.12**	**0.53**	**0.27**

Source – Table T.4.2.1

From the table T.4.2.6 it could be observed that Average index scores of Earning Per share improved in Post-Merger period as compared to Pre-Merger Period while the average index scores of other Profitability ratios declined in Post- merger period as compared to Pre-Merger period.

The Average Composite Index score based on profitability ratios decreased from 0.70 in the Pre-Merger period to 0.27 in the Post-Merger period. This decrease proved to be significant when tested applying Independent t- test at 5 % level of significance. As disclosed in Table no.4.2.7 below The Calculated 'P' value is 0.001 indicating that alternate hypothesis is accepted.

Table T.4.2.7 Independent t- test results of Profitability composite index score

Index score based on profitability	Pre-Merger/ Acquisition Period	Post-Merger/ Acquisition Period	Probability value based on Independent t- test	Hypothesis accepted
Composite Index score	0.70	0.27	*0.001	Alternate

Source – Table T.4.2.6

4.2.7.2 Composite index score based on Liquidity

Table T.4.2.8 Composite Index score based on Liquidity

Pre-Merger Period Liquidity Index scores and Composite Index score							
YEAR	**CR**	**QR**	**SQR**	**ITOR**	**WCTOR**	**DTOR**	**AVERAGE**
2000-2001	0.05	0.00	0.21	0.60	0.04	1.00	0.32
2001-2002	0.00	0.00	0.02	0.52	0.04	0.69	0.21
2002-2003	0.64	0.30	0.11	0.59	0.06	0.39	0.35
2003-2004	0.63	0.43	0.10	0.99	0.06	0.06	0.38
2004-2005	0.39	0.46	0.04	0.87	0.00	0.00	0.29
2005-2006	1.00	1.00	1.00	0.39	0.05	0.04	0.58
2006-2007	0.54	0.38	0.14	0.00	0.07	0.01	0.19
2007-2008	0.27	0.25	0.00	0.11	0.04	0.00	0.11
Average	**0.44**	**0.35**	**0.20**	**0.51**	**0.05**	**0.27**	**0.30**
Post-Merger Period Liquidity Index scores and Composite Index score							
2009-2010	0.37	0.45	0.08	0.39	0.01	0.06	0.23
2010-2011	0.25	0.21	0.06	0.41	0.04	0.04	0.17
2011-2012	0.25	0.21	0.02	1.00	0.04	0.13	0.28
2012-2013	0.28	0.13	0.08	0.46	0.04	0.13	0.19
2013-2014	0.56	0.28	0.20	0.53	0.07	0.14	0.30
2014-2015	0.45	0.23	0.07	0.54	1.00	0.11	0.40
2015-2016	0.77	0.41	0.17	0.70	0.06	0.48	0.43
Average	**0.42**	**0.28**	**0.10**	**0.58**	**0.18**	**0.16**	**0.28**

Source – Table T.4.2.2 and T.4.2.4

Table 4.2.8 depicts the composite index score based on liquidity. It is clearly evident that average index score of Inventory turnover ratio and working capital turnover ratio increased in Post-Merger ratio as compared to Pre-Merger ratio. However, Average Composite Index score based on liquidity ratios declined from 0.30 in Pre-Merger period to 0.28 in Post-Merger period for Hikal Ltd. This decrease proved to be insignificant when tested applying Independent t- test at 5 % level of significance. As disclosed in Table no.4.2.9 below The Calculated 'P' value is 0.75 indicating that Null hypothesis is accepted.

Table T.4.2.9 Independent t- test results of Liquidity composite index score

Index score based on Liquidity	Pre-Merger Period	Post-Merger Period	P. value based on Independent t-test	Hypothesis accepted
Composite Index score	0.30	0.28	0.75	NULL

Source – Table T.4.2.8

4.2.7.3 Composite Index Score based on Long Term Solvency

Table T.4.2.10 Composite Index Score based on Long Term Solvency

Pre-Merger Period Long Term Solvency Index scores and Composite Index score				
YEAR	**DER**	**FAR**	**PR**	**AVERAGE**
2000-2001	1.00	0.98	0.00	0.66
2001-2002	0.49	1.00	0.10	0.53
2002-2003	0.58	0.49	0.41	0.49
2003-2004	0.31	0.47	0.39	0.39
2004-2005	0.25	0.38	0.43	0.35
2005-2006	0.18	0.00	1.00	0.39
2006-2007	0.00	0.22	0.76	0.33
2007-2008	0.19	0.56	0.65	0.47
Average	0.38	0.51	0.47	**0.45**
Post-Merger Period Long Term Solvency Index scores and Composite Index score				
2009-2010	0.04	0.60	0.43	0.36
2010-2011	0.15	0.44	0.46	0.35
2011-2012	0.11	0.43	0.52	0.35
2012-2013	0.10	0.58	0.41	0.36
2013-2014	0.11	0.40	0.51	0.34
2014-2015	0.02	0.44	0.57	0.34
2015-2016	0.13	0.22	0.64	0.33
Average	0.10	0.44	0.51	**0.35**

Source – Table T.4.2.3

Table T.4.2.10 depicts composite index score based on long term solvency depicts that average index scores based on proprietary ratio increased in Post-Merger period whereas average index score based on other Long term solvency ratios declined in Post-Merger period as compared to Pre-Merger period.

Average composite index score based on Long term solvency decreased from 0.45 in Pre-Merger period to 0.35 in Post-Merger period. This decrease proved to be significant when tested applying Independent t- test at 5 % level of significance. As disclosed in Table no.4.2.11 below The Calculated 'P' value is 0.03 indicating that alternate hypothesis is accepted.

Table T.4.2.11 Independent t- test results of Long term solvency composite index score

Index score based on Long term solvency ratios	Pre-Merger Period	Post-Merger Period	Probability value based on Independent t- test	Hypothesis accepted
Composite Index score	0.45	0.35	*0.03	Alternate

Source - Table T.4.2.10

4.2.8 Economic Value Added [EVA] and Market Value Added [MVA]

The shareholder's wealth measurement has been carried out by calculating EVA and MVA of the sample company for Pre-Merger and Post-Merger period of study**.**

4.2.8.1 Economic Value Added [EVA]

The Table no T.4.2.12shows the calculation of EVA of the sample company for Pre and Post-Merger period of study. The Table depicts that the average EVA in Pre-Merger period was Rs 168.47 Million while the average EVA in the Post-Merger period amounted to Rs 33.89 Million. The Post-Merger Average EVA decreased as compared to Pre-Merger period indicating that merger did not helped company to improve its performance.

Table T.4.2.12 Economic Value Added [EVA] of Hikal Ltd [Rs in Millions]

Particulars	NOPAT	Ke	Kp	Kd	EVA
2000-2001	264.05	52.82	3.2	57.419	150.61
2001-2002	264.62	68.81	0	51.008	144.81
2002-2003	294.39	75.32	0	41.304	177.76
2003-2004	316.94	103.59	0	27.400	185.94
2004-2005	376.59	125.77	0	46.092	204.73
2005-2006	508.11	160.49	11.5	83.190	252.93
2006-2007	430.07	185.63	32.9	71.245	140.30
2007-2008	412.85	238.00	4.8	79.417	90.64
Total	2867.62	1010.43	52.4	457.075	1347.72
Average EVA in Pre-Merger period					**168.47**
2009-2010	1554.11	498.27	0	229.91	825.92
2010-2011	795.73	534.41	0	278.60	-17.29
2011-2012	1194.86	582.75	0	432.54	179.58
2012-2013	797.89	555.56	0	395.25	-152.92
2013-2014	982.67	693.01	0	448.89	-159.24
2014-2015	831.96	650.36	0	392.65	-211.05
2015-2016	870.96	692.07	0	406.63	-227.74
Total	7028.18	4206.43	0	2584.47	237.26
Average in Post-Merger period					**33.89**

Source – Annexure – I, II, III and VI

4.2.8.2 Market Value Added [MVA]

The Table no T.4.2.13 shows the calculation of MVA of the sample company for Pre and Post-Merger period of study. The Table depicts that the average MVA in Pre-Merger period was Rs 3278.117Millions while the average MVA in the Post-Merger period amounted to 2489.996 Million. The Post-Merger Average MVA decreased as compared to Pre-Merger period from which it could be concluded that merger had not helped company to improve its performance.

Table T.4.2.13 Market Value Added [MVA] of Hikal Ltd

Year	Market Capitalization	Share cap	Res and surplus	SF	MVA
2000-2001	879.67	100.527	312.301	412.828	466.842
2001-2002	1030.47	100.527	447.604	548.131	482.339
2002-2003	946.53	100.527	508.289	608.816	337.714
2003-2004	4951.17	150.794	666.623	817.417	4133.753
2004-2005	5709.32	150.801	896.434	1047.235	4662.085
2005-2006	9087.65	150.8	1140.1	1290.9	7796.75
2006-2007	5440.52	150.8	1342.3	1493.1	3947.42
2007-2008	6258.24	150.8	1709.41	1860.21	4398.03
Total	**34303.57**	**1055.576**	**7023.061**	**8078.637**	**26224.933**
Average MVA in Pre-Merger period					**3278.117**
2009-2010	6091.06	164.4	3824.19	3988.59	2102.47
2010-2011	4837.91	164.4	4052.41	4216.81	621.1
2011-2012	4433.07	164.4	4433.78	4598.18	-165.11
2012-2013	6593.71	164.4	4348.08	4512.48	2081.23
2013-2014	7732.19	164.4	4894.65	5059.05	2673.14
2014-2015	11460.8	164.4	5170.34	5334.74	6126.06
2015-2016	9640.06	164.4	5484.58	5648.98	3991.08
Total	**50788.8**	**1150.8**	**32208.03**	**33358.83**	**17429.97**
Average MVA in Post-Merger period					**2489.996**

Source – Annexure – I, II and III

The hypothesis framed with reference to EVA and MVA [as mentioned in chapter 3, the Hypothesis no 28 & 29] tested applying one sample t- test at 5 % level of significance in the table below depicts that calculated 'P' value is less than 0.05 in case of EVA and more than 0.05 in case of MVA. The 'P' value for EVA is 0.001 while that for MVA is 0.428. Hence alternate hypothesis is accepted in case of EVA and Null hypothesis is accepted in case of MVA. It can be concluded that the merger had significant impact on EVA and no significant impact on MVA of the sample company.

Table T.4.2.14 Hypothesis One Sample t- Test Results

Particulars	Pre-Merger Average [Rs. in Millions]	Post-Merger Average [Rs. in Millions]	p value	Hypothesis accepted
EVA	168.47	33.89	*< .001	Alternate
MVA	3278.117	2489.996	0.428	Null

Source – Table 4.2.12 and Table 4.2.13

4.2.9 Altman Z Score

The financial health of the sample company in Pre and Post- merger period is also assessed using Altman Z score model. The Altman Z score calculated using following formula-

$$\zeta = \mathbf{1.2A + 1.4B + 3.3C + 0.6D + 1.0E}$$

The calculated the Altman Z score as depicted in annexure IV and V for Pre-Merger period was 2.069069 while that of Post-Merger Period was 1.822886.

The financial health of the sample company in Pre and Post-Merger period is in Grey area as the Altman Z score is less than 3 but more than 1.8. The decrease in ALTMAN Z score in the Post-Merger period as compared to Pre-Merger period indicates that the Merger has not helped the company to improve the financial health as also reflected by decrease in Market price of share during Post-Merger period.

4.2.10 Regression Analysis

Considering one dependent variable i.e. Net profit and 9 independent variables viz Cost of goods sold, operating expenses, Finance cost, Capital employed, Long term borrowings, Shareholders fund, working capital, Current assets, fixed assets of the sample company during Pre and Post-Merger period, regression analysis is carried out in this part of study.

Using Regression Model the Multiple Linear Regression for Pre and Post- merger was constructed.

4.2.10.1 Pre- Merger Period Regression Equation

Table T.4.2.15 Model Summary of Pre-Merger Period

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.973[a]	0.947	0.938	26.99249

a. Predictors: (Constant), Operating expense

Source – Annexure – I, II and III

Evaluating overall performance of the model based on the ANOVA table, considering the significant value it can be concluded that model is significant as the value is less than 0.05. as shown in the table below (Table T.4.2.16)

Table T.4.2.16 ANOVA [Pre-Merger Period]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	77864.672	1	77864.672	106.870	0.000[b]
	Residual	4371.567	6	728.595		
	Total	82236.239	7			

a. Dependent Variable: NP

b. Predictors: (Constant), Operating expense

Source – Annexure – I, II and III

Table T.4.2.17 Coefficients [Pre-Merger Period]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	52.954	26.596		1.991	0.094
	Operating expense	0.679	0.066	0.973	10.338	0.000

a. Dependent Variable: NP

Source – Annexure – I, II and III

Pre-Merger period regression equation

NP=52.594+0.679 OE

4.2.10.2 Post- Merger Period Regression Equation

Table T.4.2.18 Model Summary [Post-Merger Period]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.980[a]	0.960	0.920	37.47840

a. Predictors: (Constant), WC, Finance cost, Operating exp.

Source – Annexure – I, II and III

Evaluating overall performance of the model based on the ANOVA table, considering the significant value it can be concluded that model is significant as the value is less than 0.05. as shown in the table below

Table T.4.2.19 ANOVA [Post-Merger Period]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	101677.205	3	33892.402	24.129	0.013[b]
	Residual	4213.891	3	1404.630		
	Total	105891.096	6			

a. Dependent Variable: NP

b. Predictors: (Constant), WC, Finance cost, Operating expense

Source – Annexure – I, II and III

Table T.4.2.20 Coefficients [Post-Merger Period]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	675.411	74.227		9.099	0.003
	Finance cost	1.509	0.253	1.425	5.978	0.009
	Operating exp.	-0.769	0.096	-2.045	-8.004	0.004
	WC	0.140	0.024	0.763	5.748	0.010

a. Dependent Variable: NP

Source – Annexure – I, II and III

$$NP= 675.411+1.509FC-0.769OE+0.140WC$$

From the above facts it could be analyzed that Operating expense was only variable affecting net profit in Pre-Merger period but in post- merger period along with operating expenses, finance cost and working capital was also affecting net profit of sample company. Operating expenses is the common independent variable affecting profitability in terms of Net profit in Pre-Merger and Post-Merger period of sample company being identified by multiple linear regression equation. Correlation coefficient between NP and operating expenses in Pre-Merger period is 0.97 and in Post-Merger period it is -0.46. Correlation coefficient between Net profit and Operating expenses in Pre-Merger period was high and positive whereas in Post-Merger period it turned low and negative. It could be interpreted that operating expenses were incurred in Pre-Merger period that was required to meet increasing sales however in Post-Merger period operating expenses were more as compared to resultant sales thus not helping company to improve profitability in terms of Net profit.

R^2 During Pre-Merger period is slightly lower than Post-Merger period.

4.3 CASE 3 – ACQUIRER COMPANY : J B CHEMICALS & PHARMACEUTICALS LTD.

4.3.1 Background of the Company

JB Chemicals & Pharmaceuticals Limited (JBCPL) is India's fastest growing professionally managed global pharmaceutical company with its headquarters in Mumbai, Maharashtra state in India. It was established in 1976 by Mr. JB Mody and his brothers, Mr. DB Mody and Mr. SB Mody. The company is involved in manufacturing and marketing of pharmaceutical formulations, herbal remedies and active pharmaceutical ingredients domestically as well as worldwide including nations like the United States, Europe, Australia, South Africa, other developing countries such as Russia and CIS. Company deals in pharmaceutical specialty products in various dosage forms, herbal remedies, diagnostics, generic drugs and active pharmaceutical ingredients (APIs). Some of the products have leadership positions in the Indian and foreign markets.

The merger of J B Chemicals & Pharmaceuticals Ltd. and Lekar Healthcare Ltd, a wholly owned subsidiary company of JBCPL took place on 6th February 2007. The motive of amalgamation was expansion and development of business and gaining the benefits of collaborations and managerial expertise. The Hon'ble High Court of Bombay had sanctioned the Scheme of amalgamation in 2007.

The subsequent part of chapter covers analysis of the financial performance of JB Chemicals & Pharmaceuticals Limited for Pre-Merger and Post-Merger period.

The period of study covers 16 years commencing from 2000-2001 to 2015-2016.

Period of study - 2000-2001 to 2015-2016

Pre-Merger period - 2000-2001 to 2005-2006

Post- Merger period - 2007-2008 to 2015-2016

Merger Year/Zero Year-2006-2007

Table No 4.3.1. on the next page shows calculation of various profitability ratios of the sample acquirer company for the period under study.

4.3.2 Profitability Ratios of J B Chemical and Pharmaceutical ltd during Pre-Merger and Post-Merger Period

Table T.4 3.1 Profitability Ratios in Pre-Merger and Post- Merger Period

Pre- Merger period (2000-01 to 2005-06)- 6 years									Post- Merger period (2007-08 to 2015-16)- 9 years										
Profitability Ratios	**Mar 2000-2001**	**Mar 2001-2002**	**Mar 2002-2003**	**Mar 2003-2004**	**Mar 2004-2005**	**Mar 2005-2006**	**Average ratio**	**Standard Deviation**	**Mar 2007-2008**	**Mar 2008-2009**	**Mar 2009-2010**	**Mar 2010-2011**	**Mar 2011-2012**	**Mar 2012-2013**	**Mar 2013-2014**	**Mar 2014-2015**	**Mar 2015-2016**	**Average ratio**	**Standard Deviation**
GP Ratio [%]	46.41	49.55	51.52	50.34	53.02	51.54	50.40	2.28	51.59	58.88	58.70	57.80	46.78	44.24	45.64	42.80	44.92	50.15	6.69
NP Ratio [%]	13.91	16.09	17.65	17.08	16.69	15.35	16.13	1.35	9.47	10.92	15.12	14.71	94.13	10.44	7.18	10.74	15.42	20.90	27.60
Operating ratio [%]	85.15	83.35	79.33	81.37	83.58	83.28	82.67	2.03	90.21	78.35	82.16	81.34	88.80	88.17	86.57	84.86	83.59	84.90	3.90
Cash profit margin [%]	16.14	18.35	20.32	20.24	19.65	17.67	18.73	1.65	12.59	13.74	18.29	17.53	97.40	13.44	10.03	14.30	18.96	24.03	27.67
ROCE [%]	25.34	28.05	27.38	26.63	22.96	24.62	25.83	1.89	12.50	17.41	19.61	20.84	86.30	11.12	9.55	16.30	20.70	23.81	23.79
ROTA [%]	20.45	22.23	21.86	19.00	17.22	17.60	19.73	2.13	9.59	14.22	16.37	17.10	99.77	13.46	12.42	19.47	22.83	25.03	28.30
ROE [%]	19.53	22.09	21.47	20.50	20.67	21.29	20.92	0.89	11.16	14.80	16.47	16.57	67.38	8.42	6.53	11.18	15.45	18.66	18.62
EPS [Rs]	19.45	26.18	30.22	31.78	36.83	8.83	25.55	10.05	6.13	9.34	11.98	13.98	75.87	10.03	8.08	13.39	20.80	18.84	21.80
Equity dividend coverage ratio [Times]	3.89	3.49	3.78	2.89	3.07	3.30	3.40	0.39	12.28	9.34	5.98	6.99	1.85	3.34	2.69	0.96	4.16	5.29	3.73
Price earnings ratio [Times]	6.29	6.93	11.96	15.35	2.47	10.20	8.87	4.575	6.56	6.48	11.79	4.57	1.23	12.89	24.95	20.70	16.86	11.78	7.89
Dividend Yield ratio [%]	4.09	4.13	2.21	2.26	13.18	2.97	4.81	4.187	1.24	1.65	1.42	3.14	43.90	2.32	1.49	5.05	1.43	6.85	13.95

Source – Annexure I, II and III

Profitability Analysis

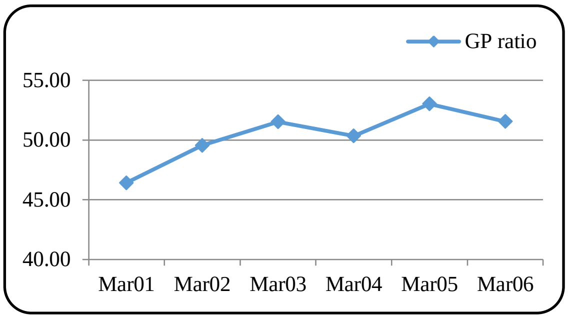
Table 4.1.1 reveals the calculation of various profitability ratios of JB Chemicals & Pharmaceuticals Limited during Pre-Merger Period and Post-Merger Period.

The Profitability of sample company is analyzed and interpreted using various profitability ratios based on sales and Investment

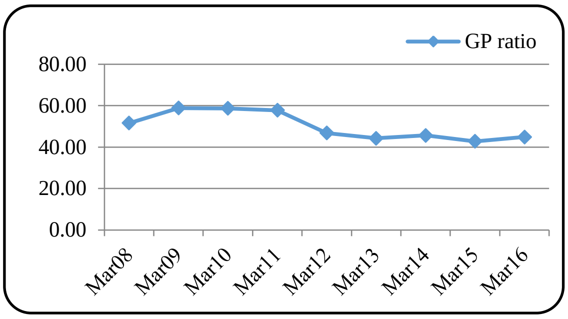
Gross profit Ratio [GPR]

As exhibited in table T. 4.3.1 and figure G.3.1, GP ratio showed an overall increasing trend in Pre - merger period. It was highest in 2004-2005 at 53.02% and on an average GP ratio in the Pre-Merger period was 50.40%.

G 3.1GPR in Pre-Merger Period



G 3.1.1 GPR in Post-Merger Period



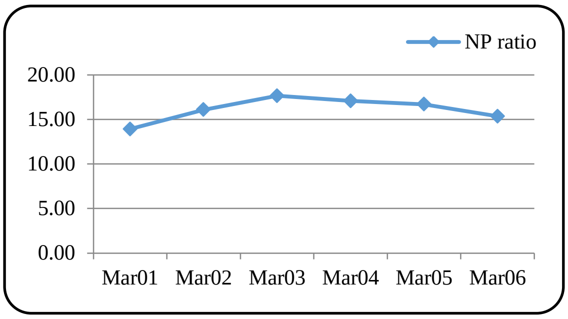
Source- Table T.4 3.1

In the Post- Merger period shown in table T. 4.3.1 & figure G3.1.1 GP ratio was fluctuated, highest GP ratio being found in 2008-2009 i.e. 58.88%. The average GP ratio in Post-Merger period was 50.15%which was marginally lower as compared to Pre-Merger period. The Standard Deviation of Pre-Merger period was lower as compared to post merger period indicating that ratio fluctuated more in Post-Merger period as compared to Pre-Merger period.

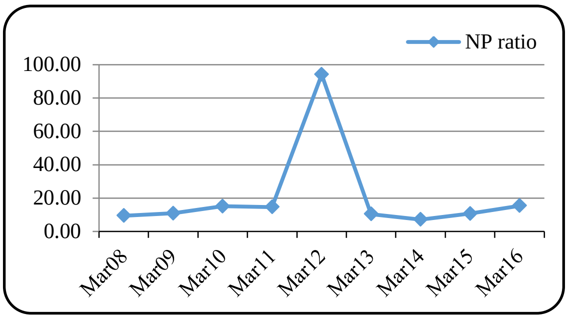
Net Profit Ratio [NPR]

As disclosed by Table T. 4.3.1 and figure G3.2 Net profit ratio fluctuated in Pre-Merger period and was on an average 16.13%. It was highest in the year 2002-2003 which resulted to 17.65%.

G 3.2 NPR in Pre-Merger Period



G 3.2.1 NPR in Post-Merger Period



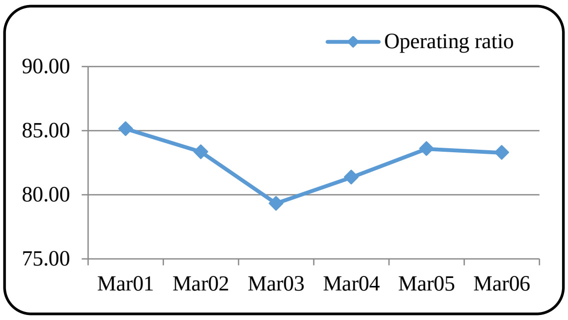
Source – Table T.4 3.1

In post- merger period also as depicted in in table T. 4.3.1 & figure G.3.2.1 Net profit ratio fluctuated. It was highest in 2011- 2012 to 94.13% due to exceptional income in nature of profit on sale of OTC Business Undertaking in Russia-CIS Countries. The Average ratio in Post-Merger period was 20.19% being higher than Pre-Merger period. The Standard Deviation of Pre-Merger period was lower as compared to post merger period indicating that ratio fluctuated more in Post-Merger period as compared to Pre-Merger period

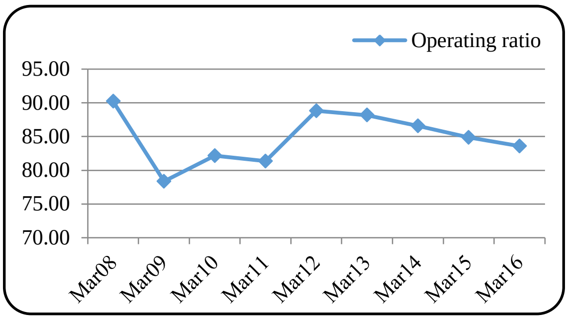
Operating Ratio[OR]

In Pre-Merger period as revealed in table T.4.3.1 and figure.G.3.3, Operating ratio showed a fluctuating trend in Pre-Merger period and was on an average of 82.67%.

G 3.3 OR in Pre-Merger Period



G 3.3.1 OR in Post-Merger Period



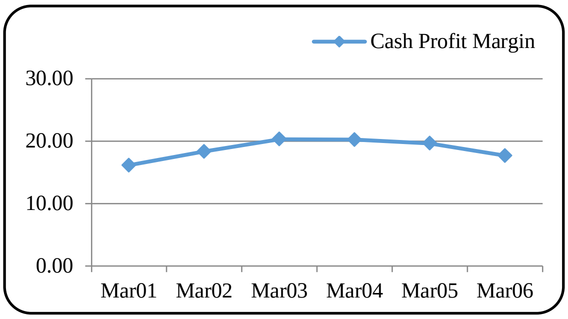
Source – Table T.4 3.1

In Post-Merger period also, it could be seen in table T. 4.3.1 & figure G.3.3.1 ,that the ratio showed a fluctuated trend. The Average Operating ratio in Post-Merger period was 84.90%. The overall Operating ratio increased during Post-Merger period. Standard Deviation of Post-Merger period was higher as compared to Pre-Merger period indicating that ratio fluctuated more in Post-Merger period as compared to Pre-Merger period.

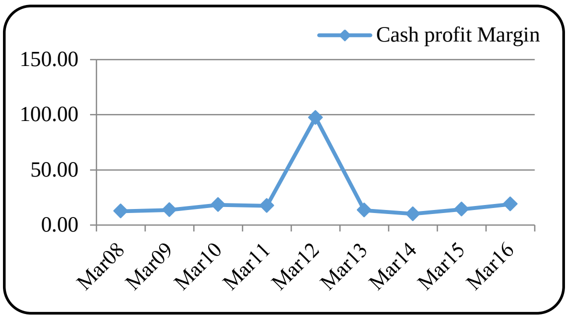
Cash Profit Margin [CPM]

In Pre-Merger period as disclosed in table T.4.3.1 and figure.G.3.4, Cash Profit Margin fluctuated and on an average it stood at 18.73%.

G.3.4 CPM in Pre-Merger Period



G.3.4.1 CPM in Post-Merger Period



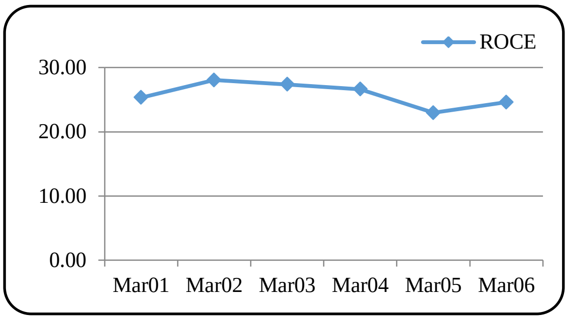
Source – Table T.4 3.1

In Post-Merger period also as shown by table T.4.3.1 & figure G.3.4.1, that there were fluctuations in the ratio and on an average it was 24.03% Sharp rise was observed in march 2012 in cash profit margin due to profit of 76,059.34 lakhs earned out of disposal of business undertaking selling OTC products located in Russia/CIS Countries, which was credited to profit and loss account. Overall cash profit margin increased during Post-Merger period. The Standard Deviation of Post-Merger period was higher as compared to Pre-Merger period indicating that ratio fluctuated more in Post-Merger period as compared to Pre-Merger period.

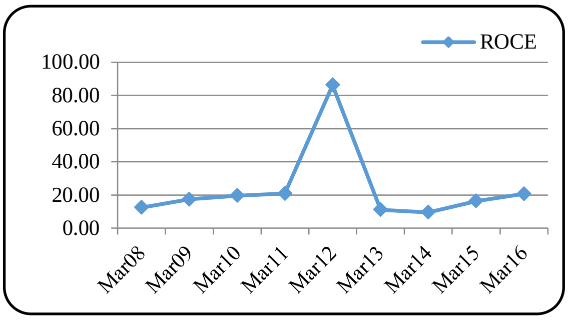
Return on capital employed [ROCE]

In Pre-Merger period as depicted in table T.4.3.1 and figure.G.3.5, ROCE fluctuated and was on an average of 25.83 %.

G.3.5 ROCE in Pre-Merger Period



G.3.5.1 ROCE in Post-Merger Period



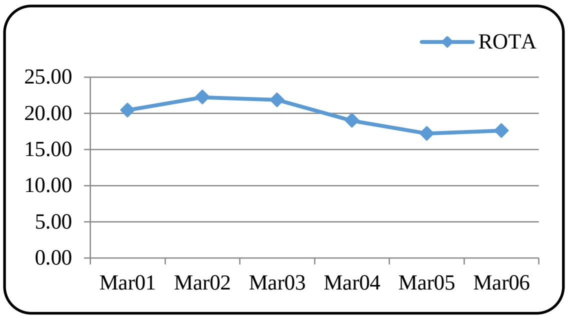
Source – Table T.4 3.1

In Post-Merger period also, as seen by table T.4.3.1 & figure G.3.5.1, the values showed a fluctuating trend and was highest in 2011-2012 i.e.86.30%. The Average ROCE in Post-Merger period was 23.81% being lower as compared to Pre-Merger period. The Standard Deviation of Pre-Merger period was lower as compared to post merger period which indicated that ratio fluctuated more in Post-Merger period as compared to Pre-Merger period.

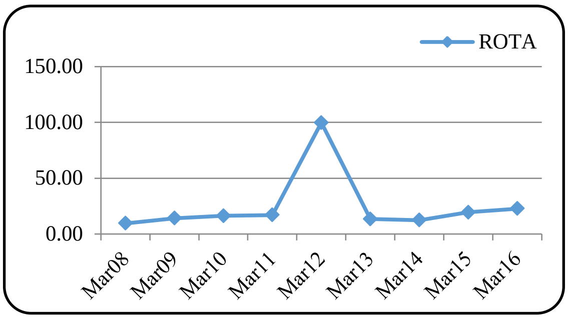
Return on Total Assets [ROTA]

In Pre-Merger period as revealed in table T.4.3.1 and figure.G.3.6, ROTA showed a fluctuating trend and was on an average of 19.73%.

G.3.6 ROTA in Pre-Merger Period



G.3.6.1 ROTA in Post-Merger Period



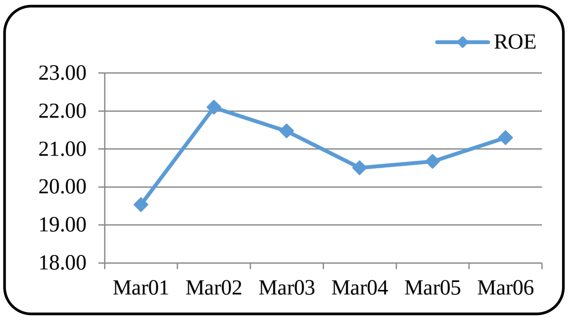
Source – Table T.4 3.1

In post –Merger period as indicated in table T.4.3.1 & figure G.3.6.1, ROTA fluctuated. It was highest in 2012 which was 99.77% [due to reason as mentioned earlier]. In 2013 again ROTA was declined and then remained fluctuating during Post-Merger period. The Average Return on Total assets in Post-Merger period was 25.03%, which was quite higher as compared to Pre-Merger period. The Standard Deviation of Post-Merger period was higher as compared to pre- merger period, indicating that ratio fluctuated more in Post-Merger period as compared to Pre-Merger period.

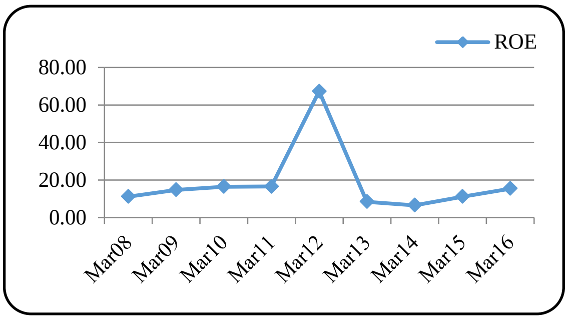
Return on Equity [ROE]

In Pre-Merger period as observed in table T.4.3.1 and figure G.3.7, Return on Equity showed a fluctuating trend and on an average it was 20.92%.

G.3.7 ROE in Pre-Merger Period



G.3.7.1 ROE in Post-Merger Period



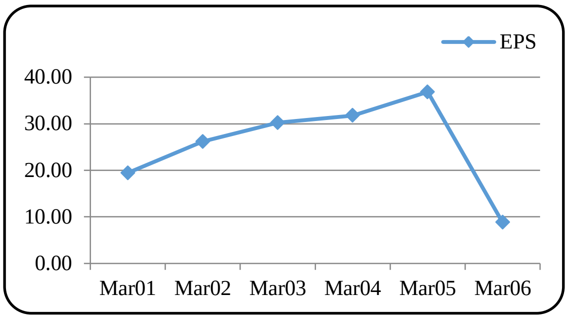
Source – Table T.4 3.1

In Post –Merger period, as depicted in table T.4.3.1 & figure G.3.7.1, Return on Equity registered a fluctuating trend and was highest in March 2012 [as mention earlier]. The Average Return on Equity in Post-Merger period was 18.66 % which was lower as compared to Pre-Merger period. The Standard Deviation of Post-Merger period was higher as compared to Pre-Merger period indicating that ratio fluctuated more in Post-Merger period as compared to Pre-Merger period.

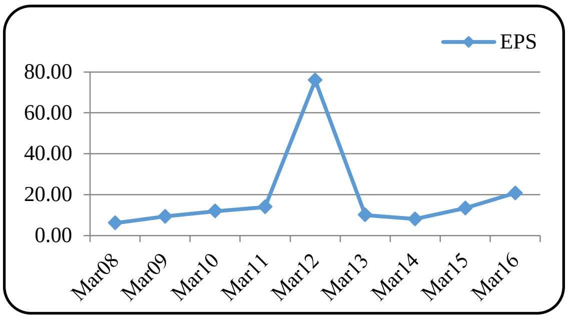
Earnings per share [EPS]

During the Pre-Merger period as revealed in table T.4.3.1 and figure G.3. 8, Earnings per share increased till 2004-2005 and on average was Rs 25.55.

G.3.8 EPS in Pre-Merger Period



G3.8.1 EPS in Post-Merger Period



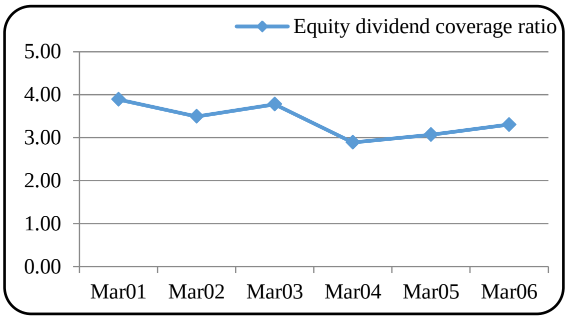
Source – Table T.4 3.1

During Post-Merger period, as indicated in table T.4.3.1 & figure G.3.8.1, Earnings per share fluctuated and was highest in 2011-2012 due to sudden spur in profit in the same financial year [due to reason mentioned earlier]. The average EPS in Post-Merger period was Rs 18.84. During period of study, Average EPS declined in Post-Merger period as compared to Pre-Merger period. The Standard Deviation of Pre-Merger period was lower as compared to post- merger period indicating that ratio fluctuated more in Post-Merger period as compared to Pre-Merger period.

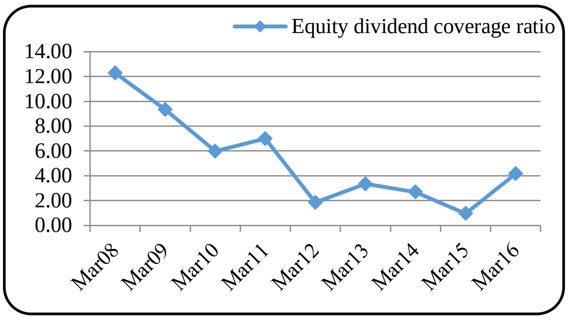
Equity Dividend Coverage Ratio [EDCR]

In Pre-Merger period as depicted in table T.4.3.1 and figure G.3.9, Equity dividend coverage ratio fluctuated and on an average ratio was 3.40 times.

G.3.9 EDCR in Pre-Merger Period



G.3.9.1 EDCR in Post-Merger Period



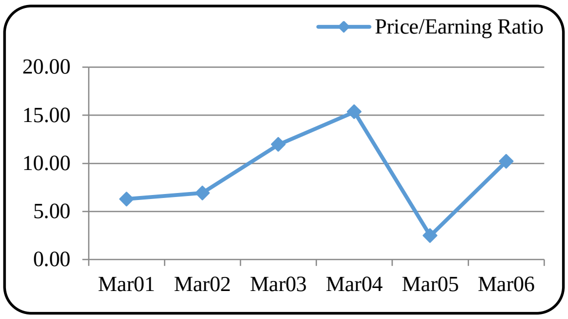
Source – Table T.4 3.1

During Post-Merger period, as indicated in table T.4.3.1 & figure G.3.9.1, Equity Dividend coverage ratio fluctuated. It was lowest in the year 2014- 2015, owing to declaration and payment of higher dividend as compared to previous years. The Average Equity dividend coverage ratio in Post-Merger period was 5.29 times which was higher as compared to Pre-Merger period indicating stable dividend policy. The Standard Deviation of Post-Merger period was higher as compared to Pre-Merger period indicating that, ratio fluctuated more in Post-Merger period as compared to Pre-Merger period.

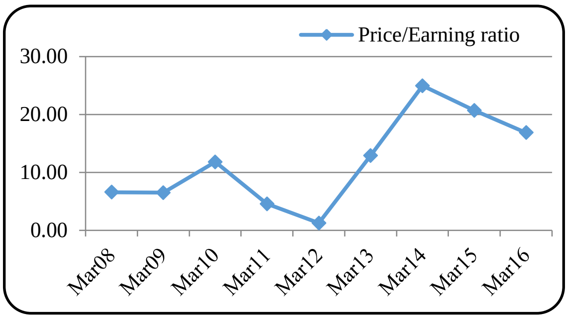
Price/Earnings Ratio [PE ratio]

In Pre-Merger period as exhibited in table T.4.3.1. and figure G.3.10, Price Earnings Ratio fluctuated and was highest in the year 2003- 2004 at 15.35 times and Lowest in the year 2004- 2005 at 2.47 times and on an average was 8.87 times.

G.3.10 P/E ratio in Pre-Merger Period



G.3.10.1 P/E ratio in Post-Merger Period



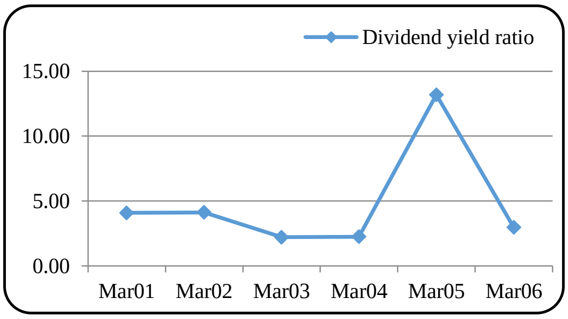
Source – Table T.4 3.1

During Post-Merger period also, as indicated in table T.4.3.1 & figure 3.10.1, Price Earnings Ratio fluctuated throughout the years and was on an average 11.78 times. During these Period highest price earnings ratio was observed in 2013-2014 at 24.95 times. The ratio increased on an average in Post-Merger period indicating positive impact on perception of investors as regard to the potential earnings of the company. The Standard Deviation of Post-Merger period was higher as compared to Pre-Merger period indicating that ratio fluctuated more in Post-Merger period as compared to Pre-Merger period.

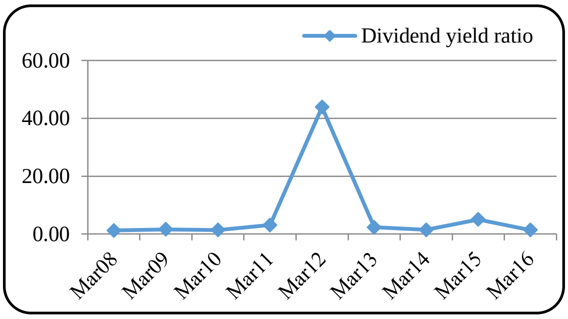
Dividend Yield Ratio [DY ratio]

In Pre-Merger period as exhibited in table T.4.3.1 and figure G.3.11, Dividend Yield ratio showed a fluctuating trend and was on an average of 4.81 %.

G.3.11 DY ratio in Pre-Merger Period



G.3.11.1 DY Ratio in Post-Merger Period



Source – Table T.4 3.1

During Post-Merger period as indicated in table T.4.3.1 & figure 3.11.1, Dividend Yield ratio fluctuated. The Average Dividend yield ratio in Post-Merger period was 6.85 %. Remarkable increase in ratio was observed in 2011-2012 being 43.90%. The Average Dividend yield ratio increased in Post-Merger period as compared to Pre-Merger period indicating that dividend per share increased more in proportion to market price per Equity share in the Post-Merger period. The Standard Deviation of Pre-Merger period was lower as compared to Post-Merger period indicating that ratio fluctuated more in Post-Merger period as compared to Pre-Merger period.

Table No 4.3.2. on the next page, shows calculation of various liquidity ratios of the sample acquirer company for the period under study.

4.3.3 Liquidity Ratios of J B Chemical and Pharmaceutical ltd during Pre-Merger and Post-Merger Period

Table T.4.3.2 Liquidity Ratios in Pre-Merger and Post-Merger Period

	Pre- Merger period (2000-01 to 2005-06)- 6 years								Post- Merger period (2007-08 to 2015-16)- 9 years										
Liquidity Ratios	**Mar 2000-2001**	**Mar 2001-2002**	**Mar 2002-2003**	**Mar 2003-2004**	**Mar 2004-2005**	**Mar 2005-2006**	**Average ratio**	**Standard Deviation**	**Mar 2007-2008**	**Mar 2008-2009**	**Mar 2009-2010**	**Mar 2010-2011**	**Mar 2011-2012**	**Mar 2012-2013**	**Mar 2013-2014**	**Mar 2014-2015**	**Mar 2015-2016**	**Average ratio**	**Standard Deviation**
Current ratio [Proportion]	3.49	3.06	3.25	2.47	3.06	2.75	3.01	0.36	2.58	3.30	3.51	2.78	4.61	4.07	3.69	2.58	1.89	3.22	0.85
Quick ratio [Proportion]	2.91	2.54	2.74	2.01	2.49	2.27	2.49	0.32	2.22	2.95	3.17	2.46	4.11	3.67	3.26	2.25	1.54	2.85	0.80
Super Quick ratio [Proportion]	0.20	0.15	0.21	0.07	0.12	0.10	0.14	0.06	0.08	0.28	0.48	0.87	3.08	2.91	2.24	2.23	0.57	1.42	1.19

Source – Annexure II and III

Liquidity Analysis

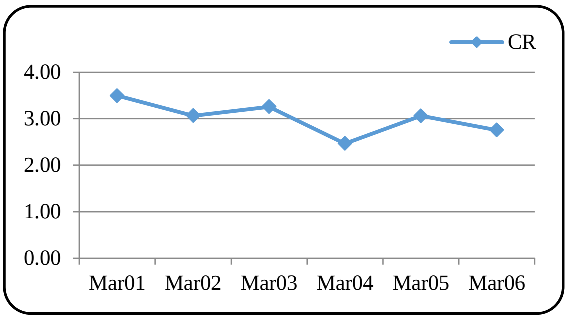
Table 4.1.2 reveals the calculation of various Liquidity ratios of J B Chemicals and Pharmaceuticals ltd during Pre-Merger Period and Post-Merger Period.

The Liquidity of sample company is analyzed and interpreted using various Liquidity ratios based on Current assets and Current liabilities.

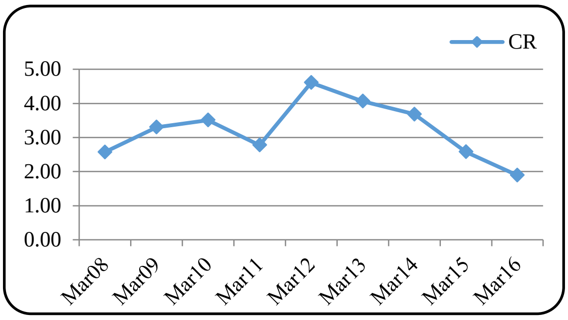
Current Ratio [CR]

During the Pre-Merger period as revealed in table T.4.3.2 and figure G.3.12, Current ratio fluctuated and on an Average it was observed to be in the ratio of 3.01:1.

G.3.12 CR in Pre-Merger Period



G.3.12.1 CR in Post-Merger Period



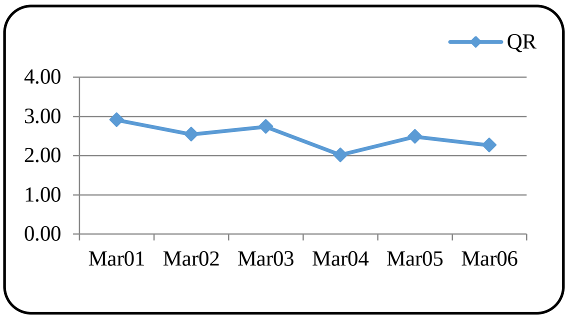
Source – Table T.4.3.2

During the Post-Merger period too as indicated in table T.4.3.2 & figure 3.12.1, Current ratio showed fluctuating trend and on an average it was 3.22:1. In 2011- 2012 it was 4.61 being highest during post period owing to increase in its cash and bank balance by Rs16282.72 lakhs deposited in Escrow account in relation to sale of Russia-CIS OTC business undertaking and worldwide sale of three trademarks namely Doktor Mom, Rinza and Fitovit. The Average Current ratio increased in post-period indicating that there was increment in liquidity position of the sample company. The Standard Deviation of Post-Merger period was higher as compared to Pre-Merger period indicating that the ratio fluctuated more in Post-Merger period as compared to Pre-Merger period.

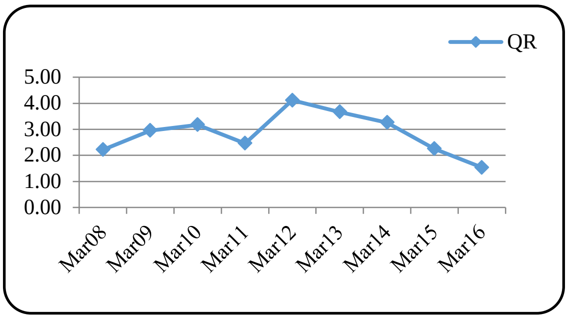
Quick Ratio [QR]

During the Pre-Merger period as indicated in table T.4.3.2 and figure G.3.13, Quick ratio fluctuated and on an Average it was observed to be in ratio of 2.49:1.

G.3.13 QR in Pre-Merger Period



G.3.13.1 QR in Post-Merger Period



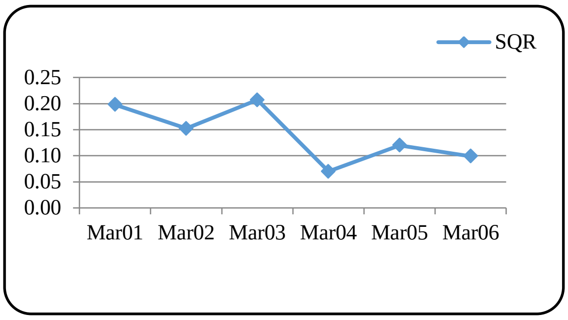
Source – Table T.4.3.2

As indicated in table T.4.3.2 & figure 3.13.1, fluctuation observed during Post-Merger period. It was high in 2011- 2012 i.e.4.11:1 due to sudden spur in cash and bank balance. The average Quick ratio in Post-Merger period was 2.85:1 which increased as compared to Pre-Merger period indicating improvement in liquidity position of sample company. The Standard Deviation of Post-Merger period was higher as compared to Pre-Merger period indicating that ratio fluctuated more in Post-Merger period as compared to Pre-Merger period.

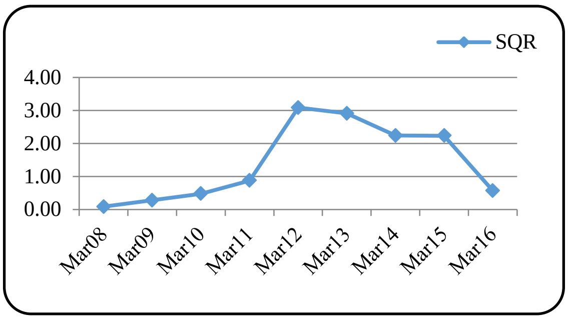
Super quick Ratio[SQR]

During the Pre-Merger period as exhibited in table T.4.3.2 and figure G.3.14, Super Quick ratio revealed a fluctuating trend and on an average it was observed in the ratio of 0.14:1.

G.3.14 SQR in Pre-Merger Period



G.3.14.1 SQR in Post-Merger Period



Source – Table T.4.3.2

During the Post-Merger period as indicated in table T.4.3.2 & figure G.3.14.1, Super Quick ratio fluctuated and was highest in 2011- 2012 at 3.08 and on an Average it was 1.42:1. During period of study and on an average ratio increased in post-period as compared to Pre-Merger showing there was improvement in the absolute liquidity position of sample company. The Standard Deviation of Post-Merger period was higher as compared to Pre-Merger period indicating that ratio fluctuated more in Post-Merger period as compared to Pre-Merger period.

Table No 4.1.3. on the next page shows calculation of various long term solvency ratios of the sample acquirer company for the period under study.

4.3.4 Long Term Solvency Ratios of J B Chemical and Pharmaceutical Ltd During Pre-Merger and Post-Merger Period

Table T.4.3.3 Long Term Solvency Ratios in Pre-Merger and Post-Merger Period

Pre- Merger period (2000-01 to 2005-06)- 6 years									Post- Merger period (2007-08 to 2015-16)- 9 years										
Long term Solvency Ratios	**Mar 2000-2001**	**Mar 2001-2002**	**Mar 2002-2003**	**Mar 2003-2004**	**Mar 2004-2005**	**Mar 2005-2006**	**Average ratio**	**Standard Deviation**	**Mar 2007-2008**	**Mar 2008-2009**	**Mar 2009-2010**	**Mar 2010-2011**	**Mar 2011-2012**	**Mar 2012-2013**	**Mar 2013-2014**	**Mar 2014-2015**	**Mar 2015-2016**	**Average ratio**	**Standard Deviation**
Debt equity ratio [Proportion]	0.02	0.03	0.03	0.02	0.07	0.08	0.04	0.03	0.16	0.15	0.10	0.02	0.01	0.01	0.00	0.00	0.00	0.05	0.07
Fixed asset Ratio [Proportion]	0.36	0.42	0.41	0.51	0.44	0.41	0.42	0.05	0.43	0.37	0.32	0.32	0.29	0.29	0.31	0.35	0.44	0.35	0.06
Proprietary Ratio [Proportion]	2.85	2.45	2.52	1.94	2.13	2.48	2.39	0.32	2.01	2.44	2.83	3.17	3.97	3.45	3.74	3.39	3.10	3.12	0.62
Interest coverage ratio [Times]	25.29	43.75	52.46	35.03	23.27	18.42	33.04	13.15	4.68	8.53	13.58	17.06	35.84	26.21	20.77	30.58	30.00	20.81	10.68

Source – Source – Annexure I, II and III

Long term Solvency Analysis

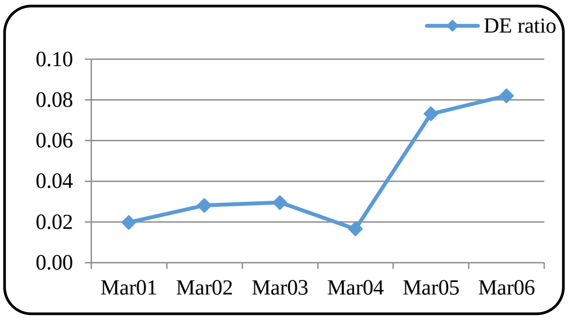
Table 4.3.3 reveals the calculation of various Long Term Solvency ratios of J B Chemicals and Pharmaceuticals ltd during Pre-Merger Period and Post-Merger Period.

The Long term solvency of sample company is analyzed and interpreted using various Long term solvency ratios based on Long term debt, Share Capital, Fixed assets and Equity Shareholders Fund.

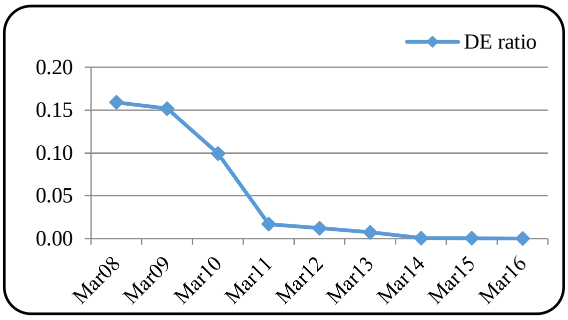
Debt Equity Ratio [DER]

In Pre-Merger period as exhibited in table T.4.3.3 and figure G.3.15., Debt Equity Ratio showed overall increasing trend and on an average it was observed to be in the ratio of 0.04:1.

G.3.15 DER in Pre-Merger Period



G.3.15.1. DER in Post-Merger Period



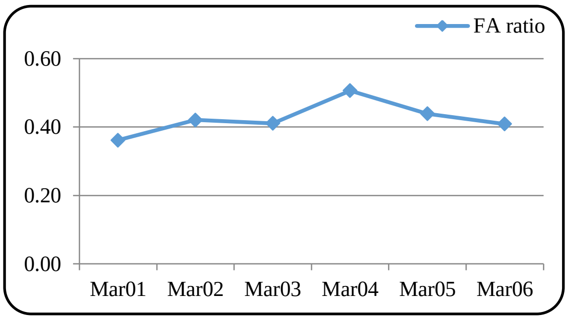
Source – Table T.4.3.3

During the Post-Merger period, as indicated in table T.4.3.3 & figure 3.15.1, Debt Equity ratio registered declining trend and was almost nil from 2013-2014 onwards and on an average it was registered to be in the ratio of 0.05:1 showing marginal increase. Inspite of marginal increase in the ratio in Post-Merger period it was clearly evident that the proportion of debt was too low and the company did not take advantage of financial leverage. The Standard Deviation of Pre-Merger period was lower as compared to Post-Merger period indicating that ratio was fluctuated more in Post-Merger period as compared to Pre-Merger period.

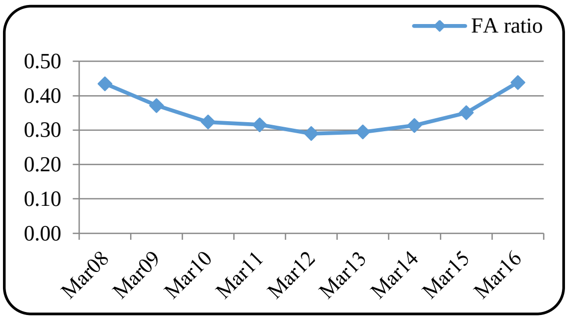
Fixed Asset Ratio [FAR]

During Pre-Merger period as disclosed in table T.4.3.3 and figure G.3.16, Fixed asset ratio registered a fluctuating trend and on an average it was observed to be in the ratio of 0.42:1.

G.3.16 FAR in Pre-Merger Period



G.3.16.1. FAR in Post-Merger Period



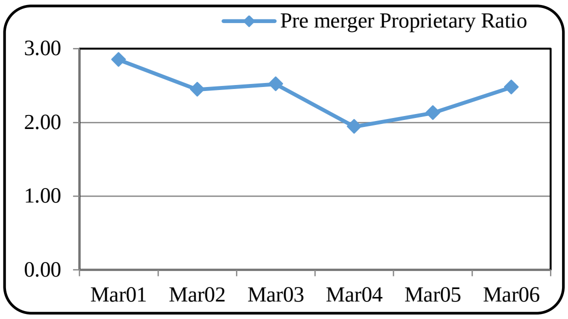
Source – Table T.4.3.3

As indicated in table T.4.3.3 & figure G.3.16.1, during, Post-Merger Period Fixed Asset ratio decreased initially & increased later. On an average, it was 0.35:1. During period of study, Average Fixed asset ratio decreased in Post-Merger period indicating that comparatively less long term funds were deployed towards fixed assets in Post-Merger period as compared to Pre-Merger period. The Standard Deviation in Post-Merger period was higher as compared to Pre-Merger period indicating that ratio fluctuated more in Post-Merger period as compared to Pre-Merger period.

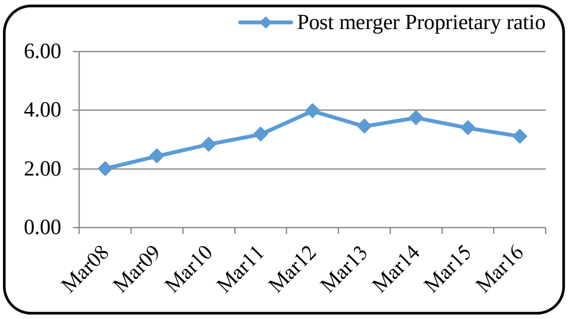
Proprietary Ratio [PR]

In Pre-Merger period as depicted in table T.4.3.3 and figure G.3.17, Proprietary ratio showed a fluctuating trend and on an average it was observed to be in the ratio of 2.39:1.

G.3.17 PR in Pre-Merger Period



G.3.17.1 PR in Post-Merger Period



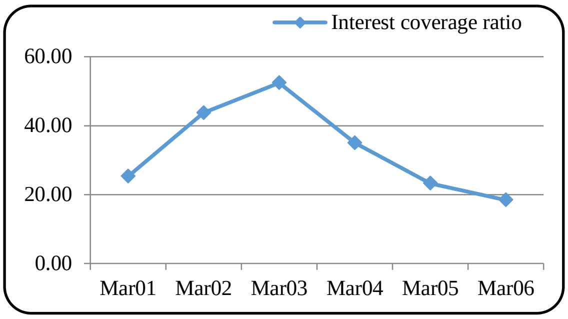
Source – Table T.4.3.3

As revealed in table T.4.3.3 & figure 3.17.1, during Post-Merger Period Proprietary ratio showed an overall increasing trend and on an average it was 3.12:1. The ratio increased in Post-Merger period as compared to Pre-Merger period indicating less dependence was on external funds in Post-Merger period as compared to Pre-Merger period. The Standard Deviation of Pre-Merger period was lower as compared to Post-Merger period indicating that Proprietary ratio was more fluctuating in Post-Merger period as compared to Pre-Merger period.

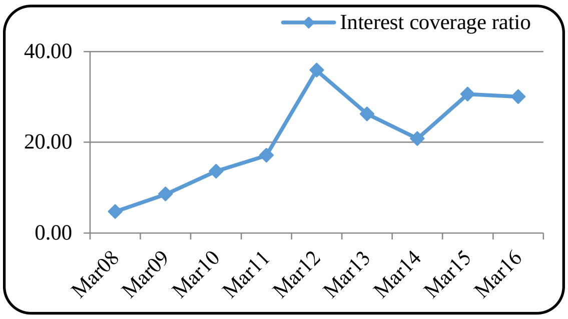
Interest Coverage Ratio [ICR]

During the Pre-Merger period as revealed in table T.4.3.3 and figure G.3.18, Interest coverage ratio showed fluctuating trend. The ratio increased up to 2002- 2003 and thereafter it declined in remaining Pre-Merger period and on an average it was 33.04 times.

G.3.18 ICR in Pre-Merger Period



G.3.18.1 ICR in Post-Merger Period



Source – Table T.4.3.3

As depicted in table T.4.3.3 & figure G.3.18.1, during Post-Merger period the ratio showed an overall increasing trend and on an average it was 20.81 times. Inspite of increasing trend in Post-Merger period on an average it was lower as compared to Pre-Merger period. This shows that debt component in the capital structure decreased considerably thereby decreasing the interest burden. The Standard Deviation of Pre-Merger period was higher as compared to post merger period indicating that ratio fluctuated more in Pre-Merger period as compared to Post-Merger period.

Table No 4.3.4. on the next page shows calculation of various efficiency ratios of the sample acquirer company for the period under study.

4.3.5 Efficiency Ratios of J B Chemical and Pharmaceutical Ltd during Pre-Merger and Post-Merger Period

Table T.4.3.4. Efficiency Ratios in Pre-Merger Period and Post- Merger Period

	Pre- Merger period (2000-01 to 2005-06)- 6 years								Post- Merger period (2007-08 to 2015-16)- 9 years										
Efficiency Ratios	**Mar 2000-2001**	**Mar 2001-2002**	**Mar 2002-2003**	**Mar 2003-2004**	**Mar 2004-2005**	**Mar 2005-2006**	**Average ratio**	**Standard Deviation**	**Mar 2007-2008**	**Mar 2008-2009**	**Mar 2009-2010**	**Mar 2010-2011**	**Mar 2011-2012**	**Mar 2012-2013**	**Mar 2013-2014**	**Mar 2014-2015**	**Mar 2015-2016**	**Average ratio**	**Standard Deviation**
Capital Turnover ratio [Times]	1.38	1.34	1.18	1.18	1.15	1.28	1.25	0.09	1.02	1.18	0.99	1.11	0.71	0.80	0.91	1.04	1.00	0.97	0.15
Inventory Turnover ratio [Times]	5.64	5.09	4.52	4.10	3.58	3.90	4.47	0.78	3.74	4.93	4.94	4.91	4.21	5.02	5.15	5.05	4.81	4.75	0.46
Inventory to current asset ratio[%]	16.65	16.98	15.84	18.27	18.78	17.72	17.37	1.09	13.96	10.56	9.56	11.30	10.79	9.77	11.54	12.52	18.87	12.10	2.88
Working capital turnover ratio [Times]	2.01	2.20	1.83	2.04	1.79	1.91	1.96	0.15	1.88	1.93	1.51	1.64	1.01	1.11	1.29	1.36	3.32	1.67	0.69
Fixed asset turnover ratio [Times]	3.81	3.18	2.87	2.33	2.63	3.14	2.99	0.51	2.34	3.17	3.06	3.51	2.44	2.72	2.90	2.97	2.29	2.82	0.41
Debtors Turnover ratio [Times]	2.65	2.43	2.18	2.03	2.04	2.09	2.24	0.25	1.69	2.05	1.71	2.03	2.64	4.99	4.30	4.26	4.428	3.12	1.27

Source – Source – Annexure I, II and III

Efficiency Analysis

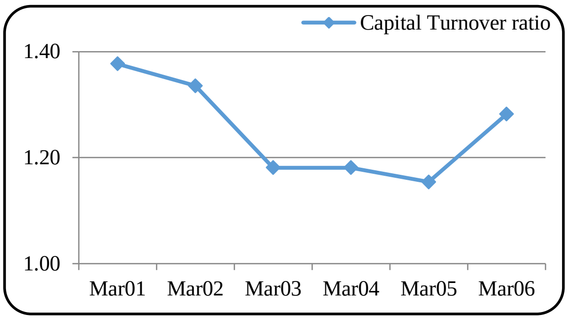
Table 4.1.4 reveals the calculation of various efficiency ratios of J B chemical and Pharmaceuticals ltd during Pre-Merger Period and Post-Merger Period.

The efficiency ratios of sample company are analyzed and interpreted using various efficiency ratios based on sales and investment in Inventories, Fixed Assets, Working Capital, Debtors, Total Capital Employed.

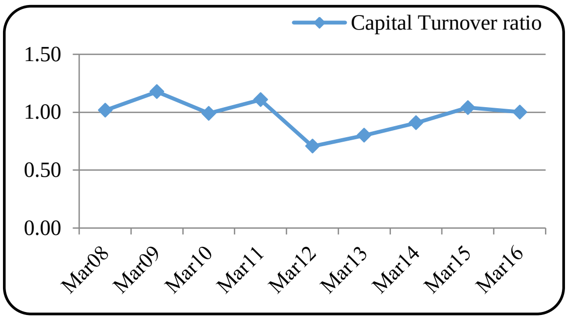
Capital turnover Ratio [CTOR]

In Pre-Merger period as disclosed in table T.4.3.4 and figure G.3.19, the Capital Turnover ratio initially declined up to 2004- 2005 registered 1.15 times and then increased in2005- 2006 to 1.28 times and on an average it was 1.25 times.

G.3.19 CTOR in Pre-Merger Period



G.3.19.1 CTOR in Post-Merger period



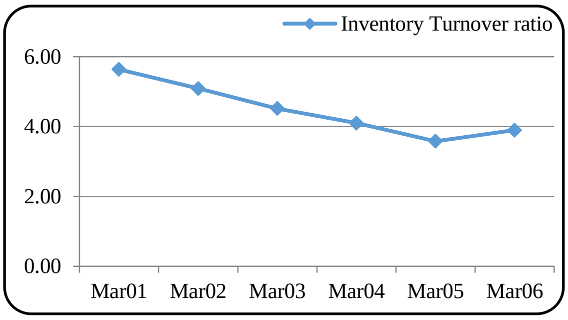
Source – Table T.4.3.4.

During the Post-Merger period as indicated in table T.4.3.4 & figure 3.19.1, Capital turnover ratio showed a fluctuating trend and on an average it was 0.97 times. During the Post-Merger period average Capital Turnover ratio decreased as compared to Pre-Merger period indicating inefficient utilization of capital employed for generating sales in the post period. The Standard Deviation of Post-Merger period was higher as compared to Pre-Merger indicating that Capital Turnover ratio was more fluctuating in Post-Merger period as compared to Pre-Merger period.

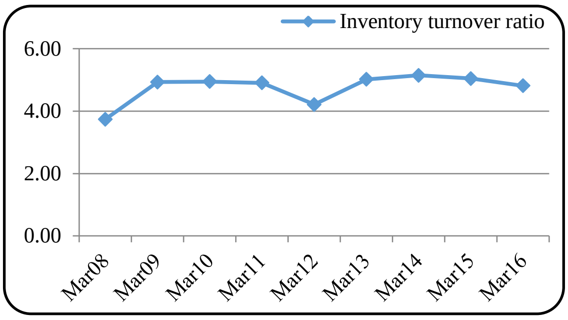
Inventory Turnover Ratio [ITOR]

During the Pre-Merger period as revealed in table T.4.3.4 and figure.G.3.20, The Inventory Turnover ratio declined up to 2004- 2005 and later increased in 2006 and on an average it was 4.47 times.

G .3.20 ITOR in Pre-Merger Period



G.3.20.1 ITOR in Post-Merger Period



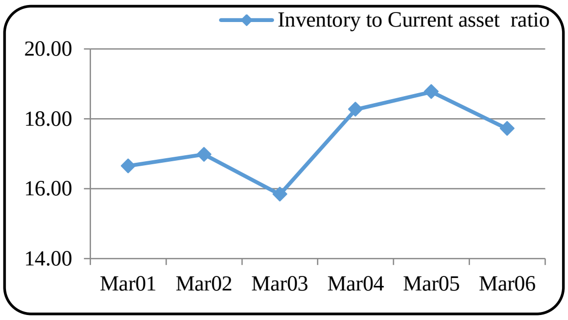
Source – Table T.4.3.4.

As disclosed in table T.4.3.4 & figure 3.20.1, during Post-Merger period the ratio registered a fluctuating trend and was on an average 4.75 times, indicating better inventory management. The company did not block higher level of funds in inventory. The Standard Deviation of Pre-Merger period was higher as compared to post merger period indicating that ratio fluctuated more in Pre-Merger period as compared to Post-Merger period.

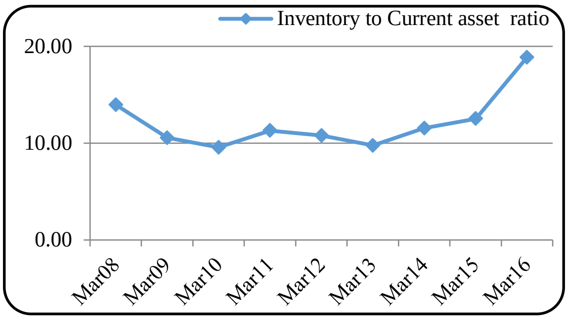
Inventory to current asset ratio [ICAR]

During Pre-Merger period as depicted in table T.4.3.4 and figure G.3.21, Inventory to Current Asset ratio fluctuated and on an average it was 17.37 %.

G.3.21 ICAR in Pre-Merger period



G.3.21.1 ICAR in Post-Merger Period



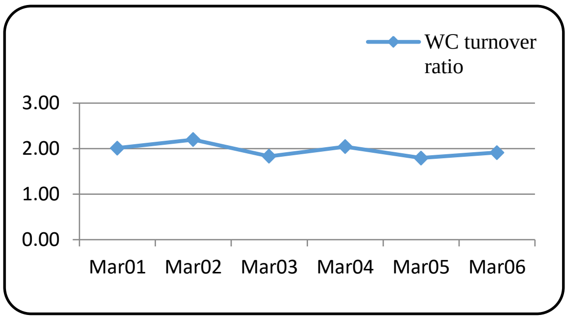
Source – Table T.4.3.4.

As depicted in table T.4.3.4 & figure G.3.21.1, During Post-Merger period the ratio initially decreased and later on increased at the end of the period and on average it was 12.10%. During Post-Merger period of study Inventory to current asset ratio declined as compared to Pre-Merger period indicating better inventory management. The Standard Deviation of Pre-Merger period was lower as compared to post merger period indicating that ratio was fluctuated more in Post-Merger period as compared to Pre-Merger period.

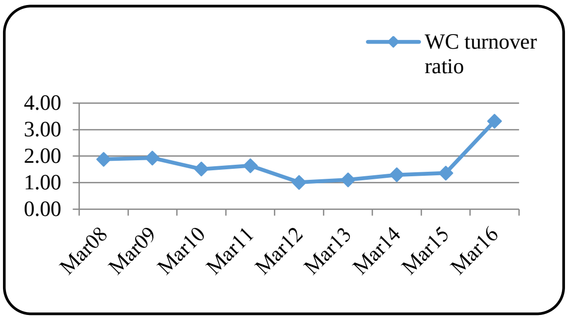
Working Capital Turnover Ratio [WCTOR]

During Pre-Merger period as exhibited in table T.4.3.4 and figure G.3.22, Working capital turnover ratio almost remain same ranging between 1.91 times to 2.2 times and on an average it was 1.96 times.

G .3.22 WCTOR in Pre-Merger Period



G.3.22.1 WCTOR in Post-Merger period



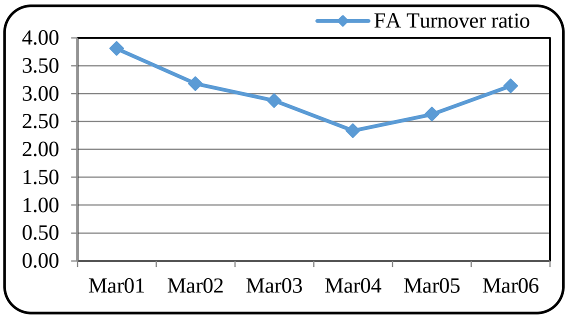
Source – Table T.4.3.4.

As indicated in table T.4.3.4 & figure G.3.22.1during the Post-Merger period too, working capital turnover ratio fluctuated and on an average was 1.67 times. The Average Working capital turnover ratio declined in the Post-Merger period as compared to Pre-Merger period indicating inefficient utilization of funds blocked in working capital. It was observed that the proportion of account receivables increased considerably during the Post-Merger period. It seems that the company adopted liberal credit policy during Post-Merger period. The Standard Deviation of Pre-Merger period was lower as compared to post merger period indicating that ratio fluctuated more in Post-Merger period as compared to Pre-Merger period.

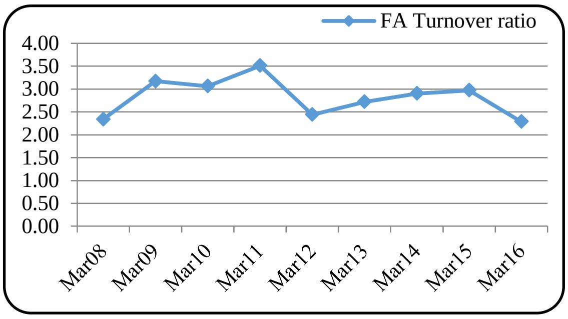
Fixed Asset Turnover Ratio [FATR]

During Pre-Merger period as disclosed in table T.4.3.4 and figure G.3.23, Fixed asset turnover ratio was fluctuating and on an average it was 2.99 times.

G .3.23 FATR in Pre-Merger Period



G .3.23.1 FATR in Post-Merger Period



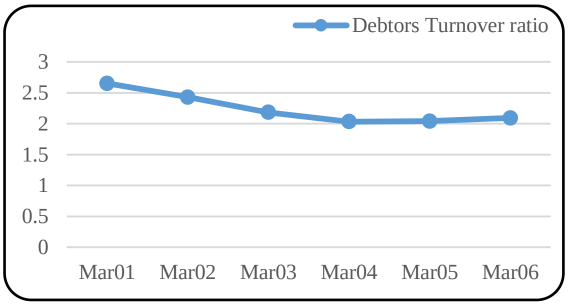
Source – Table T.4.3.4.

As indicated in table T.4.3.4 & figure 3.23.1, during Post-Merger period also the ratio fluctuated and on an average it was 2.82 times. The Average Fixed asset turnover ratio decreased in Post-Merger as compared to Pre-Merger period exhibiting inefficiency of sample company in generating sales by utilizing fixed assets. The Standard Deviation of Pre-Merger period was higher as compared to post merger period indicating that ratio fluctuated more in Pre-Merger period as compared to Post-Merger period.

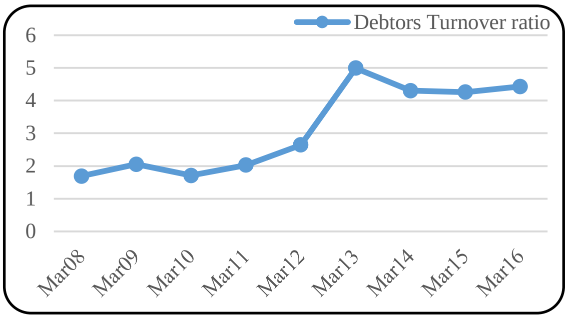
Debtors Turnover Ratio [DTOR]

In Pre-Merger period as revealed in table T.4.3.4 and figure G.3.24, Debtors turnover ratio showed an overall declining trend and on an average it was 2.24 times.

G .3.24 DTOR in Pre-Merger Period



G .3.24.1 DTOR in Post-Merger Period



Source – Table T.4.3.4.

As indicated in table T.4.3.4 & figure G.3.24.1, during the Post-Merger period too Debtors Turnover ratio showed an inclining trend and on an average it was 3.12 times which was comparatively higher than Pre-Merger period. This indicates that the company have adopted liberal credit policy whereby more credit purchases were offered to debtors. The Standard Deviation of Post-Merger period was higher as compared to pre- merger period indicating that ratio fluctuated more in Post-Merger period as compared to Pre-Merger period.

4.3.6 Testing of Hypothesis

The hypothesis framed with reference to various Ratios [as mentioned in chapter 3, Hypothesis no 1 to 24] is tested applying One Sample t-test at 5 % level of significance for measuring impact of merger. The table T4.3.5 shows hypothesis test results

Table T.4.3.5 Hypothesis test results

Sr no	Ratio	Pre-Merger average	Post- merger average	P value	Null/Alternate hypothesis accepted
Profitability Ratio					
1	GP ratio	50.40	50.15	0.802	Null
2	NP margin	16.13	20.90	*0.001	Alternate
3	Operating ratio	82.67	84.90	*0.044	Alternate
4	Cash profit margin	18.73	24.03	*0.001	Alternate
5	Return on capital employed	25.83	23.81	*0.047	Alternate
6	Return on Total assets	19.73	25.03	*0.002	Alternate
7	Return on Equity	20.92	18.66	*0.002	Alternate
8	Earnings per share	25.55	18.84	0.163	Null
9	Equity dividend coverage ratio	3.40	5.29	*0.001	Alternate
10	Price earnings ratio	8.87	11.78	0.18	Null
11	Dividend Yield ratio	4.81	6.85	0.286	Null
Liquidity Ratios					
12	Current Ratio	3.01	3.22	0.22	Null
13	Quick Ratio	2.49	2.85	*0.042	Alternate
14	Super Quick Ratio	0.14	1.42	*0.001	Alternate
Long Term Solvency					
15	Debt Equity ratio	0.04	0.05	0.474	Null
16	Fixed asset Ratio	0.42	0.35	*0.014	Alternate
17	Proprietary Ratio	2.39	3.12	*0.003	Alternate
18	Interest coverage ratio	33.04	20.81	0.072	Null
Efficiency Ratios					
19	Capital Turnover ratio	1.25	0.97	*0.001	Alternate
20	Inventory Turnover ratio	4.47	4.75	0.42	Null
21	Inventory to current asset ratio	17.37	12.10	*0.001	Alternate
22	Working capital turnover ratio	1.96	1.67	*0.005	Alternate
23	Fixed asset turnover ratio	2.99	2.82	0.445	Null
24	Debtors Turnover Ratio	2.24	3.12	*0.001	Alternate

Source – Table T.4.3.1, T.4.3.2, T.4.3.3 and T.4.3.4

Profitability analysis

As observed from the above table, that all ratios changed significantly in Post-Merger period as compared to Pre-Merger period except GP ratio, EPS, PE ratio and Dividend Yield ratio. In each of the above ratios, the calculated 'P' value is less than 0.05 and thus the alternate hypothesis is accepted. However, GP ratio, EPS, Price earnings ratio and Dividend Yield ratio did not change significantly as the calculated 'P' value is more than 0.05, thus null hypothesis is accepted.

Liquidity analysis

All liquidity ratios increased in Post-Merger period as compared to Pre-Merger period. When tested applying one sample t- test at 5 % level of significance Quick ratio and Super Quick ratio proved being changed significantly as the calculated 'P' value is less than 0.05, thus alternate hypothesis is accepted. However current ratio did not change significantly as the calculated 'P' value is more than 0.05 thus null hypothesis is accepted.

Long term solvency analysis

As observed from the above table that fixed asset ratio and Proprietary ratio changed significantly in Post-Merger period as compared to Pre-Merger period. The calculated 'P' value is less than 0.05, thus alternate hypothesis is accepted. However other long term solvency ratios did not change significantly as the calculated 'P' value is more than 0.05, thus null hypothesis is accepted.

Efficiency Ratios analysis

As observed from the above table that Capital Turnover ratio, Inventory to Current Asset ratio, working Capital Turnover ratio and Debtors Turnover ratio changed significantly in Post-Merger period as compared to Pre-Merger period. In each of the above ratios the calculated 'P' value is less than 0.05 & thus alternate hypothesis is accepted. However, other Efficiency ratios did not change significantly as the calculated 'P' value is more than 0.05 & thus null hypothesis is accepted.

4.3.7 Composite Index Score

Composite Index score represents overall index for selected parameter. In case of Profitability higher the composite Index score, better the performance and Vice-Versa. In case of Liquidity and Long term solvency, Composite index score represents combine index considering selected ratios.

4.3.7.1 Composite Index Score Based on Profitability

Table T.4.3.6 Composite Index Score Based on Profitability

YEAR	GPR	NPR	OR	CPM	ROCE	ROTA	ROE	EPS	AVERAGE
Pre-Merger Period Profitability Index scores and Composite Index score									
2000-2001	0.22	0.08	0.43	0.07	0.21	0.12	0.21	0.19	0.19
2001-2002	0.42	0.10	0.58	0.10	0.24	0.14	0.26	0.29	0.27
2002-2003	0.54	0.12	0.92	0.12	0.23	0.14	0.25	0.35	0.33
2003-2004	0.47	0.11	0.75	0.12	0.22	0.10	0.23	0.37	0.30
2004-2005	0.64	0.11	0.56	0.11	0.17	0.08	0.23	0.44	0.29
2005-2006	0.54	0.09	0.58	0.09	0.20	0.09	0.24	0.04	0.23
Average	0.47	0.10	0.64	0.10	0.21	0.11	0.24	0.28	0.27
Post-Merger Period Profitability Index scores and Composite Index score									
2007-2008	0.55	0.03	0.00	0.03	0.04	0.00	0.08	0.00	0.09
2008-2009	1.00	0.04	1.00	0.04	0.10	0.05	0.14	0.05	0.30
2009-2010	0.99	0.09	0.68	0.09	0.13	0.08	0.16	0.08	0.29
2010-2011	0.93	0.09	0.75	0.09	0.15	0.08	0.17	0.11	0.30
2011-2012	0.25	1.00	0.12	1.00	1.00	1.00	1.00	1.00	0.80
2012-2013	0.09	0.04	0.17	0.04	0.02	0.04	0.03	0.06	0.06
2013-2014	0.18	0.00	0.31	0.00	0.00	0.03	0.00	0.03	0.07
2014-2015	0.00	0.04	0.45	0.05	0.09	0.11	0.08	0.10	0.11
2015-2016	0.13	0.09	0.56	0.10	0.15	0.15	0.15	0.21	0.19
Average	0.46	0.16	0.45	0.16	0.19	0.17	0.20	0.18	0.25

Source – Table T.4.3.1

From the table T.4.3.6, it could be observed that Average index scores of Net Profit Ratio, Cash Profit ratio and Return on Total Assets improved in Post-Merger period as compared to Pre-Merger Period, while the average index scores of other Profitability ratios declined in Post- merger period as compared to Pre-Merger period.

Table T.4.3.7 Independent t- test results of Profitability composite index score

Index score based on profitability	Pre-Merger Period	Post-Merger Period	P. value based on Independent t-test	Hypothesis accepted
Composite Index score	0.27	0.25	0.818	NULL

Source – Table T.4.3.6

The Average Composite Index score based on profitability ratios decreased marginally from 0.27 in the Pre-Merger period to 0.25 in the Post-Merger period. This decrease proved to be insignificant when tested applying Independent t- test at 5 % level of significance. As disclosed in Table no.4.3.7 below, the Calculated ‘P’ value of 0.818 indicated that Null hypothesis is accepted.

4.3.7.2 Composite Index Score Based on Liquidity

Table T.4.1.8 Composite Index Score Based on Liquidity

Pre-Merger Period Liquidity Index scores and Composite Index score							
YEAR	**CR**	**QR**	**SQR**	**ITOR**	**WCTOR**	**DTOR**	**AVERAGE**
2000-2001	0.59	0.53	0.04	1.00	0.43	0.29	0.48
2001-2002	0.43	0.39	0.03	0.74	0.51	0.22	0.39
2002-2003	0.50	0.47	0.05	0.46	0.36	0.15	0.33
2003-2004	0.21	0.19	0.00	0.25	0.45	0.10	0.20
2004-2005	0.43	0.37	0.02	0.00	0.34	0.11	0.21
2005-2006	0.32	0.28	0.01	0.16	0.39	0.12	0.21
Average	**0.41**	**0.37**	**0.02**	**0.43**	**0.41**	**0.17**	**0.30**
Post-Merger Period Liquidity Index scores and Composite Index score							
2007-2008	0.25	0.26	0.00	0.08	0.38	0.00	0.16
2008-2009	0.52	0.55	0.07	0.66	0.40	0.11	0.38
2009-2010	0.59	0.64	0.13	0.66	0.22	0.01	0.38
2010-2011	0.33	0.36	0.27	0.65	0.27	0.10	0.33
2011-2012	1.00	1.00	1.00	0.31	0.00	0.29	0.60
2012-2013	0.80	0.83	0.94	0.70	0.04	1.00	0.72
2013-2014	0.66	0.67	0.72	0.76	0.12	0.79	0.62
2014-2015	0.25	0.28	0.72	0.71	0.15	0.78	0.48
2015-2016	0.00	0.00	0.17	0.60	1.00	0.83	0.43
Average	**0.49**	**0.51**	**0.45**	**0.57**	**0.29**	**0.43**	**0.46**

Source – Table T.4.3.2 and T.4.3.4

From the above table it could be observed that almost all average liquidity index scores increased except one based on working capital turnover ratio in Post-Merger period as compared to Pre-Merger period. However, Average Composite Index score based on liquidity ratios increased from 0.30 in Pre-Merger period to 0.46 in Post-Merger period for J B chemical and Pharmaceuticals Ltd. This increase proved to be insignificant when tested applying Independent t- test at 5 % level of significance. As disclosed in Table no.4.3.9 below, the Calculated 'P' value is 0.08 indicating that Null hypothesis is accepted.

Table T.4.3.9 Independent t- Test Results of Liquidity Composite Index Score

Index score based on liquidity ratios	Pre-Merger Period	Post-Merger Period	Probability value based on Independent t- test	Hypothesis accepted
Composite Index score	0.30	0.46	0.08	Null

Source – Table T.4.3.8

4.3.7.3 Composite Index Score Based On Long Term Solvency

Table T.4.3.10 Composite Index Score Based On Long Term Solvency

Pre-Merger Period Long Term Solvency Index scores and Composite Index score				
YEAR	**DER**	**FAR**	**PR**	**AVERAGE**
2000-2001	0.12	0.33	0.45	0.30
2001-2002	0.18	0.60	0.25	0.34
2002-2003	0.19	0.56	0.29	0.34
2003-2004	0.10	1.00	0.00	0.37
2004-2005	0.46	0.69	0.09	0.41
2005-2006	0.52	0.55	0.26	0.44
Average	**0.26**	**0.62**	**0.22**	**0.37**
Post-Merger Period Long Term Solvency Index scores and Composite Index score				
2007-2008	1.00	0.67	0.03	0.57
2008-2009	0.95	0.38	0.24	0.52
2009-2010	0.62	0.15	0.44	0.41
2010-2011	0.11	0.12	0.61	0.28
2011-2012	0.08	0.00	1.00	0.36
2012-2013	0.05	0.02	0.74	0.27
2013-2014	0.00	0.11	0.89	0.33
2014-2015	0.00	0.28	0.71	0.33
2015-2016	0.00	0.69	0.57	0.42
Average	**0.31**	**0.27**	**0.58**	**0.39**

Source – Table T.4.3.3

From the above table it is observed that average index scores based on Debt equity ratio and proprietary ratio increased in Post-Merger period whereas average index score based on Fixed asset ratio declined in Post-Merger period as compared to Pre-Merger period.

Average composite index score based on Long term solvency increased from 0.37 in Pre-Merger period to 0.39 in Post-Merger period. This increase proved to be insignificant when tested applying Independent t- test at 5 % level of significance. As disclosed in Table no.4.3.11 below, the Calculated ‘P’ value is 0.65 indicating that Null hypothesis is accepted.

Table T.4.3.11 Independent t- Test Results of Long Term Solvency Composite Index Score

Index score based on Long term solvency ratios	Pre-Merger Period	Post-Merger Period	Probability value based on Independent t- test	Hypothesis accepted
Composite Index score	0.37	0.39	0.65	Null

Source – Table T.4.3.10

4.3.8 Economic Value Added [EVA] and Market Value Added [MVA] Analysis

The shareholder’s wealth measurement has been carried out by calculating EVA and MVA of the sample company for Pre-Merger and Post-Merger period of study**.**

4.3.8.1 Economic Value Added [EVA]

The Table no T.4.3.12shows the calculation of EVA of the sample company for Pre and Post-Merger period of study. The Table depicts that the average EVA in Pre-Merger period was 89.39Millions while the average EVA in the Post-Merger period amounted to (Rs 341.12 Millions). The Average EVA in Post-Merger period turned negative as compared to Pre-Merger period from which it could be interpreted that, merger had not helped company to improve its performance in terms of EVA indicating that shareholder’s wealth declined.

Table T.4.3.12 Economic Value Added [EVA] of J. B. Chemicals & Pharmaceuticals Ltd

[Rs in Millions]

Particulars	NOPAT	Ke	Kp	Kd	EVA
2000-2001	250.85	236.41	0	11.19	3.26
2001-2002	320.80	267.67	0	8.94	44.19
2002-2003	429.96	298.83	0	8.57	122.55
2003-2004	415.36	323.02	0	14.06	78.27
2004-2005	503.12	357.52	0	22.07	123.53
2005-2006	648.60	448.24	0	35.81	164.55
Total	2568.69	1931.69	0	100.64	536.35
Average EVA in Pre-Merger period					89.39
2007-2008	559.98	670.80	0	118.68	-229.50
2008-2009	1431.05	703.17	0	98.29	629.59
2009-2010	992.52	810.64	0	74.61	107.27
2010-2011	1271.85	955.58	0	68.82	247.44
2011-2012	-900.75	1277.89	0	161.23	-2339.87
2012-2013	733.88	1333.51	0	34.60	-634.23
2013-2014	1023.42	1416.39	0	40.44	-433.42
2014-2015	1145.40	1367.68	0	43.49	-265.77
2015-2016	1369.43	1460.75	0	60.31	-151.63
Total	7626.78	9996.41	0	700.47	-3070.12
Average in Post-Merger period					-341.12

Source – Annexure – I, II, III and VI

4.3.8.2 Market Value Added [MVA]

The Table no T.4.3.13shows the calculation of MVA of the sample company for Pre and Post-Merger period of study. The Table depicts that the average MVA in Pre-Merger period was Rs 2111.026 Million while the average MVA in the Post-Merger period amounted to 1105.714 Million**.** The Post-Merger Average MVA decreased as compared to Pre-Merger period from which it could be interpreted that merger had not helped company to improve its performance in terms of MVA indicating that shareholder’s wealth declined.

Table T.4.3.13 Market Value Added [MVA] of J. B. Chemicals & Pharmaceuticals Ltd

[Rs in Millions]

Year	Market Capitalization	Share cap	Res and surplus	SF	MVA
2000-2001	1327.68	160.59	1438.507	1599.097	-271.417
2001-2002	2470.68	160.59	1743.148	1903.738	566.942
2002-2003	2392.39	160.59	2100.532	2261.122	131.268
2003-2004	4989.53	160.59	2329.023	2489.613	2499.917
2004-2005	6637.59	160.59	2701.268	2861.858	3775.732
2005-2006	9294.58	160.736	3170.129	3330.865	5963.715
Total	**27112.45**	**963.686**	**13482.607**	**14446.293**	**12666.157**
Average MVA in Pre-Merger period					**2111.026**
2007-2008	4203.67	168.653	4463.206	4631.859	-428.189
2008-2009	3084.24	168.653	5151.892	5320.545	-2236.31
2009-2010	5976.63	168.653	5965.061	6133.714	-157.084
2010-2011	11202.71	169.034	6963.793	7132.827	4069.883
2011-2012	5171.38	169.415	9369.217	9538.632	-4367.25
2012-2013	6255.63	169.415	9920.603	10090.02	-3834.39
2013-2014	10864.71	169.463	10308.65	10478.12	386.594
2014-2015	16942.56	169.616	9993.499	10163.12	6779.445
2015-2016	21156.22	169.64	11247.86	11417.5	9738.723
Total	**84857.75**	**1522.542**	**73383.781**	**74906.337**	**9951.422**
Average MVA in Post-Merger period					**1105.714**

Source – Annexure – I, II and III

The hypothesis framed with reference to EVA and MVA [as mentioned in chapter 3, Hypothesis no 28 and 29] is tested applying one sample t- test at 5 % level of significance. The table below depicts that calculated 'P' value is less than 0.05 in case of EVA and more than 0.05 in case of MVA. The 'P' value for EVA is 0.001 while that for MVA is 0.359. Hence, alternate hypothesis is accepted. It can be concluded that the merger had significant impact on EVA of the sample company.

Table T.4.3.14 Hypothesis One Sample t -Test Results

Particulars	Pre-Merger Average [Rs Millions]	Post-Merger Average [Rs Millions]	p value	Hypothesis accepted
EVA	89.39	(341.12).	0 .001	Alternate
MVA	2111.026	1105.714	0.359	Null

Source - Table 4.3.12 and Table 4.3.13

4.3.9. Altman Z score

The financial health of the sample company in Pre and Post- merger period is also assessed using Altman Z score model. The Altman Z score is calculated using following formula**-**

$$\zeta = 1.2A + 1.4B + 3.3C + 0.6D + 1.0E$$

The calculated the Altman Z score as depicted in annexure IV and V for Pre-Merger period was 3.437473 while that of Post-Merger Period was 2.978668. The financial health of the sample company in Pre -merger period is sound as the Altman Z score is more than 3, but went to grey area in Post-Merger period since Altman Z score is less than 3 indicating failure of Merger in terms of financial health of company.

4.3.10 Regression Analysis

Considering one dependent variable i.e. Net profit and 9 independent variables viz Cost of goods Sold, Operating Expenses, Finance Cost, Capital Employed, Long Term Borrowings, Shareholders Fund, Working Capital, Current Assets, Fixed Assets of the sample company during Pre and Post-Merger period and regression analysis is carried out in this part of study.

Using Regression Model the multiple linear regression for Pre and Post-Merger was constructed

4.3.10.1 Pre- Merger Period Regression Equation

Table T.4.3.15. Model summary of Pre-Merger Period

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.993[a]	0.985	0.982	18.52489

a. Predictors: (Constant), Shareholders funds

Source – Annexure – I, II and III

If we evaluate overall performance of the model based on the ANOVA table, observing the significant value, we conclude that model is significant as the value is less than 0.05. as revealed in the table below

Table T.4.3.16 ANOVA [Pre-Merger Period]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	92518.718	1	92518.718	269.599	0.000[b]
	Residual	1372.687	4	343.172		
	Total	93891.405	5			

a. Dependent Variable: NP

b. Predictors: (Constant), Shareholders funds

Source – Annexure – I, II and III

Table T.4.3.17 Coefficients [Pre-Merger Period]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-13.674	32.475		-0.421	0.695
	Shareholders' funds	0.215	0.013	0.993	16.419	0.000

a. Dependent Variable: NP

b. Predictors: (Constant), Shareholders funds

Source – Annexure – I, II and III

Pre-Merger period regression equation

$$NP= -13.674+0.215SF$$

4.3.10.2 Post-Merger Period Regression Equation

Table T.4.3.18 Model Summary [Post-Merger Period]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.943[b]	0.890	0.853	708.16288

a. Predictors: (Constant), Finance cost, Shareholders funds

Source – Annexure – I, II and III

If we evaluate overall performance of the model based on the ANOVA table, observing the significant value, we conclude that model is significant as the value is less than 0.05. as revealed in the table below

Table T.4.3.19 ANOVA [Post-Merger Period]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	24291380.724	2	12145690.362	24.219	0.001[c]
	Residual	3008967.953	6	501494.659		
	Total	27300348.677	8			

a. Dependent Variable: NP

b. Predictors: (Constant),Finance cost, Shareholders funds

Source – Annexure – I, II and III

Table T.4.3.20 Coefficients [Post-Merger Period]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-6375.773	1274.929		-5.001	0.002
	Finance cost	30.142	4.535	1.007	6.646	0.001
	Shareholders' funds	0.533	0.111	0.729	4.815	0.003

a. Dependent Variable: NP

b. Predictors: (Constant),Finance cost, Shareholders funds

Source – Annexure – I, II and III

Post-Merger period regression equation

$$NP=-6375.773+ 30.142FC+0.533SF$$

Considering the output, the final model for the Post-Merger time would be given as per above. From the above facts it could be concluded that Shareholders fund was only variable affecting net profit in Pre-Merger period but in post- merger period along with Shareholders fund, finance cost was also affecting net profit of sample company. Shareholders fund is the common independent variable affecting profitability in terms of Net profit in Pre-Merger and Post-Merger period of sample company. Correlation coefficient between NP and shareholders fund in Pre-Merger period is 0.99 and in Post-Merger period it is 0.28. It was positive but declined in Post-Merger period as compared to pre- merger period, thus it could be said that Shareholders fund was efficiently utilized in Pre-Merger period that resulted to improved return on equity of company However it was not equally efficiently utilized in Post-Merger period thus affecting return on equity.

R^2 during the Pre-Merger period is higher than Post-Merger period**.**

4.4 CASE 4 – ACQUIRER COMPANY : KERELA AYURVEDA LTD.

4.4.1 Background of the Company

Kerala Ayurveda Limited engages in the manufacture and sale of ayurvedic products and also provides healthcare services in India. The company produces different products like ayurvedic classical medicines and ayurvedic patent products and also operates clinics, resorts, and wellness centres that provides different ayurvedic lifestyle products which includes health supplements, skin and beauty care products, specialty foods, tea, spices, books, and CDs. Kerala Ayurveda was formerly known as Kerala Ayurveda Pharmacy Limited and changed its name to Kerala Ayurveda Limited in January 2007. Kerala Ayurveda Limited was established in 1945 and have headquarters in Bangalore.

The company underwent amalgamation with growth objective. The Scheme of Amalgamation and Arrangement between Katra Healthcare Pvt Ltd. and Kerala Ayurveda Pharmacy Ltd. was sanctioned by Hon'ble High Court of Karnataka and Hon'ble High Court in January 2006.

The subsequent part of chapter covers analysis of the financial performance of Kerala Ayurveda Limited ltd for Pre-Merger and Post-Merger period.

The period of study covers 16 years commencing from 2000-2001 to 2015-2016.

Period of study - 2000-2001 to 2015-2016

Pre-Merger period - 2000-2001 to 2004-2005

Post- Merger period - 2006-2007 to 2015-2016

Merger Year/Zero Year-2005-2006

Table No 4.4.1 on the next page shows calculation of various profitability ratios of the sample acquirer company for the period under study.

4.4.2 Profitability Ratios of Kerela Ayurveda ltd during Pre-Merger and Post-Merger Period

Table T.4 4.1 Profitability Ratios in Pre-Merger and Post- Merger period

Pre- Merger period (2000-01 to 2004-05)- 5 years								Post- Merger period (2006-07 to 2015-16)- 10 years											
Profitability Ratios	**Mar 2000-2001**	**Mar 2001-2002**	**Mar 2002-2003**	**Mar 2003-2004**	**Mar 2004-2005**	**Average ratio**	**Standard Deviation**	**Mar 2006-2007**	**Mar 2007-2008**	**Mar 2008-2009**	**Mar 2009-2010**	**Mar 2010-2011**	**Mar 2011-2012**	**Mar 2012-2013**	**Mar 2013-2014**	**Mar 2014-2015**	**Mar 2015-2016**	**Average Ratio**	**Standard Deviation**
GP Ratio [%]	69.96	69.46	65.41	67.53	66.06	67.69	2.01	63.83	60.90	66.31	55.87	67.42	59.91	66.28	67.70	65.41	64.73	63.84	3.81
NP Ratio [%]	4.11	-17.13	-10.23	0.57	0.12	-4.51	8.85	-10.69	-26.94	-21.94	-8.06	7.08	0.29	4.02	4.03	3.91	5.30	-4.30	12.14
Operating ratio [%]	87.7	98.09	100.9	96.67	94.62	95.60	4.98	106.16	127.87	125.83	109.61	107.91	96.50	91.45	91.07	90.54	89.04	103.60	14.46
Cash profit margin [%]	6.99	-12.50	-5.72	4.52	3.15	-0.71	8.15	-2.99	-19.45	-10.48	1.79	18.20	3.33	7.04	6.27	5.97	6.91	1.66	10.47
ROCE[%]	8.78	-2.68	0.36	13.36	9.76	5.92	6.766	-0.94	-8.76	-5.71	-1.24	4.53	1.63	3.20	4.05	4.22	5.54	0.65	4.78
ROTA[%]	6.93	-1.91	0.21	8.72	6.05	4.00	4.594	-1.17	-10.16	-6.54	-1.27	4.34	1.70	3.30	3.68	3.76	4.99	-3.07	5.09
ROE[%]	6.29	-39.70	-33.30	1.43	0.29	-13.00	21.69	-8.54	-33.47	-37.82	-17.44	12.21	0.67	7.20	7.57	7.93	11.01	-5.07	18.59
EPS[Rs]	0.77	-3.30	-2.06	0.10	0.02	-0.89	1.71	-1.55	-4.38	-3.74	-1.55	1.34	0.07	0.86	0.97	1.05	1.63	-0.53	2.170
Price Earnings ratio [Times]	13.57	-3.03	-6.80	155	1617.5	355.3	708.8	-89.81	-4.53	-12.30	-51.51	28.27	528.67	27.51	39.02	68.63	42.74	57.67	172.16

Source - Annexure I, II and III

Profitability Analysis

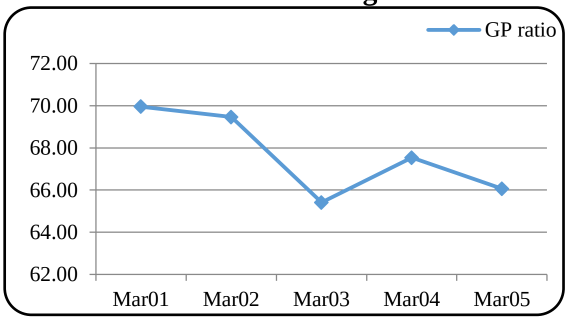
Table 4.4.1 reveals the calculation of various profitability ratios of Kerela Ayurveda Ltd during Pre-Merger Period and Post-Merger Period.

The Profitability of sample company is analysed and interpreted using various profitability ratios based on sales and Investment

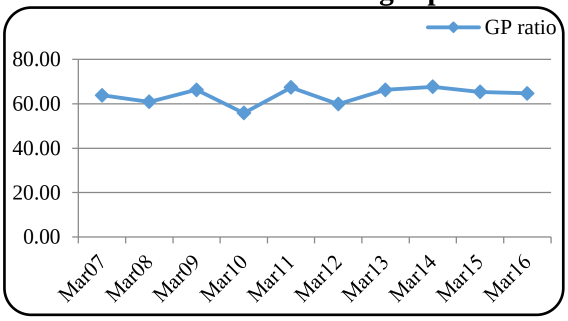
Gross profit Ratio [GPR]

As exhibited in table T. 4.4.1 & figure G4.1, GP ratio showed an overall declining trend during Pre-Merger period and on an average it was 67.69%.

G 4.1 GPR in Pre-Merger Period



G 4.1.1 GPR in Post-Merger period



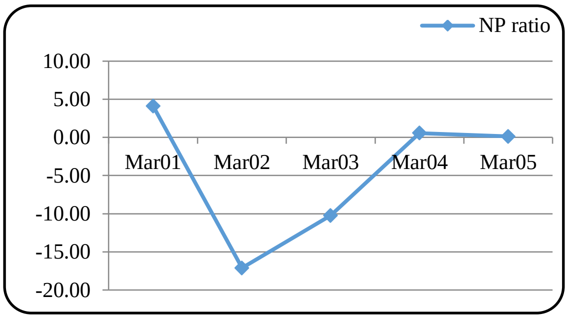
Source – Table T.4 4.1

As indicated in table T. 4.4.1 &Table T.4 4.1 and figure G4.1.1, during the Post-Merger period showed a fluctuating trend. The Average GP Ratio in Post-Merger period was 63.84%. Overall it could be observed that there was decline in rate of GP ratio in Kerela Ayurveda ltd in Post-Merger period. The Standard Deviation of Post-Merger period was higher as compared to Pre-Merger period indicating that ratio was fluctuated more in Post-Merger period as compared to Pre-Merger period.

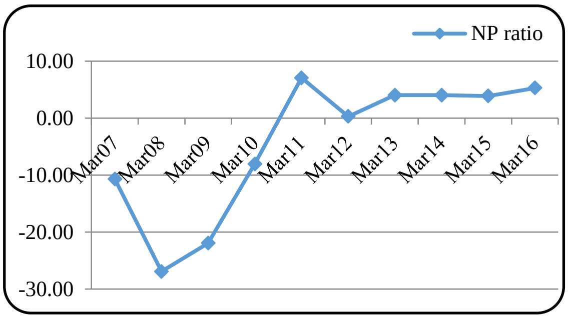
Net Profit Ratio [NPR]

As revealed by Table T. 4.4.1 and figure G.4.2, NP ratio showed a fluctuating trend in Pre-Merger period. The ratio was negative in 2001-2002 and 2003-2003 during the period resulted by heavy finance charges and on an average ratio was -4.51%.

G.4.2 NPR in Pre-Merger Period



G.4.2.1 NPR in Post-Merger Period



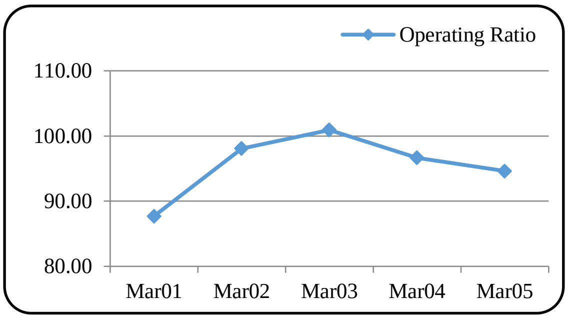
Source – Table T.4 4.1

As seen in Table T.4.4.1 and figure G.4.2.1. during the Post-Merger period showed overall increasing trend. The ratio was negative during 2006-2007 to 2009-2010 thereafter it was positive throughout the period. Though the average ratio was negative, the substantial decrease in finance charge helped the company to register positive NP ratio in the later period of study, The Standard Deviation of Post-Merger period was higher as compared to pre- merger period indicating fluctuation of ratio was more in Post-Merger period as compared to Pre-Merger period.

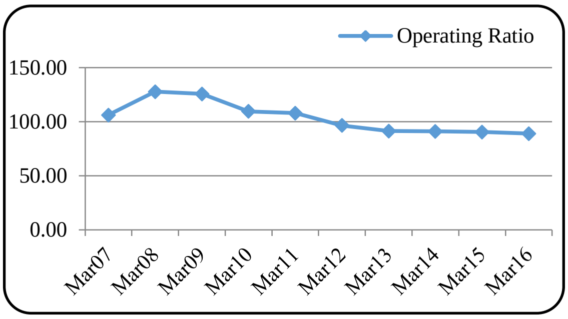
Operating Ratio [OR]

In Pre-Merger period as evident in table T.4.4.1 and figure.G.4.3, Operating ratio registered an overall increasing trend and on an average ratio was 95.60.

G.4.3 OR in Pre-Merger Period



G.4.3.1 OR in Post-Merger Period



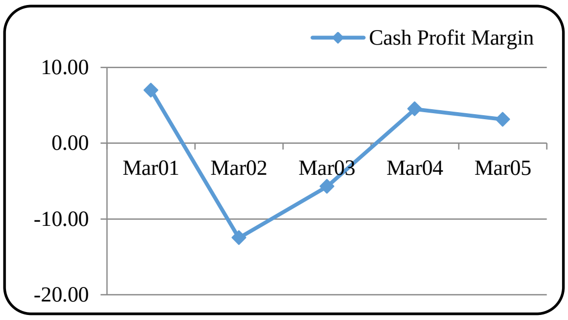
Source- Table T.4 4.1

In Post-Merger period as seen in table T. 4.4.1 & figure G.4.3.1, The ratio initially increased but later declined depicting reduction in the operating cost & thereby increase in profit and on an average it was 103.60 %. The Standard Deviation of Post-Merger period was higher as compared to Pre-Merger period, indicating that ratio was fluctuated more in Post-Merger period as compared to Pre-Merger period.

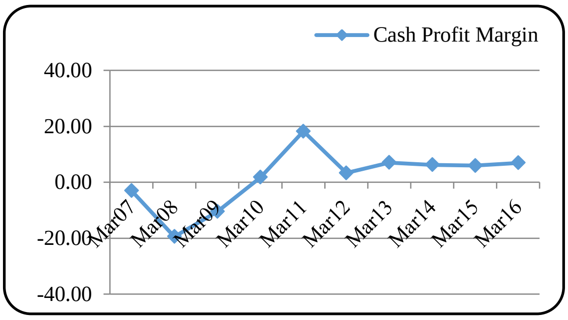
Cash Profit Margin[CPM]

In Pre-Merger period as disclosed in table T.4.4.1 figure G.4.4, Cash profit margin registered a fluctuating trend and on an average was -0.71 %. The ratio in 2001-2002 and 2002-2003 was negative owing to substantial increase in finance charges.

G.4.4 CPM in Pre-Merger Period



G.4.4.1 CPM in Post-Merger Period



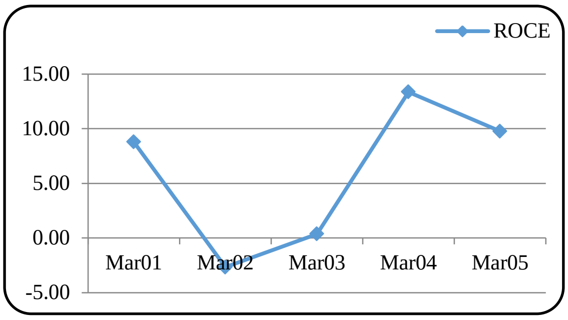
Source – Table T.4 4.1

As per table T4.4.1 and figure G.4.4.1during Post-Merger period also, the ratio fluctuated and on an average it was1.66 %. The Negative Cash Profit Margin was observed from 2006-2007 to 2009-2010 and thereafter it turned positive due to reduction in finance charges. It is also observed that the Cash profit margin increased in post -merger period. The Standard Deviation of Post-Merger period was higher as compared to Pre-Merger period indicating more fluctuation in post- merger period as compared to Pre-Merger data.

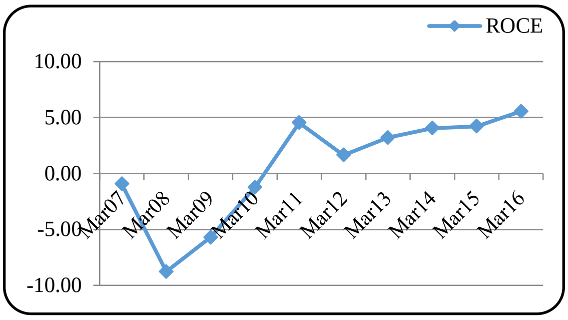
Return on capital employed [ROCE]

In Pre-Merger period as revealed in table T.4.4.1 and figure G.4.5, Return on capital employed showed a fluctuating trend. It was negative in the year 2001-2002 due to substantial increase in finance charges. The Average ratio was 5.92 %.

G.4.5 ROCE in Pre-Merger Period



G.4.5.1 ROCE in Post-Merger Period



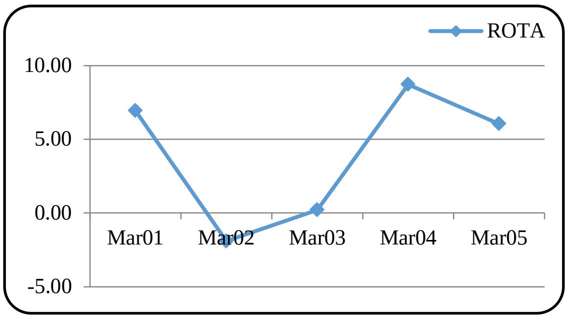
Source – Table T.4 4.1

As indicated in table T. 4.4.1 & figure G.4.5.1, during Post-Merger period it could be observed that ROCE was negative during 2006-2007 to 2009-2010 and thereafter it turned positive due to reduction in finance charges. It was lowest in 2007-2008 i.e.-8.76% due to increased selling and distribution expenses. The Average Return on capital employed in Post-Merger period was 0.65 % which was lower than Pre-Merger period. The Standard Deviation of Pre-Merger period was higher as compared to post -merger period indicating that ratio fluctuated more in Pre-Merger period as compared to Post-Merger period.

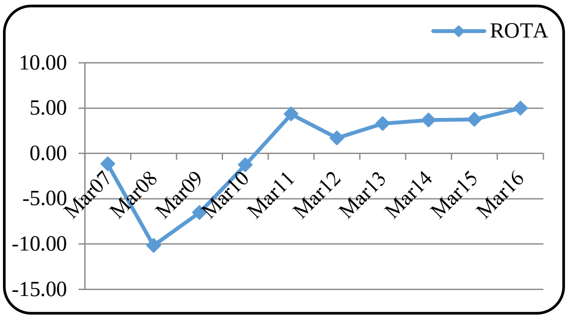
Return on Total Assets [ROTA]

In Pre-Merger period as exhibited in table T.4.4.1. and figure G.4. 6, Return on Total assets registered fluctuating trend. It was negative in 2001- 2002 due to increased finance cost and on an Average it was 4 %.

G.4.6 ROTA in Pre-Merger Period



G.4.6.1 ROTA in Post-Merger Period



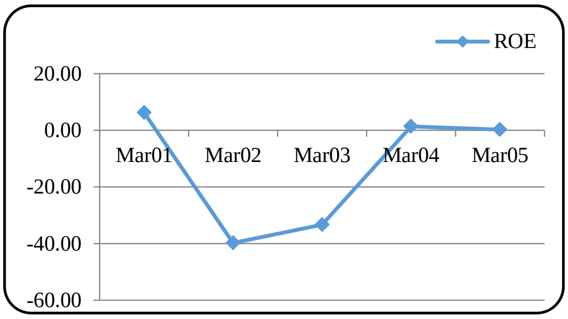
Source – *Table T.4 4.1*

As indicated in table T. 4.4.1 & figure G.4.6.1, during Post-Merger period, return on Total assets was negative till 2009- 2010 and later on it turned positive. The Average Return on Total assets in Post-Merger period was -3.07% which was quite lower as compared to Pre-Merger period. The Positive ROTA in the last six years of the study indicates a positive impact of the Merger. The Standard Deviation of Post-Merger period was higher as compared to Pre-Merger period indicating more fluctuation of the ratio in Post-Merger period.

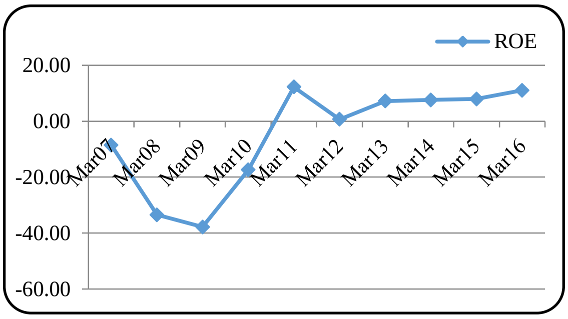
Return on Equity [ROE]

In Pre-Merger period as observed in table T.4.4.1 and figure G.4.7, Return on Equity registered a fluctuating trend, it was negative during 2001- 2002 and 2002-2003 due to high finance charges. The Average Return on Equity in Pre-Merger period was -13 %.

G.4.7 ROE in Pre-Merger Period



G.4.7.1 ROE in Post-Merger Period



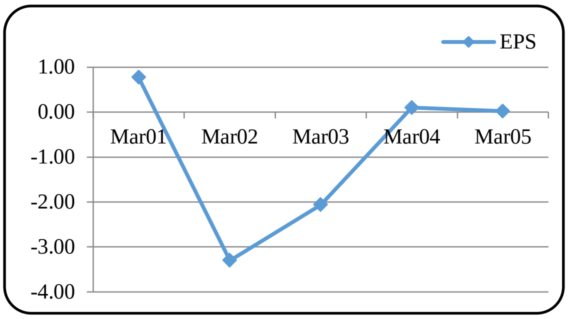
Source – Table T.4 4.1

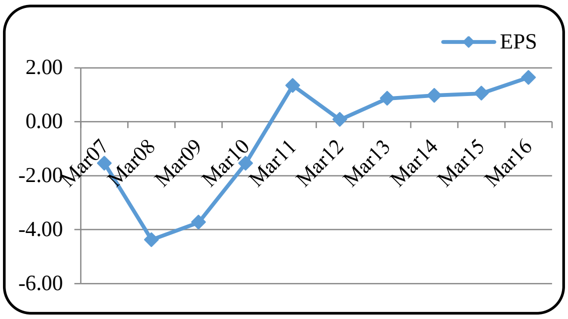
During Post-Merger period, as observed in table T. 4.4.1 & figure G.4.7.1, The ratio registered an overall inclining trend. It was negative till 2009-2010 and thereafter increased and was 4.53 % and on an average it was -5.07%. The decrease in the average negative ROE in the Post-Merger as compared to Pre-Merger period indicated a positive impact of merger. The Standard Deviation of Pre-Merger period was higher as compared to post merger period indicating more ratio fluctuation in Pre-Merger period as compared to Post-Merger period.

Earnings per share [EPS]

In Pre-Merger period as revealed in table T.4.4.1 and figure G.4. 8, Earnings per share fluctuated as it was negative in the year 2001-2002 and on an average it was (Rs -0.89).

G.4.8 EPS in Pre-Merger Period **G.4.8.1 EPS in Post-Merger Period**





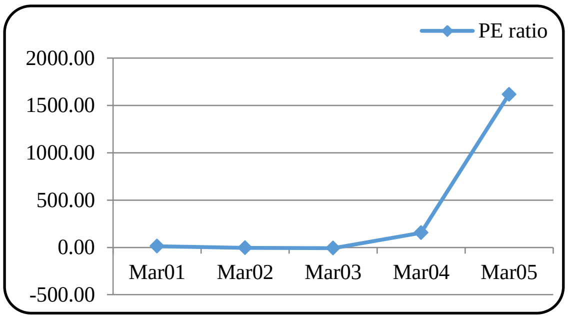
Source – Table T.4 4.1

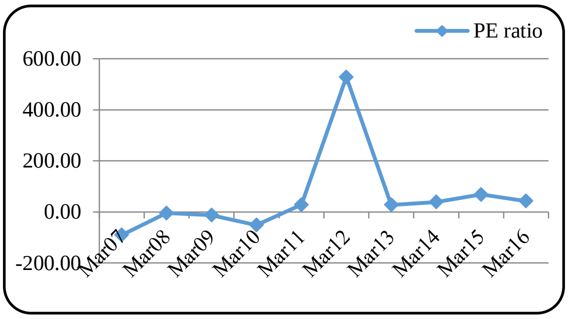
As depicted in table T. 4.4.1 & figure G.4.8.1, during the Post-Merger period, EPS registered an overall increasing trend. It was negative till 2009-2010 and thereafter increased and remained positive throughout. On an Average it was (Rs -0.53). The increased EPS in Post-Merger period as compared to Pre-Merger period showed positive impact of Merger. The Standard Deviation of post- merger period was higher as compared to pre- merger period indicating that ratio was fluctuated more in Post-Merger period.

Price/Earnings Ratio [PE ratio]

In Pre-Merger period as exhibited in table T.4.4.1. and figure G.4.9, Price earnings ratio fluctuated and was highest in the year 2004-2005 at 1617.5 times owing to low EPS and proportionately high market price per share and on an average ratio was 355.26 times.

G.4.9 PE ratio in Pre-Merger Period **G.4.9.1 PE ratio in Post-Merger Period**





Source – Table T.4 4.1

During the Post-Merger period, as observed in table T. 4.4.1 & figure G.4.9.1, The ratio registered a fluctuating trend. It was negative from 2006- 2007 to 2009- 2010 and thereafter it turned positive. The Highest PE ratio was observed in the year 2011-2012 at 528.67 times on an Average ratio was 57.67 times which was low as compared to Pre-Merger period. The Standard Deviation of Pre-Merger period was higher as compared to post merger period indicating that ratio fluctuated more in Pre-Merger period.

Table No 4.4.2 on the next page shows calculation of various liquidity ratios of the sample acquirer company for the period under study.

4.4.3. Liquidity Ratios of Kerela Ayurveda ltd during Pre-Merger and Post-Merger Period

Table T.4.4.2 Liquidity Ratios in Pre-Merger and Post-Merger Period

Pre- Merger period (2000-01 to 2004-05)- 5 years								Post- Merger period (2006-07 to 2015-16)- 10 years											
Liquidity Ratios	**Mar 2000-2001**	**Mar 2001-2002**	**Mar 2002-2003**	**Mar 2003-2004**	**Mar 2004-2005**	**Average ratio**	**Standard Deviation**	**Mar 2006-2007**	**Mar 2007-2008**	**Mar 2008-2009**	**Mar 2009-2010**	**Mar 2010-2011**	**Mar 2011-2012**	**Mar 2012-2013**	**Mar 2013-2014**	**Mar 2014-2015**	**Mar 2015-2016**	**Average Ratio**	**Standard Deviation**
Current ratio [Proportion]	1.47	1.29	0.89	1.50	1.35	1.30	0.24	4.11	5.89	5.57	3.23	1.40	0.84	0.98	0.56	0.70	0.77	2.41	2.12
Quick ratio [Proportion]	0.74	0.70	0.51	0.77	0.64	0.67	0.10	2.63	4.52	4.01	2.55	0.95	0.49	0.61	0.28	0.40	0.47	1.69	1.61
Super Quick ratio [Proportion]	0.05	0.04	0.04	0.03	0.07	0.05	0.02	0.14	0.21	0.10	0.08	0.27	0.11	0.10	0.01	0.09	0.11	0.12	0.07

Source – Annexure II and III

Liquidity Analysis

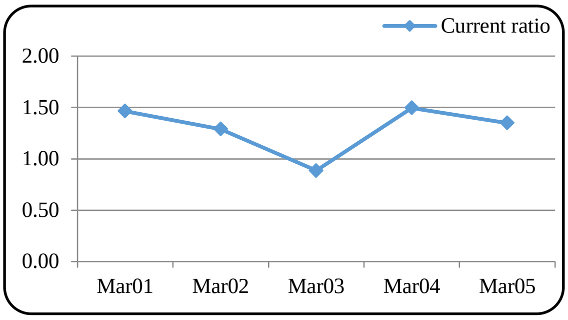
Table 4.4.2 reveals the calculation of various Liquidity ratios of Kerela Ayurveda Ltd during Pre-Merger Period and Post-Merger Period.

The Liquidity of sample company is analysed and interpreted using various Liquidity ratios based on Current assets and Current liabilities**.**

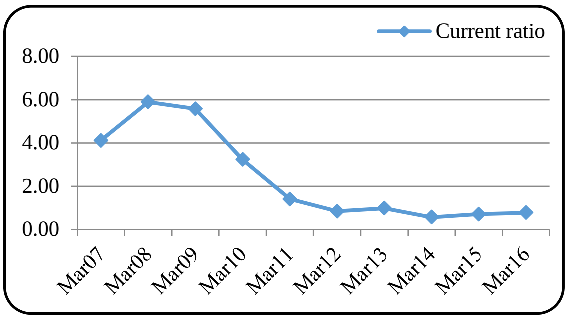
Current Ratio [CR]

During the Pre-Merger period as indicated in table T.4.4.2 and figure G.4.10, Current ratio showed a fluctuating trend and on an it was 1.30:1.

G.4.10 CR in Pre-Merger Period



G.4.10.1 CR in Post-Merger Period



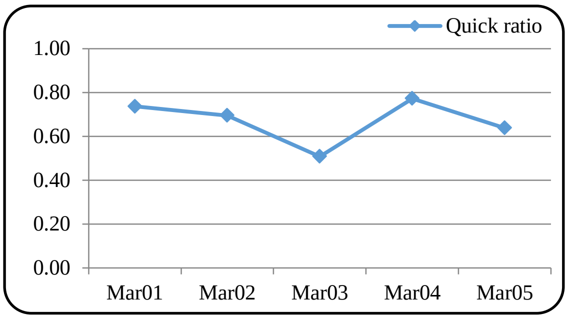
Source – Table T.4.4.2

As indicated in table T. 4.4.2 & figure G.4.10, during the Post-Merger period the ratio showed an overall declining trend except for the increase in the year 2010-2011 whereby it constantly declined throughout. The initial increase was due to increase in trade receivables and short term loans and advances. On an Average ratio was 2.41:1, which was higher as compared to Pre-Merger period indicating improvement in liquidity of sample company. The Standard Deviation of Post-Merger period was higher as compared to Pre-Merger period indicating more fluctuation in ratio in Post-Merger period as compared to Pre-Merger period.

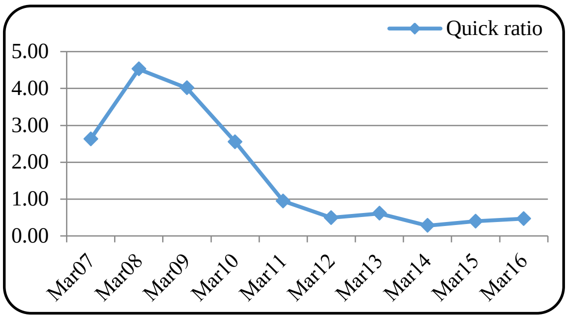
Quick Ratio [QR]

In Pre-Merger period as revealed in table T.4.4.2 and figure G.4.11, Quick ratio showed a fluctuating trend and on average it was 0.67:1.

G.4.11 QR in Pre-Merger Period



G.4.11.1 QR in Post-Merger Period



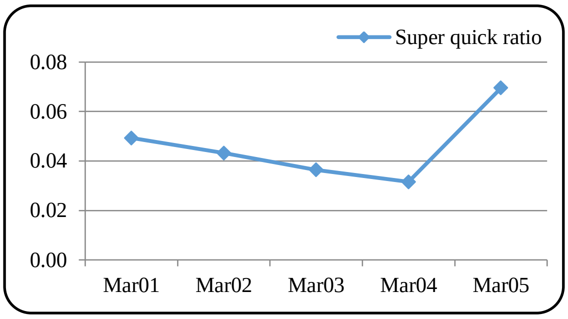
Source – Table T.4.4.2

During Post-Merger period, as indicated in table T. 4.4.2 & figure G.4.11.1, Quick ratio showed an overall declining trend. It increased up to 2009-2010 and thereafter declined. It was highest in the year 2007- 2008 at 4.52:1, due to increase in cash, bank balance and short term loans and advances and on an average it was 1.69:1, which was higher as compared to Pre-Merger period showing improvement in liquidity of sample company. The Standard Deviation of post- merger period was higher as compared to Pre-Merger period indicating that more fluctuation in ratio in Post-Merger period as compared to Pre-Merger period.

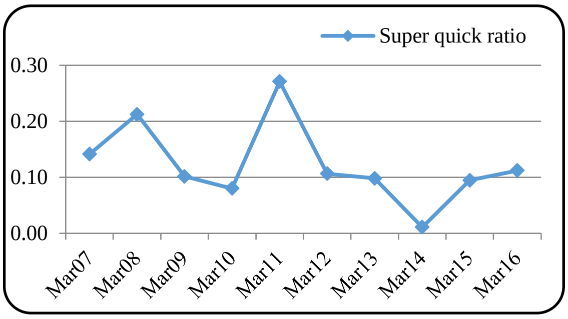
Super quick Ratio [SQR]

In Pre-Merger period as exhibited in table T.4.4.2 and figure G.4.12, Super Quick ratio showed fluctuating trend and on average it was 0.05:1.

G.4.12 SQR in Pre-Merger Period



G.4.12.1 SQR in Post-Merger Period



Source – Table T.4.4.2

As disclosed in table T. 4.4.2 &figure G.4.12.1During Post-Merger period, it fluctuated. The highest ratio was observed in2010- 2011 i.e.0.27:1 due to good higher proportion of cash and bank balance in Total Current Assets. The lowest ratio was observed in the year 2013- 2014 at.0.01:1 due to decline in cash and bank balance and on an average ratio was 0.12:1 which was higher as compared to Pre-Merger period indicating improvement in absolute liquidity of the sample company. The Standard Deviation of pre- merger period was lower as compared to post merger period indicating that super Quick ratio fluctuated more in Post-Merger period as compared to Pre-Merger period.

Table No 4.4.3. on the next page shows calculation of various long term solvency ratios of the sample acquirer company for the period under study.

4.4.4 Long Term Solvency Ratios of Kerela Ayurveda ltd during Pre-Merger and Post-Merger Period

Table T.4.4.3 Long Term Solvency Ratios in Pre-Merger and Post-Merger Period

Pre- Merger period (2000-01 to 2004-05)- 5 years								Post- Merger period (2006-07 to 2015-16)- 10 years											
Long term Solvency Ratios	**Mar 2000-2001**	**Mar 2001-2002**	**Mar 2002-2003**	**Mar 2003-2004**	**Mar 2004-2005**	**Average ratio**	**Standard Deviation**	**Mar 2006-2007**	**Mar 2007-2008**	**Mar 2008-2009**	**Mar 2009-2010**	**Mar 2010-2011**	**Mar 2011-2012**	**Mar 2012-2013**	**Mar 2013-2014**	**Mar 2014-2015**	**Mar 2015-2016**	**Average Ratio**	**Standard Deviation**
Debt equity ratio [Proportion]	1.15	1.79	2.09	1.13	1.26	1.48	0.43	0.97	2.53	3.93	4.78	4.23	4.05	4.26	3.51	3.58	3.17	3.50	1.089
Fixed asset ratio [Proportion]	0.88	0.92	1.09	0.71	0.76	0.87	0.15	0.38	0.29	0.33	0.36	0.24	0.24	0.26	0.29	0.26	0.25	0.29	0.05
Proprietary ratio [Proportion]	0.53	0.39	0.30	0.67	0.61	0.50	0.15	1.91	1.35	0.89	0.60	0.83	0.84	0.74	0.76	0.84	0.96	0.97	0.38
Interest coverage ratio [Times]	1.93	0.10	0.34	1.46	1.42	1.05	0.787	0.49	-1.50	-0.41	0.89	6.65	2.16	3.65	3.05	2.90	3.65	2.15	2.365

Source – Source – Annexure I, II and III

Long Term Solvency Analysis

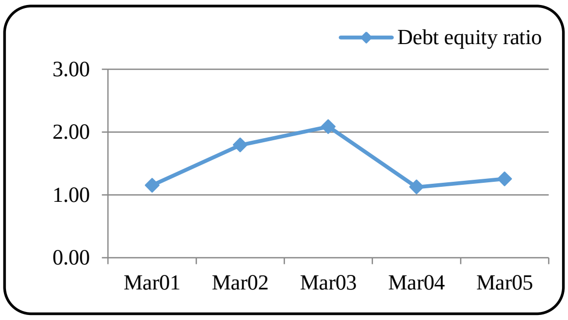
Table 4.4.3 reveals the calculation of various Long term solvency ratios of Kerela Ayurveda ltd during Pre-Merger Period and Post-Merger Period.

The Long term solvency of sample company is analysed and interpreted using various Long Term Solvency Ratios based on Long term debt, share capital, Fixed assets and Equity shareholders fund.

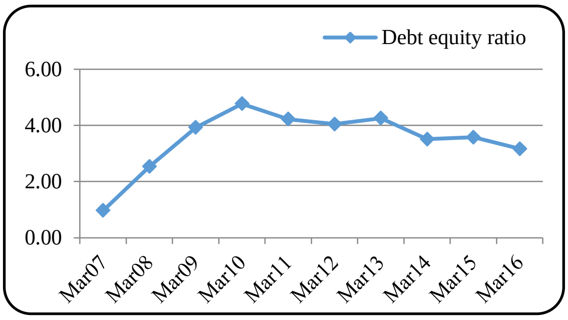
Debt Equity Ratio [DER]

In Pre-Merger period as exhibited in table T.4.4.3 and figure G.4.13 Debt Equity ratio fluctuated and on an average was 1.48:1.

G.4.13 DER in Pre-Merger Period



G.4.13.1. DER in Post-Merger Period



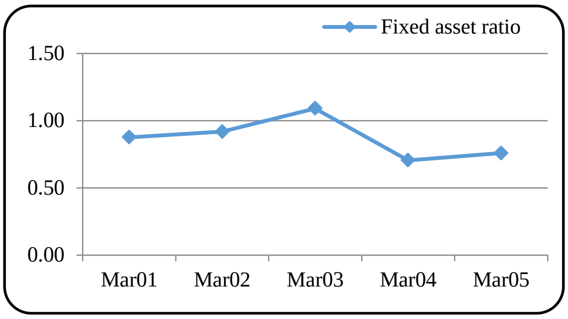
Source – Table T.4.4.3

As revealed in table T. 4.4.3 & figure G.4.15.1during Post-Merger period, the ratio showed an overall increasing trend. The Highest ratio was observed in 2009-2010 at 4.78:1 due to increase in debt and reduction in equity due to losses. The Average ratio was 3.50:1 due to decrease in equity and proportionate increase in debt. The decrease in equity was due to heavy losses in years from 2006-2007 to 2009-2010. The Standard Deviation of Post- merger period was higher as compared to Pre-Merger period indicating that ratio was fluctuated more in Post-Merger period as compared to Pre-Merger period.

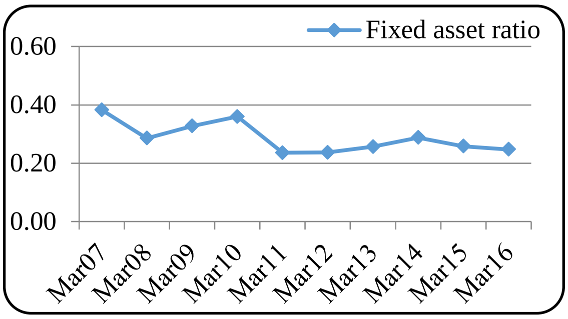
Fixed Asset Ratio [FAR]

In Pre-Merger period as disclosed in table T.4.4.3 and figure G.4.14, Fixed asset ratio showed a fluctuating trend. The Average ratio in Pre-Merger period was0.87:1.

G.4.14 FAR in Pre-Merger Period



G.4.14.1 FAR in Post-Merger Period



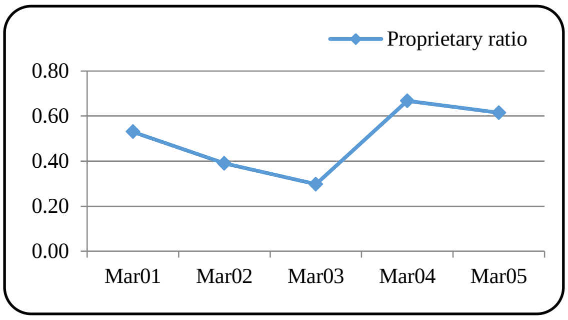
Source – Table T.4.4.3

As depicted in table T. 4.4.3 & figure G.4.16.1, during the Post-Merger period also the ratio fluctuated. The Average Fixed asset ratio in Post-Merger period was 0.29:1 which was lower as compared to Pre-Merger period, the decreased ratio indicating decrease in the proportion of long term funds used to finance fixed assets as compared to Pre-Merger period. The Standard Deviation of Pre-Merger period was higher as compared to Post merger period indicating that ratio fluctuated more in in Pre-Merger Period as compared to Post-Merger Period.

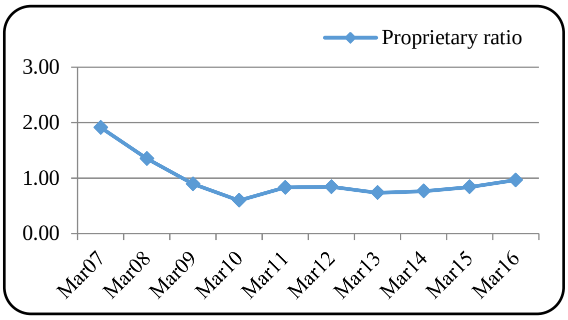
Proprietary Ratio [PR]

During the Pre-Merger period as depicted in table T.4.4.3 and figure G.4.15, The Proprietary ratio fluctuated and on an average it was 0.50:1.

G.4.15 PR in Pre-Merger Period



G.4.15.1 PR in Post-Merger Period



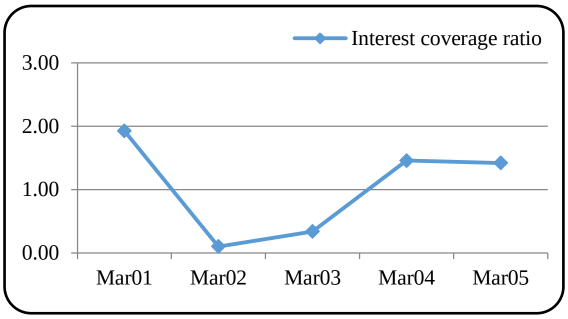
Source – Table T.4.4.3

During Post-Merger period, as indicated in table T. 4.4.3 & figure G.4.15.1, Proprietary ratio showed a fluctuating trend and on an average it was 0.97:1. The Average Proprietary ratio increased in Post-Merger period as compared to Pre-Merger period owing to substantial reduction in shareholder's fund. It also indicated less dependence on external funds. The Standard Deviation of post- merger period was higher as compared to pre- merger period indicating that ratio fluctuated more in in Post-Merger Period as compared to Pre-Merger Period.

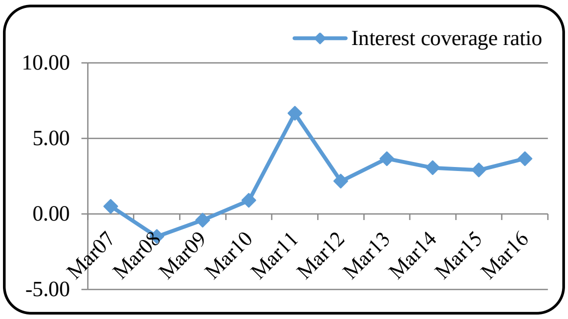
Interest Coverage Ratio [ICR]

In Pre-Merger period as revealed in table T.4.4.3 and figure G.4.16, Interest coverage ratio showed a fluctuating tend and on an average it was 1.05 times

G.4.16 ICR in Pre-Merger Period



G.4.16.1 ICR in Post-Merger Period



Source – Table T.4.4.3

During Post-Merger period also as seen in table T. 4.4.3 & figure G.4.16.1 Interest coverage ratio fluctuated. The Average Interest coverage ratio in Post-Merger period was 2.15 times. In the year2007- 2008 & 2008- 2009, the ratio was negative due to heavy losses. The Average Interest coverage ratio increased in Post-Merger period as compared to Pre-Merger period indicating that the sample company ability to cover interest charges and increase in the earnings available to stakeholders. This also indicates the unused borrowing capacity and scope of reaping the benefits of leverage. The Standard Deviation of post- merger period was higher as compared to Pre-Merger period indicating that ratio fluctuated more in in Post-Merger Period as compared to Pre-Merger Period.

Table No 4.4.4 on the next page shows calculation of various efficiency ratios of the sample acquirer company for the period under study.

4.4.5 Efficiency Ratios of Kerela Ayurveda ltd during Pre-Merger and Post-Merger Period

Table T.4.4.4 Efficiency Ratios in Pre-Merger period and Post- Merger period

Pre- Merger period (2000-01 to 2004-05)- 5 years								Post- Merger period (2006-07 to 2015-16)- 10 years											
Efficiency Ratios	**Mar 2000-2001**	**Mar 2001-2002**	**Mar 2002-2003**	**Mar 2003-2004**	**Mar 2004-2005**	**Average ratio**	**Standard Deviation**	**Mar 2006-2007**	**Mar 2007-2008**	**Mar 2008-2009**	**Mar 2009-2010**	**Mar 2010-2011**	**Mar 2011-2012**	**Mar 2012-2013**	**Mar 2013-2014**	**Mar 2014-2015**	**Mar 2015-2016**	**Average Ratio**	**Standard Deviation**
Capital turnover ratio[Times]	0.71	0.83	1.05	1.17	1.11	0.98	0.19	0.41	0.35	0.35	0.37	0.33	0.46	0.34	0.41	0.44	0.50	0.40	0.06
Inventory turnover ratio [Times]	1.20	1.18	1.39	1.07	0.93	1.15	0.17	1.11	1.19	0.95	1.38	1.06	2.39	2.47	2.09	1.88	2.05	1.66	0.58
Inventory to current asset ratio [%]	49.65	46.11	42.55	48.29	52.68	47.86	3.81	36.01	23.23	28.01	20.92	32.36	41.17	37.42	49.51	43.44	39.24	35.13	9.04
Working capital turnover ratio [Times]	5.52	7.27	-16.65	4.32	4.96	1.08	9.98	1.33	0.81	0.90	0.98	3.38	-26.99	98.81	-3.68	-5.53	-8.78	6.12	33.75
Fixed asset turnover ratio [Times]	0.81	0.90	0.97	1.67	1.46	1.16	0.38	1.06	1.23	1.07	1.04	1.40	1.93	1.32	1.44	1.70	2.00	1.42	0.35
Debtors turnover ratio [Times]	6.05	5.25	4.59	3.73	3.96	4.72	0.95	4.76	3.88	3.59	3.97	4.12	7.08	6.36	6.00	6.58	6.77	5.31	1.37

Source – Annexure I, II and III

Efficiency Analysis

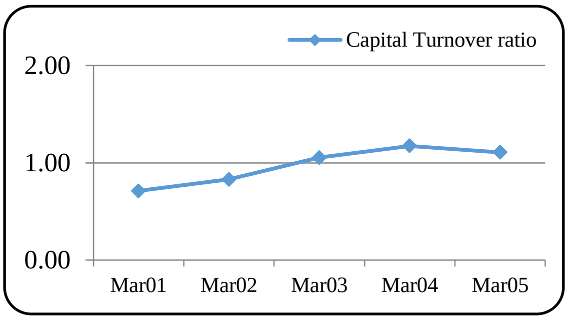
Table 4.4.4 reveals the calculation of various efficiency ratios of Kerela Ayurveda ltd ltd during Pre-Merger Period and Post-Merger Period.

The efficiency ratios of sample company are analyzed and interpreted using various efficiency ratios based on sales and investment in Inventories, Fixed Assets, Working Capital, Debtors, Total Capital Employed etc.

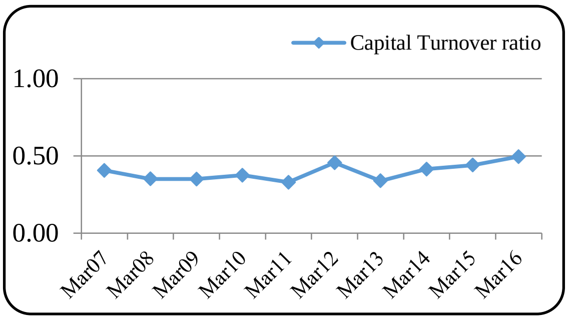
Capital turnover Ratio [CTOR]

During the Pre-Merger period as disclosed in table T.4.4.4 and figure G.4.17, Capital Turnover ratio showed fluctuating trend. The ratio increased till 2003- 2004 and thereafter marginally declined in 2004-2005 and on an average ratio was 0.98 times.

G.4.17 CTOR in Pre-Merger Period



G.4.17.1 CTOR in Post-Merger Period



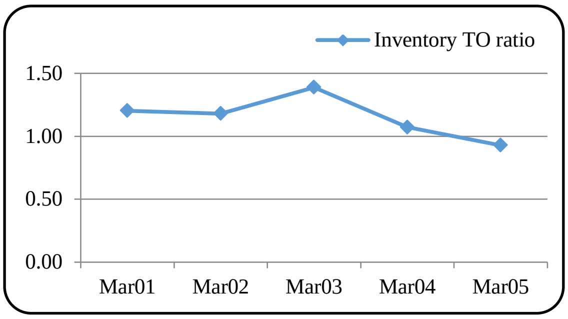
Source – Table T.4.4.4

As disclosed in table T. 4.4.4 & figure G.4.17.1, during the Post-Merger period also the ratio registered a fluctuating trend and on an average ratio was 0.40 times. During the Post-Merger period, average ratio decreased as compared to Pre-Merger period indicating inefficient utilization of capital employed for generating sales in post period. The Standard Deviation of pre- merger period was higher as compared to post merger indicating that ratio was fluctuated more in Pre-Merger period as compared to Post-Merger period.

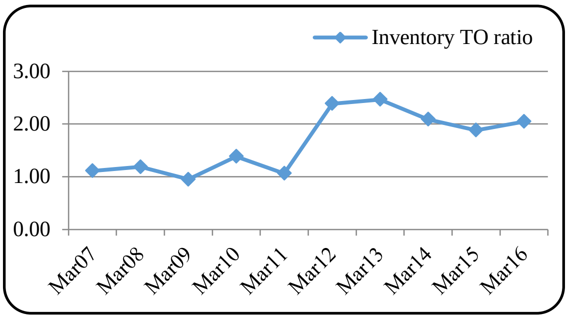
Inventory Turnover Ratio [ITOR]

During the Pre-Merger period as revealed in table T.4.4.4 and figure.G.4.18, Inventory Turnover ratio fluctuated and on an average it was 1.15 times.

G .4.18 ITOR in Pre-Merger Period



G.4.18.1 ITOR in Post-Merger Period



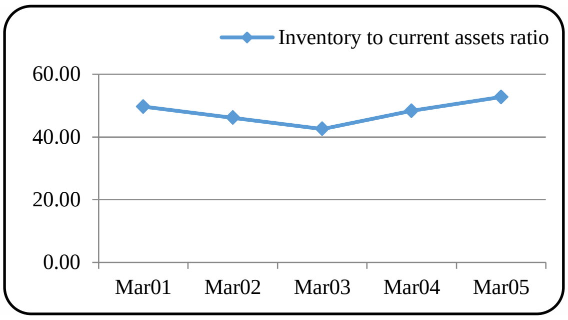
Source – Table T.4.4.4

As indicated in table T. 4.4.4 & figure G.4.18.1, During Post-Merger period too Inventory Turnover ratio fluctuated and on an average it was 1.66 times. The increased average inventory turnover ratio as compared to Pre-Merger period indicated efficient utilization of inventory or merchandise in Post-Merger period as compared to pre- merger period. The Standard Deviation of post- merger period was higher as compared to Pre-Merger period indicating that ratio fluctuated more in Post-Merger period as compared to Pre-Merger period.

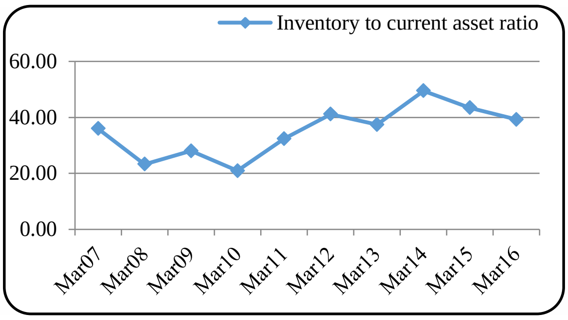
Inventory to current asset ratio [ICAR]

In Pre-Merger period as depicted in table T.4.4.4 and figure G.4.19, Inventory to current asset ratio registered a fluctuating trend and on an average it was 47.86%.

G.4.19 ICAR in Pre-Merger Period



G.4.19.1 ICAR Ratio in Post-Merger Period



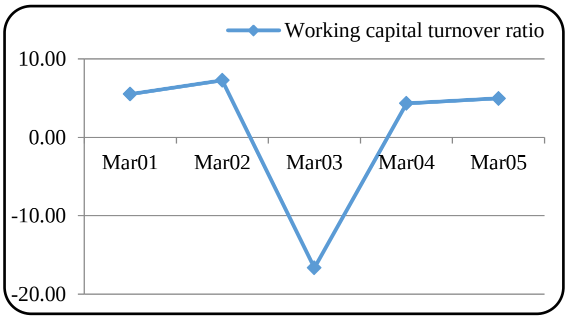
Source – Table T.4.4.4

As indicated in table T. 4.4.4 & figure G.4.19.1, during Post-Merger period also the ratio fluctuated and on an average it was 35.13%. Average Inventory to current asset ratio declined in Post-Merger period as compared to Pre-Merger period. The component of the current assets exhibiting less blockage of funds. The Standard Deviation of Pre-Merger period was lower as compared to Post merger period indicated that ratio fluctuated more in Post-Merger period as compared to Pre-Merger period.

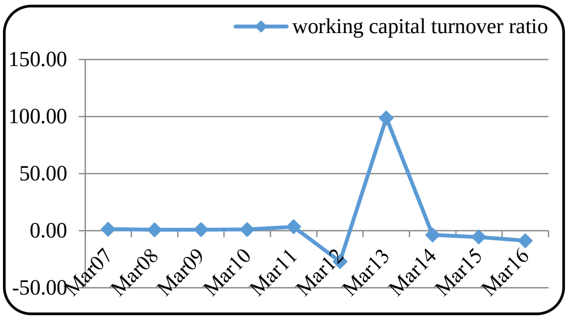
Working Capital Turnover Ratio [WCTOR]

In Pre-Merger period as exhibited in table T.4.4.4 and figure G.4.20, Working capital turnover ratio registered a fluctuating trend. The ratio was negative in the year 2002-2003 as current liabilities as compared to current assets were proportionately more and on an average it was 1.08 times.

G .4.20 WCTOR in Pre-Merger Period



G.4.20.1 WCTOR in Post-Merger Period



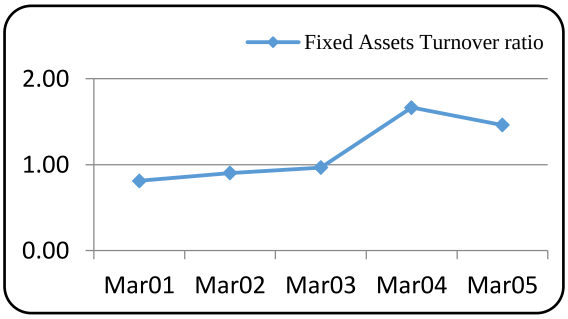
Source – Table T.4.4.4

As indicated in table T. 4.4.4 & figure G.4.20.1 during Post-Merger period, ratio fluctuated and on an average it was 6.12 times. The highest working capital turnover ratio in 2012-2013 i.e. 98.81 times. Working capital turnover ratio was negative in 2011- 2012, 2013- 2014, 2014- 2015 and 2015-2016 due to more current liabilities as compared to current assets. The increased average WCTOR in Post-Merger period as compared to Pre-Merger period indicated reduction in blockage of funds in current assets. The Standard Deviation of Post-Merger period was higher as compared to Pre-Merger period indicating that ratio fluctuated more in Post-Merger period as compared to Pre-Merger period.

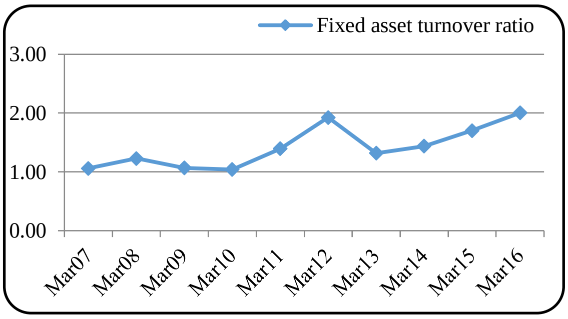
Fixed Asset Turnover Ratio [FATOR]

In Pre-Merger period as disclosed in table T.4.4.4 and figure G.4.21, Fixed asset turnover ratio registered an overall increasing trend and on an average it was 1.16 times.

G.4.21 FATOR in Pre-Merger Period



G .4.21.1 FATOR in Post-Merger Period



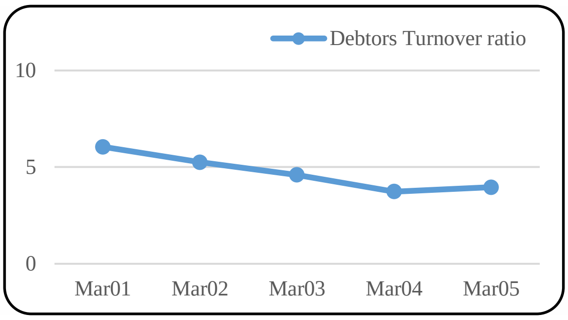
Source – Table T.4.4.4

As indicated in table T. 4.4.4 & figure G.4.21.1, During Post-Merger period also the ratio showed fluctuation in increasing trend. The Average ratio in Post-Merger period was 1.42 times, which was higher as compared to Pre-Merger period indicating and justifying the increased investment in fixed assets leading to increase in revenue. The Standard Deviation of Pre-Merger period was higher as compared to post merger period indicating that fluctuated more in Pre-Merger period as compared to Post-Merger period.

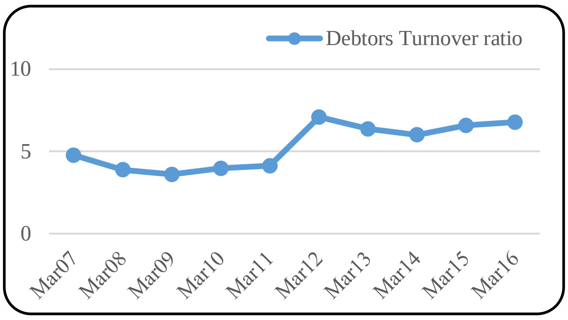
Debtors Turnover Ratio [DTOR]

In Pre-Merger period as revealed in table T.4.4.4 and figure G.4.22, Debtors turnover ratio registered a fluctuating trend and on an average it was 4.72 times.

G .4.22 DTOR in Pre-Merger Period



G .4.22.1 DTOR in Post-Merger Period



Source – Table T.4.4.4

As seen in table T. 4.4.4 & figure G.4.22.1 during Post-Merger period also the ratio fluctuated. The Highest ratio was observed in 2011- 2012 i.e. 7.08 times due to proportionately more sales as compared to debtors. The Average ratio in Post-Merger period was 5.31 times which was more as compared to Pre-Merger period. It showed efficiency of sample company in management of Debtors in Post-Merger period. The Standard Deviation of Post-Merger period was higher as compared to pre-merger period indicating that ratio fluctuated more in Post-Merger period as compared to Pre-Merger period.

4.4.6 Testing of Hypothesis

The hypothesis framed with reference to various Ratios [as mentioned in chapter 3, Hypothesis no 1 to 24 except 9 and 11] is tested applying One sample t- test at 5 % level of significance for measuring impact of merger. The table T.4.4.5 shows hypothesis test results

Table T.4.4.5 Hypothesis Test Result

Sr no	Ratio	Pre- merger average	Post -merger average	P value	Null/Alternate hypothesis accepted
Profitability Ratio					
1	GP ratio	67.69	63.84	*0.013	Alternate
2	NP ratio	-4.51	-4.30	0.960	Null
3	Operating ratio	95.60	103.60	*0.023	Alternate
4	Cash profit margin	-0.71	1.66	0.551	Null
5	Return on capital employed	5.92	0.65	0.157	Null
6	Return on Total assets	4.00	-3.07	*0.026	Alternate
7	Return on Equity	-13.00	-5.07	0.460	Null
8	Earnings per share	-0.89	-0.53	0.660	Null
9	Price earnings ratio	355.26	57.67	0.401	Null
Liquidity Ratios					
10	Current Ratio	1.30	2.41	*0.001	Alternate
11	Quick Ratio	0.67	1.69	*0.001	Alternate
12	Super Quick Ratio	0.05	0.12	*0.001	Alternate
Long Term Solvency					
13	Debt Equity ratio	1.48	3.50	*0.001	Alternate
14	Fixed asset Ratio	0.87	0.29	*0.001	Alternate
15	Proprietary Ratio	0.50	0.97	*0.002	Alternate
16	Interest coverage ratio	1.05	2.15	*0.036	Alternate
Efficiency Ratios					
17	Capital Turnover ratio	0.98	0.40	*0.003	Alternate
18	Inventory Turnover ratio	1.15	1.66	*0.003	Alternate
19	Inventory to current asset ratio	47.86	35.13	*0.002	Alternate
20	Working capital turnover ratio	1.08	6.12	0.322	Null
21	Fixed asset turnover ratio	1.16	1.42	0.203	Null
22	Debtors Turnover Ratio	4.72	5.31	0.235	Null

Source – Table T.4.4.1, T.4.4.2, T.4.1.3 and T.4.4.4

Profitability analysis

As observed from the above table, that GP ratio, operating ratio and Return on total assets changed significantly in Post-Merger period as compared to Pre-Merger period. In each of the above ratios, the calculated 'P' value is less than 0.05, thus alternate hypothesis is accepted. However other Profitability ratios were not changed significantly as the calculated 'P' value is more than 0.05 and thus null hypothesis is accepted.

Liquidity analysis

Current ratio, Quick ratio and Super Quick ratio all indicates increase in liquidity position of Kerela Ayurveda limited during period of study. Liquidity was significantly changed in form of Current ratio, Quick ratio and Super Quick ratio as the calculated 'P' value is less than 0.05 thus alternate hypothesis is accepted.

Long term solvency analysis

As observed from the above table that all long term solvency ratios viz Debt Equity ratio, Fixed asset ratio, Proprietary ratio and Interest coverage ratio significantly changed on Merger as the calculated 'P' value is less than 0.05 and thus alternate hypothesis is accepted in each case.

Efficiency Ratios analysis

As observed from the above table that Capital turnover ratio, Inventory turnover ratio and Inventory to current asset ratio changed significantly in Post-Merger period as compared to Pre-Merger period. In each of the above ratios the calculated 'P' value is less than 0.05 and thus alternate hypothesis is accepted. However other Efficiency ratios were not changed significantly as the calculated 'P' value is more than 0.05 and thus null hypothesis is accepted.

4.4.7 Composite Index Score

Composite Index score represents overall index for selected parameter. In case of Profitability, higher the composite Index score better the performance and Vice-Versa. In case of Liquidity and Long term solvency Composite index score represent combine index considering selected ratios.

4.4.7.1 Composite Index Score Based on Profitability

Table T.4.4.6 Composite Index Score Based on Profitability

Pre-Merger Period Profitability Index scores and Composite Index score									
YEAR	**GPR**	**NPR**	**OR**	**CPM**	**ROCE**	**ROTA**	**ROE**	**EPS**	**AVERAGE**
2000-2001	1.00	0.91	1.00	0.70	0.79	0.91	0.89	0.86	0.88
2001-2002	0.97	0.29	0.74	0.18	0.28	0.44	0.00	0.18	0.38
2002-2003	0.68	0.49	0.67	0.36	0.41	0.55	0.12	0.39	0.46
2003-2004	0.83	0.81	0.78	0.64	1.00	1.00	0.79	0.74	0.82
2004-2005	0.72	0.80	0.83	0.60	0.84	0.86	0.77	0.73	0.77
Average	**0.84**	**0.66**	**0.80**	**0.50**	**0.66**	**0.75**	**0.51**	**0.58**	**0.66**
Post-Merger Period Profitability Index scores and Composite Index score									
2006-2007	0.57	0.48	0.54	0.44	0.35	0.48	0.60	0.47	0.49
2007-2008	0.36	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.06
2008-2009	0.74	0.15	0.05	0.24	0.14	0.19	0.04	0.11	0.21
2009-2010	0.00	0.55	0.45	0.56	0.34	0.47	0.43	0.47	0.41
2010-2011	0.82	1.00	0.50	1.00	0.60	0.77	1.00	0.95	0.83
2011-2012	0.29	0.80	0.78	0.61	0.47	0.63	0.78	0.74	0.64
2012-2013	0.74	0.91	0.91	0.70	0.54	0.71	0.90	0.87	0.79
2013-2014	0.84	0.91	0.92	0.68	0.58	0.73	0.91	0.89	0.81
2014-2015	0.68	0.91	0.93	0.68	0.59	0.74	0.92	0.90	0.79
2015-2016	0.63	0.95	0.97	0.70	0.65	0.80	0.98	1.00	0.83
Average	**0.57**	**0.67**	**0.60**	**0.56**	**0.43**	**0.55**	**0.67**	**0.64**	**0.59**

Source – Table T.4.4.1

From the table T.4.4.6 it could be observed that Average index scores of Net Profit Ratio, Cash profit margin, Return on Equity and Earning Per share improved in Post-Merger period as compared to Pre-Merger Period, while the average index scores of other Profitability ratios declined in Post- merger period as compared to Pre-Merger period.

The Average Composite Index score based on profitability ratios decreased from 0.66 in the Pre-Merger period to 0.59 in the Post-Merger period. This decrease proved to be insignificant when tested applying independent t- test at 5 % level of significance. As disclosed in Table no.4.1.7 below, the Calculated 'P' value is 0.610 indicates that Null hypothesis is accepted

Table T.4.4.7 Independent t- Test Results of Profitability Composite Index Score

Index score based on profitability	Pre-Merger Period	Post-Merger Period	P. value based on Independent t-test	Hypothesis accepted
Composite Index score	0.66	0.59	0.610	NULL

Source-Table T.4.4.6

4.4.7.2. Composite Index Score Based on Liquidity

Table T.4.4.8 Composite Index Score Based on Liquidity

Pre-Merger Period Liquidity Index scores and Composite Index score							
YEAR	**CR**	**QR**	**SQR**	**ITOR**	**WCTOR**	**DTOR**	**AVERAGE**
2000-2001	0.17	0.11	0.15	0.18	0.26	0.70	0.26
2001-2002	0.14	0.10	0.12	0.16	0.27	0.47	0.21
2002-2003	0.06	0.05	0.10	0.30	0.08	0.29	0.15
2003-2004	0.18	0.12	0.08	0.09	0.25	0.04	0.13
2004-2005	0.15	0.08	0.22	0.00	0.25	0.10	0.14
Average	**0.14**	**0.09**	**0.13**	**0.15**	**0.22**	**0.32**	**0.18**
Post-Merger Period Liquidity Index scores and Composite Index score							
2006-2007	0.67	0.55	0.50	0.12	0.23	0.33	0.40
2007-2008	1.00	1.00	0.78	0.17	0.22	0.08	0.54
2008-2009	0.94	0.88	0.35	0.01	0.22	0.00	0.40
2009-2010	0.50	0.54	0.27	0.30	0.22	0.11	0.32
2010-2011	0.16	0.16	1.00	0.09	0.24	0.15	0.30
2011-2012	0.05	0.05	0.37	0.95	0.00	1.00	0.40
2012-2013	0.08	0.08	0.34	1.00	1.00	0.79	0.55
2013-2014	0.00	0.00	0.00	0.76	0.19	0.69	0.27
2014-2015	0.03	0.03	0.32	0.62	0.17	0.86	0.34
2015-2016	0.04	0.04	0.39	0.73	0.14	0.91	0.38
Average	**0.35**	**0.33**	**0.43**	**0.47**	**0.26**	**0.49**	**0.39**

Source – Table T.4.4.2 and T.4.4.4

From the above table, it could be observed that, the average liquidity index scores based of each of the liquidity ratios increased in Post-Merger period as compared to Pre-Merger period. The overall Average Composite Index score based on liquidity ratios increased from 0.18 in Pre-Merger period to

0.39 in Post-Merger period for the sample company. This increase proved to be significant, when tested applying Independent t- test at 5 % level of significance. As disclosed in Table no.4.4.9 below The Calculated 'P' value is 0.001 indicating that Alternate hypothesis is accepted.

Table T.4.4.9 Independent t - Test Results of Liquidity Composite Index Score

Index score based on liquidity ratios	Pre-Merger Period	Post-Merger Period	Probability value based on Independent t- test	Hypothesis accepted
Composite Index score	0.18	0.39	*0.001	Alternate

Source – Table T.4.4.8

4.4.7.3 Composite Index Score Based on Long Term Solvency

Table T.4.4.10 Composite Index Score Based on Long Term Solvency

Pre-Merger Period Long Term Solvency Index scores and Composite Index score				
YEAR	**DER**	**FAR**	**PR**	**AVERAGE**
2000-2001	0.05	0.75	0.14	0.31
2001-2002	0.22	0.80	0.06	0.36
2002-2003	0.29	1.00	0.00	0.43
2003-2004	0.04	0.55	0.23	0.27
2004-2005	0.08	0.61	0.20	0.29
Average	**0.14**	**0.74**	**0.13**	**0.33**
Post-Merger Period Long Term Solvency Index scores and Composite Index score				
2006-2007	0.00	0.17	1.00	0.39
2007-2008	0.41	0.06	0.65	0.37
2008-2009	0.78	0.11	0.37	0.42
2009-2010	1.00	0.15	0.18	0.44
2010-2011	0.86	0.00	0.33	0.40
2011-2012	0.81	0.00	0.34	0.38
2012-2013	0.86	0.02	0.27	0.39
2013-2014	0.67	0.06	0.29	0.34
2014-2015	0.69	0.03	0.34	0.35
2015-2016	0.58	0.01	0.41	0.33
Average	**0.66**	**0.06**	**0.42**	**0.38**

Source – Table T.4.4.3

From the above table, it could be observed that, average index scores based on Debt equity ratio and Proprietary ratio increased in Post-Merger period whereas average index score based on Fixed asset ratio declined in Post-Merger period as compared to Pre-Merger period.

The overall Average composite index score based on Long term solvency increased from 0.33 in Pre-Merger period to 0.38 in Post-Merger period. This increase proved to be insignificant, when tested applying Independent t- test at 5 % level of significance. As disclosed in Table no.4.4.11 below the Calculated 'P' value is 0.07 indicating that Null hypothesis is accepted.

Table T.4.4.11 Independent t- Test Results of Long Term Solvency Composite Index Score

Index score based on Long term solvency ratios	Pre-Merger Period	Post-Merger Period	Probability value based on Independent t- test	Hypothesis accepted
Composite Index score	0.33	0.38	0.07	Null

Source – Table T.4.4.10

4.4.8 Economic Value Added[EVA] and Market Value Added[MVA]

The shareholder's wealth measurement has been carried out by calculating EVA and MVA of the sample company for Pre-Merger and Post-Merger period of study**.**

4.4.8.1 Economic Value Added[EVA]

The Table no T.4.4.12. shows the calculation of EVA of the sample company for Pre and Post-Merger period of study. The Table depicts that the average EVA in Pre-Merger period was (Rs 10.82 Millions) while the average EVA in the Post-Merger period amounted to (Rs -29.54Millions). The further decrease in EVA in post- merger period indicates that merger had not helped company to improve its performance in terms of EVA and there by shareholders' wealth declined**.**

Table T.4.4.12 Economic Value Added [EVA] of Kerela Ayurveda Ltd [Rs in Millions]

Particulars	NOPAT	Ke	Kp	Kd	EVA
2000-2001	13.54	11.45	0	5.46	-3.38
2001-2002	2.37	8.81	0	11.12	-17.56
2002-2003	3.70	6.56	0	11.80	-14.66
2003-2004	3.42	7.31	0	7.56	-11.46
2004-2005	5.44	6.76	0	5.72	-7.04
Total	28.47	40.89	0	41.66	-54.1
Average EVA in Pre-Merger period					-10.82
2006-2007	-5.48	27.45	0	11.02	-43.9491
2007-2008	-31.43	19.86	0	13.14	-64.4248
2008-2009	-35.52	15.30	0	13.91	-64.7306
2009-2010	-14.22	13.67	0	9.81	-37.6932
2010-2011	-21.66	16.96	0	5.05	-43.6699
2011-2012	8.83	17.08	0	5.57	-13.8159
2012-2013	14.68	18.17	0	5.07	-8.55842
2013-2014	18.22	20.56	0	6.64	-8.98366
2014-2015	22.07	20.71	0	7.44	-6.07232
2015-2016	27.97	24.03	0	7.46	-3.52044
Total	-16.54	193.79	0	85.11	-295.41834
Average EVA in Post-Merger period					-29.54

Source – Annexure – I, II, III and VI

4.4.8.2 Market Value Added [MVA]

The Table no T.4.4.13 shows the calculation of MVA of the sample company for Pre and Post-Merger period of study. The Table depicts that the average MVA in Pre-Merger period was Rs 13.3838 Million while the average MVA in the Post-Merger period amounted to 314.6685 Million**.** The Post-Merger Average MVA increased as compared to Pre-Merger period from which it could be interpreted that merger had helped company to improve its performance in terms of MVA there by shareholder’s wealth enhanced.

Table T.4.4.13 Market Value Added [MVA] of Kerela Ayurveda Ltd [Rs in Millions]

Year	Market Capitalization	Share cap	Res and surplus	SF	MVA
2000-2001	96	73.621	0.216	73.837	22.16
2001-2002	59.75	66.031	-12.344	53.687	6.06
2002-2003	41.34	66.031	-26.049	39.982	1.36
2003-2004	59.37	66.031	-21.131	44.9	14.47
2004-2005	66.15	66.031	-22.746	43.285	22.87
Total	**322.61**	**337.745**	**-82.054**	**255.691**	**66.92**
Average MVA in Pre-Merger period					**13.38**
2006-2007	390.82	106.9895	84.15	191.1395	199.68
2007-2008	568.95	106.9895	31.284	138.2735	430.68
2008-2009	220.61	106.9895	-2.627	104.3625	116.25
2009-2010	533.06	106.9895	-13.394	93.5955	439.46
2010-2011	735.2	106.989	8.68	115.669	619.53
2011-2012	435.42	106.989	9.466	116.455	318.97
2012-2013	347.28	106.989	18.507	125.496	221.78
2013-2014	249.64	106.989	28.788	135.777	113.86
2014-2015	407.98	106.989	32.515	139.504	268.48
2015-2016	574.76	105.557	51.206	156.763	417.99
Total	**4463.72**	**1068.46**	**248.575**	**1317.035**	**3146.68**
Average MVA in Post-Merger period					**314.67**

Source – Annexure – I, II and III

The hypothesis framed with reference to EVA and MVA [as mentioned in chapter 3 , Hypothesis no 28 and 29] is tested applying one sample t- test at 5 % level of significance. The table below depicts that calculated 'P' value is less than 0.05. The 'P' value for EVA is 0.02 while that for MVA is 0.001. Hence, alternate hypothesis is accepted. Thus, it can be concluded that the merger had significant impact on EVA and MVA of the sample company.

Table T.4.4.14 Hypothesis one sample t - test results

Particulars	Pre-Merger Average [Rs Millions]	Post-Merger Average [Rs Millions]	p value	Hypothesis accepted
EVA	-10.82	-29.54	*0.02	Alternate
MVA	13.38	314.67	*0.001	Alternate

Source – Table T.4.4.12 and Table T. 4.4.13

4.4.9 Altman Z score

The financial health of the sample company in Pre and Post merger period is also assessed using Altman Z score model. The Altman Z score is calculated using following formula-

$$\boldsymbol{\zeta = 1.2A + 1.4B + 3.3C + 0.6D + 1.0E}$$

The calculated the Altman Z score as depicted in annexure IV and V for Pre-Merger period was 0.764638 while that of Post-Merger Period was0.801908

The financial health of the sample company in Pre and Post-Merger period is not good as the Altman Z score is less than 1.8. In other word the company was in Financial Distress prior to Merger and the situation didn't improve even after the Merger.

4.4.10 Regression Analysis

Considering one dependent variable i.e. Net profit and 9 independent variables viz Cost of goods Sold, Operating Expenses, Finance Cost, Capital Employed, Long Term Borrowings, Shareholders Fund, working capital, Current Assets, Fixed Assets of the sample company during Pre and Post-Merger period, regression analysis is carried out in this part of study.

Using Regression Model the multiple linear regression for Pre and Post merger was constructed.

4.4.10.1 Pre- merger period Regression equation

Table T.4.4.15 Model summary of Pre-Merger Period

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.915[a]	0.838	0.784	5.11036

Predictors: (Constant), Operating expense

Source – Annexure – I, II and III

If we evaluate overall performance of the model based on the ANOVA table as mentioned below, observing the significant value we conclude that model is significant as the value is less than 0.05. as shown in the table below

Table T.4.4.16 ANOVA [Pre-Merger Period]

Model		Sum of Squares	Df	Mean Square	F	Sig.
	Regression	404.542	1	404.542	15.490	0.029[b]
1	Residual	78.347	3	26.116		
	Total	482.890	4			

a. Dependent Variable: NP

b. Predictors: (Constant), Operating exp

Source – Annexure – I, II and III

Table T.4.4.17 Coefficients [Pre-Merger Period]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	69.072	19.171		3.603	0.037
	Operating expense	-1.004	0.255	-0.915	-3.936	0.029

a. Dependent Variable: NP

Source – Annexure – I, II and III

Pre-Merger period regression equation

NP = 69.072 – 1.004OE

4.4.10.2 Post-merger period regression equation

Table T.4.4.18 Model Summary [Post-Merger Period]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.918[a]	0.843	0.798	10.28795

a. Predictors: (Constant), FC, OE

Source – Annexure – I, II and III

If we evaluate overall performance of the model based on the ANOVA table as mentioned below, observing the significant value we conclude that model is significant as the value is less than 0.05. as shown in the table below

Table T.4.4.19 ANOVA [Post-Merger Period]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	3986.405	2	1993.202	18.832	0.002^{b}
	Residual	740.894	7	105.842		
	Total	4727.299	9			

a. Dependent Variable: NP

b. Predictors: (Constant), FC, OE

Source – Annexure – I, II and III

Table T.4.4.20 Coefficients [Post-Merger Period]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	30.145	27.503		1.096	0.309
	OE	.123	.175	.105	0.700	0.506
	FC	-4.177	.686	-.912	-6.092	0.000

a. Dependent Variable: NP

Source – Annexure – I, II and III

Post-Merger period regression equation

$$NP = 30.145 + 0.123OE - 4.117FC$$

Considering the output, the final model for the Post-Merger time would be given as per above. From the above facts it could be analysed that Operating expenses was only variable affecting net profit in Pre-Merger period but in post- merger period along with operating expenses, finance cost was also affecting net profit of sample company. Operating expenses is the common independent variable affecting profitability in terms of Net profit in Pre-Merger and Post-Merger period of the sample company. Correlation coefficient between NP and operating expenses in Pre-Merger period is -0.92 and in Post-Merger period it is 0.11. Correlation coefficient between Net profit and Operating expenses in Pre-Merger period was high and negative, whereas in Post-Merger period it turned low but positive. It could be interpreted that, operating expenses were incurred in Pre-Merger period was not sufficiently increasing sales and thereby net profit of company in Pre-Merger period however in Post-Merger period operating expenses were not so high as compared to resultant sales, thus helping company to improve profitability in terms of decreasing Net loss.

4.5 CASE 5 – ACQUIRER COMPANY: LUPIN LTD.

4.5.1. Background of the Company

Lupin Ltd. is one of the multinational pharmaceutical company, incorporated on 01 March 1983 based in Mumbai, Maharashtra, India founded by Dr. Desh Bandhu Gupta in 1968. The company deals in manufacturing and selling of many Branded and Generic Formulations, Active Pharmaceutical Ingredients (APIs), Advanced Drug Delivery Systems (ADDS*)* and Biotechnology products in many countries. Major market includes USA, India, Japan, Europe, South Africa, Philippines and Australia.

Lupin limitedAcquires Vadodara based Rubamin Laboratories Ltd. (renamed Novodigm Ltd.), one of the public ltd company registered at Ahmedabad, Gujarat. Rubamin laboratories ltd was completely acquired by Lupin ltd. on 27/9/2007.In deal 2384783, equity shares of Rs 10 each were acquired at a total cost of Rs 372.9 million. It is an attempt to grow its Contract Research and Manufacturing Services (CRAMS) business.

The acquisition would allow Lupin limited to create a separate base for CRAMS business and give it a strong customer base CRAMS seem to increase contribution in revenue on account of acquisition according to API group president.

Lupin ltd. also acquired its two wholly owned subsidiary companies Lupin Pharmacare Limited and Lupin Herbal Limited. The aim of amalgamation was development of business and reaping the benefits of synergies and reduction in cost. All the three companies merged in to Lupin limited with effect from 27th may 2010 as per information.

The subsequent part of chapter covers analysis of the financial performance of Lupin ltd. for Pre-Merger and Post-Merger period.

The period of study covers 16 years commencing from 2000-2001 to 2015-2016.

Period of study - 2000-2001 to 2015-2016

Pre-Merger period - 2000-2001 to 2009-2010

Post- Merger period - 2011-2012 to 2015-2016

Merger Year/Zero Year-2010-2011

Table No 4.5.1. on the next page shows calculation of various profitability ratios of the sample acquirer company for the period under study.

4.5.2 Profitability Ratios of Lupin Ltd During Pre-Merger and Post-Merger Period

Table T.4 5.1 Profitability Ratios in Pre-Merger and Post- Merger Period

	Pre- Merger period (2000-01 to 2009-2010)- 10 years												Post- Merger period (2011-12 to 2015-16)- 5 years						
Profitability Ratios	**Mar 2000-2001**	**Mar 2001-2002**	**Mar 2002-2003**	**Mar 2003-2004**	**Mar 2004-2005**	**Mar 2005-2006**	**Mar 2006-2007**	**Mar 2007-2008**	**Mar 2008-2009**	**Mar 2009-2010**	**Average ratio**	**Standard deviation**	**Mar 2011-2012**	**Mar 2012-2013**	**Mar 2013-2014**	**Mar 2014-2015**	**Mar 2015-2016**	**Average ratio**	**Standard deviation**
GP Ratio [%]	36.16	41.75	36.08	43.99	35.05	38.57	39.57	43.07	43.08	45.63	40.29	3.73	47.28	51.09	55.63	55.09	57.70	53.36	4.15
NP Ratio [%]	7.46	8.39	7.51	8.08	7.30	11.44	15.39	17.57	14.38	17.87	11.54	4.37	14.96	17.73	26.05	24.62	25.62	21.79	5.10
Operating ratio [%]	84.74	81.81	85.27	79.50	91.73	87.30	86.84	82.60	84.69	80.91	84.54	3.57	80.40	75.42	69.13	68.78	66.83	72.11	5.65
Cash profit margin [%]	9.77	11.08	9.96	10.55	10.17	13.97	17.75	19.79	16.67	20.11	13.98	4.23	17.42	19.84	27.93	28.07	28.34	24.32	5.27
ROCE[%]	18.45	24.69	24.10	35.54	18.62	22.53	31.73	34.53	29.22	27.67	26.71	6.09	26.45	35.95	45.06	35.53	33.74	35.35	6.64
ROTA[%]	11.02	13.19	12.27	16.96	8.64	12.93	19.10	22.26	17.71	20.21	15.43	4.44	18.89	27.64	41.39	42.53	37.42	33.57	10.09
ROE[%]	16.63	21.26	20.05	21.22	16.86	28.37	34.00	33.66	30.32	25.64	24.80	6.54	21.54	26.01	33.30	26.56	24.89	26.46	4.29
EPS[RS]	21.21	17.68	18.96	23.69	21.02	45.52	37.60	54.02	50.35	72.96	36.30	18.89	18.01	28.16	51.84	53.33	64.03	43.07	19.18
Equity dividend coverage ratio [Times]	3.93	3.53	3.79	3.64	3.23	7.00	7.52	5.36	4.03	5.36	4.74	1.51	5.63	7.04	8.64	7.11	8.53	7.39	1.24
Price earnings ratio [Times]	4.47	8.24	36.92	28.93	36.49	13.45	16.85	11.44	29.60	6.58	19.30	12.52	34.05	32.26	27.54	33.85	23.17	30.18	4.71
Dividend yield ratio[%]	5.70	3.43	0.71	0.95	0.85	1.06	0.79	1.63	0.84	2.84	1.88	1.64	0.52	0.44	0.42	0.42	0.51	0.46	0.05

Source – Annexure I, II and III

Profitability Analysis

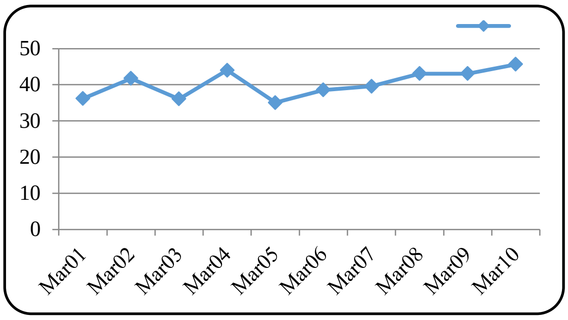
Table 4.5.1 reveals the calculation of various profitability ratios of Lupin ltd during Pre-Merger Period and Post-Merger Period.

The Profitability of sample company is analyzed and interpreted using various profitability ratios based on sales and Investment

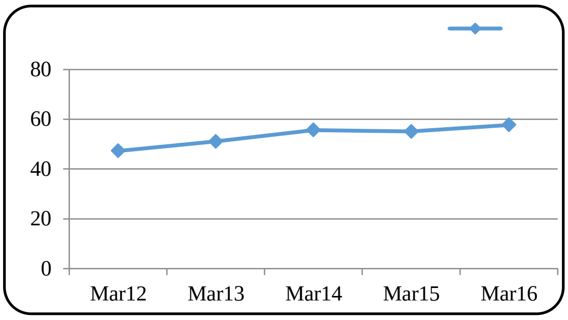
Gross profit Ratio [GPR]

As exhibited in table T. 4.5.1 & figure G.5.1, during Pre-Merger period GP ratio showed a fluctuating trend after 2004-2005 the ratio showed a constant increase trend and on an average it was 40.29%.

G 5.1 GPR in Pre-Merger Period



G 5.1.1 GPR in Post-Merger period



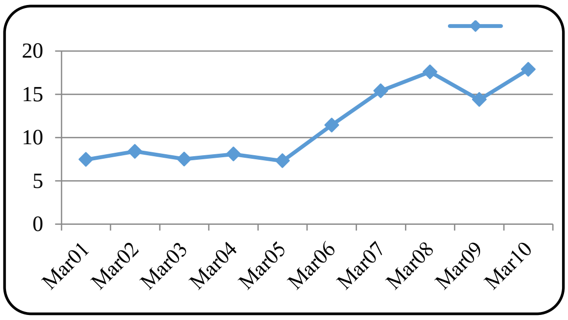
Source – Table T.4 5.1

As indicated in table T. 4.5.1 & figure G.5.1.1, during the Post-Merger period increasing trend was observed and on average Gross profit ratio was 53.36%. The Average GP ratio in Post-Merger ratio was higher than Pre-Merger period. The Standard Deviation of Post-Merger period was higher as compared to Pre-Merger period indicating that GP ratio fluctuated more in Post-Merger period as compared to Pre-Merger period.

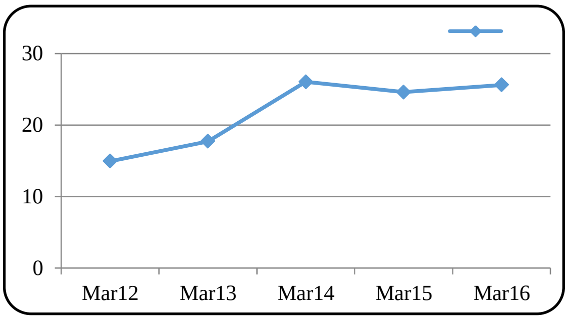
Net Profit Ratio [NPR]

As revealed by Table T. 4.5.1 and figure G5.2, NP ratio showed an overall increasing trend during Pre-Merger period and was on an average it was 11.54%.

G.5.2 NPR in Pre-Merger Period



G5.2.1 NPR in Post-Merger Period



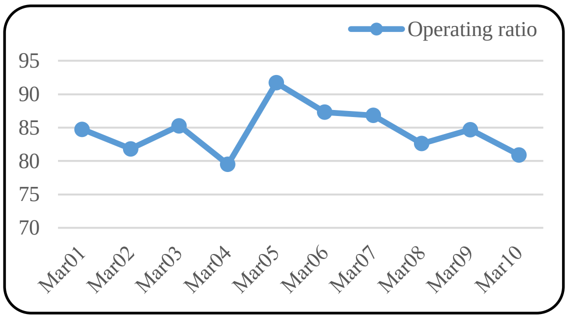
Source – Table T.4 5.1

As depicted in Table T.4.5.1 and figure 5.2.1, in Post-Merger period the ratio showed a fluctuating trend. It was highest in 2013-2014 due to substantial increase in sales and on an average it was 21.79% which was higher as compared to Pre-Merger period indicating positive impact of merger. The Standard Deviation of Post-Merger period was higher as compared to Pre-Merger period indicating that ratio fluctuated more in Post-Merger period as compared to Pre-Merger period.

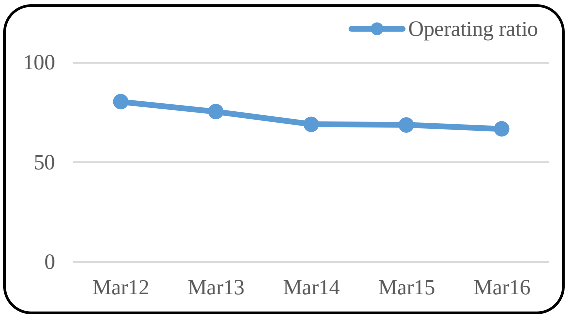
Operating Ratio [OR]

In Pre-Merger period as evident in table T.4.5.1 and figure.G.5.3, Operating ratio registered fluctuating trend and was on an average it was 84.54%.

G.5.3 OR in Pre-Merger Period



G.5.3.1 OR in Post-Merger Period



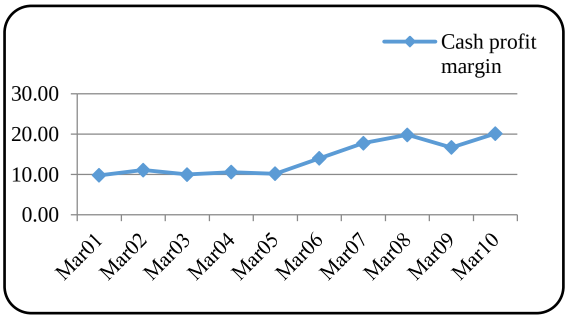
Source – Table T.4 5.1

During Post-Merger period too as observed through table T. 4.5.1 & figure G.5.3.1, that operating ratio registered a declining trend. The Average Operating ratio in Post-Merger period was 72.11% which was lower than that of Pre-Merger period thus resulting in increasing profit during Post-Merger period. The Standard Deviation of Post-Merger period was higher as compared to Pre-Merger period indicating that ratio fluctuated more in Post-Merger period as compared to Pre-Merger period.

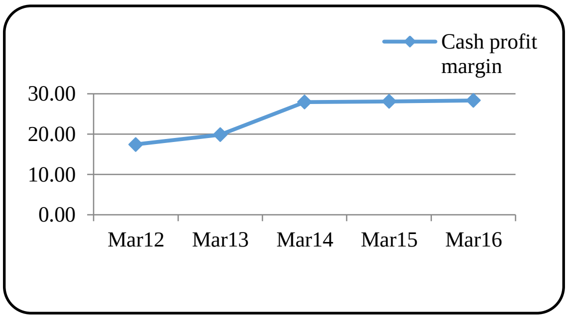
Cash Profit Margin [CPM]

In Pre-Merger period as disclosed in table T.4.5.1 figure G.5.4, Cash profit margin registered an overall increasing trend and was on an average 13.98%.

G.5.4 CPM in Pre-Merger Period



G.5.4.1 CPM in Post-Merger Period



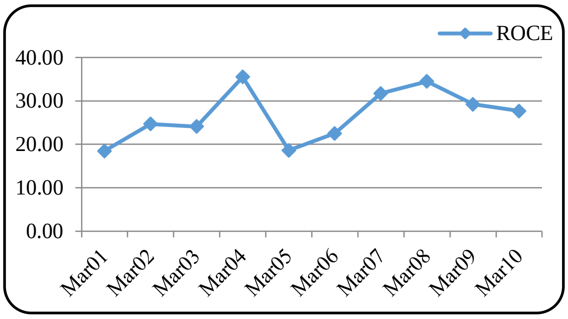
Source – Table T.4 5.1

During Post-Merger period too, as seen in table T4.5.1 and figure G.5.4.1, the increasing trend continued and on average it was 24.32% which was higher as compared to Pre-Merger period. The Standard Deviation of Pre-Merger period was lower as compared to post merger period indicating that ratio fluctuated more in Post-Merger period as compared to Pre-Merger period.

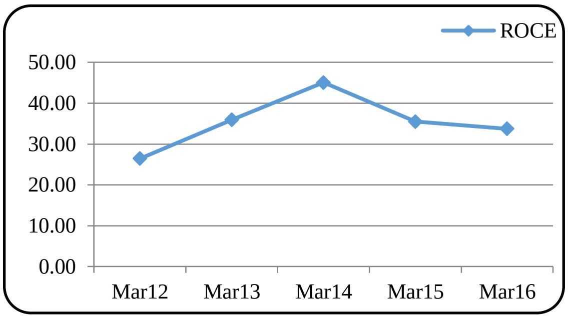
Return on capital employed [ROCE]

During the Pre-Merger period as revealed in table T.4.5.1 and figure G.5.5, Return on capital employed fluctuated and on an average it was 26.71%.

G.5.5 ROCE in Pre-Merger Period



G.5.5.1 ROCE in Post-Merger Period



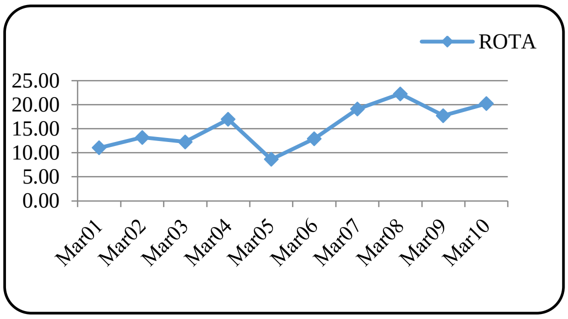
Source – Table T.4 5.1

During the Post-Merger period, as observed in table T. 4.5.1 & figure G.5.5.1, the ratio fluctuation was highest in the year 2013-2014 at 45.06% due to substantial increase in profit and on an average, it was 35.35% which was more as compared to Pre-Merger period. The Standard Deviation of Pre-Merger period was lower as compared to post merger period indicating that ratio fluctuated more in Post-Merger period as compared to Pre-Merger period.

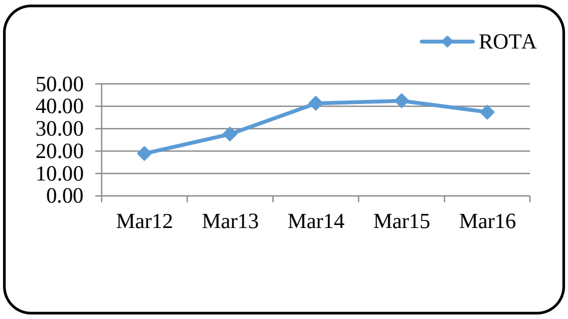
Return on Total Assets [ROTA]

In Pre-Merger period, as exhibited in table T.4.5.1. and figure G.5. 6, Return on Total assets registered a fluctuating trend. It was lowest in 2004- 2005 at 8.64% and highest in 2007-2008 at 22.26% and on an average it was 15.43%.

G.5.6 ROTA in Pre-Merger Period



G.5.6.1 ROTA in Post-Merger Period



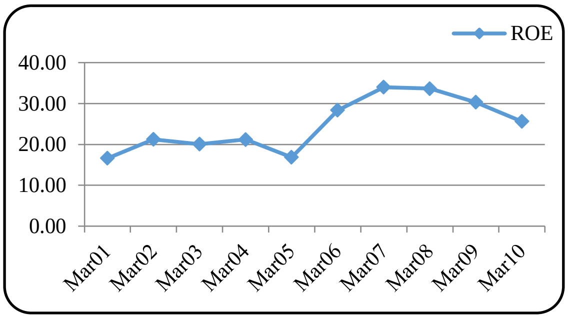
Source – Table T.4 5.1

As revealed in table T. 4.5.1 & figure G.5.6.1, during the Post-Merger period ratio fluctuated and on average it was 33.57% which was higher as compared to Pre-Merger period indicating positive impact. The Standard Deviation of Pre-Merger period was lower as compared to post merger period indicating ratio fluctuated more in Post-Merger period as compared to Pre-Merger period.

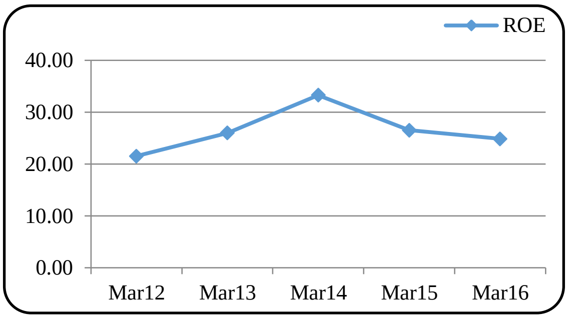
Return on Equity [ROE]

In Pre-Merger period as observed in table T.4.5.1 and figure G.5.7, Return on Equity ratio showed a fluctuating trend and on an average it was 24.80%.

G.5.7 ROE in Pre-Merger Period



G.5.7.1 ROE in Post-Merger Period



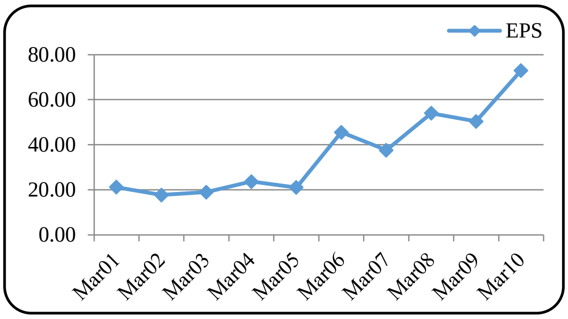
Source – Table T.4 5.1

As observed in table T. 4.5.1 & figure G.5.7.1, during the Post-Merger period, return on Equity fluctuated and was highest in the year 2013-2014 at 33.30% and overall average was 26.46% which was higher as compared to Pre-Merger period. The Standard Deviation of Pre-Merger period was higher as compared to post merger period indicating that ratio fluctuated more in Pre-Merger period as compared to Post-Merger period.

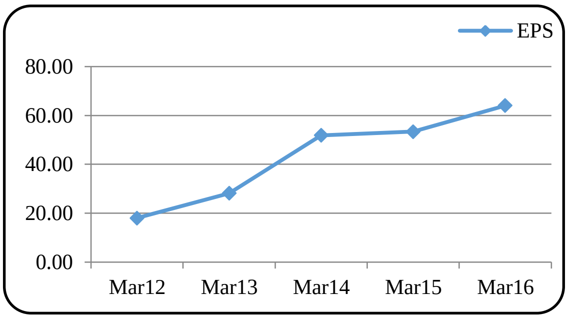
Earnings per share [EPS]

In Pre-Merger period as revealed in table T.4.5.1 and figure G.5. 8, Earnings per share showed an overall increasing trend on an average was Rs 36.30. It is worth noting that in the merger year 2010-2011, share split was done resulting to decrease in EPS in later years.

G.5.8 EPS in Pre-Merger Period



G.5.8.1 EPS in Post-Merger Period



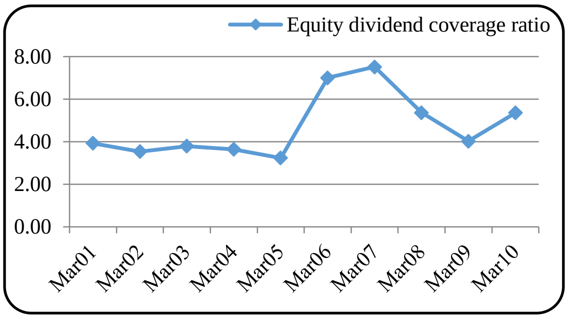
Source- Table T.4 5.1

During the Post-Merger period, as depicted in table T. 4.5.1 &figure G.5.8.1, Earnings per share showed increasing trend whereas, highest EPS in Post-Merger period was Rs 64.03 in the year 2015-2016 and on average it was Rs 43.07, which was higher as compared to Pre-Merger period. The Standard Deviation of Pre-Merger period was lower as compared to post merger period indicating that EPS fluctuated more in Post-Merger period as compared to Pre-Merger period.

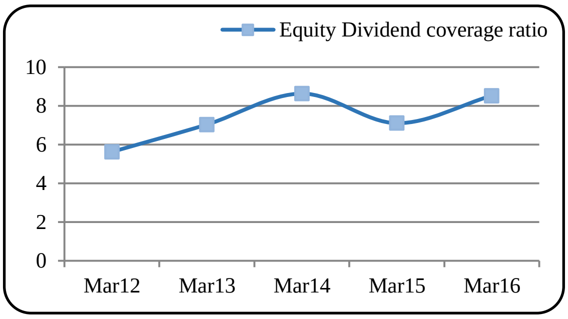
Equity Dividend Coverage Ratio [EDCR]

During Pre-Merger period as depicted in table T.4.5.1 and figure G.5.9, Equity dividend coverage ratio registered a fluctuating trend and on an average it was 4.74 times.

G.5.9 EDCR in Pre-Merger Period



G.5.9.1 EDCR in Post-Merger Period



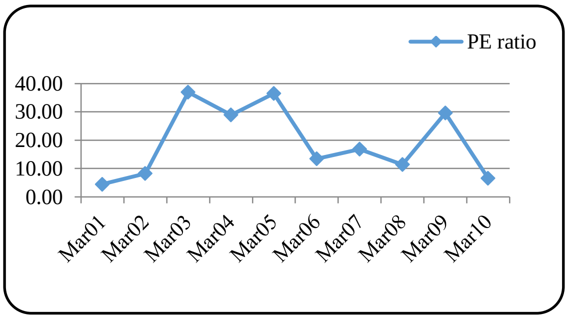
Source- Table T.4 5.1

As revealed in table T. 4.5.1 & figure G.5.9.1, during Post-Merger period, the ratio registered an overall increasing trend and on an average it was 7.39 times. The average ratio increased in Post-Merger period as compared to Pre-Merger Period. This exhibits that company has higher amount of profit available for declaration of dividend in Post-Merger period as compared to Pre-Merger period. The Standard Deviation of Post-Merger period was lower as compared to Pre-Merger period indicating that ratio fluctuated more in Pre-Merger period as compared to Post-Merger period.

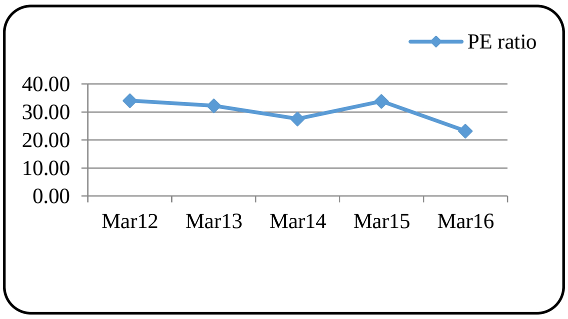
Price / Earnings Ratio [PE ratio]

During the Pre-Merger period as exhibited in table T.4.5.1 and figure G.5.10, Price earnings ratio observed a fluctuating trend and on an average it was 19.30 times.

G.5.10 P/E ratio in Pre-Merger Period



G.5.10.1 P/E ratio in Post-Merger Period



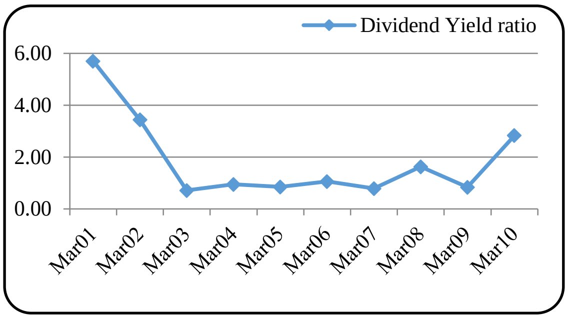
Source- Table T.4 5.1

As observed in table T. 4.5.1 & figure G.5.10.1, during Post-Merger period ratio fluctuated and on an average it was 30.18 times which was quite high as compared to Pre-Merger period. The increase in Post-Merger period indicates the positive impact of merger and increase in market price of share. The Standard Deviation of Pre-Merger period was higher as compared to post merger period indicating that ratio fluctuated more in Pre-Merger period as compared to Post-Merger period.

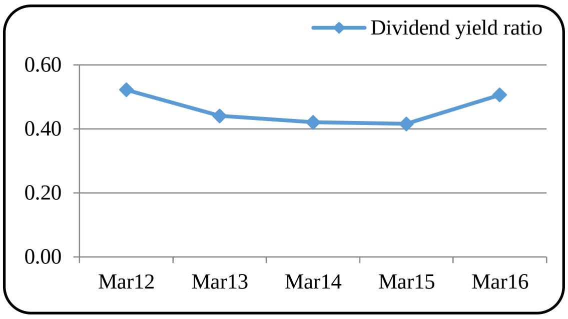
Dividend Yield Ratio [DY Ratio]

In Pre-Merger period as exhibited in table T.4.5.1 and figure G.5.11, Dividend yield ratio registered a fluctuating trend and on an average it was 1.88%.

G.5.11 DY ratio in Pre-Merger Period



G.5.11.1 DY Ratio in Post-Merger period



Source- Table T.4 5.1

As seen in table T. 4.5.1 & figure G.5.11.1, during Post-Merger period also ratio was fluctuating and on an average it was 0.46% which was lower as compared to Pre-Merger period. The decline in the ratio during Post-Merger period exhibits that the market price increased proportionately high as compared to % of dividend declared by sample company. The Standard Deviation of Pre-Merger period was higher as compared to post merger period indicating that fluctuated more in Pre-Merger period as compared to Post-Merger period.

Table No 4.5.2 on the next page shows calculation of various liquidity ratios of the sample acquirer company for the period under study.

4.5.3 Liquidity Ratios of Lupin Ltd During Pre-Merger and Post-Merger Period

Table T.4.5.2 Liquidity Ratios in Pre-Merger and Post-Merger Period

Pre- Merger period (2000-01 to 2009-2010)- 10 years													Post- Merger period (2011-12 to 2015-16)- 5 years						
Liquidity Ratios	**Mar 2000-2001**	**Mar 2001-2002**	**Mar 2002-2003**	**Mar 2003-2004**	**Mar 2004-2005**	**Mar 2005-2006**	**Mar 2006-2007**	**Mar 2007-2008**	**Mar 2008-2009**	**Mar 2009-2010**	**Average ratio**	**Standard deviation**	**Mar 2011-2012**	**Mar 2012-2013**	**Mar 2013-2014**	**Mar 2014-2015**	**Mar 2015-2016**	**Average ratio**	**Standard deviation**
Current ratio [Proportion]	1.49	1.53	1.44	1.22	1.11	1.76	1.85	1.57	1.23	1.52	1.47	0.24	1.49	2.01	3.45	3.89	3.15	2.80	1.01
Quick ratio [Proportion]	1.18	1.23	1.19	0.82	0.70	1.36	1.35	1.00	0.74	1.05	1.06	0.24	0.93	1.30	2.51	2.84	2.32	1.98	0.82
Super Quick ratio [Proportion]	0.03	0.04	0.03	0.03	0.03	0.65	0.48	0.21	0.01	0.03	0.15	0.23	0.01	0.01	0.26	1.47	0.02	0.35	0.63

Source – Annexure II and III

Liquidity Analysis

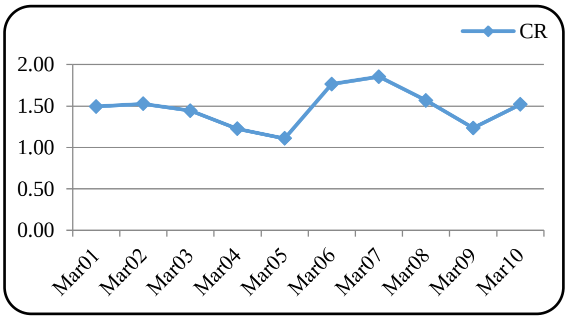
Table 4.5.2 reveals calculation of various Liquidity ratios of Lupin ltd during Pre-Merger Period and Post-Merger Period.

The Liquidity of sample company is analyzed and interpreted using various Liquidity ratios based on Current assets and Current liabilities.

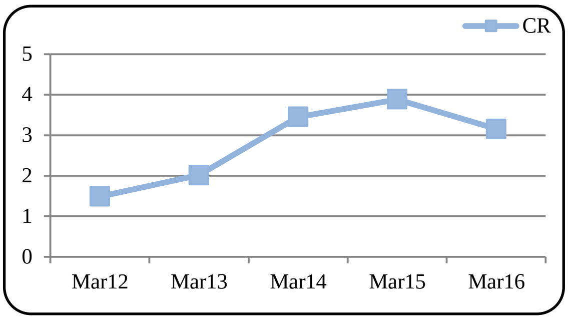
Current Ratio [CR]

During the Pre-Merger period as indicated in table T.4.5.2 and figure G.5.12, Current ratio registered a fluctuating trend. It was lowest in 2004-2005 at 1.11:1 and highest in 2006- 2007 at 1.85 and on an average it was 1.47:1.

G.5.12 CR in Pre-Merger Period



G.5.12.1 CR in Post-Merger Period



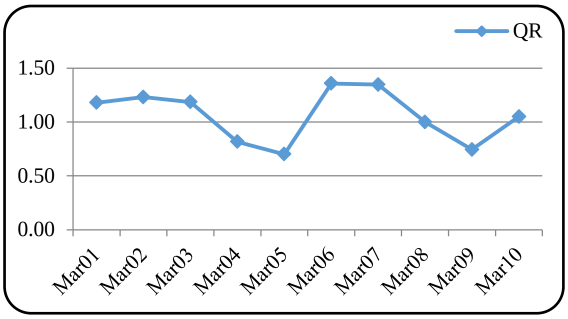
Source – Table T.4.5.2

As seen in table T. 4.5.2 & figure G.5.12.1, during Post-Merger period, the ratio showed an increasing trend up to 2014-2015 and was highest at 3.89:1 in this year and thereafter marginally declined and on an average it was 2.80:1. The overall average ratio during the Post-Merger period was high as compared to Pre-Merger period indicating improvement in liquidity of sample company. The Standard Deviation of Pre-Merger period was lower as compared to post merger period indicating that ratio fluctuated more in Post-Merger period as compared to Pre-Merger period.

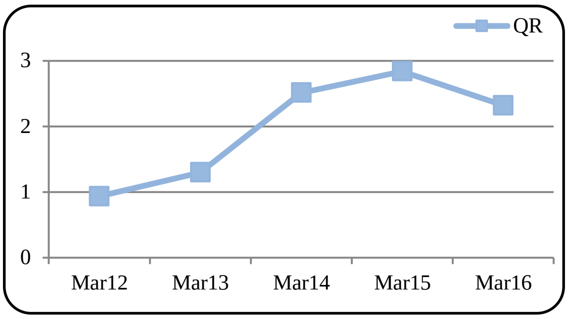
Quick Ratio [QR]

During the Pre-Merger period as revealed in table T.4.5.2 and figure G.5.13, Quick ratio registered a fluctuating trend. It was lowest in 2004-2005 at 0.70:1 and highest in 2005- 2006 at 1.36:1. The overall average ratio was 1.06:1.

G.5.13 QR in Pre-Merger Period



G.5.13.1 QR in Post-Merger Period



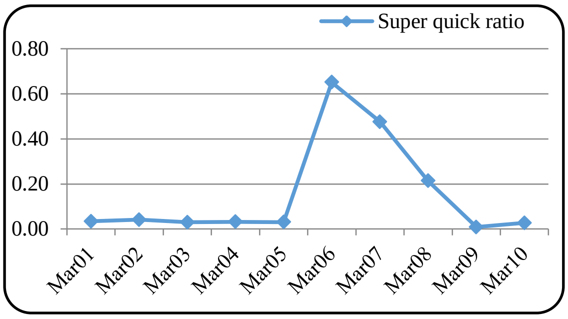
Source – Table T.4.5.2

As disclosed in table T. 4.5.2 & figure G.5.13.1, during post- merger period, the ratio was increasing up to 2014-2015 and thereafter it marginally declined. The Average Quick ratio in Post-Merger period was 1.98:1. The increase in overall average ratio indicates improvement in liquidity position of sample company. The Standard Deviation of Pre-Merger period was lower as compared to post merger period indicating that ratio fluctuated more in Post-Merger period as compared to Pre-Merger period.

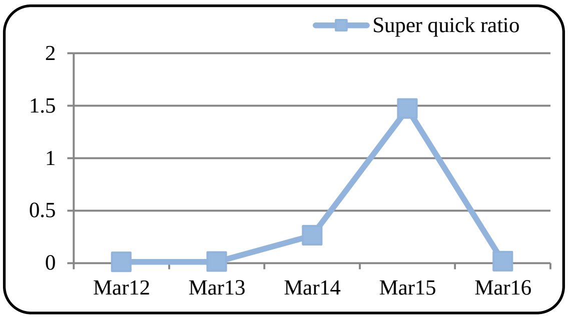
Super quick Ratio [SQR]

During Pre-Merger period as exhibited in table T.4.5.2 and figure G.5.14, Super Quick ratio registered a fluctuating trend. Except for the year 2005-2006, 2006-2007 and 2007-2008 the ratio was very low and on an average it was 0.15:1 during Pre-Merger period of study.

G.5.14 SQR in Pre-Merger Period



G.5.14.1 SQR in Post-Merger Period



Source – Table T.4.5.2

As observed in table T. 4.5.2 & figure G.5.14.1, during the Post-Merger period, the ratio registered a fluctuating trend. The ratio increased up to 2014 – 2015 and later declined on an average, the ratio was 35:1 showing marginal improvement in the absolute liquidity position as compared to Pre-Merger period. The Standard Deviation of Pre-Merger period was lower as compared to post merger period indicating that ratio fluctuated more in Post-Merger period as compared to Pre-Merger period.

Table No 4.5.3 on the next page shows calculation of various long term solvency ratios of the sample acquirer company for the period under study.

4.5.4 Long term solvency Ratios of Lupin ltd during Pre-Merger and Post-Merger Period

Table T.4.5.3 Long Term Solvency Ratios in Pre-Merger and Post-Merger Period

Pre- Merger period (2000-01 to 2009-2010)- 10 years													Post- Merger period (2011-12 to 2015-16)- 5 years						
Long term solvency Ratios	Mar 2000-2001	Mar 2001-2002	Mar 2002-2003	Mar 2003-2004	Mar 2004-2005	Mar 2005-2006	Mar 2006-2007	Mar 2007-2008	Mar 2008-2009	Mar 2009-2010	Average ratio	Standard deviation	Mar 2011-2012	Mar 2012-2013	Mar 2013-2014	Mar 2014-2015	Mar 2015-2016	Average ratio	Standard deviation
Debt Equity Ratio [Proportion]	0.87	0.89	0.72	0.26	0.21	0.79	0.54	0.30	0.276	0.05	0.49	0.31	0.04	0.006	0.003	0.002	0.001	0.010	0.015
Fixed asset Ratio [Proportion]	0.65	0.72	0.76	0.95	1.04	0.58	0.58	0.54	0.62	0.50	0.69	0.18	0.53	0.46	0.35	0.28	0.26	0.37	0.12
Proprietary Ratio [Proportion]	0.94	0.79	0.81	0.87	0.90	1.01	1.25	1.53	1.41	2.13	1.16	0.42	2.20	2.42	3.21	4.47	4.98	3.46	1.23
Interest coverage ratio [Times]	2.40	2.92	2.99	4.45	5.34	9.93	12.95	18.85	13.95	28.84	10.26	8.61	40.63	57.31	158.54	725.28	285.92	253.54	281.27

Source – Source – Annexure I, II and III

Long Term Solvency Analysis

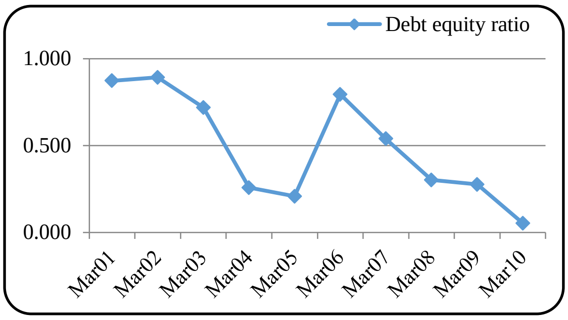
Table 4.1.3 reveals calculation of various Long term solvency ratios of Lupin ltd during Pre-Merger Period and Post-Merger Period.

The Long term solvency of sample company is analyzed and interpreted using various Long term solvency ratios based on Long Term Debt, Share Capital, Fixed Assets and Equity Shareholders Fund.

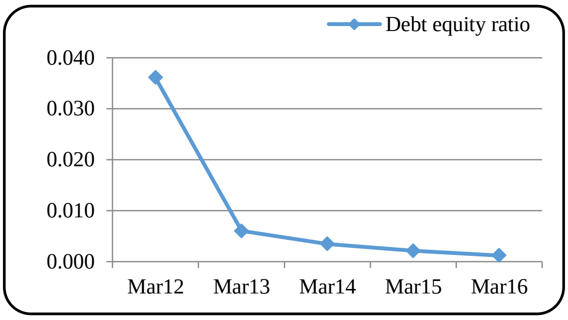
Debt Equity Ratio [DER]

In Pre-Merger period as exhibited in table T.4.5.3 and figure G.5.15., Debt Equity ratio registered a declining trend. It was 0.87:1 in 2000-2001 and decreased to 0.05:1 in 2009-2010 and on an average it was 0.491:1.

G.5.15 DER in Pre-Merger Period



G.5.15.1 DER in Post-Merger Period



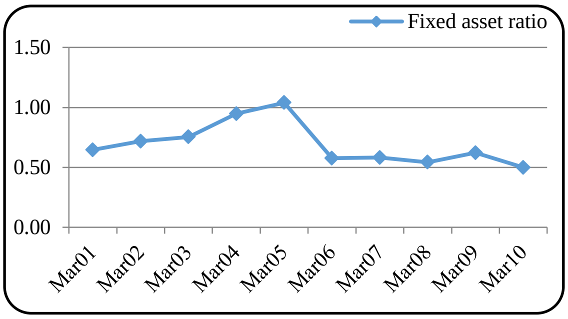
Source – Table T.4.5.3

As indicated in table T.4.5.3 & figure G.5.15.1, during Post-Merger period ratio continued with further decline and on an average it was 0.010:1. The steep decline in Debt equity ratio in 2012-2013 was due to reduction in Long term borrowings. Stable Increase in reserves and surplus resulted in decline in debt equity ratio. The Average Debt Equity ratio was lower in Post-Merger period as compared to Pre-Merger period. This indicates decrease in the proportion of long term funds and increase in the internally generated funds. This indicates good long term solvency of sample company. The Standard Deviation of Pre-Merger period was higher as compared to post merger period indicating that ratio fluctuated more in Pre-Merger period as compared to Post-Merger period.

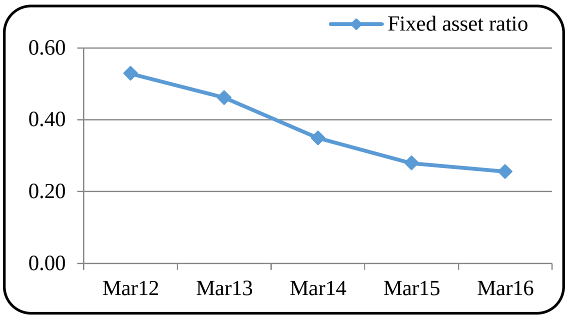
Fixed Asset Ratio [FAR]

During the Pre-Merger period as disclosed in table T.4.5.3 and figure G.5.16, Fixed asset ratio registered a fluctuating trend and on an average it was 0.69:1.

G.5.16 FAR in Pre-Merger Period



G.5.16.1 FAR in Post-Merger Period



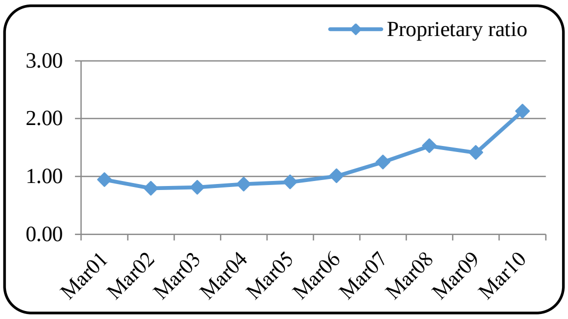
Source – Table T.4.5.3

As indicated in table T.4.5.3 & figure G.5.16.1, during Post-Merger period the ratio registered a declining trend and on an average it was 0.37:1. The decline in ratio in Post-Merger period as compared to Pre-Merger period indicates that long term funds were proportionately high, it is also observed that the debt component in the capital structure was low as compared to equity as justified by Debt equity ratio. The Standard Deviation of Pre-Merger period was higher as compared to post merger period indicating that ratio fluctuated more in Pre-Merger period as compared to Post-Merger period.

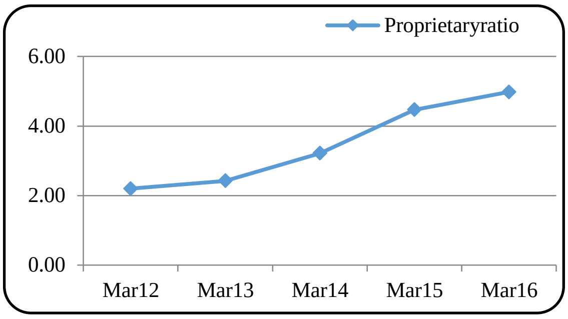
Proprietary Ratio [PR]

In Pre-Merger period as depicted in table T.4.5.3 and figure G.5.17, Proprietary ratio registered an overall increasing trend and on an average it was 1.16 :1.

G.5.17 PR in Pre-Merger Period



G.5.17.1 PR in Post-Merger Period



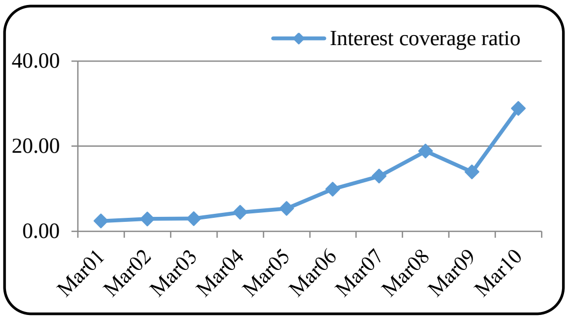
Source – Table T.4.5.3

As revealed by figure G.5.17.1, during Post-Merger period ratio continued to increase and on an average it was 3.46:1 which was quite high as compared to Pre-Merger period. This indicates sound financial position of sample company and less dependency on external funds. The Standard Deviation of Pre-Merger period was lower as compared to post merger period indicating that Proprietary ratio fluctuated more in Post-Merger period as compared to Pre-Merger period.

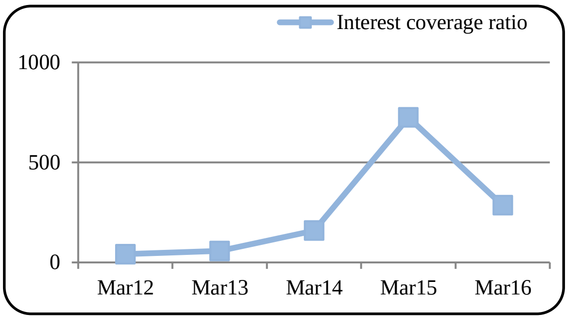
Interest Coverage Ratio [ICR]

During Pre-Merger period as revealed in table T.4.5.3 and figure G.5.18, Interest coverage ratio registered increasing trend. The Average Interest coverage ratio in Pre-Merger period was 10.26 times.

G.5.18 ICR in Pre-Merger Period



G.5.18.1 ICR in Post-Merger Period



Source – Table T.4.5.3

As indicated in table T.4.5.3 & figure G.5.18.1, during Post-Merger period also ratio showed increasing trend. The Average Interest coverage ratio in Post-Merger period was 253.54 times which is quite high as compared to Pre-Merger period. This exhibits that Lupin limited had more extra earnings left in Post-Merger period as compared to Pre-Merger period after covering interest charges. The Standard Deviation of Post-Merger period was higher as compared to pre- merger period indicating that Interest coverage ratio fluctuated more in Post-Merger period as compared to Pre-Merger period.

Table No 4.5.4 on the next page shows calculation of various efficiency ratios of the sample acquirer company for the period under study.

4.5.5 Efficiency Ratios of Lupin ltd during Pre-Merger and Post-Merger Period

Table T.4.5.4 Efficiency Ratios in Pre-Merger Period and Post- Merger Period

Pre- Merger period (2000-01 to 2009-2010)- 10 years													Post- Merger period (2011-12 to 2015-16)- 5 years						
Efficiency Ratios	**Mar 2000-2001**	**Mar 2001-2002**	**Mar 2002-2003**	**Mar 2003-2004**	**Mar 2004-2005**	**Mar 2005-2006**	**Mar 2006-2007**	**Mar 2007-2008**	**Mar 2008-2009**	**Mar 2009-2010**	**Average ratio**	**Standard Deviation**	**Mar 2011-2012**	**Mar 2012-2013**	**Mar 2013-2014**	**Mar 2014-2015**	**Mar 2015-2016**	**Average ratio**	**Standard Deviation**
Capital turnover Ratio [Times]	1.19	1.34	1.55	2.09	1.91	1.38	1.44	1.47	1.65	1.36	1.54	0.28	1.38	1.45	1.27	1.08	0.97	1.23	0.20
Inventory turnover ratio[Times]	6.43	3.46	4.58	3.69	3.24	3.51	3.33	2.80	2.46	2.76	3.63	1.15	2.89	2.83	2.93	2.81	2.61	2.81	0.12
Inventory to current asset ratio [%]	21.08	19.35	17.84	33.32	36.81	23.03	27.25	36.22	39.69	30.84	28.54	7.93	37.13	35.57	27.21	26.96	26.45	30.66	5.23
Working capital turnover ratio [Times]	3.28	3.24	3.41	6.41	11.56	2.47	2.67	3.50	6.22	3.90	4.66	2.77	4.47	3.34	2.34	1.84	2.06	2.81	1.09
Fixed asset turnover ratio [Times]	1.84	1.86	2.06	2.20	1.84	2.39	2.46	2.71	2.66	2.73	2.27	0.36	2.60	3.16	3.65	3.86	3.79	3.41	0.53
Debtors Turnover ratio [Times]	4.79	2.75	3.07	4.24	5.12	5.47	4.74	4.54	4.32	4.47	4.35	0.85	3.95	4.23	3.77	3.62	3.19	3.75	0.386

Source – Annexure I, II and III

Efficiency Analysis

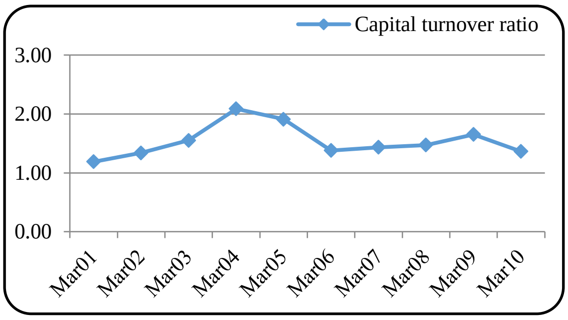
Table 4.5.4 reveals the calculation of various efficiency ratios of Lupin ltd during Pre-Merger Period and Post-Merger Period.

The efficiency ratios of sample company are analyzed and interpreted using various efficiency ratios based on Sales and Investment in Inventories, Fixed Assets, Working Capital, Debtors, Total Capital Employed.

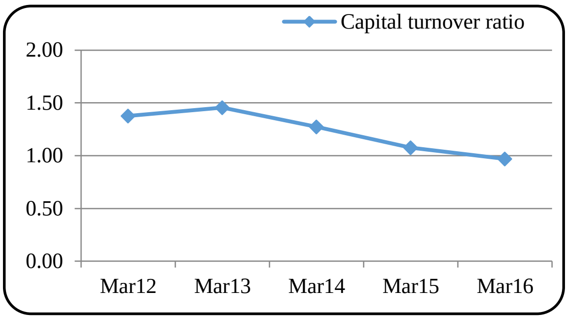
Capital turnover Ratio [CTOR]

In Pre-Merger period as disclosed in table T.4.5.4 and figure G.5.19, Capital Turnover ratio was fluctuating. The Average Capital Turnover ratio in Pre-Merger period was 1.54 times.

G.5.19 CTOR in Pre-Merger Period



G.5.19.1 CTOR in Post-Merger Period



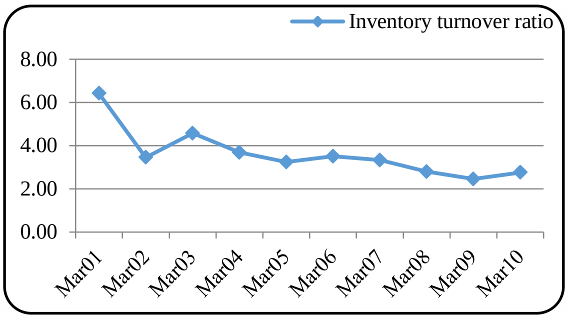
Source – Table T.4.5.4

As revealed in table T.4.5.4 & figure G.5.19.1, during post- merger period, Capital turnover ratio was decreasing except in year 2012-2013 where little increase was noticed. The Average Capital Turnover ratio in Post-Merger period was 1.23 times. During period of study Capital Turnover ratio decreased in Post-Merger period. This indicates inefficiency on the part of Lupin limited regarding effective utilization of capital employed for generating sales. The Standard Deviation of Post-Merger period was lower as compared to pre- merger period indicating that capital turnover ratio was more fluctuating in Pre-Merger period as compared to Post-Merger period.

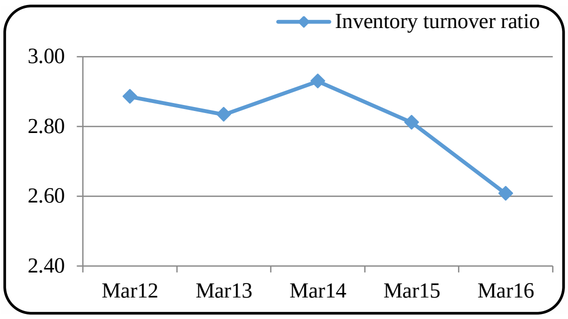
Inventory Turnover Ratio [ITOR]

In Pre-Merger period as revealed in table T.4.5.4 and figure.G.5.20, Inventory Turnover ratio was fluctuating. The Average Inventory Turnover ratio in Pre-Merger period was 3.63 times.

G .5.20 ITOR in Pre-Merger Period



G.5.20.1 ITOR in Post-Merger Period



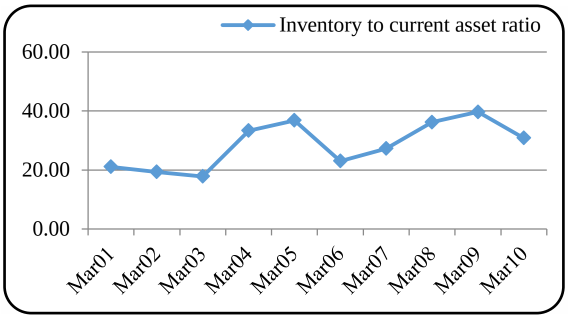
Source – Table T.4.5.4

As seen in table T.4.5.4 & figure G.5.20.1, during Post-Merger period, Inventory turnover ratio was fluctuating. The Average Inventory Turnover ratio in Post-Merger period was 2.81 times. During the period of study Inventory Turnover ratio decreased in Post-Merger period. This indicates inefficiency on the part of Lupin limited regarding its effective utilization of inventory or merchandise. The Standard Deviation of Pre-Merger period was higher as compared to post merger period indicating that Inventory turnover ratio was more fluctuating in Pre-Merger period as compared to Post-Merger period.

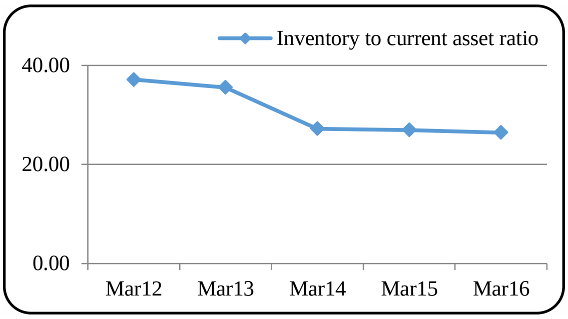
Inventory to current asset ratio [ICAR]

In Pre-Merger period as depicted in table T.4.5.4 and figure G.5.21, Inventory to current asset ratio was fluctuating. Lowest Inventory to current asset ratio was seen in 2002-2003.The Average Inventory to current asset ratio in Pre-Merger period was 28.54%.

G.5.21 ICAR in Pre-Merger Period



G.5.21.1 ICAR in Post-Merger Period



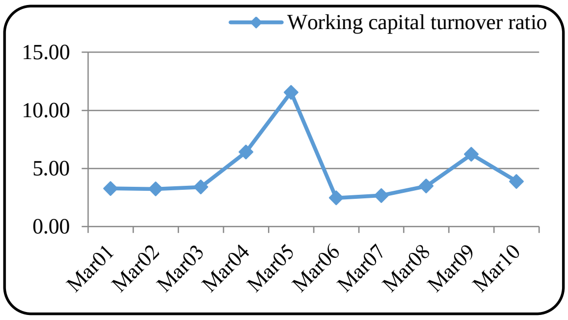
Source – Table T.4.5.4

As indicated in table T.4.5.4 & figure G.5.21.1, during Post-Merger period, Inventory to current asset ratio was declining. The Average Inventory to current asset ratio in Post-Merger period was 30.66%. During period of study Inventory to current asset ratio increased in Post- Merger period. This exhibits that there was increased investment in inventory over other current assets during Post-Merger period. The Standard Deviation of pre- merger period was higher as compared to post merger period indicating that Inventory to Current Asset ratio was more fluctuating in Pre-Merger period as compared to Post-Merger period.

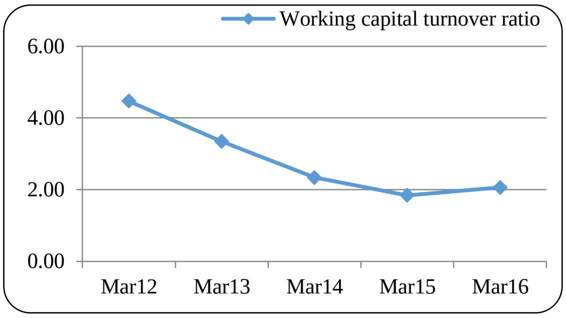
Working Capital Turnover Ratio [WCTOR]

In Pre-Merger period as exhibited in table T.4.5.4 and figure G.5.22, Working capital turnover ratio was fluctuating. The highest Working Capital Turnover ratio was observed in 2004-2005. The Average Working capital turnover ratio in Pre-Merger period was 4.66 times.

G .5.22 WCTOR in Pre-Merger Period



G.5.22.1 WCTOR in Post-Merger Period



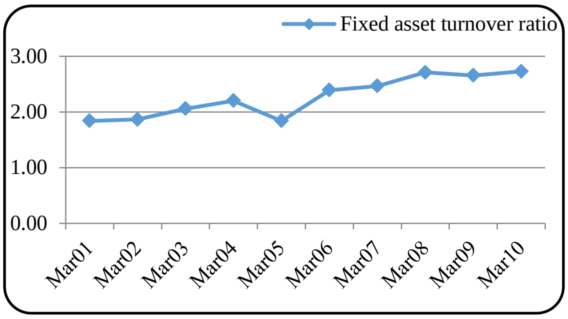
Source – Table T.4.5.4

As disclosed in table T.4.5.4 & figure G.5.22.1, during Post-Merger period, Working Capital Turnover ratio was declining except for year 2015-2016, where it was increased slightly. The Average Working Capital Turnover ratio in Post-Merger period was 2.81 times. The Average Working capital turnover ratio had been declined in Post-Merger period as compared to Pre-Merger period. This reveals that there was increased investment in working capital such as Account receivables, Inventory etc. to support sales of Lupin limited. The Standard Deviation of Pre-Merger period was higher as compared to post merger period indicating that working capital turnover ratio was more fluctuating in Pre-Merger period as compared to Post-Merger period.

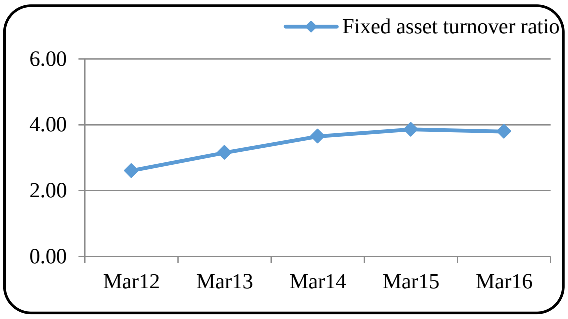
Fixed Asset Turnover Ratio [FATOR]

In Pre-Merger period as disclosed in table T.4.5.4 and figure G.5.23, Fixed asset turnover ratio was fluctuating. The Average Fixed asset turnover ratio in pre -merger period was 2.27 times.

G .5.23 FATOR in Pre-Merger Period



G.5.23.1 FATOR in Post-Merger Period



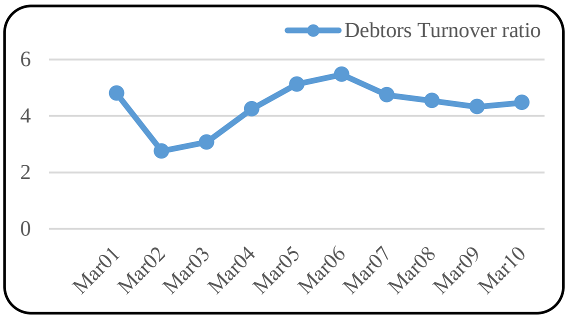
Source – Table T.4.5.4

As indicated in table T.4.5.4 & figure G.5.23.1, During post- merger period Fixed asset turnover ratio was increasing except for year 2015- 2016, where it declined slightly. The Average fixed asset turnover ratio in post- merger period was 3.41 times. During period of study Fixed asset turnover ratio increased in Post-Merger period. This exhibits efficiency of Lupin limited regarding generating sales by utilizing fixed assets in comparatively lower amount. The Standard Deviation of Pre-Merger period was lower as compared to post merger period indicating that Fixed asset turnover ratio was more fluctuating in Post-Merger period as compared to Pre-Merger period.

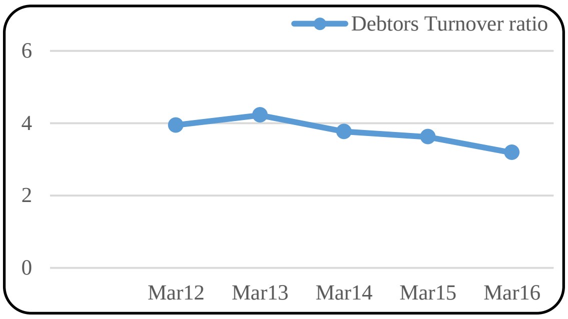
Debtors Turnover Ratio [DTOR]

In Pre-Merger period as revealed in table T.4.5.4 and figure G.5.24, Debtors turnover ratio was fluctuating. Debtors turnover ratio was highest in 2005-2006, the Average Debtors turnover ratio in Pre-Merger period was 4.35 times.

G .5.24 DTOR in Pre-Merger Period



G .5.24.1 DTOR in Post-Merger Period



Source – Table T.4.5.4

As seen in table T.4.5.4 & figure G.5.24.1, during Post-Merger period, Debtors Turnover ratio was declining except in 2012- 2013 where slight increase was observed. The Average Debtors turnover ratio in Post-Merger period was 3.75 times. During period of study, Average Debtors turnover ratio decreased in Post-Merger as compared to Pre-Merger period. This exhibits inefficiency of Lupin limited regarding management of Debtors in Post-Merger period. The Standard Deviation of Pre-Merger period was higher as compared to post- merger period indicating that Debtors turnover ratio was more fluctuating in Pre-Merger period as compared to Post-Merger period.

4.5.6 Testing of Hypothesis

The hypothesis framed with reference to various Ratios [as mentioned in chapter 3, Hypothesis no 1 to 24] is tested applying one sample t- test at 5 % level of significance for measuring impact of merger. The table T4.5.5 shows hypothesis test results

Table T.4.5.5. Hypothesis Test Results

Sr no	Ratio	Pre -merger average	Post- merger average	P value	Null/Alternate hypothesis accepted
Profitability Ratio					
1	GP ratio	40.29	53.36	*0.001	Alternate
2	NP ratio	11.54	21.79	*0.001	Alternate
3	Operating ratio	84.54	72.11	*0.001	Alternate
4	Cash profit margin	13.98	24.32	*0.001	Alternate
5	Return on capital employed	26.71	35.35	*0.002	Alternate
6	Return on Total assets	15.43	33.57	*0.001	Alternate
7	Return on Equity	24.80	26.46	0.443	Null
8	Earnings per share	36.30	43.07	0.286	Null
9	Equity dividend coverage ratio	4.74	7.39	*0.001	Alternate
10	Price earnings ratio	19.30	30.18	*0.023	Alternate
11	Dividend Yield ratio	1.88	0.46	*0.023	Alternate
Liquidity Ratios					
12	Current Ratio	1.47	2.80	*0.001	Alternate
13	Quick Ratio	1.06	1.98	*0.001	Alternate
14	Super Quick Ratio	0.15	0.35	*0.023	Alternate
Long Term Solvency					
15	Debt Equity ratio	0.491	0.010	*0.001	Alternate
16	Fixed asset Ratio	0.69	0.37	*0.001	Alternate
17	Proprietary Ratio	1.16	3.46	*0.001	Alternate
18	Interest coverage ratio	10.26	253.54	*0.001	Alternate
Efficiency Ratios					
19	Capital Turnover ratio	1.54	1.23	*0.006	Alternate
20	Inventory Turnover ratio	3.63	2.81	*0.05	Alternate
21	Inventory to current asset ratio	28.54	30.66	0.421	Null
22	Working capital turnover ratio	4.66	2.81	0.063	Null
23	Fixed asset turnover ratio	2.27	3.41	*0.001	Alternate
24	Debtors Turnover Ratio	4.35	3.75	*0.05	Alternate

Source – Table T.4.5.1, T.4.5.2, T.4.5.3 and T.4.5.4

Profitability analysis

As observed from the above table, that almost all Profitability ratios except Return on Equity and EPS changed significantly in Post-Merger period as compared to Pre-Merger period. In each of the above ratios, the calculated 'P' value is less than 0.05 thus alternate hypothesis is accepted. However, return on Equity and EPS were not changed significantly as the calculated 'P' value is more than 0.05 thus null hypothesis is accepted.

Liquidity analysis-

Liquidity was significantly changed in Post-Merger period in case of all ratios as the calculated 'P' value is less than 0.05 thus alternate hypothesis is accepted.

Long term solvency analysis

As observed from the above table that, all Long term solvency ratios changed significantly in Post-Merger period as compared to Pre-Merger period. As the calculated 'P' value is less than 0.05 thus alternate hypothesis is accepted.

Efficiency Ratios analysis

As observed from the above table that Capital turnover ratio, Inventory Turnover ratio, Fixed Asset Turnover ratio and Debtors Turnover ratio changed significantly in Post-Merger period as compared to Pre-Merger period. In each of the above ratios the calculated 'P' value is less than 0.05, thus alternate hypothesis is accepted. However, other Efficiency ratios were not changed significantly as the calculated 'P' value is more than 0.05, thus null hypothesis is accepted.

4.5.7 Composite Index score

Composite Index score represents overall index for selected parameter. In case of Profitability, higher the composite Index score, better the performance and Vice-Versa. In case of Liquidity and Long term solvency Composite index score represent combine index considering selected ratios.

4.5.7.1 Composite Index score based on Profitability

Table T.4.5.6 Composite Index score based on Profitability

Pre-Merger Period Profitability Index scores and Composite Index score									
YEAR	**GPR**	**NPR**	**OR**	**CPM**	**ROCE**	**ROTA**	**ROE**	**EPS**	**AVERAGE**
2000-2001	0.05	0.01	0.28	0.00	0.00	0.07	0.00	0.06	0.06
2001-2002	0.30	0.06	0.40	0.07	0.23	0.13	0.27	0.00	0.18
2002-2003	0.05	0.01	0.26	0.01	0.21	0.11	0.20	0.02	0.11
2003-2004	0.39	0.04	0.49	0.04	0.64	0.25	0.26	0.11	0.28
2004-2005	0.00	0.00	0.00	0.02	0.01	0.00	0.01	0.06	0.01
2005-2006	0.16	0.22	0.18	0.23	0.15	0.13	0.68	0.50	0.28
2006-2007	0.20	0.43	0.20	0.43	0.50	0.31	1.00	0.36	0.43
2007-2008	0.35	0.55	0.37	0.54	0.60	0.40	0.98	0.66	0.56
2008-2009	0.35	0.38	0.28	0.37	0.40	0.27	0.79	0.59	0.43
2009-2010	0.47	0.56	0.43	0.56	0.35	0.34	0.52	1.00	0.53
Average	**0.23**	**0.23**	**0.29**	**0.23**	**0.31**	**0.20**	**0.47**	**0.34**	**0.29**
Post-Merger Period Profitability Index scores and Composite Index score									
2011-2012	0.54	0.41	0.45	0.41	0.30	0.30	0.28	0.01	0.34
2012-2013	0.71	0.56	0.66	0.54	0.66	0.56	0.54	0.19	0.55
2013-2014	0.91	1.00	0.91	0.98	1.00	0.97	0.96	0.62	0.92
2014-2015	0.88	0.92	0.92	0.99	0.64	1.00	0.57	0.64	0.82
2015-2016	1.00	0.98	1.00	1.00	0.57	0.85	0.48	0.84	0.84
Average	**0.81**	**0.77**	**0.79**	**0.78**	**0.63**	**0.74**	**0.57**	**0.46**	**0.69**

Source – Table T.4.5.1

From the table T.4.5.6 it could be observed that Average index scores of all profitability ratios improved in Post-Merger period as compared to Pre-Merger Period

The Average Composite Index score based on Profitability ratios increased from 0.29 in the Pre-Merger period to 0.69 in the Post-Merger period. This increase proved to be significant when tested applying Independent t- test at 5 % level of significance. As disclosed in Table no.4.5.7 below. The Calculated ‘P’ value is 0.004 indicating that Alternate hypothesis is accepted.

Table T.4.5.7 Independent t- Test Results of Profitability Composite Index Score

Index score based on profitability	Pre-Merger Period	Post-Merger Period	P. value based on Independent T test	Hypothesis accepted
Composite Index score	0.29	0.69	*0.004	Alternate

Source – Table T.4.5.6

4.5.7.2 Composite Index Score Based on Liquidity

Table T.4.5.8 Composite Index Score Based on Liquidity

Pre-Merger Period Liquidity Index Scores and Composite Index Score							
YEAR	**CR**	**QR**	**SQR**	**ITOR**	**WCTOR**	**DTOR**	**AVERAGE**
2000-2001	0.14	0.22	0.02	1.00	0.15	0.75	0.38
2001-2002	0.15	0.25	0.02	0.25	0.14	0.00	0.14
2002-2003	0.12	0.23	0.01	0.53	0.16	0.12	0.20
2003-2004	0.04	0.05	0.02	0.31	0.47	0.55	0.24
2004-2005	0.00	0.00	0.01	0.20	1.00	0.87	0.35
2005-2006	0.24	0.31	0.44	0.27	0.06	1.00	0.39
2006-2007	0.27	0.30	0.32	0.22	0.09	0.73	0.32
2007-2008	0.17	0.14	0.14	0.08	0.17	0.66	0.23
2008-2009	0.04	0.02	0.00	0.00	0.45	0.58	0.18
2009-2010	0.15	0.16	0.01	0.08	0.21	0.63	0.21
Average	**0.13**	**0.17**	**0.10**	**0.29**	**0.29**	**0.59**	**0.26**
Post-Merger Period Liquidity Index Scores and Composite Index Score							
2011-2012	0.14	0.11	0.00	0.11	0.27	0.44	0.18
2012-2013	0.33	0.28	0.00	0.09	0.15	0.54	0.23
2013-2014	0.84	0.85	0.17	0.12	0.05	0.37	0.40
2014-2015	1.00	1.00	1.00	0.09	0.00	0.32	0.57
2015-2016	0.74	0.76	0.01	0.04	0.02	0.16	0.29
Average	**0.61**	**0.60**	**0.24**	**0.09**	**0.10**	**0.37**	**0.33**

Source – Table T.4.5.2 and T.4.5.4

From the above table it could be seen that, average liquidity index scores based on current ratio, Quick ratio and Super Quick ratio increased in Post-Merger period as compared to Pre-Merger period. However, Other Average liquidity index scores based on Inventory turnover ratio, working capital turnover ratio and Debtors turnover ratio decreased in Post-Merger period as compared to Pre-Merger period. Average Composite Index score based on liquidity ratios increased from 0.26 in Pre-Merger period to 0.33 in Post-Merger period for Lupin Ltd. This increase proved to be insignificant when tested applying Independent t- test at 5 % level of significance. As disclosed in Table no.4.5.9 below, the Calculated ‘P’ value is 0.07 indicating that Null hypothesis is accepted.

Table T.4.5.9 Independent t- Test Results of Liquidity Composite Index Score

Index score based on liquidity ratios	Pre-Merger Period	Post-Merger Period	Probability value based on Independent t- test	Hypothesis accepted
Composite Index score	0.26	0.33	0.07	Null

Source – Table T.4.5.8

4.5.7.3 Composite Index Score Based on Long Term Solvency

Table T.4.5.10 Composite Index Score Based on Long Term Solvency

Pre-Merger Period Long Term Solvency Index Scores and Composite Index Score				
YEAR	**DER**	**FAR**	**PR**	**AVERAGE**
2000-2001	0.98	0.50	0.04	0.50
2001-2002	1.00	0.59	0.00	0.53
2002-2003	0.81	0.64	0.00	0.48
2003-2004	0.29	0.88	0.02	0.40
2004-2005	0.23	1.00	0.03	0.42
2005-2006	0.89	0.41	0.05	0.45
2006-2007	0.60	0.42	0.11	0.38
2007-2008	0.34	0.37	0.18	0.29
2008-2009	0.31	0.47	0.15	0.31
2009-2010	0.06	0.31	0.32	0.23
Average	**0.55**	**0.56**	**0.09**	**0.40**
Post-Merger Period Long Term Solvency Index Scores and Composite Index Score				
2011-2012	0.04	0.35	0.34	0.24
2012-2013	0.01	0.26	0.39	0.22
2013-2014	0.00	0.12	0.58	0.23
2014-2015	0.00	0.03	0.88	0.30
2015-2016	0.00	0.00	1.00	0.33
Average	**0.01**	**0.15**	**0.64**	**0.27**

Source – Table T.4.5.3

From the above table it could be seen that, average index scores based on Debt equity ratio and Fixed Asset Ratio decreased in Post-Merger period, whereas average index score based on proprietary ratio increased in Post-Merger period as compared to Pre-Merger period.

Average composite index score based on Long Term solvency declined from 0.40 in Pre-Merger period to 0.27 in Post-Merger period. This decrease proved to be significant when tested applying Independent t- test at 5 % level of significance. As disclosed in Table no.4.5.11 below the Calculated 'P' value is 0.02 indicating that Alternate hypothesis is accepted.

Table T.4.5.11 Independent t – Test Results of Long Term Solvency Composite Index Score

Index score based on Long term solvency ratios	Pre-Merger Period	Post-Merger Period	Probability value based on Independent T test	Hypothesis accepted
Composite Index score	0.40	0.27	*0.02	Alternate

Source – Table T.4.5.10

4.5.8 Economic Value Added [EVA] and Market Value Added [MVA]

The shareholder's wealth measurement has been carried out by calculating EVA and MVA of the sample company for Pre-Merger and Post-Merger period of study.

4.5.8.1 Economic Value Added [EVA]

The Table no T.4.5.12, shows the calculation of EVA of the sample company for Pre and Post-Merger period of study. The Table depicts that the average EVA in Pre-Merger period was 907.534 Million while, the average EVA in the Post-Merger period amounted to Rs10238.51 Million. The Post-Merger Average EVA highly increased as compared to Pre-Merger period from which it could be interpreted that merger had helped company to improve its performance in terms of EVA there by shareholder's wealth enhanced.

Table T.4.5.12 Economic Value Added [EVA] of Lupin Ltd [Rs in Millions]

Particulars	NOPAT	Ke	Kp	Kd	EVA
2000-2001	1177.26	557.76	0	364.49	255.01
2001-2002	1323.4	485.48	11.1	399.95	426.88
2002-2003	1300.5	576.82	5.1	388.23	330.35
2003-2004	1874.9	654.26	0	330.28	890.36
2004-2005	946.8	721.83	0	173.17	51.80
2005-2006	1552.1	967.54	0	201.01	383.55
2006-2007	1637.3	1334.84	0	244.83	57.62
2007-2008	3248.7	1581.79	0	227.01	1439.90
2008-2009	3893.4	1610.28	0	274.07	2009.04
2009-2010	6335.3	2917.14	0	187.34	3230.82
Total	23289.66	11407.74	16.2	2790.38	9075.33
Average EVA in Pre-Merger period					907.534
2011-2012	8532	4282.40	0	193.73	4055.87
2012-2013	12843.8	5441.01	0	219.68	7183.11
2013-2014	19397.9	7456.06	0	138.55	11803.29
2014-2015	22257.3	9154.85	0	32.04	13070.41
2015-2016	27142.1	11965.58	0	96.65	15079.88
Total	90173.1	38299.9	0	680.65	51192.56
Average EVA in Post-Merger period					10238.51

Source – Annexure – I, II, III and VI

4.5.8.2 Market Value Added [MVA]

The Table no T.4.5.13 shows the calculation of MVA of the sample company for Pre and Post-Merger period of study. The Table depicts that the average MVA in Pre-Merger period was Rs 30195.35 Million while the average MVA in the Post-Merger period amounted to 428869.8 Million. The Post-Merger Average MVA increased as compared to Pre-Merger period from which it could be interpreted that merger had helped company to improve its performance in terms of MVA there by shareholder's wealth enhanced

Table T.4.5.13 Market Value Added [MVA] of Lupin Ltd [Rs in Millions]

Year	Market Capitalization	Share cap	Res and surplus	SF	MVA
2000-2001	28.65	401.392	3086.784	3488.176	-3459.53
2001-2002	4688.48	401.4	2923.1	3324.5	1363.98
2002-2003	5028.68	401.4	3422.3	3823.7	1204.98
2003-2004	26090.73	401.4	4078.9	4480.3	21610.43
2004-2005	22080.63	401.4	4603.6	5005	17075.63
2005-2006	40794.43	401.4	6038.1	6439.5	34354.93
2006-2007	48682.78	803.4	8080.7	8884.1	39798.68
2007-2008	40728.54	820.8	12349.7	13170.5	27558.04
2008-2009	56886.68	828.2	12924.8	13753	43133.68
2009-2010	144618.2	889.4	24416.1	25305.5	119312.7
Total	**389627.8**	**5750.192**	**81924.084**	**87674.276**	**301953.52**
Average MVA in Pre-Merger period					**30195.35**
2011-2012	236530.3	893.3	36450.8	37344.1	199186.2
2012-2013	281406.6	895.1	47572	48467.1	232939.5
2013-2014	419018.4	896.8	68893.6	69790.4	349228
2014-2015	902449	899	89378.4	90277.4	812171.6
2015-2016	666750.2	901.2	115025.2	115926.4	550823.8
Total	**2506154.5**	**4485.4**	**357320**	**361805.4**	**2144349.1**
Average MVA in Post-Merger period					**428869.8**

Source – Annexure – I, II and III

The hypothesis framed with reference to EVA and MVA [as mentioned in chapter 3, Hypothesis no 28 and 29] is tested applying one sample T test at 5 % level of significance. The table below depicts that calculated ‘P’ value is less than 0.05. The ‘P’ value for EVA and MVA is 0.001. Hence alternate hypothesis is accepted. It can be concluded that the merger had significant impact on EVA and MVA of the sample company.

Table T.4.5.14 Hypothesis one sample t Test Results

Particulars	Pre-Merger Average [Rs Millions]	Post-Merger Average [Rs Millions]	p value	Hypothesis accepted
EVA	907.534	10238.51	*<0.001	Alternate
MVA	30195.35	428869.8	*<0.001	Alternate

Source-Table T. 4.5.12 and T.4.5.13

4.5.9 Altman Z score

The financial health of the sample company in Pre and Post merger period is also assessed using Altman Z score model. The Altman Z score calculated using following formula

$$\zeta = 1.2A + 1.4B + 3.3C + 0.6D + 1.0E$$

The calculated the Altman Z score as depicted in annexure IV and V for Pre-Merger period was 3.006436, while that of Post-Merger Period was6.050671.

The financial health of the sample company in Pre and Post-Merger period is sound as the Altman Z score is more than 3. In other words, the sample company falls in safe zone in Pre as well as post-merger period of study. The increase in ALTMAN Z score in the Post- Merger period as compared to Pre-Merger period indicates that, the Merger has helped the company to improve the financial health as also reflected by increase in Market price of share during Post-Merger period

4.5.10 Regression Analysis

Considering one dependent variable i.e. Net profit and 9 independent variables viz Cost of goods sold, Operating Expenses, Finance Cost, Capital Employed, Long Term Borrowings, Shareholders Fund, Working Capital, Current Assets, Fixed Assets of the sample company during Pre and Post-Merger period, regression analysis is carried out in this part of study.

Using Regression Model the multiple linear regression for Pre and Post merger was constructed.

4.5.10.1 Pre-Merger period Regression equation

Table T.4.5.15 Model Summary of Pre-Merger Period

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.989[a]	0.979	0.976	318.98650

a. Predictors: (Constant), CE

Source – Annexure – I, II and III

If we evaluate overall performance of the model based on the ANOVA table, observing the significant value we conclude that model is significant as the value is less than 0.05. as shown in the table below

Table T.4.5.16 ANOVA [Pre-Merger Period]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	37131860.591	1	37131860.591	364.924	0.000[b]
	Residual	814019.076	8	101752.384		
	Total	37945879.666	9			

a. Dependent Variable: NP

b. Predictors: (Constant), CE

Source – Annexure – I, II and III

Table T.4.5.17 Coefficients [Pre-Merger Period]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-1053.151	206.201		-5.107	0.001
	CE	0.291	0.015	0.989	19.103	0.000

a. Dependent Variable: NP

Source – Annexure – I, II and III

Pre-Merger period regression equation

NP=-1053.51+0.291CE

4.5.10.2Post-Merger period Regression Equation

Table T.4.5.18 Model Summary [Post-Merger Period]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.947[a]	0.897	0.863	3208.73473

a. Predictors: (Constant), CE

Source – Annexure – I, II and III

If we evaluate overall performance of the model based on the ANOVA table, observing the significant value we conclude that model is significant as the value is less than 0.05. as shown in the table below

Table T.4.5.19 ANOVA [Post-Merger Period]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	269237972.616	1	269237972.616	26.150	0.014[b]
	Residual	30887935.672	3	10295978.557		
	Total	300125908.288	4			

a. Dependent Variable: NP

b. Predictors: (Constant), CE

Source – Annexure – I, II and III

Table T.4.5.20. Coefficients [Post-Merger Period]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	209.381	4007.361		.052	0.962
	CE	0.262	0.051	0.947	5.114	0.014

a. Dependent Variable: NP

Source – Annexure – I, II and III

Post-Merger period regression equation

NP = 209.381 + 0.262 CE

Considering the output, the final model for the Post-Merger time would be given as per above. From the above facts it could be analyzed that capital employed is the only independent variable affecting profitability in terms of Net profit of Lupin ltd being identified by multiple linear regression equation in Pre-Merger and Post-Merger period of Lupin ltd. Correlation coefficient between Net profit and Capital employed in Pre-Merger period and Post-Merger period is 0.99 and 0.95 respectively. Correlation coefficient between Net profit and capital employed in Post-Merger period was marginally less as compared to Pre-Merger period. It was observed that capital employed was not efficiently used in Post-Merger period as compared to Pre-Merger period.

R^2 During Pre-Merger period is higher than Post-Merger period**.**

4.6 CASE 6 – ACQUIRER COMPANY : MAKERS LABORATORIES LTD.

4.6.1 Background of the Company

Makers Laboratories Limited is a Public ltd company incorporated on 09 July 1984 and a fast growing Indian Pharmaceutical company with a good market of Branded Generics. The Company was promoted by Mr. Prashant Godha with object to manufacture pharmaceutical formulations and drug intermediaries.

Harleystreet Pharmaceuticals Limited was a Public ltd company incorporated on 05 April 1983, registered at Registrar of Companies, Mumbai. It was involved in Manufacturing of other chemical products. Amalgamation ('scheme') of the Harleystreet Pharmaceuticals Ltd (HPL) with the company Makers Laboratories Limited (MLL) sanctioned by the Honorable High Court of Judicature at Bombay vide its order dated 25th March 2011, 571,440 Equity Shares of MLL of Rupees 10/- each fully paid up were issued to the shareholders of HPL under this amalgamation, in the ratio of 6 fully paid up equity shares of Rs. 10/- each of MLL for every 10 fully paid up equity shares of Rs. 10/- each of HPL.

The subsequent part of chapter covers analysis of the financial performance of Makers Laboratories ltd. for Pre-Merger and Post-Merger period.

The period of study covers 16 years commencing from 2000-2001 to 2015-2016.

Period of study - 2000-2001 to 2015-2016

Pre-Merger period - 2000-2001 to 2009-2010

Post- Merger period - 2011-2012 to 2015-2016

Merger Year/Zero Year-2010-2011

Table No 4.6.1. on the next page shows calculation of various profitability ratios of the sample acquirer company for the period under study.

4.6.2 Profitability Ratios of Makers Laboratories Limited during Pre-Merger and Post-Merger Period

Table T.4 6.1 Profitability Ratios in Pre-Merger and Post- Merger Period

Pre- Merger period (2000-01 to 2009-10)- 10 years													Post- Merger period (2011-12 to 2015-16)- 5 years						
Profitability Ratios	**Mar 2000-2001**	**Mar 2001-2002**	**Mar 2002-2003**	**Mar 2003-2004**	**Mar 2004-2005**	**Mar 2005-2006**	**Mar 2006-2007**	**Mar 2007-2008**	**Mar 2008-2009**	**Mar 2009-2010**	**Average GP ratio**	**Standard Deviation**	**Mar 2011-2012**	**Mar 2012-2013**	**Mar 2013-2014**	**Mar 2014-2015**	**Mar 2015-2016**	**Average GP ratio**	**Standard Deviation**
GP Ratio [%]	21.97	25.36	19.08	14.17	16.07	12.21	12.08	13.98	20.31	20.64	17.59	4.53	9.75	11.25	10.94	13.04	15.08	12.01	2.08
NP Ratio [%]	-1.36	-0.71	0.66	5.25	1.68	0.72	2.10	-0.45	5.87	6.36	2.01	2.843	-1.05	4.77	1.01	4.20	4.42	2.67	2.572
Operating ratio [%]	97.42	94.62	102.08	106.69	105.45	111.32	101.75	99.77	94.01	92.58	100.57	6.09	114.69	113.50	113.03	110.91	110.72	112.57	1.72
Cash profit margin [%]	0.03	0.83	2.24	6.76	3.22	2.42	3.20	0.18	6.19	6.77	3.18	2.59	0.82	6.75	2.65	6.94	6.81	4.79	2.87
ROCE[%]	4.64	6.93	7.17	16.04	15.59	11.14	21.03	9.93	35.21	31.51	15.92	10.46	2.76	18.84	6.01	13.32	12.72	10.73	6.37
ROTA[%]	3.81	4.86	5.55	10.23	6.98	5.11	10.50	5.74	22.56	19.48	9.48	6.51	1.77	12.76	4.20	10.29	10.10	7.82	4.620
ROE[%]	-6.16	-3.58	3.10	20.84	6.39	2.39	8.98	-2.16	20.16	19.80	6.98	10.211	-2.88	10.94	2.60	9.55	8.75	5.79	5.806
EPS[RS]	-1.03	-0.51	0.46	3.90	1.28	0.49	2.00	-0.47	5.49	6.43	1.80	2.619	-1.16	4.96	1.21	4.78	4.69	2.90	2.754
Price earnings ratio [Times]	-6.34	-15.96	75.64	10.52	22.26	36.93	11.99	-26.31	4.87	6.89	12.05	28.754	-16.86	4.33	28.99	20.37	19.99	11.37	18.11

Source – Annexure I, II and III

Profitability Analysis

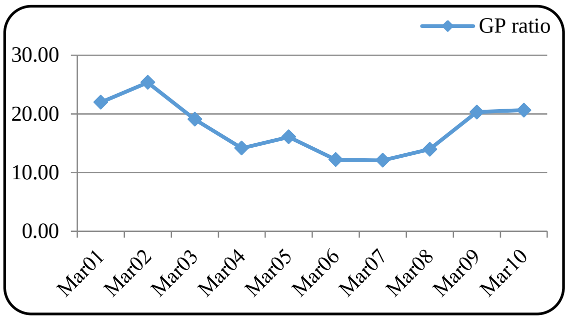
Table 4.6.1 reveals that calculation of various profitability ratios of Makers laboratories ltd during Pre-Merger Period and Post-Merger Period.

The Profitability of sample company is analyzed and interpreted using various profitability ratios based on sales and Investment.

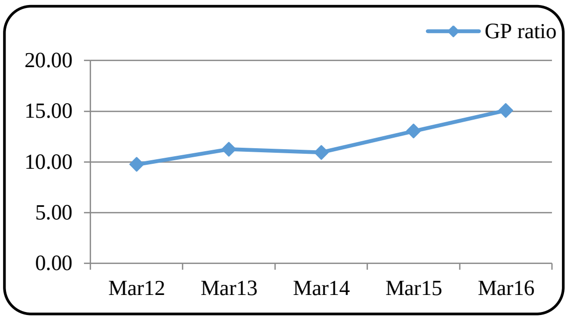
Gross profit Ratio [GPR]

As exhibited by table T. 4.6.1 and figure G.6.1, GP ratio showed fluctuating trend in Pre-Merger period. Low GP ratio was observed in 2005-2006 i.e.12.21%and 2006-2007 i.e. 12.01% due to severe competition and introduction of MRP based excise duty, reduced sales of company and thereby Profit Margin and on an average it was 17.59%.

G 6.1 GPR in Pre-Merger Period



G 6.1.1 GPR in Post-Merger period



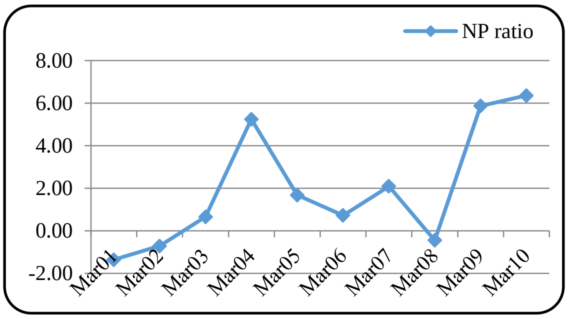
Source – Table T.4 6.1

In Post-Merger period, GP ratio registered an increasing trend except 2013-2014 where marginal decline was observed as indicated in table T. 4.6.1 and figure G.6.1.1 and on an average it was 12.01% which was lower as compared to Pre-Merger period. The Standard Deviation of Pre-Merger period was higher as compared to post merger period indicating that ratio fluctuated more in Pre-Merger period as compared to Post-Merger period.

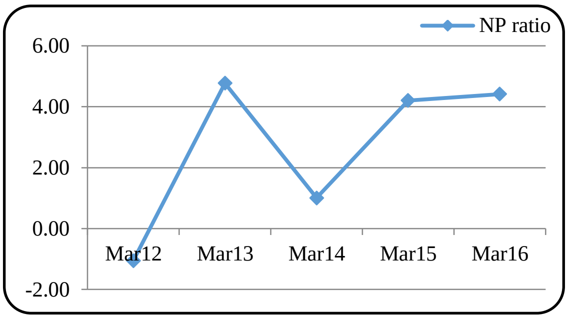
Net Profit Ratio [NPR]

As revealed by Table T. 4.6.1 and figure G.6.2, Net profit ratio showed fluctuating trend in Pre-Merger period.NP ratio was negative in 2000-2001, 2001-2002 and 2007-2008, whereas lowest NP ratio was seen 2000-2001 i.e.-1.36 % due to additional marketing inputs during year on account of increasing competition but it had not yielded comparative benefit. Ratio was highest in 2009- 2010 i.e.6.36% due to addition of new products and improvement in Distribution channel and on an average it was 2.01%.

G.6.2 NPR in Pre-Merger Period



G.6.2.1 NPR in Post-Merger Period



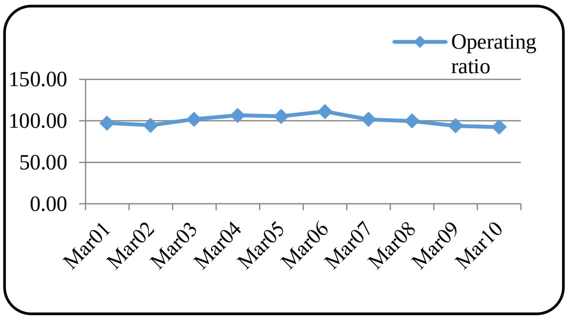
Source – Table T.4 6.1

As disclosed in Table T.6.4.1 & figure 6.2.1, In Post-Merger period too, ratio registered a fluctuating trend Negative NP ratio was observed in 2011- 2012 i.e.-1.05%, whereas highest NP ratio was noticed in 2012-2013 i.e.4.77% due to growth of Generic market and on an average it was 2.67%, which was more as compared to pre- merger period. The Standard Deviation of Pre-Merger period was higher as compared to post merger period indicating that ratio fluctuated more in Pre-Merger period as compared to Post-Merger period.

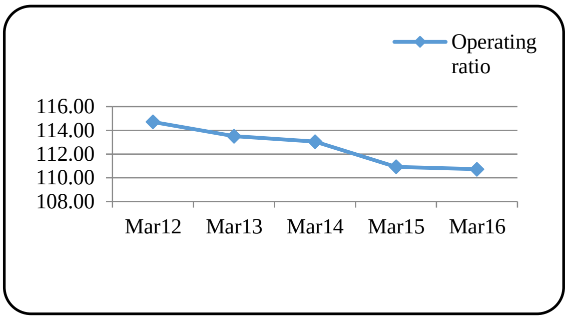
Operating Ratio [OR]

In Pre-Merger period as evident in table T.4.6.1 and figure.G.6.3, Operating ratio showed fluctuating trend and on an average it was 100.57%.

G.6.3 OR in Pre-Merger Period



G.6.3.1 OR in Post-Merger Period



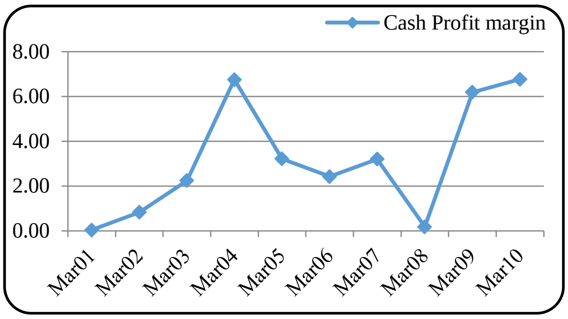
Source – Table T.4 6.1

It could be seen in Table T.6.4.1 & figure G.6.3.1, in Post-Merger period that operating ratio registered a declining trend and on an average it was 112.57% higher as compared to Pre-Merger period indicating that overall operating expenses increased in Post-Merger period as compared to Pre-Merger Period. The Standard Deviation of Pre-Merger period was higher as compared to Post-Merger period indicating that ratio fluctuated more in Pre-Merger period as compared to Post-Merger period.

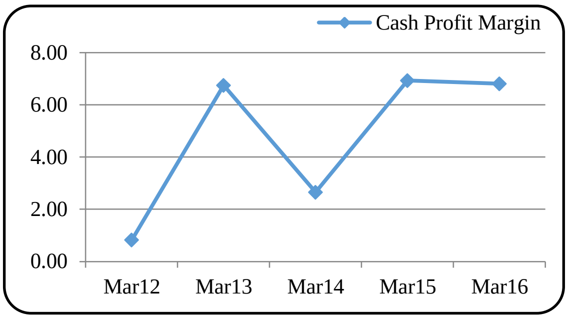
Cash Profit Margin [CPM]

In Pre-Merger period as disclosed in table T.4.6.1 figure G.6.4, Cash profit margin registered inclining trend and on an average it was 3.18%.

G.6.4 CPM in Pre-Merger Period



G.6.4.1 CPM in Post-Merger Period



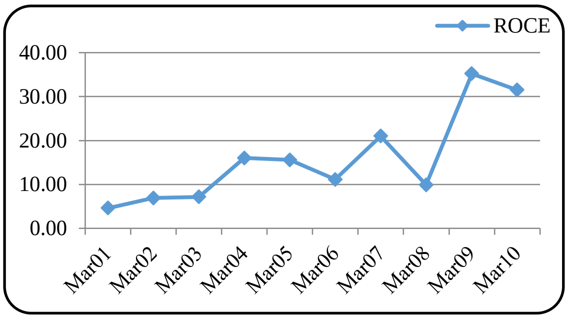
Source – Table T.4 6.1

As revealed in Table T.6.4.1 & figure G.6.4.1, during Post-Merger period too ratio showed increasing trend, and on an average it was 4.79% higher as compared to Pre-Merger period indicating larger cash profit margin in Post-Merger period. The Standard Deviation of Post-Merger period was higher as compared to Pre-Merger period indicating, that ratio fluctuated more in Post-Merger period.

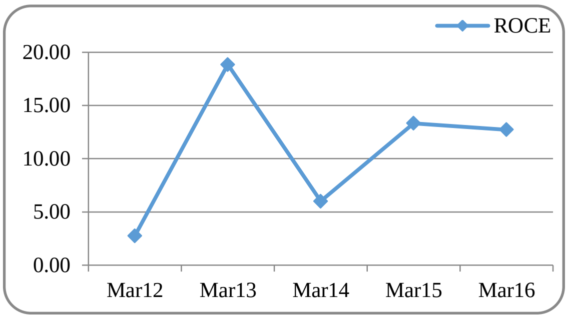
Return on capital employed [ROCE]

In Pre-Merger period as revealed in table T.4.6.1 and figure G.6.5, Return on capital employed showed a fluctuating trend and on an average it was 15.92%.

G.6.5 ROCE in Pre-Merger Period



G.6.5.1 ROCE in Post-Merger Period



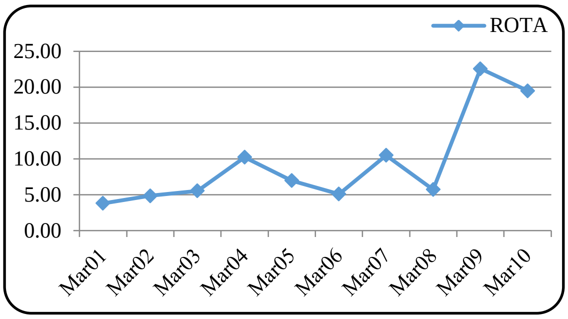
Source – Table T.4 6.1

As indicated in Table T.6.4.1 & Figure G.4.5.1, during Post-Merger period ratio registered fluctuating trend, and on an average it was 10.73% which is lower as compared to Pre-Merger period. The Standard Deviation of Pre-Merger period was higher as compared to post -merger period indicating that ratio fluctuated more in Pre-Merger period as compared to Post-Merger period

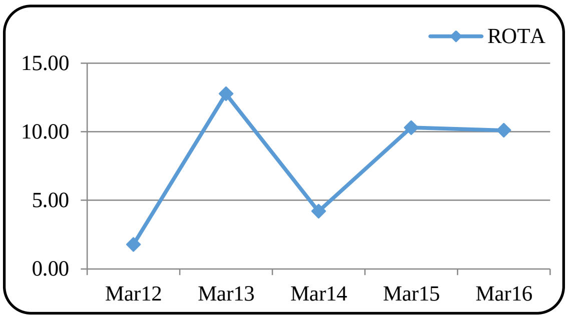
Return on Total Assets [ROTA]

In Pre-Merger period as exhibited in table T.4.6.1 and figure G.6. 6, Return on Total assets registered fluctuating trend and on an average it was 9.48 %.

G.6.6 ROTA in Pre-Merger Period



G.6.6.1 ROTA in Post-Merger Period



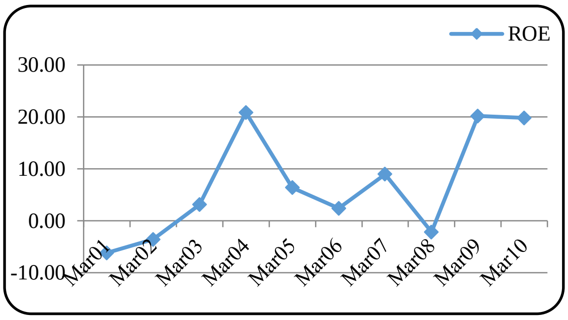
Source – Table T.4 6.1

As indicated in Table T.6.4.1 & figure G.6.6. 1, during Post-Merger period ratio showed inclining trend and on an average it was 7.82% less as compared to pre- merger period. The Standard Deviation of Pre-Merger period was higher as compared to Post-Merger period indicating more fluctuation in ratio in Pre-Merger period as compared to Post-Merger period.

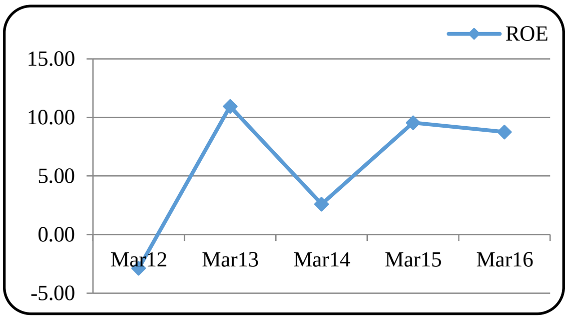
Return on Equity [ROE]

In Pre-Merger period as observed in table T.4.6.1 and figure G.6.7, Return on Equity registered a fluctuating trend. It was negative in 2000- 2001, 2001- 2002 and 2007-2008 at -6.16, -3.58 and -2.16 respectively. It was highest in 2003-2004 resulted to 20.84% and on an average it was 6.98%.

G.6.7 ROE in Pre-Merger Period



G.6.7.1 ROE in Post-Merger Period



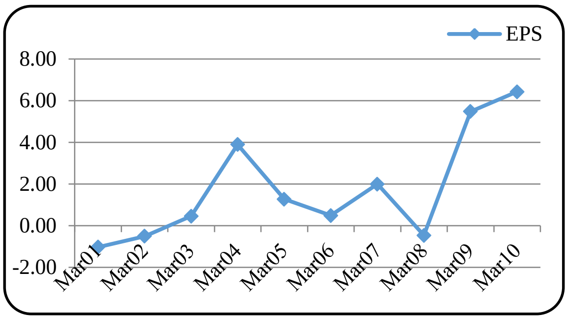
Source – Table T.4 6.1

As observed in Table T.6.4.1 & figure G.6.7.1, during Post-Merger period ROE showed increasing trend. It was negative in 2011-2012 at -2.88 whereas highest in 2012- 2013 resulted to 10.94% and on an average it was 5.79 % less as compared to Pre-Merger period. The Standard Deviation of Pre-Merger period was higher as compared to post merger period indicating more fluctuation in ratio in Pre-Merger period as compared to Post-Merger period.

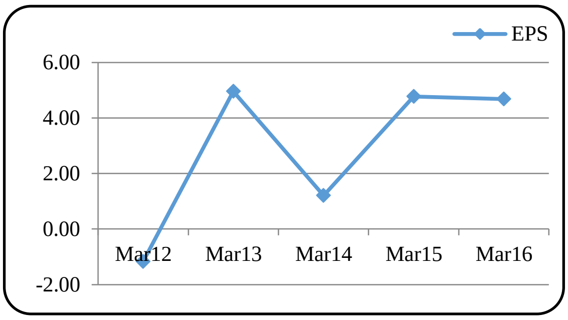
Earnings per share [EPS]

In Pre-Merger period, as revealed in table T.4.6.1 and figure G.6. 8, Earnings per share registered increasing trend and on an average it was Rs1.80.

G.6.8 EPS in Pre-Merger Period



G.6.8.1 EPS in Post-Merger Period



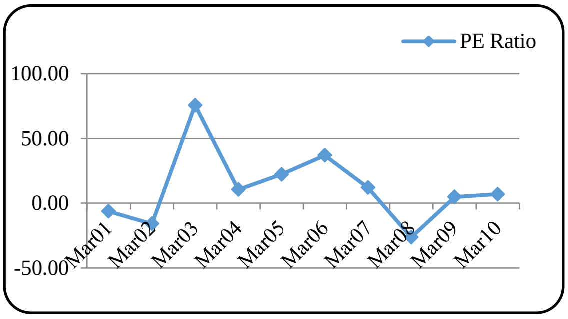
Source – Table T.4 6.1

As depicted in Table T.6.4.1 & figure G.6.8.1, during Post-Merger period, ratio registered increasing trend and on average it was Rs2.90 higher as compared to pre- merger period. The Standard Deviation of post- merger period was higher as compared to pre- merger period indicating that ratio fluctuated more in Post-Merger period as compared to Pre-Merger period.

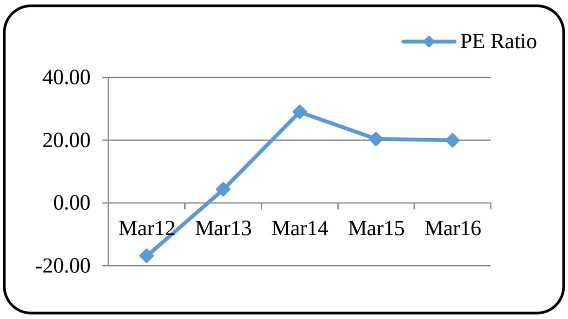
Price / Earnings Ratio [PE ratio]

In Pre-Merger period as exhibited in table T.4.6.1 and figure G.6.9, Price earnings ratio showed a fluctuating trend and on an average it was 12.05 times.

G.6.9 PE ratio in Pre-Merger Period



G.6.9.1 PE ratio in Post-Merger Period



Source – Table T.4 6.1

As seen in Table T.6.4.1 & figure G.6.9.1, In Post-Merger period too Price earnings ratio registered a increasing trend and on an average it was 11.37 times which is lower as compared to pre- merger period indicating that showing negative impact on perception of investors as shown by decrease in market price per share. The Standard Deviation of Pre-Merger period was higher as compared to post merger period indicating that ratio fluctuated more in Pre-Merger period as compared to Post-Merger period.

Table No 4.6.2 on the next page shows calculation of various liquidity ratios of the sample acquirer company for the period under study.

4.6.3 Liquidity Ratios of Makers Laboratories Limited during Pre-Merger and Post-Merger Period

Table T.4.6.2 Liquidity Ratios in Pre-Merger and Post-Merger Period

Pre- Merger period (2000-01 to 2009-10)- 10 years												Post- Merger period (2011-12 to 2015-16)- 5 years						
Liquidity Ratios	**Mar 2000-2001**	**Mar 2001-2002**	**Mar 2002-2003**	**Mar 2003-2004**	**Mar 2004-2005**	**Mar 2005-2006**	**Mar 2006-2007**	**Mar 2007-2008**	**Mar 2008-2009**	**Mar 2009-2010**	**Average GP ratio**	**Standard Deviation**	**Mar 2011-2012**	**Mar 2012-2013**	**Mar 2013-2014**	**Mar 2014-2015**	**Mar 2015-2016**	**Average GP ratio**	**Standard Deviation**
Current ratio [Proportion]	3.07	2.52	3.68	2.23	1.31	1.35	1.28	1.64	1.33	1.44	1.98	0.86	1.19	1.50	1.78	2.22	2.39	1.82	0.49
Quick ratio [Proportion]	1.37	1.27	1.59	0.89	0.74	0.65	0.58	0.90	0.70	0.87	0.96	0.34	0.59	0.78	1.03	1.28	1.74	1.09	0.45
Super Quick ratio [Proportion]	0.08	0.08	0.06	0.03	0.02	0.02	0.02	0.02	0.01	0.01	0.03	0.03	0.03	0.03	0.01	0.01	0.15	0.05	0.06

Source-Annexure II and III

Liquidity Analysis

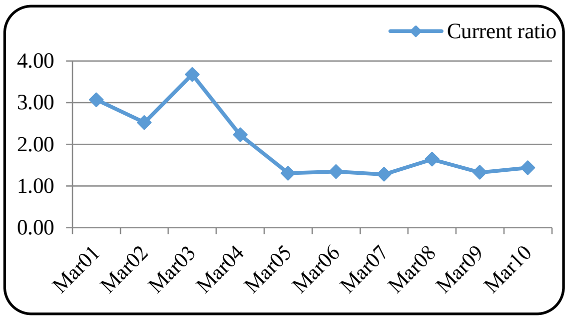
Table 4.6.2 reveals the calculation of various Liquidity ratios of Makers Laboratories ltd during Pre-Merger Period and Post-Merger Period.

The Liquidity of sample company is analyzed and interpreted using various Liquidity ratios based on Current assets and Current liabilities.

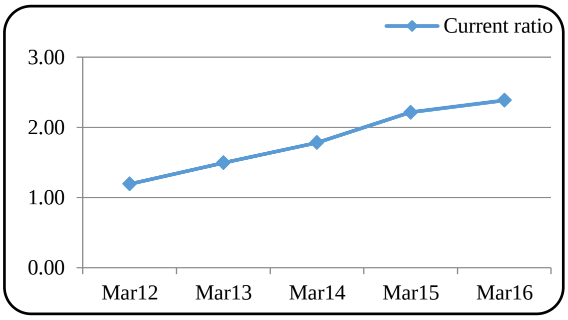
Current Ratio [CR]

In Pre-Merger period as indicated in table T.4.6.2 and figure G.6.10, Current ratio registered fluctuating trend. It was highest in 2002- 2003 at 3.68:1 due to decrease in current liabilities and on an average it was 1.98 :1.

G.6.10 CR in Pre-Merger Period



G.6.10.1 CR in Post-Merger Period



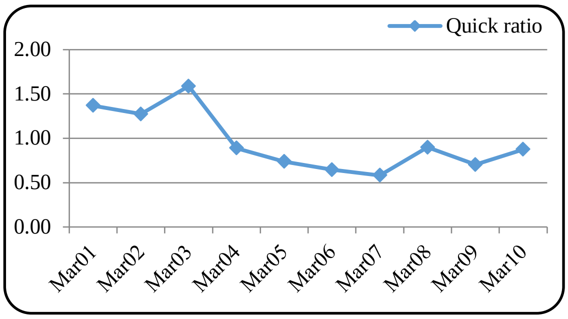
Source – Table T.4.6.2

As depicted in Table T.6.4.2 & figure G.6.10, during Post-Merger period, Current ratio was increasing due to increase in current assets and decline in current liabilities and on an average it was 1.82:1. The Average Current ratio declined in post- merger period as compared to pre -merger period indicating marginal decline in liquidity position of sample company during post- merger period of study. The Standard Deviation of Pre-Merger period was higher as compared to Post-Merger period indicating ratio more fluctuation in ratio in Pre-Merger period as compared to Post-Merger period.

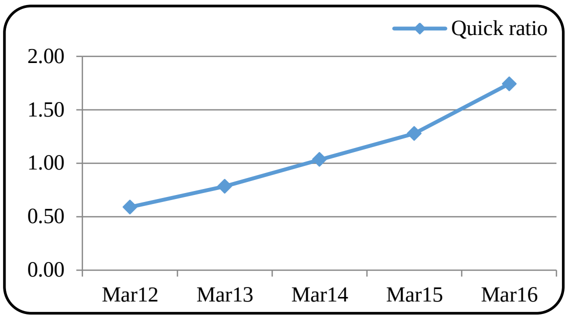
Quick Ratio [QR]

In Pre-Merger period as revealed in table T.4.6.2 and figure G.6.13, Quick ratio registered fluctuating trend. It was lowest in 2006-2007 at 0.58:1 due to more investments in inventories and on an average it was 0.96.

G.6.11 QR in Pre-Merger Period



G.6.11.1 QR in Post-Merger Period



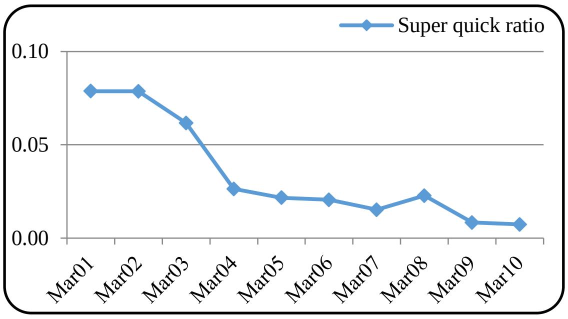
Source – Table T.4.6.2

During Post-Merger period, as indicated in table T.6.4.2 & figure G.6.11.1, Quick ratio showed increasing trend and on an average it was 1.09 :1 which was higher as compared to Pre-Merger period indicating improvement in absolute liquidity position of sample company. The Standard Deviation of post- merger period was higher as compared to Pre-Merger period indicating that ratio fluctuated more in Post-Merger period as compared to Pre-Merger period.

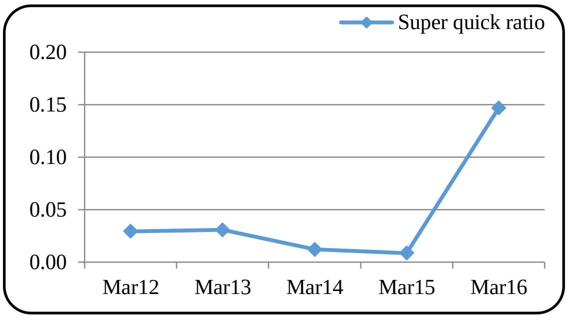
Super quick Ratio [SQR]

In Pre-Merger period as exhibited in table T.4.6.2 and figure G.6.12, Super Quick ratio showed declining trend and it was highest in 2000- 2001 and 2001- 2002 resulted to 0.08:1 due to more cash and cash equivalent whereas it was lowest in 2008-2009 and 2009- 2010 figured to 0.01:1 and on an average it was 0.03:1.

G.6.12 SQR in Pre-Merger Period



G.6.12.1 SQR in Post-Merger Period



Source – Table T.4.6.2

As disclosed in Table T.6.4.2 & figure G.6.12.1, during Post-Merger period ratio registered increasing trend and on an average it was 0.05:1. The Average Super Quick ratio had been increased in post period as compared to Pre-Merger period indicating improvement in absolute liquidity position of sample company. The Standard Deviation of pre- merger period was lower as compared to post merger period indicating that ratio fluctuated more in Post-Merger period as compared to Pre-Merger period.

Table No 4.6.3 on the next page shows calculation of various long term solvency ratios of the sample acquirer company for the period under study.

4.6.4 Long Term Solvency Ratios of Makers Laboratories Limited during Pre-Merger and Post-Merger Period

Table T.4.6.3 Long Term Solvency Ratios in Pre-Merger and Post-Merger Period

	Pre- Merger period (2000-01 to 2009-10)- 10 years												Post- Merger period (2011-12 to 2015-16)- 5 years						
Long term solvency Ratios	**Mar 2000-2001**	**Mar 2001-2002**	**Mar 2002-2003**	**Mar 2003-2004**	**Mar 2004-2005**	**Mar 2005-2006**	**Mar 2006-2007**	**Mar 2007-2008**	**Mar 2008-2009**	**Mar 2009-2010**	**Average GP ratio**	**Standard Deviation**	**Mar 2011-2012**	**Mar 2012-2013**	**Mar 2013-2014**	**Mar 2014-2015**	**Mar 2015-2016**	**Average GP ratio**	**Standard Deviation**
Debt Equity Ratio [Proportion]	1.35	1.38	1.44	0.914	0.003	0.002	0.001	0.001	0.000	0.15	0.52	0.66	0.02	0.000	0.000	0.000	0.000	0.01	0.01
Fixed asset Ratio [Proportion]	0.48	0.53	0.48	0.48	0.83	0.77	0.69	0.33	0.33	0.39	0.53	0.18	0.57	0.52	0.51	0.50	0.49	0.52	0.03
Proprietary Ratio [Proportion]	0.89	0.80	0.86	1.10	1.21	1.30	1.51	3.04	3.84	2.28	1.68	1.04	1.61	1.83	1.93	2.16	2.54	2.01	0.36
Interest coverage ratio [Times]	1.01	1.35	2.01	7.06	2.86	2.34	3.78	2.09	8.89	11.54	4.29	3.60	1.30	5.78	6.04	13.88	15.85	8.57	6.09

Source – Annexure I, II and III

Long Term Solvency Analysis

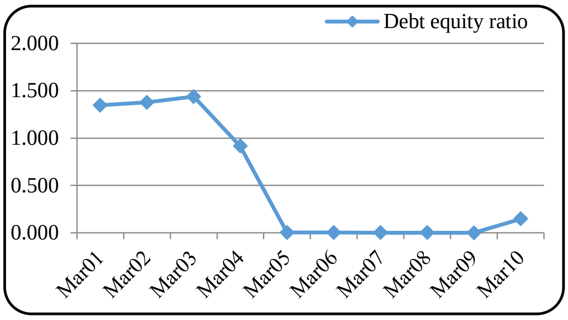
Table 4.6.3 reveals that calculation of various Long term solvency ratios of Makers laboratories ltd during Pre-Merger Period and Post-Merger Period.

The Long term solvency of sample company is analyzed and interpreted using various Long Term Solvency Ratios based on Long term debt, share capital, Fixed assets, Equity shareholders fund.

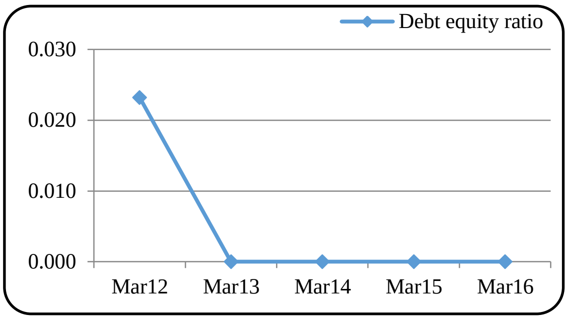
Debt Equity Ratio [DER]

In Pre-Merger period as exhibited in table T.4.6.3 and figure G.6.13. Debt Equity ratio registered declining trend. It was very low in 2008-2009 resulted to Nearly 0 and it was highest in 2002- 2003 which was 1.44:1 and on an average it was 0.52:1.

G.6.13 DER in Pre-Merger Period



G.6.13.1 DER in Post-Merger Period



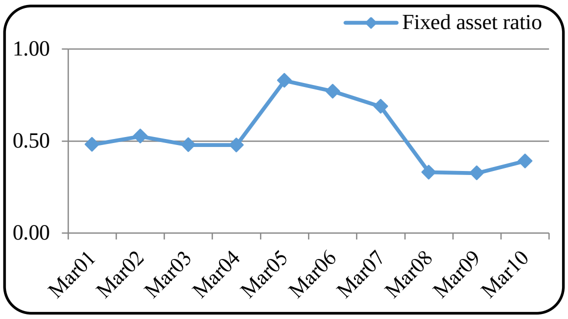
Source – Table T.4.6.3

As indicated in Table T.6.4.3 & figure G.6.15.1, during Post-Merger period, Debt equity ratio was almost 0 after 2011- 2012 and on an average it was 0.01:1. The Debt Equity ratio was highly declined in Post-Merger period indicating that Debt funds were reduced in long term and shareholders' funds increased during period of study in case of sample company. This indicates that long term solvency of sample company improved. The Standard Deviation of pre- merger period was higher as compared to Post-Merger period indicating that ratio fluctuated more in Pre-Merger period as compared to Post-Merger period.

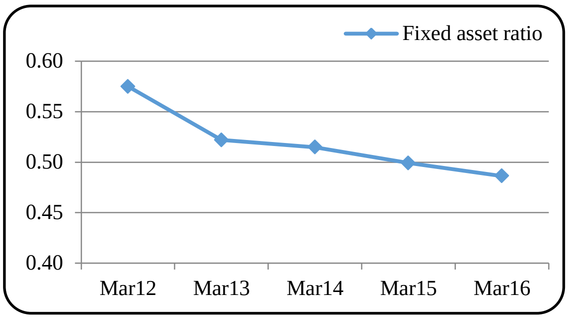
Fixed Asset Ratio [FAR]

In Pre-Merger period as disclosed in table T.4.6.3 and figure G.6.14, Fixed asset ratio registered a fluctuating trend and on an average it was 0.53:1.

G.6.14 FAR in Pre-Merger Period



G.6.14.1 FAR in Post-Merger Period



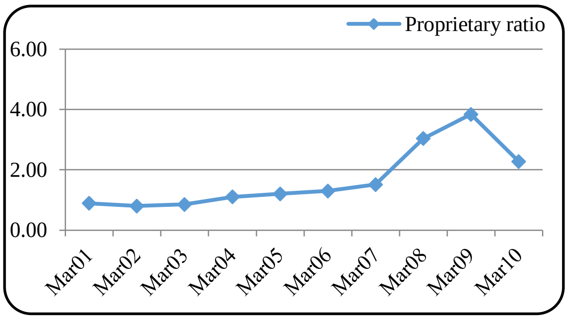
Source – Table T.4.6.3

As seen in Table T.6.4.3 & figure G.6.16.1, during Post-Merger period, fixed asset ratio showed declining trend and on an average it was 0.52:1 slightly lower as compared to Pre-Merger period indicating less long term funds deployed towards fixed assets. The Standard Deviation of Pre-Merger period was higher as compared to post merger period indicating that ratio fluctuated more in in Pre-Merger Period as compared to Post-Merger Period.

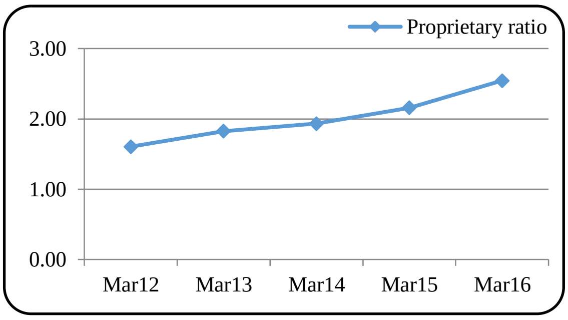
Proprietary Ratio [PR]

In Pre-Merger period as depicted in table T.4.6.3 and figure G.6.15, Proprietary ratio registered overall increasing trend and on an average it was 1.68:1.

G.6.15 PR in Pre-Merger Period



G.6.15.1 PR in Post-Merger Period



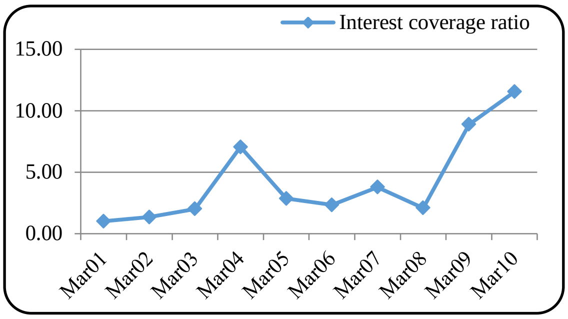
Source – Table T.4.6.3

As revealed in Table T.6.4.3 & figure G.6.15.1, during Post-Merger period, Proprietary ratio showed increasing trend and on an average it was 2.01:1 which is higher as compared to pre- merger period indicating good financial strength of sample company and also lesser dependency on external funds. The Standard Deviation of pre- merger period was higher as compared to post- merger period indicating that ratio fluctuated more in Pre-Merger Period as compared to Post-Merger Period.

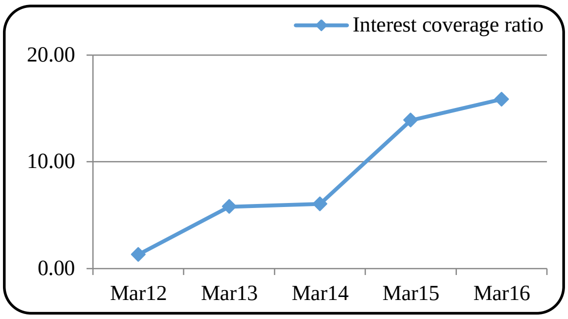
Interest Coverage Ratio [ICR]

In Pre-Merger period as revealed in table T.4.6.3 and figure G.6.16, Interest coverage ratio registered increasing trend. It was highest in 2009- 2010 at 11.54 times and lowest in 2000- 2001 at 1.01 times and on an average it was 4.29 times.

G.6.16 ICR in Pre-Merger Period



G.6.16.1 ICR in Post-Merger Period



Source – Table T.4.6.3

During Post-Merger period, as indicated in Table T.6.4.3 & figure G.4.16.1 Interest coverage ratio showed increasing trend and on an average it was 8.57 times which is higher as compared to Pre-Merger period exhibiting that sample company was left with large amount of surplus after covering interest charges. The Standard Deviation of pre -merger period was lower as compared to post merger period indicating that ratio fluctuated more in in Post-Merger Period as compared to Pre-Merger Period.

Table No 4.6.4 on the next page shows calculation of various efficiency ratios of the sample acquirer company for the period under study.

4.6.5 Efficiency Ratios of Makers Laboratories Limited during Pre-Merger and Post-Merger Period

Table T.4.6.4 Efficiency Ratios in Pre-Merger Period and Post- Merger Period

Pre- Merger period (2000-01 to 2009-10)- 10 years													Post- Merger period (2011-12 to 2015-16)- 5 years						
Efficiency Ratios	**Mar 2000-2001**	**Mar 2001-2002**	**Mar 2002-2003**	**Mar 2003-2004**	**Mar 2004-2005**	**Mar 2005-2006**	**Mar 2006-2007**	**Mar 2007-2008**	**Mar 2008-2009**	**Mar 2009-2010**	**Average GP ratio**	**Standard Deviation**	**Mar 2011-2012**	**Mar 2012-2013**	**Mar 2013-2014**	**Mar 2014-2015**	**Mar 2015-2016**	**Average GP ratio**	**Standard Deviation**
Capital turnover Ratio[Times]	1.94	2.12	1.93	2.08	3.79	3.30	4.28	4.82	3.43	2.72	3.04	1.044	2.52	2.18	2.20	1.97	1.74	2.12	0.292
Inventory turnover ratio [Times]	3.35	3.44	3.54	3.19	3.57	4.35	5.41	6.06	5.02	4.76	4.27	1.002	5.61	4.57	5.23	5.08	5.78	5.25	0.472
Inventory to current asset ratio [%]	55.40	49.54	56.82	60.07	43.64	52.03	54.44	45.36	47.07	39.24	50.36	6.550	50.61	47.56	42.01	42.33	27.00	41.90	9.085
Working capital turnover ratio [Times]	3.90	3.90	3.25	3.46	11.49	9.12	14.87	8.72	11.15	6.66	7.65	4.062	16.64	6.87	5.55	4.26	3.64	7.39	5.316
Fixed asset turnover ratio [Times]	4.03	4.03	4.03	4.34	4.58	4.28	6.22	14.58	10.54	6.95	6.36	3.548	4.39	4.17	4.27	3.95	3.57	4.07	0.322
Debtors Turnover ratio [Times]	7.88	6.48	6.28	6.43	5.76	5.43	8.42	7.96	6.92	7.47	6.90	0.99	7.51	5.93	5.27	4.59	3.98	5.46	1.36

Source – Annexure I, II and III

Efficiency Analysis

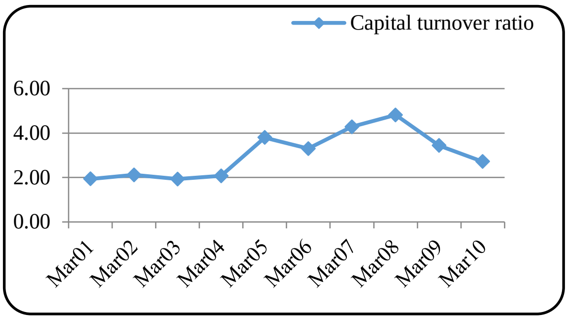
Table 4.6.4 reveals that calculation of various efficiency ratios of Makers laboratories ltd during Pre-Merger Period and Post-Merger Period.

The efficiency ratios of sample company are analyzed and interpreted using various efficiency ratios based on Sales and Investment in Inventories, Fixed Assets, Working Capital, Debtors, Total Capital Employed.

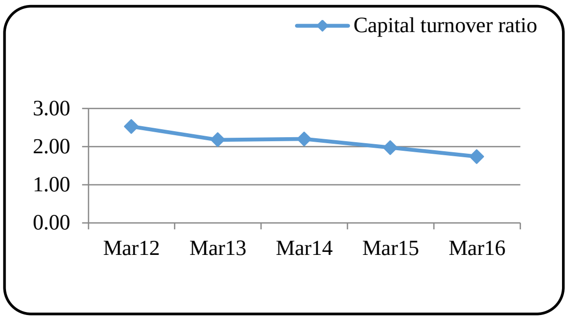
Capital turnover Ratio [CTOR]

In Pre-Merger period as disclosed in table T.4.6.4 and figure G.6.17, Capital Turnover ratio showed fluctuating trend. Highest capital turnover ratio was observed in 2007-2008 i.e.4.82 times due to increase in sales and decline in capital employed and on an average it was 3.04 times.

G.6.17 CTOR in Pre-Merger Period



G.6.17.1 CTOR in Post-Merger Period



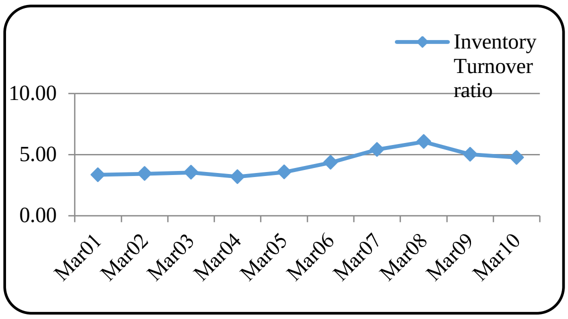
Source – Table T.4.6.4

As seen in Table T.6.4.4 & figure G.6.17.1, during Post-Merger period ratio showed declining trend and on an average it was 2.12 times which reduced as compared to Pre-Merger period indicating inefficiency on the part of sample company regarding effective utilization of capital employed for generating sales. The Standard Deviation of pre- merger period was higher as compared to post merger indicating that ratio fluctuated more in Pre-Merger period as compared to Post-Merger period.

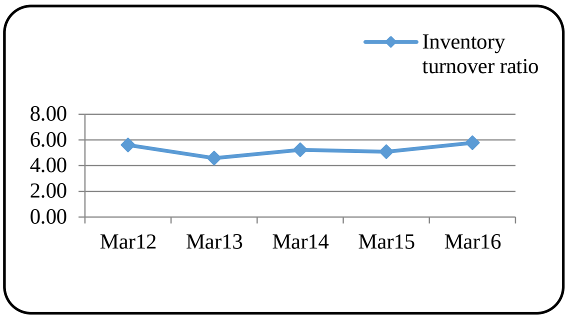
Inventory Turnover Ratio [ITOR]

In Pre-Merger period as revealed in table T.4.6.4 and figure.G.6.18, Inventory Turnover ratio registered a fluctuating trend and on an average it was 4.27 times.

G .6.18 ITOR in Pre-Merger Period



G.6.18.1 ITOR in Post-Merger Period



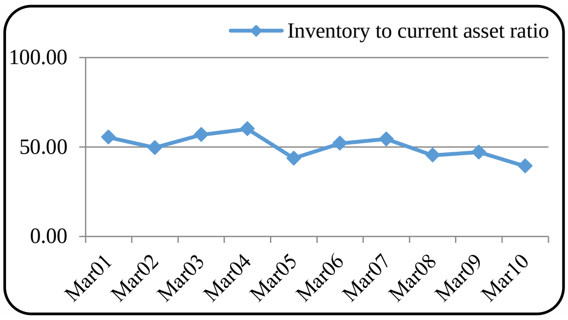
Source – Table T.4.6.4

As indicated in Table T.6.4.4 & figure G.6.18.1, during Post-Merger period also ratio showed fluctuating trend and on an average it was 5.25 times greater as compared to Pre-Merger period indicating efficiency on the part of sample company regarding its effective utilization of inventory or merchandise. The Standard Deviation of pre- merger period was higher as compared to Post-Merger period indicating that ratio fluctuated more in Pre-Merger period as compared to Post-Merger period

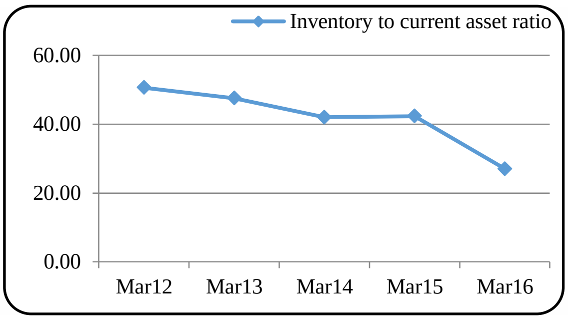
Inventory to current asset ratio [ICAR]

In Pre-Merger period as depicted in table T.4.6.4 and figure G.6.19, Inventory to current asset ratio registered fluctuating trend. It was highest in 2003-2004 resulted to 60.07% due to high investment in inventories and on an average it was 50.36 %.

G.6.19 ICAR in Pre-Merger Period



G.6.19.1 ICAR in Post-Merger Period



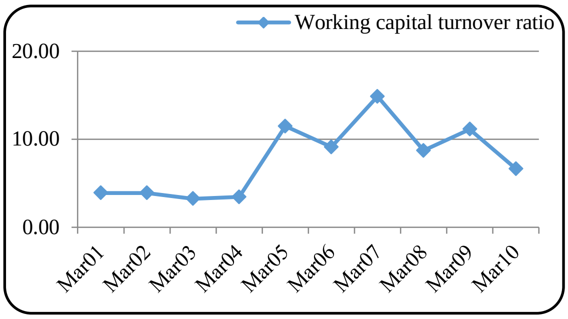
Source – Table T.4.6.4

As seen in Table T.6.4.4 & figure G.6.19.1 during Post-Merger period ratio showed declining trend and on an average it was 41.90% decreased as compared to Pre-Merger period exhibiting that there was decline in investment in inventory over other current assets. The Standard Deviation of Pre-Merger period was lower as compared to post merger period indicating that ratio fluctuated more in Post-Merger period as compared to Pre-Merger period.

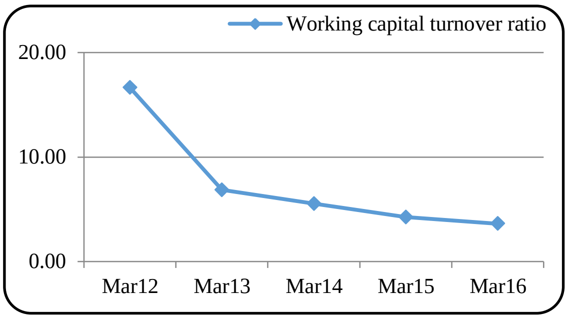
Working Capital Turnover Ratio [WCTOR]

In Pre-Merger period as exhibited in table T.4.6.4 and figure G.6.20, Working capital turnover ratio registered a fluctuating trend and on an average it was7.65 times.

G .6.20 WCTOR in Pre-Merger Period



G.6.20.1 WCTOR in Post-Merger Period



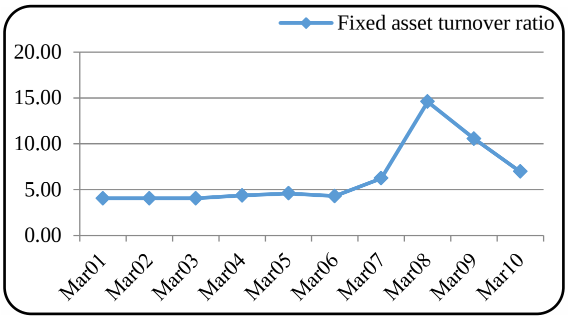
Source – Table T.4.6.4

As indicated in Table T.6.4.4 & figure G.6.20.1, During Post-Merger period, Working Capital Turnover ratio registered a declining trend and on an average it was 7.39 times marginally lower as compared to pre- merger period. This revealed that there was marginal increase in investment in working capital support sales of sample company. The Standard Deviation of Post-Merger period was higher as compared to Pre-Merger period indicating that ratio fluctuated more in Post-Merger period as compared to Pre-Merger period.

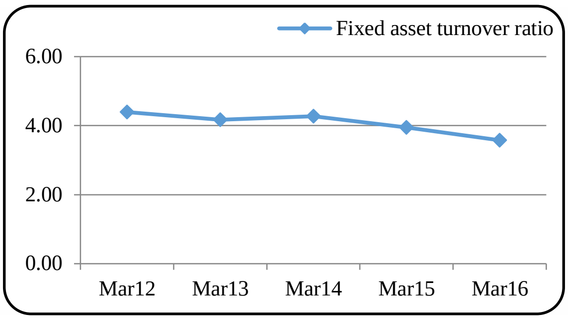
Fixed Asset Turnover Ratio [FATOR]

In Pre-Merger period as disclosed in table T.4.6.4 and figure G.6.21, Fixed asset turnover ratio registered a fluctuating trend and on an average it was 6.36 times.

G .6.21 FATOR in Pre-Merger Period



G .6.21.1 FATOR in Post-Merger Period



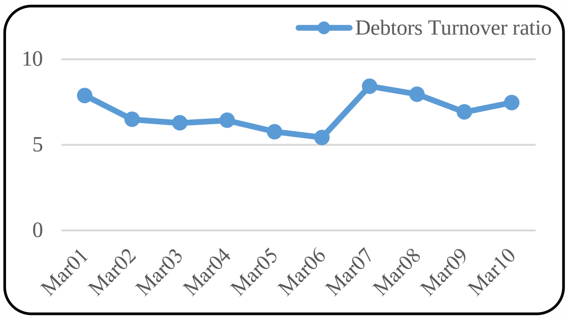
Source – Table T.4.6.4

During Post-Merger period, as indicated in Table T.6.4.4 & figure G.6.21.1, Fixed asset turnover ratio showed declining trend and on an average it was 4.07 times which is lower as compared to pre-merger period indicating inefficiency of sample company regarding generating sales by utilizing fixed assets. The Standard Deviation of Pre-Merger period was higher as compared to post merger period indicating that ratio fluctuated more in Pre-Merger period as compared to Post-Merger period.

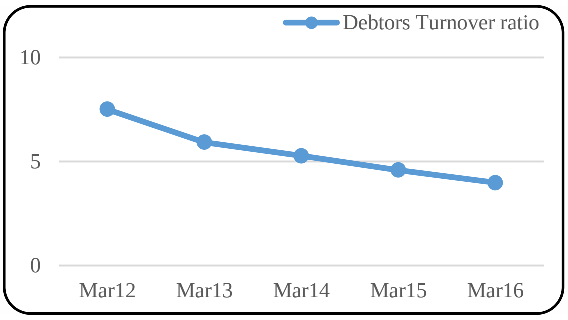
Debtors Turnover Ratio [DTOR]

In Pre-Merger period as revealed in table T.4.6.4 and figure G.6.22, Debtors turnover ratio registered a fluctuating trend and on an average it was 6.90 times.

G .6.22 DTOR Pre-Merger Period



G .6.22.1 DTOR in Post-Merger Period



Source – Table T.4.6.4

As seen in Table T.6.4.4 & figure G.6.22.1, during Post-Merger period, ratio showed declining trend and on an average it was 5.46 times which reduced as compared to Pre-Merger period exhibiting inefficiency of sample company regarding management of debtors. The Standard Deviation of Post-Merger period was higher as compared to pre- merger period indicating that ratio fluctuated more in Post-Merger period as compared to Pre-Merger period.

4.6.6 Testing of Hypothesis

The hypothesis framed with reference to various Ratios [as mentioned in chapter 3, Hypothesis no 1 to 24 except 9 and 11] is tested applying one sample t- test at 5 % level of significance for measuring impact of merger. The table T4.6.5 shows hypothesis test results

Table T.4.6.5 Hypothesis Test Results

Sr no	Ratio[Makers lab limited]	Pre -merger average	Post- merger average	P value	Null/Alternate hypothesis accepted
Profitability Ratio					
1	GP ratio	17.59	12.01	*0.004	ALTERNATE
2	NP margin	2.01	2.67	0.483	NULL
3	Operating ratio	100.5681	112.5701	*0.001	ALTERNATE
4	Cash profit margin	3.18	4.79	0.082	NULL
5	Return on capital employed	15.92	10.73	0.151	NULL
6	Return on Total assets	9.48	7.82	0.440	NULL
7	Return on Equity	6.98	5.79	0.722	NULL
8	Earnings per share	1.80	2.90	0.219	NULL
9	Price earnings ratio	12.05	11.37	0.942	NULL
Liquidity Ratios					
10	Current Ratio	1.98	1.82	0.557	NULL
11	Quick Ratio	0.96	1.09	0.243	NULL
12	Super Quick Ratio	0.03	0.05	0.12	NULL
Long Term Solvency					
13	Debt Equity ratio	0.523	0.005	*0.035	ALTERNATE
14	Fixed asset Ratio	0.53	0.52	0.848	NULL
15	Proprietary Ratio	1.68	2.01	0.345	NULL
16	Interest coverage ratio	4.29	8.57	*0.005	ALTERNATE
Efficiency Ratios					
17	Capital Turnover ratio	3.04	2.12	*0.021	ALTERNATE
18	Inventory Turnover ratio	4.27	5.25	*0.013	ALTERNATE
19	Inventory to current asset ratio	50.36	41.90	*0.003	ALTERNATE
20	Working capital turnover ratio	7.65	7.39	0.843	NULL
21	Fixed asset turnover ratio	6.36	4.07	0.072	NULL
22	Debtors Turnover Ratio	6.90	5.46	*0.001	ALTERNATE

Source – Table T.4.6.1, T.4.6.2, T.4.6.3 and T.4.6.4

Profitability analysis

As observed from the above table that GP ratio and operating ratio changed significantly in Post-Merger period as compared to Pre-Merger period as the calculated ‘P’ value is less than 0.05, thus alternate hypothesis is accepted. However, other Profitability ratios were not changed significantly as the calculated ‘P’ value is more than 0.05 and thus null hypothesis is accepted.

Liquidity analysis

All Liquidity ratios were not significantly changed in as the calculated ‘P’ value is more than 0.05 thus null hypothesis is accepted

Long term solvency analysis

As observed from the above table that, Debt equity ratio and Interest coverage ratio changed significantly in Post-Merger period as compared to Pre-Merger period as the calculated ‘P’ value is less than 0.05 and, thus alternate hypothesis is accepted. However, other long term solvency ratios were not changed significantly as the calculated ‘P’ value is more than 0.05 thus null hypothesis is accepted.

Efficiency Ratios analysis

As observed from the above table that, Capital turnover ratio, Inventory turnover ratio, Inventory to current asset ratio and Debtors turnover ratio changed significantly in Post-Merger period as compared to Pre-Merger period as the calculated ‘P’ value is less than 0.05 and thus alternate hypothesis is accepted. However other Efficiency ratios were not changed significantly as the calculated ‘P’ value is more than 0.05 and thus null hypothesis is accepted.

4.6.7 Composite Index score of Makers Laboratories Ltd.

Composite Index score represents, overall index for selected parameter. In case of Profitability, higher the composite Index score, better the performance and Vice-Versa. In case of Liquidity and Long term solvency Composite index score represent combine index considering selected ratios.

4.6.7.1 Composite Index Score Based on Profitability

Table T.4.6.6 Composite Index Score Based on Profitability

Pre-Merger Period Profitability Index scores and Composite Index score									
YEAR	**GPR**	**NPR**	**OR**	**CPM**	**ROCE**	**ROTA**	**ROE**	**EPS**	**AVERAGE**
2000-2001	0.78	0.00	0.78	0.00	0.06	0.10	0.00	0.02	0.22
2001-2002	1.00	0.08	0.91	0.12	0.13	0.15	0.10	0.09	0.32
2002-2003	0.60	0.26	0.57	0.32	0.14	0.18	0.34	0.21	0.33
2003-2004	0.28	0.86	0.36	0.97	0.41	0.41	1.00	0.67	0.62
2004-2005	0.40	0.39	0.42	0.46	0.40	0.25	0.46	0.32	0.39
2005-2006	0.16	0.27	0.15	0.35	0.26	0.16	0.32	0.22	0.23
2006-2007	0.15	0.45	0.59	0.46	0.56	0.42	0.56	0.42	0.45
2007-2008	0.27	0.12	0.67	0.02	0.22	0.19	0.15	0.09	0.22
2008-2009	0.68	0.94	0.94	0.89	1.00	1.00	0.97	0.88	0.91
2009-2010	0.70	1.00	1.00	0.98	0.89	0.85	0.96	1.00	0.92
Average	**0.50**	**0.44**	**0.64**	**0.46**	**0.41**	**0.37**	**0.49**	**0.39**	**0.46**
Post-Merger Period Profitability Index scores and Composite Index score									
2011-2012	0.00	0.04	0.00	0.11	0.00	0.00	0.12	0.00	0.03
2012-2013	0.10	0.79	0.05	0.97	0.50	0.53	0.63	0.81	0.55
2013-2014	0.08	0.31	0.07	0.38	0.10	0.12	0.32	0.31	0.21
2014-2015	0.21	0.72	0.17	1.00	0.33	0.41	0.58	0.78	0.53
2015-2016	0.34	0.75	0.18	0.98	0.31	0.40	0.55	0.77	0.54
Average	**0.14**	**0.52**	**0.10**	**0.69**	**0.25**	**0.29**	**0.44**	**0.53**	**0.37**

Source – Table T.4.6.1

From the table T.4.6.6 it could be observed that Average index scores of Net profit ratio, cash profit margin and Earning Per share improved in Post-Merger period as compared to Pre-Merger Period, while the average index scores of other Profitability ratios declined in Post- merger period as compared to Pre-Merger period.

The Average Composite Index score based on profitability ratios decreased from 0.46 in the Pre-Merger period to 0.37 in the Post-Merger period. This decrease proved to be insignificant when tested applying Independent t- test at 5 % level of significance. As disclosed in Table no.4.6.7 below The Calculated 'P' value is 0.542 indicating that Null hypothesis is accepted.

Table T.4.6.7 Independent t- test results of Profitability composite index score

Index score based on profitability	Pre-Merger Period	Post-Merger Period	P. value based on Independent t- test	Hypothesis accepted
Composite Index score	0.46	0.37	0.542	NULL

Source – Table T.4.6.6

4.6.7.2 Composite index score based on Liquidity

Table T.4.6.8 Composite Index Score Based on Liquidity

Pre-Merger Period Liquidity Index scores and Composite Index score							
YEAR	**CR**	**QR**	**SQR**	**ITOR**	**WCTOR**	**DTOR**	**AVERAGE**
2000-2001	0.76	0.68	0.51	0.05	0.05	0.88	0.49
2001-2002	0.54	0.60	0.51	0.09	0.05	0.56	0.39
2002-2003	1.00	0.87	0.39	0.12	0.00	0.52	0.48
2003-2004	0.42	0.26	0.14	0.00	0.02	0.55	0.23
2004-2005	0.05	0.13	0.10	0.13	0.62	0.40	0.24
2005-2006	0.06	0.05	0.09	0.40	0.44	0.33	0.23
2006-2007	0.03	0.00	0.06	0.77	0.87	1.00	0.46
2007-2008	0.18	0.27	0.11	1.00	0.41	0.90	0.48
2008-2009	0.05	0.10	0.01	0.64	0.59	0.66	0.34
2009-2010	0.10	0.25	0.00	0.55	0.25	0.79	0.32
Average	0.32	0.32	0.19	0.38	0.33	0.66	0.37
Post-Merger Period Liquidity Index scores and Composite Index score							
2011-2012	0.00	0.01	0.16	0.84	1.00	0.80	0.47
2012-2013	0.12	0.17	0.17	0.48	0.27	0.44	0.28
2013-2014	0.24	0.39	0.04	0.71	0.17	0.29	0.31
2014-2015	0.41	0.60	0.01	0.66	0.08	0.14	0.32
2015-2016	0.48	1.00	1.00	0.90	0.03	0.00	0.57
Average	0.25	0.43	0.27	0.72	0.31	0.33	0.39

Source – Table T.4.6.2 and T.4.6.4

From the above table, it could be seen that average liquidity index scores based on Current ratio, working capital turnover ratio and debtor's turnover ratio declined in Post-Merger period as compared to Pre-Merger period. However, average liquidity index scores based on Quick ratio, super quick ratio and inventory turnover ratio increased in Post-Merger period as compared to Pre-Merger period. However, Average Composite Index score based on liquidity ratios increased from 0.37 in Pre-Merger period to 0.39 in Post-Merger period for sample company. This increase proved to be insignificant when tested applying Independent t- test at 5 % level of significance. As disclosed in Table no.4.6.9 below The Calculated 'P' value is 0.747 indicating that null hypothesis is accepted.

Table T.4.6.9 Independent t- test results of Liquidity composite index score

Index score based on liquidity ratios	Pre-Merger Period	Post-Merger Period	Probability value based on Independent t- test	Hypothesis accepted
Composite Index score	0.37	0.39	0.747	Null

Source - Table T.4.6.8

4.6.7.3 Composite index score based on Long term solvency

Table T.4.6.10 Composite Index score based on Long Term Solvency

Pre-Merger Period Long Term Solvency Index scores and Composite Index score				
YEAR	**DER**	**FAR**	**PR**	**AVERAGE**
2000-2001	0.94	0.31	0.03	0.42
2001-2002	0.96	0.40	0.00	0.45
2002-2003	1.00	0.30	0.02	0.44
2003-2004	0.64	0.30	0.10	0.35
2004-2005	0.00	1.00	0.13	0.38
2005-2006	0.00	0.88	0.16	0.35
2006-2007	0.00	0.72	0.23	0.32
2007-2008	0.00	0.01	0.74	0.25
2008-2009	0.00	0.00	1.00	0.33
2009-2010	0.10	0.13	0.49	0.24
Average	**0.36**	**0.41**	**0.29**	**0.35**
Post-Merger Period Long Term Solvency Index scores and Composite Index score				
2011-2012	0.02	0.50	0.27	0.26
2012-2013	0.00	0.39	0.34	0.24
2013-2014	0.00	0.38	0.37	0.25
2014-2015	0.00	0.34	0.45	0.26
2015-2016	0.00	0.32	0.57	0.30
Average	**0.00**	**0.39**	**0.40**	**0.26**

Source – Table no T.4.6.3

From the above table it could be seen that, average index scores based on Debt equity ratio and Fixed asset ratio decreased in Post-Merger Period Whereas, average index score based on proprietary ratio increased in Post-Merger period as compared to Pre-Merger period.

Average composite index score based on Long term solvency decreased from 0.35 in Pre-Merger period to 0.26 in Post-Merger period. This decrease proved to be significant when tested applying Independent t- test at 5 % level of significance. As disclosed in Table no.4.6.11 below The Calculated ‘P’ value is 0.02 indicating that Alternate hypothesis is accepted.

Table T.4.6.11 Independent t -Test Results of Long Term Solvency Composite Index Score

Index score based on Long term solvency ratios	Pre-Merger Period	Post-Merger Period	Probability value based on Independent t- test	Hypothesis accepted
Composite Index score	0.35	0.26	*0.02	Alternate

Source – Table T.4.6.1

4.6.8 Economic Value Added [EVA] and Market Value Added [MVA]

The shareholder’s wealth measurement has been carried out by calculating EVA and MVA of the sample company for Pre-Merger and Post-Merger period of study.

4.6.8.1 Economic Value Added [EVA]

The Table no T.4.6.12 shows the calculation of EVA of the sample company for Pre and Post-Merger period of study. The Table depicts that, the average EVA in Pre-Merger period was (Rs 23.49 Millions) while the average EVA in the Post-Merger period amounted to (Rs109.31 Million). The Post-Merger Average EVA had worsen as compared to Pre-Merger period from which we can interpret that, merger had not helped company to improve its performance in terms of EVA there by shareholders’ wealth had been declined rather.

Table T.4.6.12 Economic Value Added [EVA] of Makers Laboratories Ltd [Rs. in Millions]

Particulars	NOPAT	Ke	Kp	Kd	EVA
2000-2001	8.50	9.70	0	7.53	-8.73
2001-2002	15.43	8.15	0	7.13	0.15
2002-2003	-7.51	7.94	0	5.00	-20.45
2003-2004	-25.41	11.73	0	2.71	-39.85
2004-2005	-19.55	13.32	0	4.13	-37.00
2005-2006	-34.71	15.25	0	4.23	-54.20
2006-2007	-12.32	16.57	0	4.35	-33.25
2007-2008	-4.54	17.22	0	3.86	-25.61
2008-2009	11.36	16.86	0	3.19	-8.69
2009-2010	14.19	18.42	0	3.02	-7.25
Total	-54.56	135.16	0	45.15	-234.88
Average EVA in Pre-Merger period					-23.49
2011-2012	-79.14	25.42	0	8.37	-112.93
2012-2013	-79.48	28.14	0	6.21	-113.83
2013-2014	-83.02	26.68	0	2.83	-112.52
2014-2015	-71.50	27.94	0	2.50	-101.95
2015-2016	-67.95	35.29	0	2.09	-105.33
Total	-381.09	143.47	0	22	-546.56
Average EVA in Post-Merger period					-109.31

Source – Annexure – I, II, III and VI

4.6.8.2 Market Value Added [MVA]

The Table no T.4.7.13shows the calculation of MVA of the sample company for Pre and Post-Merger period of study. The Table depicts that, the average MVA in Pre-Merger period was (Rs 15.3768 Millions) while the average MVA in the Post-Merger period amounted to (62.7436Million). The Post-Merger Average MVA had worsen as compared to Pre-Merger period from which we can interpret that, merger had not helped company to improve its performance in terms of MVA there by Shareholders wealth had been declined.

Table T.4.6.13 Market Value Added [MVA] of Makers Laboratories Ltd [Rs in Millions]

Year	Market Capitalization	Share cap	Res and surplus	SF	MVA
2000-2001	31.72	43.455	28.932	72.387	-40.667
2001-2002	29.33	43.455	18.191	61.646	-32.316
2002-2003	27.81	43.455	20.411	63.866	-36.056
2003-2004	78.22	43.455	37.877	81.332	-3.112
2004-2005	145.79	43.455	43.434	86.889	58.901
2005-2006	76.26	43.455	45.566	89.021	-12.761
2006-2007	77.79	43.455	53.262	96.717	-18.927
2007-2008	55.84	43.455	51.055	94.51	-38.67
2008-2009	51.32	43.455	74.916	118.371	-67.051
2009-2010	178.17	43.455	97.824	141.279	36.891
Total	**752.25**	**434.55**	**471.468**	**906.018**	**-153.768**
Average MVA in Premerger period					**-15.3768**
2011-2012	102.03	49.17	149.491	198.661	-96.631
2012-2013	89.73	49.17	173.905	223.075	-133.345
2013-2014	77.69	49.17	179.861	229.031	-151.341
2014-2015	280.02	49.17	197.084	246.254	33.766
2015-2016	297.23	49.17	214.227	263.397	33.833
Total	**846.7**	**245.85**	**914.568**	**1160.418**	**-313.718**
Average MVA in Post-Merger period					**-62.7436**

Source – Annexure - I, II and III

The hypothesis framed with reference to EVA and MVA [as mentioned in chapter 3, Hypothesis no 28 and 29] is tested applying one sample t test at 5 % level of significance. The table below depicts that, calculated ‘P’ value is less than 0.05. The ‘P’ value for EVA is 0.001 while that for MVA is 0.003. Hence alternate hypothesis is accepted. It can be concluded that the merger had significant impact on EVA and MVA of the sample company

Table T.4.6.14 Hypothesis One Sample t -Test Results

Particulars	Pre-Merger Average [Rs Millions]	Post-Merger Average [Rs Millions]	p value	Hypothesis accepted
EVA	(23.49)	(109.31)	*0.001	Alternate
MVA	**(15.3768)**	**(62.7436)**	*0 .003	Alternate

Source – Table T.4.6.12 and T.4.6.13

4.6.9 Altman Z score of Makers Laboratories Ltd

The financial health of the sample company in Pre and Post merger period is also assessed using Altman Z score model. The Altman Z score calculated using following formula-

$$\zeta = 1.2A + 1.4B + 3.3C + 0.6D + 1.0E$$

The calculated the Altman Z score as depicted in annexure IV and V for Pre-Merger period was 2.529372 while that of Post-Merger Period was 2.473375. The financial health of the sample company in Pre and Post-Merger period is in grey area as the Altman Z score is between 1.8 to 3**.** We may conclude that Merger had not affected or helped company to improve overall financial health of company.

4.6.10 Regression Analysis

Considering one dependent variable i.e. Net profit and 9 independent variables viz Cost of goods sold, operating expenses, Finance cost, Capital employed, Long term borrowings, Shareholders fund, working capital, Current assets, fixed assets of the sample company during Pre and Post-Merger period, regression analysis is carried out in this part of study**.**

Using Regression Model the multiple linear regression for Pre and Post merger was constructed.

4.6.10.1 Pre- merger period Regression equation

Table T.4.6.15 Model Summary of Pre-Merger Period

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	1.000[a]	0.999	0.999	291.94160

a. Predictors: (Constant), Finance cost

Source – Annexure – I, II and III

If we evaluate overall performance of the model based on the ANOVA table, observing the significant value we conclude that, model is significant as the value is less than 0.05. as shown in the table below

Table T.4.6.16 ANOVA [Pre-Merger Period]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	299870218.591	1	299870218.591	3518.369	0.000[b]
	Residual	255689.697	3	85229.899		
	Total	300125908.288	4			

a. Dependent Variable: NP

b. Predictors: (Constant), Finance cost

Source – Annexure – I, II and III

Table T.4.6.17 Coefficients [Pre-Merger Period]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	476.799	343.815		1.387	0.260
	Finance cost	0.726	0.012	1.000	59.316	0.000

a. Dependent Variable: NP

Source – Annexure – I, II and III

Pre-Merger period regression equation

NP=476.799+0.726FC

4.6.10.2 Post-Merger period Regression equation

Table T.4.6.18 Model Summary [Post-Merger Period]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	1.000[a]	1.000	0.999	0.30664

a. Predictors: (Constant), Finance cost, Operating expense, LTB

Source – Annexure – I, II and III

If we evaluate overall performance of the model based on the ANOVA table, observing the significant value we conclude that model is significant as the value is less than 0.05. as shown in the table below

Table T.4.6.19 ANOVA [Post-Merger Period]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	734.301	3	244.767	2603.198	0.014[b]
	Residual	0.094	1	0.094		
	Total	734.395	4			

a. Dependent Variable: NP

b. Predictors: (Constant), Finance cost, Operating expense, LTB

Source – Annexure – I, II and III

Table T.4.6.20. Coefficients [Post-Merger Period]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	308.200	6.086		50.637	0.013
	LTB	-2.098	0.155	-0.319	-13.498	0.047
	Operating expense	-2.055	0.043	-0.824	-48.269	0.013
	Finance cost	-2.515	0.093	-0.754	-27.010	0.024

a. Dependent Variable: NP

Source – Annexure – I, II and III

Post-Merger period regression equation

NP = 308.200 - 2.098LTB - 2.055OE - 2.515FC

Considering the output, the final model for the Post-Merger time would be given as per above.

From the above facts it could be analyzed that Finance cost was only variable affecting net profit in Pre-Merger period but in post- merger period along with Finance cost, Long Term borrowings and operating expenses was also affecting net profit of Makers laboratories Ltd. Finance cost is the common independent variable affecting profitability in terms of Net profit in Pre-Merger and Post-Merger period of Makers laboratories Ltd. Correlation coefficient between Net profit and Finance cost in Pre-Merger period and Post-Merger period is -0.74 and -0.56 respectively. Correlation coefficient between Net profit and finance cost in Pre-Merger and Post-Merger period was negative but was higher in Pre-Merger period as compared to Post-Merger period. Decrease in finance cost is due to decrease in debt during the Post-Merger period, it can be concluded that though the company's profitability has improved, taken the benefit of financial leverage there would have been substantial increase in profit during the Post-Merger period.

R^2 During Pre-Merger period is slightly lower than Post-Merger period.

4.7 CASE 7 - ACQUIRER COMPANY : STRIDES SHASHUN LTD.

4.7.1 Background of the Company

Strides Shashun ltd is a pharmaceutical company having strong global presence with manufacturing facilities in 6 countries and products sold in 75 countries. The company manufactures and exports finished pharmaceutical products in branded and generic form.

Global Remedies Limited (GRL), Quantum Remedies Private Limited (QRPL), Grandix Pharmaceuticals Limited (GPL) and Grandix Laboratories Limited (GLL), all subsidiaries of the Company were merged with the Strides Shashun ltd in December 2009. QRPL and GRL were engaged in the manufacture of Pharmaceutical formulations and were predominantly acting as a captive manufacturer for the Company and catering to the African Markets. Both GPL and GLL were engaged in the marketing of Branded pharmaceutical products.

The subsequent part of chapter covers the analysis of the financial performance of **Strides Shashun** ltd for Pre-Merger and Post-Merger period.

The period of study covers 16 years commencing from 2000-2001 to 2015-2016.

Period of study - 2000-2001 to 2015-2016

Pre-Merger period - 2000-2001 to 2008-2009

Post- Merger period - 2010-2011 to 2015-2016

Merger Year/Zero Year-2009-2010

Table No 4.7.1. on the next page shows calculation of various profitability ratios of the sample acquirer company for the period under study.

4.7.2 Profitability Ratios of Strides Shashun ltd during Pre-Merger and Post-Merger Period

Table T.4 7.1 Profitability Ratios in Pre-Merger and Post- Merger Period

	Pre- Merger period (2000-01 to 2008-09)- 9 years											Post- Merger period (2010-11 to 2015-16)- 6 years							
Profitability ratios	**Mar 2000-2001**	**Mar 2001-2002**	**Mar 2002-2003**	**Mar 2003-2004**	**Mar 2004-2005**	**Mar 2005-2006**	**Mar 2006-2007**	**Mar 2007-2008**	**Mar 2008-2009**	**Average ratio**	**Standard Deviation**	**Mar-2010-2011**	**Mar-2011-2012**	**Mar-2012-2013**	**Mar-2013-2014**	**Mar-2014-2015**	**Mar-2015-2016**	**Average ratio**	**Standard Deviation**
GP Ratio [%]	33.56	30.50	27.52	32.72	38.13	38.77	30.88	24.92	28.31	31.70	4.65	30.67	33.68	35.27	32.62	33.40	30.00	32.61	1.97
NP Ratio [%]	8.05	7.05	2.30	6.45	10.92	12.05	-0.38	-19.16	4.86	3.57	9.37	14.96	13.84	99.71	330.21	57.27	7.31	87.22	124.17
Operating ratio [%]	79.24	81.40	88.32	82.92	79.02	81.28	88.97	97.92	90.19	85.47	6.31	86.29	82.28	84.32	87.44	90.89	91.92	87.19	3.72
Cash profit margin [%]	12.99	11.13	7.06	10.75	14.82	15.77	3.49	-14.90	7.97	7.68	9.31	17.74	16.27	102.89	334.65	62.57	12.11	91.04	124.49
ROCE [%]	18.84	14.19	10.03	15.38	15.65	11.83	3.48	-4.20	6.73	10.21	7.20	7.45	10.97	65.97	284.82	42.60	7.24	69.84	107.94
ROTA [%]	13.65	12.30	8.58	13.44	14.54	12.18	3.85	-6.10	11.17	9.29	6.63	9.88	8.91	101.01	338.47	58.85	9.74	87.81	128.24
ROE [%]	8.20	6.22	2.51	7.60	11.53	12.68	-0.50	-29.26	6.05	2.78	12.69	6.08	7.52	54.85	213.45	36.10	5.14	53.85	80.73
EPS [RS]	6.89	4.96	0.97	3.99	8.22	11.98	-1.44	-21.19	7.70	2.45	9.723	14.50	17.42	126.63	471.77	89.29	18.03	122.94	177.05
Equity dividend coverage ratio [Times]	12.16	13.71	0.00	2.66	5.67	5.99	-0.72	0.0	0.0	4.39	5.459	9.24	8.73	63.10	0.93	0.83	3.79	14.44	24.12
Price earnings ratio [Times]	13.06	12.30	91.41	36.92	25.69	29.01	-240.44	-8.17	10.63	-3.29	93.163	25.43	33.68	6.89	0.82	13.23	60.13	23.36	21.658
Dividend yield ratio [%]	0.63	0.59	0.00	1.02	0.69	0.58	0.58	0.00	0.00	0.45	0.366	0.43	0.34	0.23	130.47	9.14	0.44	23.51	52.52

Source-Annexure I, II and III

Profitability Analysis

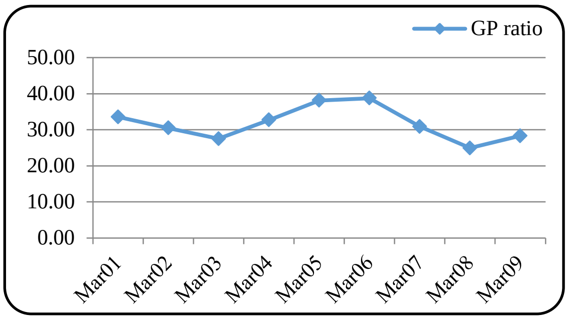
Table 4.7.1 reveals that calculation of various profitability ratios of Strides Shashun ltd during Pre-Merger Period and Post-Merger Period.

The Profitability of sample company is analysed and interpreted using various profitability ratios based on sales and Investment

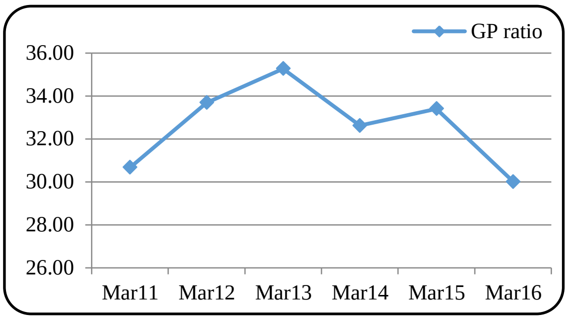
Gross profit Ratio [GPR]

As exhibited in table T. 4.7.1 & figure G7.1, GP ratio showed fluctuating trend during pre- merger period. It was highest in 2005-2006 and on an average it was 31.70 %.

G 7.1 GPR in Pre-Merger Period



G 7.1.1 GPR in Post-Merger period



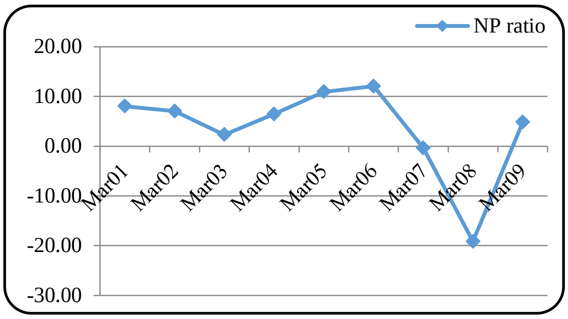
Source – Table T.4 7.1

As indicated in Table T.4 7.1 and figure G7.1.1, during the Post-Merger period also fluctuating trend was observed and on an average it was 32.61% registering a marginal growth over Pre-Merger period. The Standard Deviation of Pre-Merger period was higher as compared to Post-Merger period indicating that ratio fluctuated more in Pre-Merger period as compared to Post-Merger period

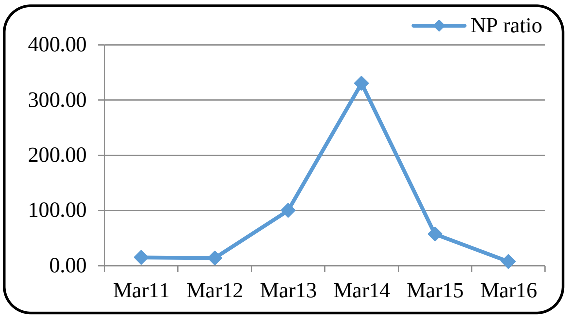
Net Profit Ratio [NPR]

As revealed by Table T. 4.7.1 and figure G.7.2 NP ratio showed fluctuating trend during Pre-Merger period and was highest in 2005-2006 i.e.12.05% and then declined sharply and was negative NP ratio was observed in 2006-2007 and 2007-2008 due to shut down of plant at USA [On account of continue losses], Loss on sale of non-Core-Speciality chemicals, Loss on account of foreign exchange transactions etc. and on average it was 3.57%.

G.7.2 NPR in Pre-Merger Period



G.7.2.1 NPR in Post-Merger Period



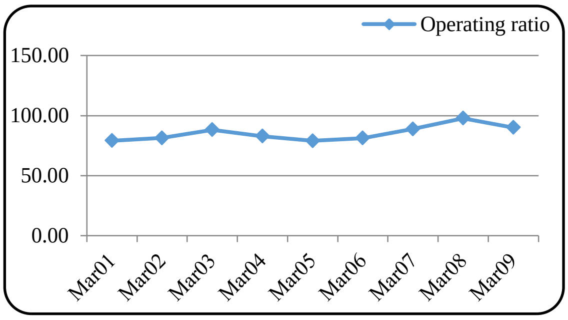
Source – Table T.4 7.1

As revealed in Table T.4.7.1 and figure 7.2.1, during the Post-Merger period also fluctuating trend was observed in case of NP ratio. The Highest NP ratio was in 2013-2014 i.e. 330.21% due to increased contribution of pharma generics and Branded generics. The Average NP Ratio in Post-Merger period was 87.22%. Overall, it could be observed that there was increase in average NP ratio of sample company in Post-Merger Period as compared to Pre-Merger period. The Standard Deviation of Post-Merger period was higher as compared to Pre-Merger period indicating that ratio fluctuated more in Post-Merger period as compared to Pre-Merger period.

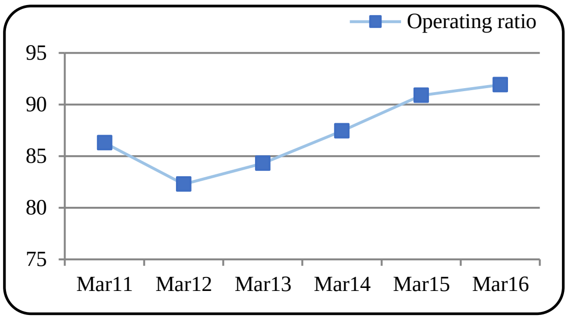
Operating Ratio [OR]

During the Pre-Merger period as evident in table T.4.7.1 and figure.G.7.3, Operating ratio showed a fluctuating trend and was on an average it was 85.47%.

G.7.3 OR in Pre-Merger Period



G.7.3.1 OR in Post-Merger Period



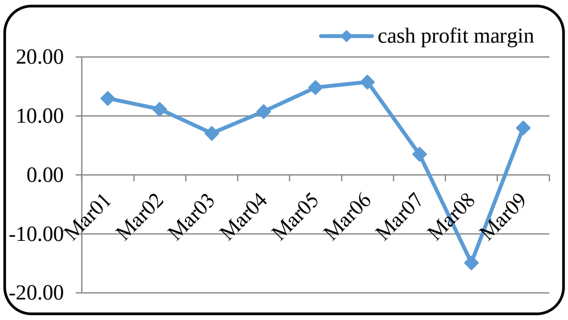
Source – Table T.4 7.1

During the Post-Merger period it could be observed in table T. 4.7.1 & figure G.7.3.1, that the ratio was increasing except 2011-2012 where it declined marginally and on an average it was 87.19%. The Average Operating ratio increased during Post-Merger period. The Standard Deviation of Pre-Merger period was higher as compared to Post-Merger period indicating that ratio fluctuated more in Pre-Merger period as compared to Post-Merger period.

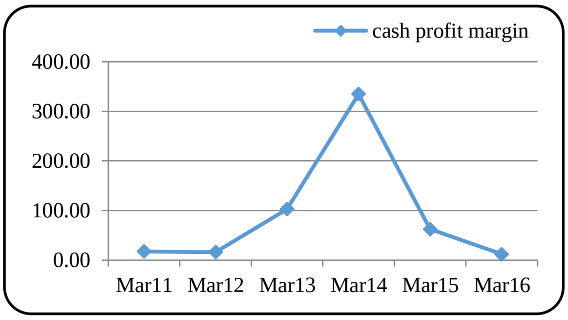
Cash Profit Margin [CPM]

During Pre-Merger period as disclosed in table T.4.7.1 figure G.7.4, Cash profit margin showed a fluctuating trend however it was on peak in 2005-2006 resulted to 15.77% and was negative in2007-2008 at -14.90%   and on an average it was 7.68%.

G.7.4 CPM in Pre-Merger Period



G.7.4.1 CPM   in Post-Merger Period



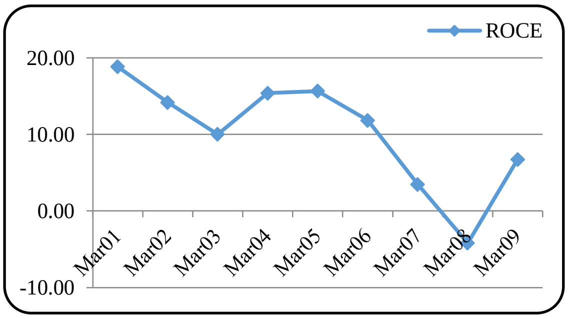
Source – Table T.4 7.1

As observed in table T4.7.1 and figure G.7.4.1, During Post-Merger period also, Cash profit margin showed fluctuating trend. It was highest in 2013-2014 at 334.65% due to increased contribution of pharma generics and Branded generics and on an average it was 91.04%. The ratio increased tremendously in Post-Merger period as compared to Pre-Merger period. The Standard Deviation of Post-Merger period was higher as compared to Pre-Merger period indicating that ratio fluctuated more in Post-Merger period as compared to Pre-Merger period.

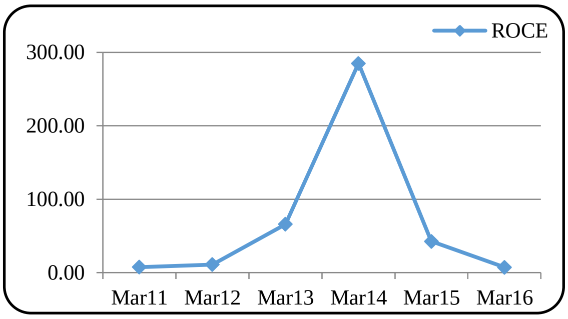
Return on capital employed [ROCE]

During the Pre-Merger period as revealed in table T.4.7.1 and figure G.7.5, Return on capital employed registered a fluctuating trend however it was negative in 2007-2008 at -4.20% and on an average it was 10.21%.

G.7.5 ROCE in Pre-Merger Period



G.7.5.1 ROCE in Post-Merger Period



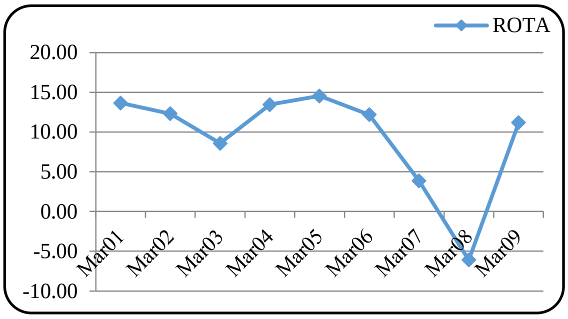
Source – Table T.4 7.1

As disclosed in table T. 4.7.1 & figure G.7.5.1, during the Post-Merger period, the ratio increased up to 2013-2014 and later on it declined. It was highest in 2013-2014 284.82% due to increased contribution of pharma generics and Branded generics and on an average it was 69.84 % which was quite higher as compared to Pre-Merger period. The Standard Deviation of Post-Merger period was higher as compared to pre -merger period indicating that ratio fluctuated more in Post-Merger period as compared to Pre-Merger period.

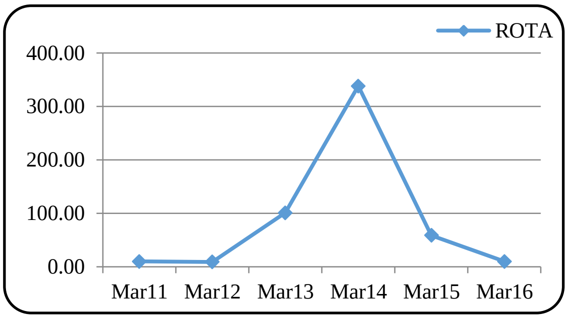
Return on Total Assets [ROTA]

In Pre-Merger period as exhibited in table T.4.7.1. and figure G.7. 6, Return on Total assets ratio showed fluctuating trend. It was lowest in 2007-2008 as was negative and on an average it was 9.29 %.

G.7.6 ROTA in Pre-Merger Period



G.7.6.1 ROTA in Post-Merger Period



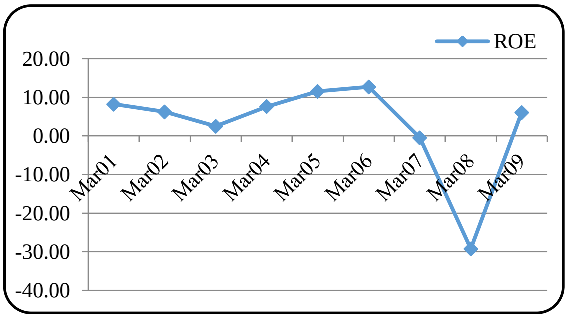
Source – Table T.4 7.1

As revealed in table T. 4.7.1 & figure G.7.6.1, during the Post-Merger period, the ratio increased from 9.88% in 2010-2011 to 101.01 % in 2013-2014 but later declined to 9.74% in 2015-2016. On an average, it was 87.81%. The ratio increased significantly in Post-Merger period. The Standard Deviation of Post-Merger period was higher as compared to pre- merger period indicating that ratio fluctuated more in Post-Merger period as compared to Pre-Merger period.

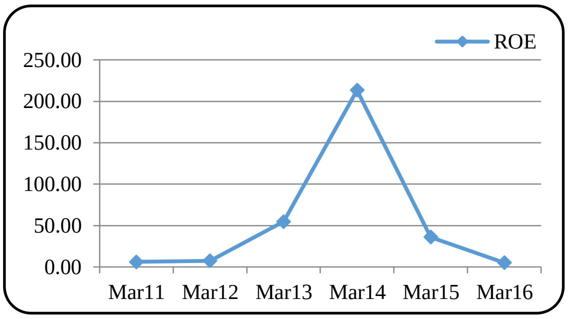
Return on Equity [ROE]

In Pre-Merger period as observed in table T.4.7.1 and figure G.7.7, Return on Equity showed a fluctuating trend. It was negative in 2006- 2007 at -0.50 and 2007-2008 at -29.26 respectively and on an average it was 2.78%.

G7.7.ROE in Pre-Merger Period



G.7.7.1 ROE in Post-Merger Period



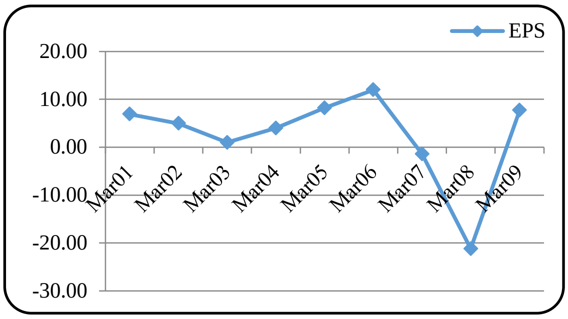
Source – Table T.4 7.1

As observed in table T. 4.7.1 & figure G.7.7.1, during Post-Merger period, return on Equity increased up to 2013- 2014 and was at peak at 213.45 due to increased contribution of pharma generics and Branded generics, whereas declined later and on an average it was 53.85%. which was higher as compared to Pre-Merger Period. The Standard Deviation of Post-Merger period was higher as compared to pre- merger period indicating that ratio fluctuated more in Post-Merger period as compared to Pre-Merger period.

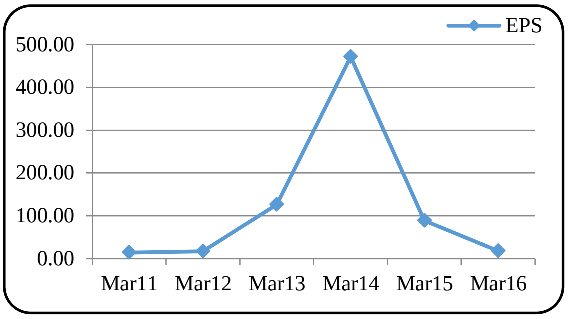
Earnings per share [EPS]

In Pre-Merger period as revealed in table T.4.7.1 and figure G.7.8, Earnings per share showed a fluctuating trend. It was highest in 2005-2006 at Rs 11.98 and on an average it was Rs 2.45.

G.7.8 EPS in Pre-Merger Period



G.7.8.1 EPS in Post-Merger Period



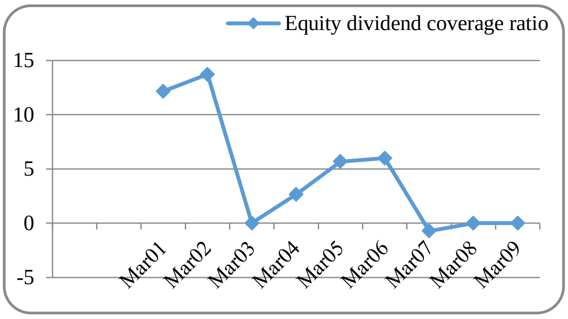
Source – Table T.4 7.1

As depicted in table T. 4.7.1 &figure G.7.8.1, during Post-Merger period, Earnings per share showed increasing trend up to 2013- 2014 and thereafter declined. It was highest in 2013-2014 Rs 471.77 and declined to Rs18.03 in 2015-2016. The Average ratio was Rs 122.94, which is more as compared to Pre-Merger period. The Standard Deviation of Pre-Merger period was lower as compared to post merger period indicating that ratio fluctuated more in Post-Merger period as compared to Pre-Merger period.

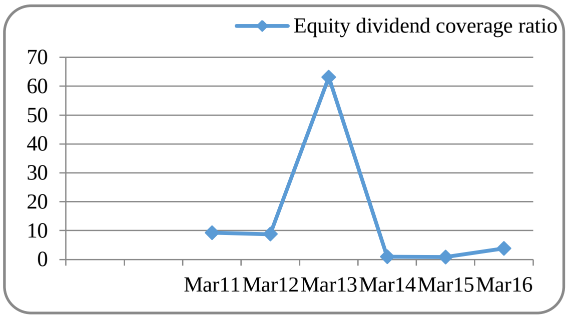
Equity Dividend Coverage Ratio [EDCR]

During the Pre-Merger period, as depicted in table T.4.7.1 and figure G.7.9, Equity dividend coverage ratio showed a fluctuating trend and on an average it was 4.39 times.

G.7.9 EDCR in Pre-Merger Period



G.7.9.1 EDCR in Post-Merger Period



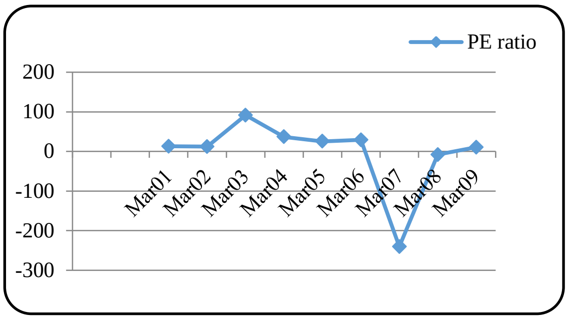
Source – Table T.4 7.1

As seen in table T. 4.7.1 & figure G.7.9.1, during Post-Merger period the ratio continued to show fluctuating trend and was highest in 2012- 2013.The Average Equity dividend coverage ratio in post-merger period was 14.44 times, which was higher as compared to Pre-Merger period indicates positive impact of merger on generating higher revenues for equity shareholders. The Standard Deviation of Post-Merger period was higher as compared to Pre-Merger period indicating that ratio fluctuated more in Post-Merger period as compared to Pre-Merger period.

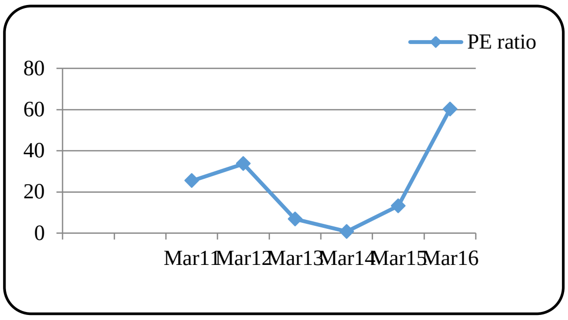
Price / Earnings Ratio [PE ratio]

During the Pre-Merger period as exhibited in table T.4.7.1. and figure G.7.10, Price earnings ratio registered a fluctuating trend. The ratio was highest in 2002-2003 at 91.41 times and was lowest in the year 2006- 2007 being negative at -240-44 times and on an average it was -3.29 times.

G.7.10 PE ratio in Pre-Merger Period



G.7.10.1 PE ratio in Post-Merger Period



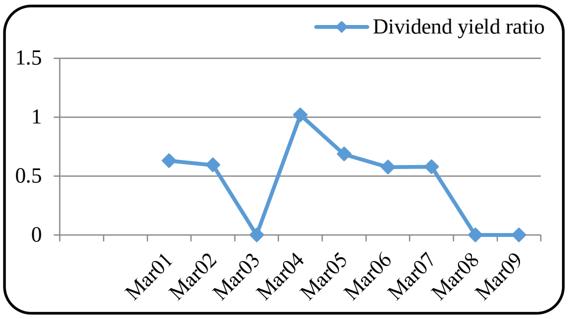
Source – Table T.4 7.1

As observed in table T. 4.7.1 & figure G.7.10.1, during Post-Merger period, Price earnings ratio was fluctuating and was highest in 2015- 2016 at 60.13 times and on an average it was 23.36 times which was higher as compared to Pre-Merger period. This exhibits that, there was positive impact of merger and that the investors are able to measure potential earning of the company in future.This is reflected by increase in market price of the shares. The Standard Deviation of Pre-Merger period was higher as compared to post merger period indicating that the ratio fluctuated more in Pre-Merger period as compared to Post-Merger period

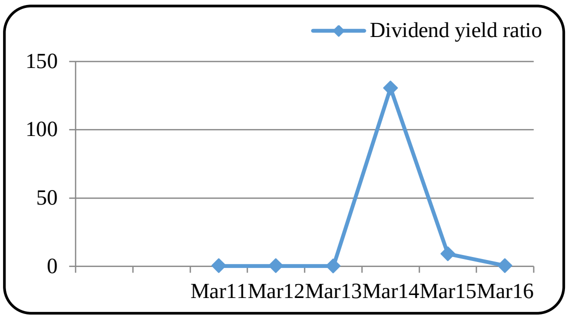
Dividend Yield Ratio [DY ratio]

In Pre-Merger period as exhibited in table T.4.7.1. and figure G.7.11, Dividend yield ratio showed a fluctuating trend. The ratio declined from 0.63% in 2000-2001 to 0.00% in 2002-2003 and thereafter steeply increased to 1.02 % in 2003-2004 and later decline to 0.0 % in 2007-2008 and on an average it was 0.45 %.

G.7.11 DY ratio in Pre-Merger Period



G.7.11.1 D Y Ratio in Post-Merger Period



Source – Table T.4 7.1

As indicated in table T. 4.7.1 & figure G.7.11.1 during Post-Merger period, Dividend yield ratio showed fluctuating trend. The ratio was very high in 2013-2014 at 130.47% and on an average it was 23.51 % which is quite high as compared to pre- merger period. This indicates that dividend per share increased more in proportion to market price per Equity share in Post-Merger period as compared to Pre-Merger period and also indicate positive impact of merger on profit earning capacity of company. The Standard Deviation of Pre-Merger period was lower as compared to post merger period indicating that, ratio fluctuated more in Post-Merger period as compared to Pre-Merger period

Table No 4.7.2 on the next page shows calculation of various liquidity ratios of the sample acquirer company for the period under study.

4.7.3 Liquidity Ratios of Strides Shashun ltd during Pre-Merger and Post-Merger Period

Table T.4.7.2 Liquidity Ratios in Pre-Merger and Post-Merger Period

Pre- Merger period (2000-01 to 2008-09)- 9 years												Post- Merger period (2010-11 to 2015-16)- 6 years							
Liquidity ratios	**Mar 2000-2001**	**Mar 2001-2002**	**Mar 2002-2003**	**Mar 2003-2004**	**Mar 2004-2005**	**Mar 2005-2006**	**Mar 2006-2007**	**Mar 2007-2008**	**Mar 2008-2009**	**Average ratio**	**Standard Deviation**	**Mar-2010-2011**	**Mar-2011-2012**	**Mar-2012-2013**	**Mar-2013-2014**	**Mar-2014-2015**	**Mar-2015-2016**	**Average ratio**	**Standard Deviation**
Current ratio [Proportion]	1.06	1.44	1.45	1.36	1.50	1.49	1.33	1.08	0.87	1.29	0.23	1.03	1.05	1.13	1.54	2.45	2.06	1.55	0.595
Quick ratio [Proportion]	0.75	1.14	1.32	1.20	1.34	1.26	1.13	0.93	0.73	1.09	0.23	0.90	0.95	0.96	1.37	2.14	1.77	1.35	0.513
Super Quick ratio [Proportion]	0.05	0.13	0.05	0.07	0.19	0.29	0.14	0.21	0.04	0.13	0.09	0.09	0.06	0.24	0.78	1.40	0.99	0.59	0.549

Source-Annexure II and III

Liquidity Analysis

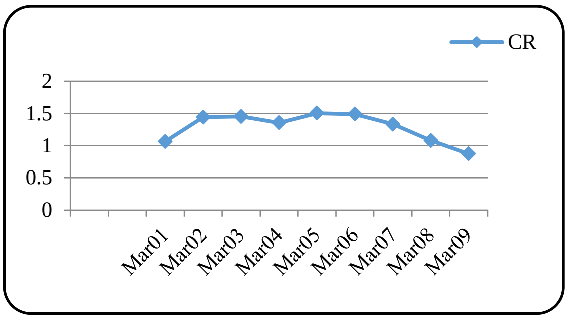
Table 4.7.2 reveals the calculation of various Liquidity ratios of Strides Shashun ltd during Pre-Merger Period and Post-Merger Period.

The Liquidity of sample company is analysed and interpreted using various Liquidity ratios based on Current assets and Current liabilities.

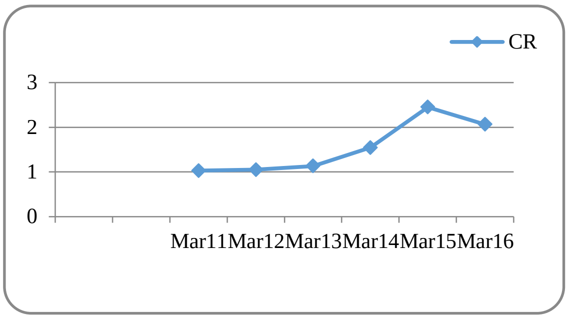
Current Ratio [CR]

During the Pre-Merger period as indicated in table T.4.7.2 and figure G.7.12, Current ratio registered a fluctuating trend and on an average it was 1.29:1.

G.7.12 CR in Pre-Merger Period



G.7.12.1 CR in Post-Merger Period



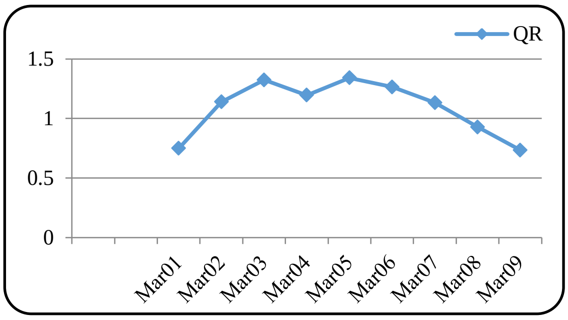
Source – Table T.4.7.2

As indicated in table T. 4.7.2 & figure G.7.12.1, during the Post-Merger period, the Current ratio registered an increasing trend and on an average it was 1.55:1. The increase in current ratio during Post-Merger period indicates improvement in liquidity position of sample company. The Standard Deviation of post- merger period was higher as compared to Pre-Merger period indicating that ratio fluctuated more in Post-Merger period as compared to Pre-Merger period.

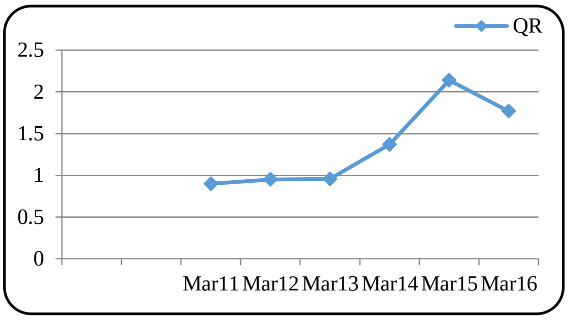
Quick Ratio [QR]

During the Pre-Merger period as revealed in table T.4.7.2 and figure G.7.13, Quick ratio registered a fluctuating trend and on an average it was 1.09:1.

G.7.13 QR in Pre-Merger Period



G.7.13.1 QR in Post-Merger Period



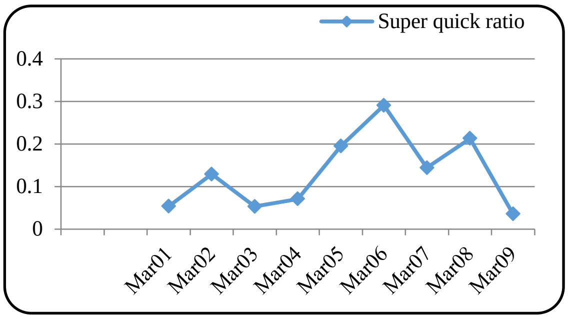
Source – Table T.4.7.2

As seen in table T. 4.7.2 & figure G.7.13.1, during Post-Merger period, Quick ratio registered an overall increasing trend and on an average it was 1.35:1. The higher the average, Quick ratio in Post-Merger period as compared to Pre-Merger period indicates improvement in liquidity as also substantiated by current ratio. The Standard Deviation of Pre-Merger period was lower as compared to post merger period indicating that ratio fluctuated more in Post-Merger period as compared to Pre-Merger period.

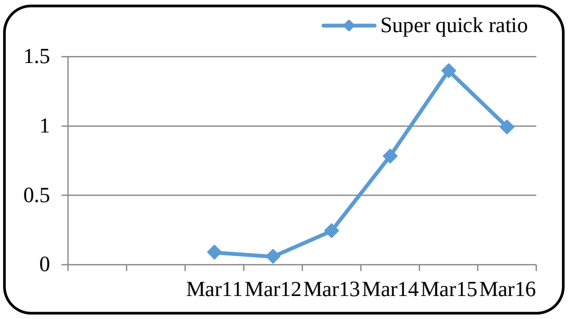
Super quick Ratio [SQR]

During the Pre-Merger period as exhibited in table T.4.7.2 and figure G.7.14, Super Quick ratio was fluctuating. It was highest in 2005- 2006 which was 0.29:1 and on an average it was 0.13:1.

G.7.14 SQR in Pre-Merger Period



G.7.14.1 SQR in Post-Merger Period



Source – Table T.4.7.2

As indicated in table T. 4.7.2 & figure G.7.14.1, during Post-Merger period the ratio registered an overall increasing trend and was highest in the year 2014- 2015 i.e. 1.40:1 and on an average it was 0.59:1. The increase in Average ratio exhibits increase in absolute liquidity of sample company. The Standard Deviation of post -merger period was higher as compared to Pre-Merger period indicating that ratio fluctuated more in Post-Merger period as compared to Pre-Merger period.

Table No 4.7.3. on the next page shows calculation of various long term solvency ratios of the sample acquirer company for the period under study.

4.7.4 Long Term Solvency Ratios of Strides Shashun Ltd During Pre-Merger and Post-Merger Period

Table T.4.7.3 Long Term Solvency Ratios in Pre-Merger and Post-Merger Period

	Pre- Merger period (2000-01 to 2008-09)- 9 years											Post- Merger period (2010-11 to 2015-16)- 6 years							
Long term solvency ratios	**Mar 2000-2001**	**Mar 2001-2002**	**Mar 2002-2003**	**Mar 2003-2004**	**Mar 2004-2005**	**Mar 2005-2006**	**Mar 2006-2007**	**Mar 2007-2008**	**Mar 2008-2009**	**Average ratio**	**Standard Deviation**	**Mar-2010-2011**	**Mar-2011-2012**	**Mar-2012-2013**	**Mar-2013-2014**	**Mar-2014-2015**	**Mar-2015-2016**	**Average ratio**	**Standard Deviation**
Debt Equity Ratio [Proportion]	0.21	0.22	0.26	0.32	0.41	0.60	1.11	2.88	1.82	0.87	0.92	0.45	0.25	0.16	0.00	0.11	0.28	0.21	0.15
Fixed asset Ratio [Proportion]	0.55	0.43	0.30	0.33	0.33	0.32	0.29	0.21	0.22	0.33	0.10	0.17	0.19	0.21	0.25	0.26	0.31	0.23	0.05
Proprietary Ratio [Proportion]	1.62	2.29	2.72	2.78	3.10	2.69	2.14	1.81	2.96	2.46	0.52	6.36	5.83	5.82	5.33	4.46	4.01	5.30	0.89
Interest coverage ratio [Times]	2.04	2.18	1.45	2.23	3.35	4.35	1.82	-0.71	1.81	2.06	1.37	3.21	2.63	14.32	45.36	21.87	3.87	15.21	16.64

Source-Annexure I, II and III

Long Term Solvency Analysis

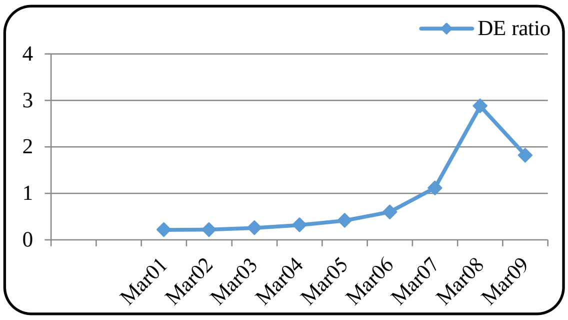
Table 4.7.3 reveals the calculation of various Long term solvency ratios of Strides Shashun ltd during Pre-Merger Period and Post-Merger Period.

The Long term solvency of sample company is analysed and interpreted using various Long term solvency ratios based on Long Term Debt, Share Capital, Fixed Assets and Equity Shareholders Fund.

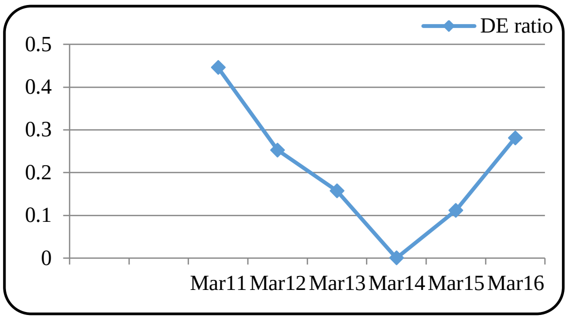
Debt Equity Ratio [DER]

During the Pre-Merger period as exhibited in table T.4.7.3 and figure G.7.15., Debt Equity ratio showed an overall inclining trend. It was highest in 2007- 2008 i.e.2.88:1 due to additional loan funds. The Average Debt Equity ratio in pre- merger period was 0.87:1.

G.7.15 DER in Pre-Merger Period



G.7.15.1 DER in Post-Merger Period



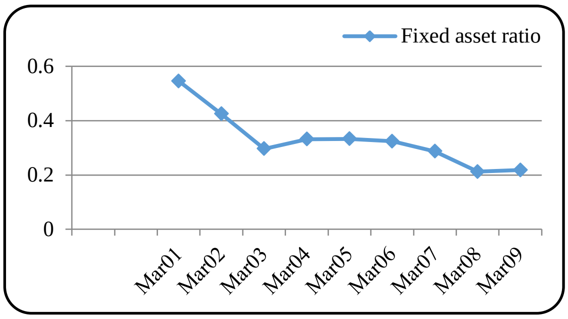
Source – Table T.4.7.3

As indicated in table T. 4.7.3 & figure G.7.15.1, during Post-Merger period, Debt Equity ratio registered a declining trend. The ratio declined throughout the period and was 0:1 in the year 2013-2014.This was due to repayment in Term loans and later on the ratio increased marginally and was 0.28:1 in the year 2015-2016 and on an average ratio was 0.21:1, indicating that lesser usage of external funds in proportion to internal funds. The Standard Deviation of Pre-Merger period was higher as compared to post merger period indicating ratio fluctuated more in Pre-Merger period as compared to Post-Merger period.

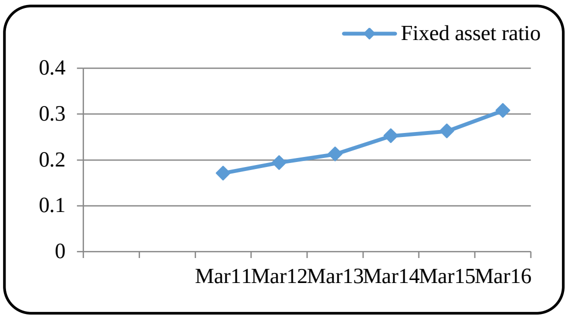
Fixed Asset Ratio [FAR]

In Pre-Merger period as disclosed in table T.4.7.3 and figure G.7.16, Fixed asset ratio registered a declining trend. It declined from .0.55:1. in 2000- 2001 to 0.22:1 in 2008-2009 and on an average ratio was 0.33:1.

G.7.16 FAR in Pre-Merger Period



G.7.16.1 FAR in Post-Merger Period



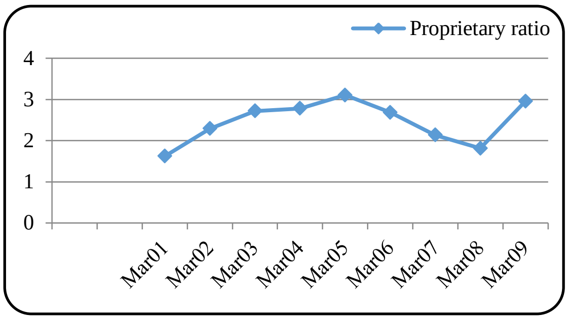
Source – Table T.4.7.3

As revealed in table T. 4.7.3 & figure G.7.16.1, during Post-Merger period, fixed asset ratio registered an increasing trend and was on an average it was 0.23:1. Though the ratio registered an increasing trend during the Post-Merger period the average ratio was low as compared to that in Pre-Merger period which indicates more use of internal funds to finance fixed assets and lower usage of external funds. The Standard Deviation of pre- merger period was higher as compared to post merger period indicating that ratio fluctuated more in Pre-Merger period as compared to Post-Merger period.

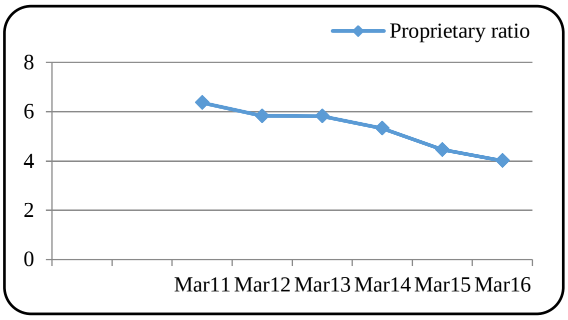
Proprietary Ratio [PR]

During the Pre-Merger period as depicted in table T.4.7.3 and figure G.7.17, Proprietary ratio registered a fluctuating trend and was on average it was 2.46:1.

G.7.17 PR in Pre-Merger Period



G.7.17.1 PR in Post-Merger Period



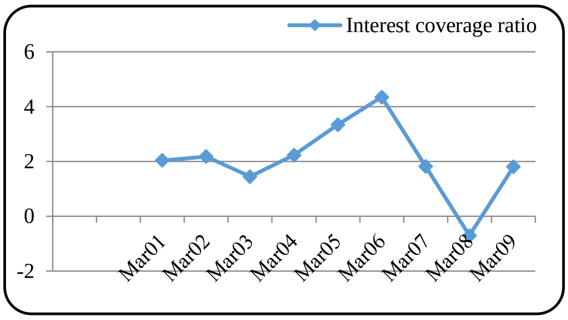
Source – Table T.4.7.3

As indicated in table T. 4.7.3 & figure G.7.17.1, During Post-Merger period, the ratio showed a declining trend. The Average Proprietary ratio in Post-Merger period was 5.30:1. The Average Proprietary ratio increased in post -merger period as compared to pre -merger period indicating less dependence on external funds in post- merger period as compared to pre -merger period. The Standard Deviation of pre -merger period was lower as compared to post merger period indicating that Proprietary ratio was more fluctuating in Post-Merger period as compared to Pre-Merger period.

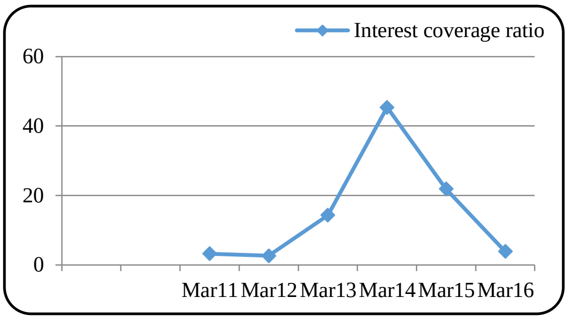
Interest Coverage Ratio [ICR]

During the Pre-Merger period as revealed in table T.4.7.3 and figure G.7.18, Interest coverage ratio registered a fluctuating trend and was negative in 2007- 2008 at -0.78 and on an average ratio was 2.06 times.

G.7.18 ICR in Pre-Merger Period



G.7.18.1 ICR in Post-Merger Period



Source – Table T.4.7.3

As indicated in table T. 4.7.3 & figure G.7.18.1, during Post-Merger period, Interest coverage ratio showed a fluctuating trend which reveals that due decreased debt-external funds, the financial risk in form of interest declined. It also indicates the increase in borrowing capacity of the sample company. The Average Interest coverage ratio in post -merger period was 15.21 times which was higher as compared to pre- merger period. The Standard Deviation of Pre-Merger period was lower as compared to post merger period indicating that ratio fluctuated more in Post-Merger period as compared to Pre-Merger period.

Table No 4.7.4. on the next page shows calculation of various efficiency ratios of the sample acquirer company for the period under study.

4.7.5 Efficiency Ratios of Strides Shashun Ltd During Pre-Merger and Post-Merger Period

Table T.4.7.4 Efficiency Ratios in Pre-Merger Period and Post- Merger Period

Pre- Merger period (2000-01 to 2008-09)- 9 years											Post- Merger period (2010-11 to 2015-16)- 6 years							
Efficiency ratios	**Mar 2000-2001**	**Mar 2001-2002**	**Mar 2002-2003**	**Mar 2003-2004**	**Mar 2004-2005**	**Mar 2005-2006**	**Mar 2006-2007**	**Mar 2007-2008**	**Mar 2008-2009**	**Average ratio**	**Standard Deviation**	**Mar-2010-2011**	**Mar-2011-2012**	**Mar-2012-2013**	**Mar-2013-2014**	**Mar-2014-2015**	**Mar-2015-2016**	**Average ratio**	**Standard Deviation**
Capital turnover Ratio [Times]	0.84	0.73	0.87	0.89	0.75	0.66	0.62	0.39	0.44	0.69	0.179	0.28	0.43	0.47	0.64	0.56	0.55	0.49	0.126
Inventory turnover ratio [Times]	2.41	3.28	4.14	7.32	6.35	5.38	5.08	4.69	5.54	4.91	1.505	3.36	3.87	4.21	5.33	4.67	5.77	4.54	0.906
Inventory to current asset ratio[%]	29.62	20.95	8.83	11.86	10.88	15.09	15.10	14.19	16.08	15.84	6.222	12.61	9.42	15.67	11.28	12.79	14.26	12.67	2.193
Working capital turnover ratio [Times]	12.44	3.04	3.07	3.63	2.54	2.56	3.21	6.02	-63.52	-3.00	22.912	5.08	5.54	6.22	2.16	1.22	1.55	3.63	2.225
Fixed asset turnover ratio [Times]	1.54	1.71	2.92	2.70	2.24	2.03	2.16	1.86	2.03	2.13	0.445	1.64	2.23	2.23	2.55	2.14	1.78	2.09	0.330
Debtors turnover ratio [Times]	2.66	2.85	1.89	2.19	2.43	2.86	2.91	2.48	3.22	2.61	0.45	2.97	3.42	3.35	4.07	3.92	4.60	3.72	0.34

Source-Annexure I, II and III

Efficiency Analysis

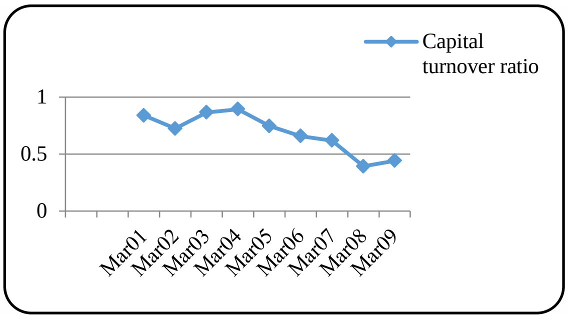
Table 4.7.4 reveals the calculation of various efficiency ratios of strides Shashun ltd during Pre-Merger Period and Post-Merger Period.

The efficiency ratios of sample company are analyzed and interpreted using various efficiency ratios based on sales and investment in Inventories, Fixed Assets, working capital, debtors, total capital employed.

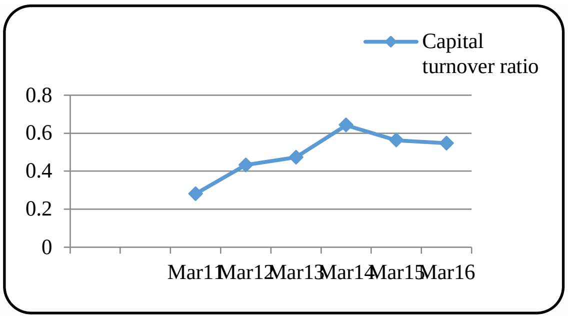
Capital turnover Ratio [CTOR]

During Pre-Merger period as disclosed in table T.4.7.4 and figure G.7.19, Capital Turnover ratio showed an overall declining trend. It was 0.84 times in the year 2000-2001 and declined to 0.44 times in 2008-2009 and on an average it was 0.69 times.

G.7.19 CTOR in Pre-Merger Period



G.7.19.1 CTOR in Post-Merger Period



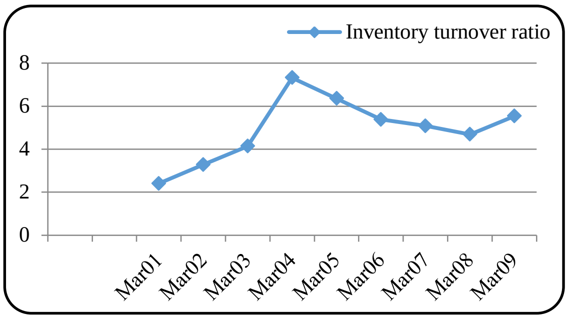
Source – Table T.4.7.4.

As seen in table T. 4.7.4 & figure G.7.19.1, during Post-Merger period ratio showed marginal improvement and on an average it was 0.49 times. During the post- merger period average ratio decreased as compared to Pre-Merger period indicating inefficiency on the part of sample company regarding effective utilization of capital employed for generating revenue in post period. The Standard Deviation of Pre-Merger period was higher as compared to post merger period indicating that ratio fluctuated more in Pre-Merger period as compared to Post-Merger period.

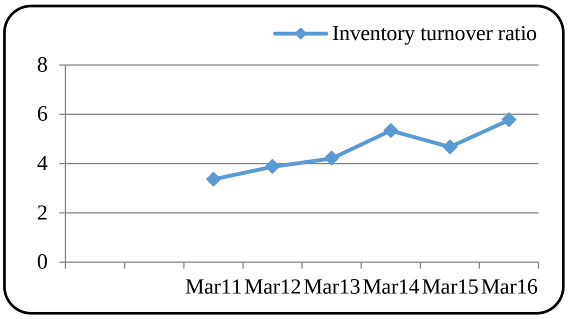
Inventory Turnover Ratio [ITOR]

In Pre-Merger period as revealed in table T.4.7.4 and figure.G.7.20, Inventory Turnover ratio showed a fluctuating trend and on an average ratio was 4.91 times.

G .7.20 ITOR in Pre-Merger Period



G.7.20.1 ITOR in Post-Merger Period



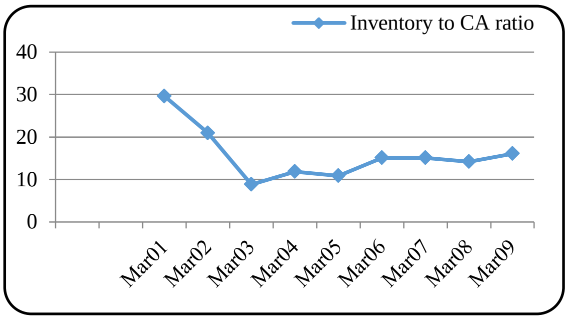
Source – Table T.4.7.4.

As indicated in table T. 4.7.4 & figure G.7.20.1, during Post-Merger period also, ratio showed a fluctuating trend and on an average it was 4.54 times which was lower as compared to Pre-Merger period. This indicate inefficient management of inventory in Post-Merger period as compared to Pre-Merger period. This also reveals proportionately larger inventory maintained in comparison to sales. The Standard Deviation of pre- merger period was higher as compared to post merger period indicating that ratio fluctuated more in Pre-Merger period as compared to Post-Merger period.

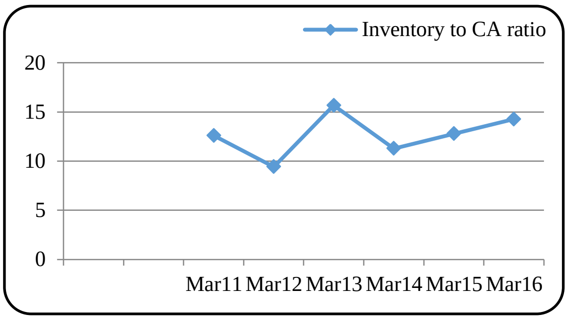
Inventory to current asset ratio [ICAR]

In Pre-Merger period as depicted in table T.4.7.4 and figure G.7.21, Inventory to current asset ratio showed a fluctuating trend and on an average it was 15.84%.

G.7.21 ICAR in Pre-Merger Period



G.7.21.1 ICAR in Post-Merger Period



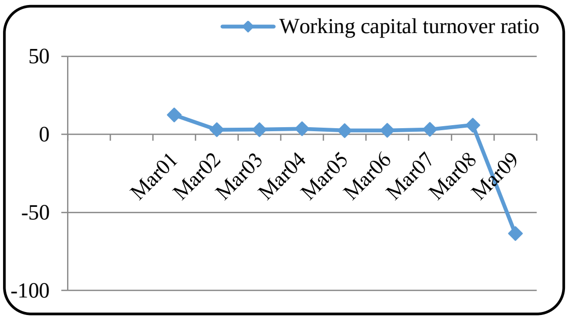
Source - Table T.4.7.4

As depicted in table T. 4.7.4 & figure G.7.21.1 during Post-Merger period, also similar trend was observed and on an average it was 12.67%. During Post-Merger period of study Inventory to current asset ratio decreased as compared to Pre-Merger period. This exhibits that there was decreased investment in inventory over other current assets during Post-Merger period of study. The Standard Deviation of Pre-Merger period was higher as compared to post merger period indicating that ratio fluctuated more in Pre-Merger period as compared to Post-Merger period.

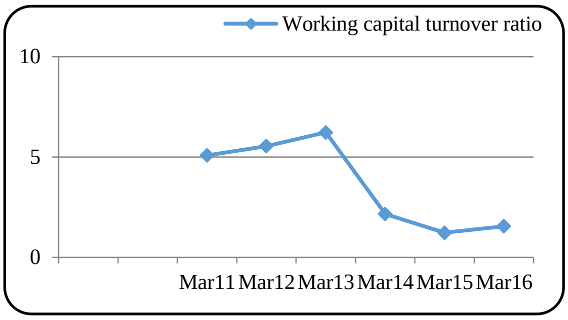
Working Capital Turnover Ratio [WCTOR]

In Pre-Merger period as exhibited in table T.4.7.4 and figure G.7.22, Working capital turnover ratio had highly reduced from 12.44 times in 2000-2001 to 3.04 times in 2001-2002 and then it showed a fluctuating trend however it was negative registered -63.52 in 2008-2009 due to negative working capital and on an average it was -3 times.

G .7.22 WCTOR ratio in Pre-Merger Period



G.7.22.1 WCTOR in Post-Merger Period



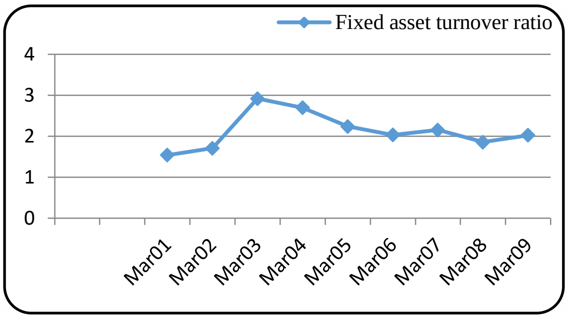
Source – Table T.4.7.4

As disclosed in table T. 4.7.4 & figure G.7.22.1, during Post-Merger period, working capital turnover showed a fluctuating trend and on an average it was 3.63 times which is more as compared to pre- merger period. This revealed that there was more investment in working capital during post period such as Account receivables, Inventory etc. to support sales of sample company. The Standard Deviation of Pre-Merger period was higher as compared to post merger period indicating that ratio fluctuated more in Pre-Merger period as compared to Post-Merger period.

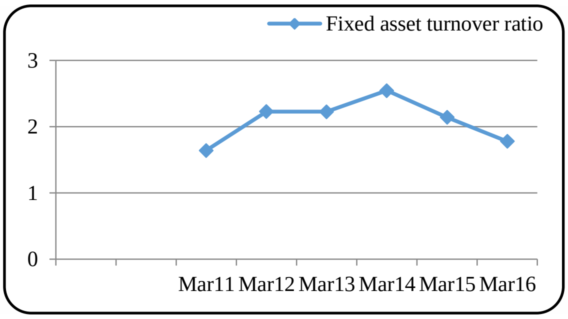
Fixed Asset Turnover Ratio [FATOR]

In Pre-Merger period as disclosed in table T.4.7.4 and figure G.7.23, Fixed asset turnover ratio showed a fluctuating trend and on an average it was 2.13 times.

G .7.23 FATOR in Pre-Merger Period



G .7.23.1 FATOR in Post-Merger Period



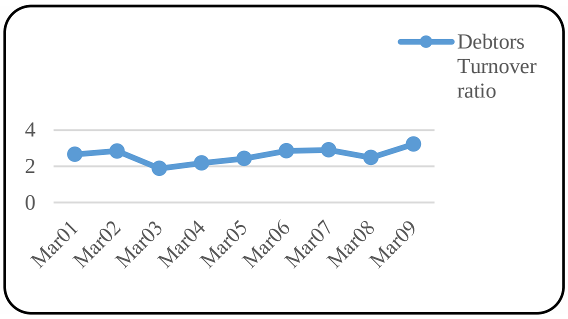
Source – Table T.4.7.4

As indicated in table T. 4.7.4 & figure G.7.23.1, during Post-Merger period, ratio increased till 2013-2014 where it was 2.55 times and then declined and on an average ratio was 2.09 times marginally declined as compared to pre- merger period. This exhibited inefficiency of sample company regarding generating revenue by utilizing fixed assets. The Standard Deviation of Pre-Merger period was higher as compared to post merger period indicating that ratio fluctuated more in Pre-Merger period as compared to Post-Merger period.

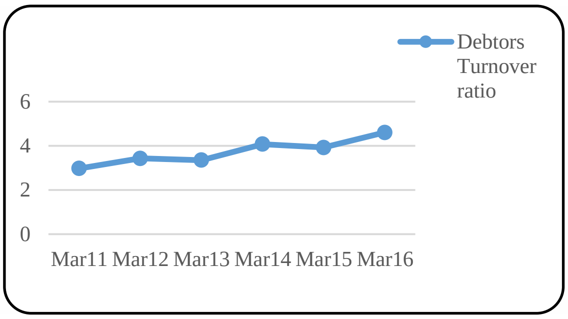
Debtors Turnover Ratio [DTOR]

In Pre-Merger period as revealed in table T.4.7.4 and figure G.7.24, Debtors turnover ratio registered a fluctuating trend and on an average it was 2.61 times.

G .7.24 DTOR in Pre-Merger Period



G .7.24.1 DTOR in Post-Merger Period



Source – Table T.4.7.4

During Post-Merger period also, as indicated in table T. 4.7.4 & figure G.7.24.1, Debtors Turnover ratio showed a fluctuating trend and on an average it was 3.72 times increased as compared to Pre-Merger period. This exhibits efficiency of sample company regarding management of Debtors in Post-Merger period. The Standard Deviation of Pre-Merger period was higher as compared to post-merger period indicating that ratio fluctuated more in Pre-Merger period as compared to Post-Merger period.

4.7.6 Testing of Hypothesis

The hypothesis framed with the reference to various Ratios [as mentioned in chapter 3, Hypothesis no 1 to 24] is tested applying one sample t- test at 5 % level of significance for measuring impact of merger. The table T.4.7.5 shows hypothesis test results

Table T.4.7.5 Hypothesis Test Results

Sr. No.	Ratio	Pre-Merger average	Post-Merger average	P value	Null/Alternate hypothesis accepted
Profitability ratio					
1	GP ratio	31.70	32.61	0.574	Null
2	NP ratio	3.57	87.22	*0.001	Alternate
3	Operating ratio	85.47	87.19	0.438	Null
4	Cash profit margin	7.68	91.04	*0.001	Alternate
5	Return on capital employed	10.21	69.84	*0.001	Alternate
6	Return on Total assets	9.29	87.81	*0.001	Alternate
7	Return on Equity	2.78	53.85	*0.001	Alternate
8	Earnings per share	2.45	122.94	*0.001	Alternate
9	Equity dividend coverage ratio	4.39	14.44	*0.001	Alternate
10	Price earnings ratio	-3.29	23.36	0.416	Null
11	Dividend Yield ratio	0.45	23.51	*0.001	Alternate
Liquidity ratios					
12	Current Ratio	1.29	1.55	*0.008	Alternate
13	Quick Ratio	1.09	1.35	*0.01	Alternate
14	Super Quick Ratio	0.13	0.59	*0.001	Alternate
Long term solvency					
15	Debt Equity ratio	0.87	0.21	0.064	Null
16	Fixed asset Ratio	0.33	0.23	*0.02	Alternate
17	Proprietary Ratio	2.46	5.30	*0.001	Alternate
18	Interest coverage ratio	2.06	15.21	*0.001	Alternate
Efficiency Ratios					
19	Capital Turnover ratio	0.69	0.49	0.971	Null
20	Inventory Turnover ratio	4.91	4.54	0.481	Null
21	Inventory to current asset ratio	15.84	12.67	0.164	Null
22	Working capital turnover ratio	-3.00	3.63	0.411	Null
23	Fixed asset turnover ratio	2.13	2.09	0.783	Null
24	Debtors Turnover Ratio	2.61	3.72	*0.001	Alternate

Source – Table T.4.7.1, T.4.7.2, T.4.7.3 and T.4.7.4

Profitability analysis

As observed from the above table T.4.7.5 that, almost all profitability ratios [except GP ratio, operating ratio and Price earnings ratio] changed significantly in the Post-Merger period as compared to Pre-Merger period. In each of the above ratios the calculated 'P' value is less than 0.05 & thus alternate hypothesis is accepted. However other Profitability ratios did not change significantly as the calculated 'P' value is more than 0.05 & thus null hypothesis is accepted.

Liquidity analysis

All the Liquidity ratios viz Current ratio, Quick ratio and super quick ratio indicates increase in liquidity position of Strides Shashun limited during period of study. Liquidity was significantly changed in form of Current ratio, Quick ratio and Super quick ratio as the calculated 'P' value is less than 0.05 & thus alternate hypothesis is accepted.

Long term solvency analysis

As observed from the above table T.4.7.5 that, all Long term solvency ratios except debt equity ratio changed significantly in Post-Merger period as compared to Pre-Merger period. As the calculated 'P' value is less than 0.05 thus alternate hypothesis is accepted. However, Debt equity ratio was not changed significantly as the calculated 'P' value is more than 0.05 & thus null hypothesis is accepted.

Efficiency Ratios analysis

As observed from the above table T.4.7.5 that, Debtors turnover ratio changed significantly in Post-Merger period as compared to Pre-Merger period. In each of the above ratios, the calculated 'P' value is less than 0.05 & thus alternate hypothesis is accepted. However other Efficiency ratios did not change significantly as the calculated 'P' value is more than 0.05 & thus null hypothesis is accepted

4.7.7 Composite Index Score

Composite Index score represents overall index for selected parameter. In case of Profitability, higher the composite Index score, better the performance and Vice-Versa. In case of Liquidity and Long term solvency Composite index score represent combine index considering selected ratios.

4.7.7.1 Composite Index Score Based on Profitability

Table T.4.7.6 Composite Index Score Based on Profitability

Pre-Merger Period Profitability Index scores and Composite Index score									
YEAR	**GPR**	**NPR**	**OR**	**CPM**	**ROCE**	**ROTA**	**ROE**	**EPS**	**AVERAGE**
2000-2001	0.62	0.08	0.99	0.08	0.08	0.06	0.15	0.06	0.26
2001-2002	0.40	0.08	0.87	0.07	0.06	0.05	0.15	0.05	0.22
2002-2003	0.19	0.06	0.51	0.06	0.05	0.04	0.13	0.04	0.14
2003-2004	0.56	0.07	0.79	0.07	0.07	0.06	0.15	0.05	0.23
2004-2005	0.95	0.09	1.00	0.09	0.07	0.06	0.17	0.06	0.31
2005-2006	1.00	0.09	0.88	0.09	0.06	0.05	0.17	0.07	0.30
2006-2007	0.43	0.05	0.47	0.05	0.03	0.03	0.12	0.04	0.15
2007-2008	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2008-2009	0.24	0.07	0.41	0.07	0.04	0.05	0.15	0.06	0.13
Average	**0.49**	**0.07**	**0.66**	**0.06**	**0.05**	**0.04**	**0.13**	**0.05**	**0.19**
Post-Merger Period Profitability Index scores and Composite Index score									
2010-2011	0.42	0.10	0.62	0.09	0.04	0.05	0.15	0.07	0.19
2011-2012	0.63	0.09	0.83	0.09	0.05	0.04	0.15	0.08	0.25
2012-2013	0.75	0.34	0.72	0.34	0.24	0.31	0.35	0.30	0.42
2013-2014	0.56	1.00	0.55	1.00	1.00	1.00	1.00	1.00	0.89
2014-2015	0.61	0.22	0.37	0.22	0.16	0.19	0.27	0.22	0.28
2015-2016	0.37	0.08	0.32	0.08	0.04	0.05	0.14	0.08	0.14
Average	**0.56**	**0.30**	**0.57**	**0.30**	**0.26**	**0.27**	**0.34**	**0.29**	**0.36**

Source – Table T.4.7.1

From the table T.4.7.6 it could be observed that, Average index scores of all profitability ratios [except operating ratio] improved in Post-Merger period as compared to Pre-Merger Period while the average index scores of Operating ratio declined in Post- merger period as compared to Pre-Merger period.

The Average Composite Index score based on profitability ratios increased from 0.19 in the Pre-Merger period to 0.36 in the Post-Merger period. This increase proved to be insignificant when tested applying Independent t- test at 5 % level of significance. As disclosed in Table no.4.7.7 below The Calculated ‘P’ value is 0.113 indicating that Null hypothesis is accepted.

Table T.4.7.7 Independent t - Test Results of Profitability Composite Index Score

Index score based on profitability	Pre-Merger Period	Post-Merger Period	P. value based on Independent t-test	Hypothesis accepted
Composite Index score	0.19	0.36	0.113	NULL

Source – Table T.4.7.6.

4.7.7.2 Composite Index Score Based on Liquidity

Table T.4.7.8 Composite Index Score Based on Liquidity

Pre-Merger Period Liquidity Index scores and Composite Index score							
YEAR	**CR**	**QR**	**SQR**	**ITOR**	**WCTOR**	**DTOR**	**AVERAGE**
2000-2001	0.12	0.01	0.01	0.00	1.00	0.28	0.24
2001-2002	0.36	0.29	0.07	0.18	0.88	0.35	0.35
2002-2003	0.37	0.42	0.01	0.35	0.88	0.00	0.34
2003-2004	0.31	0.33	0.03	1.00	0.88	0.11	0.44
2004-2005	0.40	0.43	0.12	0.80	0.87	0.20	0.47
2005-2006	0.39	0.38	0.19	0.60	0.87	0.36	0.46
2006-2007	0.29	0.28	0.08	0.54	0.88	0.38	0.41
2007-2008	0.13	0.14	0.13	0.46	0.92	0.22	0.33
2008-2009	0.00	0.00	0.00	0.64	0.00	0.49	0.19
Average	**0.26**	**0.25**	**0.07**	**0.51**	**0.80**	**0.27**	**0.36**
Post-Merger Period Liquidity Index scores and Composite Index score							
2010-2011	0.10	0.12	0.04	0.19	0.90	0.40	0.29
2011-2012	0.11	0.15	0.02	0.30	0.91	0.57	0.34
2012-2013	0.16	0.16	0.15	0.37	0.92	0.54	0.38
2013-2014	0.43	0.45	0.55	0.60	0.86	0.81	0.62
2014-2015	1.00	1.00	1.00	0.46	0.85	0.75	0.84
2015-2016	0.75	0.74	0.70	0.68	0.86	1.00	0.79
Average	**0.43**	**0.44**	**0.41**	**0.43**	**0.88**	**0.68**	**0.54**

Source – Table T.4.7.2 and T.4.7.4

From the above table, it could be observed that, excepting inventory turnover ratio all average liquidity index scores based on ratios increased in Post-Merger period as compared to Pre-Merger period. The average Composite Index score based on liquidity ratios increased from 0.36 in Pre-Merger period to 0.54 in Post-Merger period for Strides Shashun Ltd. This increase proved to be insignificant when tested applying Independent t- test at 5 % level of significance. As disclosed in Table no.4.7.9 below The Calculated ‘P’ value is 0.122 indicating that the Null hypothesis is accepted.

Table T.4.7.9 Independent t - Test Results of Liquidity Composite Index Score

Index score based on liquidity ratios	Pre-Merger Period	Post-Merger Period	Probability value based on Independent t- test	Hypothesis accepted
Composite Index score	0.36	0.54	0.122	Null

Source-Table T.4.7

4.7.7.3 Composite Index Score Based on Long Term Solvency

Table T.4.7.10 Composite Index Score Based on Long Term Solvency

Pre-Merger Period Long Term Solvency Index scores and Composite Index score				
YEAR	**DER**	**FAR**	**PR**	**AVERAGE**
2000-2001	0.07	1.00	0.00	0.36
2001-2002	0.08	0.68	0.14	0.30
2002-2003	0.09	0.34	0.23	0.22
2003-2004	0.11	0.43	0.24	0.26
2004-2005	0.14	0.43	0.31	0.30
2005-2006	0.21	0.41	0.22	0.28
2006-2007	0.39	0.31	0.11	0.27
2007-2008	1.00	0.11	0.04	0.38
2008-2009	0.63	0.13	0.28	0.35
Average	**0.30**	**0.43**	**0.18**	**0.30**
Post-Merger Period Long Term Solvency Index scores and Composite Index score				
2010-2011	0.15	0.00	1.00	0.38
2011-2012	0.09	0.06	0.89	0.35
2012-2013	0.05	0.11	0.89	0.35
2013-2014	0.00	0.22	0.78	0.33
2014-2015	0.04	0.24	0.60	0.29
2015-2016	0.10	0.36	0.50	0.32
Average	**0.07**	**0.17**	**0.78**	**0.34**

Source – Table T.4.7.3

From the above table, it could be observed that all average long term solvency index scores based on Debt equity ratio and Fixed asset ratio decreased in Post-Merger period, whereas average index score based on proprietary ratio increased in Post-Merger period as compared to Pre-Merger period.

Average composite index score based on Long term solvency increased from 0.30 in Pre-Merger period to 0.34 in Post-Merger period. This increase proved to be insignificant when tested applying Independent t- test at 5 % level of significance. As disclosed in Table no.4.7.11 below, the Calculated 'P' value is 0.17 indicating that the Null hypothesis is accepted.

Table T.4.7.11 Independent t- Test Results of Long Term Solvency Composite Index Score

Index score based on Long term solvency ratios	Pre-Merger Period	Post-Merger Period	Probability value based on Independent T test	Hypothesis accepted
Composite Index score	0.30	0.34	0.17	Null

Source-Table T.4.7.10

4.7.8 Economic Value Added [EVA] and Market Value Added [MVA]

The shareholder's wealth measurement has been carried out by calculating EVA and MVA of the sample company for Pre-Merger and Post-Merger period of study**.**

4.7.8.1 Economic Value Added [EVA]

The Table no T.4.7.12 shows the calculation of EVA of the sample company for Pre and Post-Merger period of study. The Table depicts that the average EVA in Pre-Merger period was (Rs 105.48 Millions) negative while the average EVA in the Post-Merger period amounted to Rs 4484.345 Million**.** The Post-Merger Average EVA turned Positive as compared to Pre-Merger period from which it could be interpreted that merger had helped company to improve its performance in terms of EVA there by leading to increase shareholder's wealth. This indicates the positive impact of merger on sample company.

Table T.4.7.12 Economic Value Added [EVA] of Strides Shashun ltd [Rs in Millions]

Particulars	NOPAT	Ke	Kp	Kd	EVA
2000-2001	326.86	167.72	0	135.23	23.92
2001-2002	385.66	270.56	0	158.79	-43.68
2002-2003	250.27	174.00	0	130.38	-54.11
2003-2004	341.02	213.18	0	131.91	-4.06
2004-2005	488.32	315.87	0	125.24	47.21
2005-2006	644.55	416.26	0	119.60	108.69
2006-2007	449.98	404.79	0	150.90	-105.71
2007-2008	117.49	321.29	0	265.28	-469.08
2008-2009	610.33	636.69	0	426.15	-452.52
Total	3614.48	2920.36	0	1643.48	-949.34
Average EVA in Pre-Merger period					-105.48
2010-2011	1164.69	1924.75	0	349.32	-1109.38
2011-2012	1498.22	1882.53	0	528.56	-912.87
2012-2013	7450.20	1993.49	0	491.25	4965.46
2013-2014	28235.82	1890.95	0	554.65	25790.23
2014-2015	4666.13	2170.88	0	225.09	2270.16
2015-2016	1247.27	4673.17	0	671.63	-4097.53
Total	44262.33	14535.77	0	2820.5	26906.07
Average EVA in Post-Merger period					4484.345

Source – Annexure – I, II, III and VI

4.7.8.2 Market Value Added [MVA]

The Table no T.4.7.13shows the calculation of MVA of the sample company for Pre and Post-Merger period of study. The Table depicts that the average MVA in Pre-Merger period was Rs 3239.557Millions while the average MVA in the Post-Merger period amounted to 32747.84 Millions. The Post-Merger Average MVA increased as compared to Pre-Merger period from which it could be interpreted that merger had helped company to improve its performance in terms of MVA there by leading to increase in shareholder’s wealth.

Table T.4.7.13 Market Value Added [MVA] of Strides Shashun Ltd [Rs in Millions]

Year	Market Capitalization	Share cap	Res and surplus	SF	MVA
2000-2001	1517.1	167.635	1393.436	1561.071	-43.971
2001-2002	1872.01	306.888	2211.418	2518.306	-646.296
2002-2003	2065.35	306.89	1312.647	1619.537	445.8133
2003-2004	4969.12	337.58	1473.779	1811.359	3157.761
2004-2005	7379.72	349.54	2166.78	2516.32	4863.4
2005-2006	12136.13	349.54	2598.32	2947.86	9188.27
2006-2007	12081.08	350.04	2516.59	2866.63	9214.45
2007-2008	6734.09	400.5	2008.573	2409.073	4325.018
2008-2009	3279.09	402.15	4225.373	4627.523	-1348.43
Total	**52033.69**	**2970.763**	**19906.916**	**22877.679**	**29156.0153**
Average MVA in Premerger period					**3239.557**
2010-2011	21266.28	579.0375	13349.15	13928.18	7338.098
2011-2012	34474.37	584.86	13037.8	13622.66	20851.72
2012-2013	51482.75	589.945	13772.96	14362.91	37119.84
2013-2014	23060.83	595.66	12570.84	13166.5	9894.33
2014-2015	70327.06	596.16	14148.07	14744.23	55582.83
2015-2016	97054.3	893.46	30460.63	31354.09	65700.21
Total	**297665.59**	**3839.1225**	**97339.45**	**101178.57**	**196487.028**
Average MVA in Post-Merger period					**32747.84**

Source – Annexure – I, II and III

The hypothesis framed with reference to EVA and MVA [as mentioned in chapter 3, Hypothesis no 28 and 29] is tested applying one sample t- test at 5 % level of significance. The table below depicts that calculated ‘P’ value is less than 0.05. The ‘P’ value for EVA and MVA is 0.001. Hence, alternative hypothesis is accepted. It can be concluded that the merger had significant impact on EVA and MVA of the sample company.

Table T.4.7.14 Hypothesis One sample t - Test Results

Particulars	Pre-Merger Average [Rs Millions]	Post-Merger Average [Rs Millions]	p value	Hypothesis accepted
EVA	-105.48	4484.345	*0 .001	Alternate
MVA	3239.557	32747.84	*0.001	Alternate

Source-Table T.4.7.12 and T. 4.7.13

4.7.9 Altman Z score

The financial health of the sample company in Pre and Post merger period is also assessed using Altman Z score model. The Altman Z score calculated using following formula-

$$\zeta = 1.2A + 1.4B + 3.3C + 0.6D + 1.0E$$

The calculated the Altman Z score as depicted in annexure IV and V for Pre-Merger period was 1.226732while that of Post-Merger Period was 3.096918. It could be seen that, Strides Shashun Ltd. was in Financial Distress in Pre-Merger period but has reversed situation in Post-Merger period resulting to safe Zone. Z score had improved a lot in Post-Merger period thus we may conclude that Merger helped company to build it financial health.

4.7.10 Regression Analysis

Considering one dependent variable i.e. Net profit and 9 independent variables viz Cost of goods sold, operating expenses, Finance cost, Capital employed, Long term borrowings, Shareholders fund, working capital, Current assets and fixed assets of the sample company during Pre and Post-Merger period, regression analysis is carried out in this part of study.

Using Regression Model the multiple linear regression for Pre and Post merger was constructed

4.7.10.1 Pre- merger period Regression Equation

Table T.4.7.15. Model Summary of Pre-Merger Period

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.932[a]	0.870	0.791	170.14854

a. Predictors: (Constant), Shareholders finds, WC, Finance cost

Source – Annexure – I, II and III

If we evaluate overall performance of the model based on the ANOVA table, observing the significant value, we conclude that model is significant as the value is less than 0.05. as shown in the table below

Table T.4.7.16 ANOVA [Pre-Merger Period]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	964523.979	3	321507.993	11.105	0.012[b]
	Residual	144752.627	5	28950.525		
	Total	1109276.605	8			

a. Dependent Variable: NP

b. Predictors: (Constant), Shareholders funds, WC, Finance cost

Source – Annexure – I, II and III

Table T.4.7.17 Coefficients [Pre-Merger Period]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	882.408	249.983		3.530	0.017
	WC	-1.257	.252	-1.714	-4.980	0.004
	Finance cost	-7.444	1.304	-3.027	-5.707	0.002
	Shareholders funds	0.790	0.141	2.356	5.599	0.003

a. Dependent Variable: NP

Source – Annexure – I, II and III

Pre-Merger period regression equation

NP=882.408-1.257WC-7.444FC+0.790SF

4.7.10.2 Post-Merger period Regression equation

Table T.4.1.18 Model Summary [Post-Merger Period]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	1.000[a]	1.000	.	.

a. Predictors: (Constant), FA, WC, LTB, FC

Source – Annexure – I, II and III

If we evaluate overall performance of the model based on the ANOVA table, observing the significant value we conclude that model is significant as the value is less than 0.05. as shown in the table below

Table T.4.7.19 ANOVA [Post-Merger Period]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	25647249.869	4	6411812.467	.	0.00[b]
	Residual	.000	0	.		
	Total	25647249.869	4			

a. Dependent Variable: NP

b. Predictors: (Constant), FA, WC, LTB, FC

Source – Annexure – I, II and III

Table T.4.7.20 Coefficients [Post-Merger Period]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	10671.505	.000		.	.
	FC	4.771	.000	3.208	.	.
	LTB	.722	.000	.247	.	.
	WC	-.550	.000	-1.291	.	.
	FA	-1.620	.000	-1.635	.	.

a. Dependent Variable: NP

Source – Annexure – I, II and III

Post-Merger period regression equation

NP=10671.505+4.771FC+0.722LTB-0.550WC-1.620FA

Considering the output, the final model for the Post-Merger time would be given as per above. From the above facts it could be analysed that Working Capital, Finance Cost and shareholders fund were variables affecting net profit in Pre-Merger period but in post- merger period, Finance cost, Long term borrowings working capital and fixed assets were affecting net profit of sample company. Finance Cost and Working Capital are the common independent variable affecting profitability in terms of Net profit in Pre-Merger and Post-Merger period of sample company. Correlation coefficient between Net profit and Finance Cost in Pre-Merger period and Post-Merger period is -0.19 and 0.19 respectively as well as Net Profit and working capital in Pre-Merger period and Post-Merger period is 0.01 and -0.12 respectively. It is observed in above table that, more number of variables are affecting net profit of sample company in Pre-Merger and Post-Merger period and the correlation coefficient was negligible in between common variables and Net profit in Pre-Merger and Post-Merger period.

R^2 during Post-Merger period was higher than Pre-Merger period.

4.8 CONSOLIDATED PROFITABILITY AND SOLVENCY ANALYSIS

4.8.1. Introduction

This segment of the chapter consists of consolidated study of all selected sample 07 companies. The consolidated average profitability, liquidity, solvency and activity ratios of 7 companies during Pre-Merger and Post-Merger period have been analyzed applying financial and statistical tools.

For getting comprehensive view all selected companies' averages are combined and compared in Pre-Merger and Post-Merger period. The Period of study is from 2000-2001 to 2015-2016 which is 16 years in total. From this period, sample selection of mergers and acquisition cases were done between period of 2005-2006 to 2010- 2011 hence period from 2000-2001 to 2004-2005 is considered as Pre-Merger period and period from 2011-2012 to 2015-2016 is considered as Post-Merger period which has been compared by applying Paired t test. Period from 2005-2006 to 2010- 2011 which is sample selection period also called as during the merger period has been analyzed too. In order to study difference in averages between and within groups i.e. Pre- merger period, During the merger period and Post-Merger period one way Annova has been applied on all average ratios of selected sample companies.

Averages and Standard deviation are analyzed for each ratio. Hypotheses framed are tested applying Paired t-test at 5 % level of significance One Way Annova is applied to study difference of means in Pre- merger period, during merger period and post- merger period of sample companies.

4.8.2. Analysis and Interpretation of Data

4.8.2.1 Profitability ratios

TableT.4.8.1 Profitability Ratios

Sr No	Ratio	Pre-merger average	Post-merger average	Pre - merger SD	Post - merger SD	P value	Null/Alternate Hypothesis accepted
Profitability ratio							
1	GP ratio[%]	**44.12717**	**43.25859**	16.27977	18.58038	0.783	Null
2	NP margin[%]	**9.176679**	**25.59338**	8.926597	34.88477	0.269	Null
3	Operating ratio[%]	**86.47103**	**88.23582**	8.54477	12.37328	0.578	Null
4	Cash profit margin[%]	**13.47188**	**29.32836**	10.6479	35.01106	0.288	Null
5	Return on capital employed[%]	**18.18922**	**28.16431**	7.905977	26.11505	0.349	Null
6	Return on Total assets[%]	**12.57621**	**29.88514**	5.918441	34.56165	0.223	Null
7	Return on Equity[%]	**13.6737**	**21.27611**	15.88764	20.13442	0.466	Null
8	Earnings per share[Rs]	**16.45495**	**45.79928**	15.50198	51.94105	0.182	Null
9	**Equity dividend coverage ratio[Times]	**5.022446**	**7.26763**	2.106359	4.915837	0.323	Null
10	Price earnings ratio[Times]	**70.71031**	**40.37478**	125.9807	45.20703	0.363	Null
11	**Dividend Yield ratio[%]	**2.351093**	**8.14812**	1.933943	12.01505	0.361	Null

Source – Table T.4.1.1, T.4.2.1, T.4.3.1, T.4.4.1, T.4.5.1, T.4.6.1 and T.4.7.1

**Ratios calculated for 5 sample companies [Except Kerela Ayurveda Ltd and Makers Laboratories Ltd.]

From the table T.4.8.1 it can be observed that the operating efficiency as measured by GP ratio marginally declined in the Post-Merger period as compared to Pre-Merger period. Similarly, P/E ratio also showed a decline in the Post-Merger period. All other profitability ratios registered increase during Post-Merger period as compared to Pre-Merger period.

Except for price earnings ratio the Standard deviation for all profitability ratios in post- merger period was higher as compared to pre- merger period indicating that high degree of fluctuation in Post-Merger period as compared to Pre-Merger period. The Price Earnings ratio registered a reverse trend.

Testing the hypothesis framed it was observed that none of the profitability ratios changed significantly as the calculated P value is more than 0.05 and thus the null hypothesis is accepted.

4.8.2.2 Liquidity Ratio

TableT.4.8.2 Liquidity Ratios

Sr. no	Liquidity Ratio	Pre - merger average	Post- merger average	Pre - merger SD	Post- merger SD	P value	Null/Alternate Hypothesis accepted
12	Current Ratio[Proportion]	2.041871	1.902824	1.09393	0.927357	0.732	Null
13	Quick Ratio[Proportion]	1.435098	1.408254	1.010758	0.900563	0.931	Null
14	Super Quick Ratio[Proportion]	0.291771	0.566042	0.589477	0.767815	0.471	Null

Source – Table T.4.1.2, T.4.2.2, T.4.3.2, T.4.4.2, T.4.5.2, T.4.6.2 and T.4.7.2

The above table depicts that Current ratio and Quick ratio declined in post -merger period where as Super quick ratio increased marginally in Post-Merger period.

Except for super quick ratio the Standard deviation calculated for all ratios in post- merger period was lower as compared to pre- merger period indicating that more fluctuations observed in the liquidity position during Pre-Merger period as compared to Post-Merger period. In case of Super quick ratio, the fluctuations were other way.

All Liquidity ratios did not change significantly as the calculated P value worked out to be more than 0.05 & thus null hypothesis is accepted.

4.8.2.3. Long Term Solvency Ratios

Tablet.4.8.3 Long Term Solvency Ratios

Sr. no	Long term solvency Ratio	Pre- merger average	Post - merger average	Pre- merger SD	Post- Merger SD	P value	Null/Alternate Hypothesis accepted
15	Debt Equity ratio[Proportion]	0.642118	0.634182	0.563408	1.368286	0.985	Null
16	Fixed asset Ratio[Proportion]	0.646205	0.431902	0.292154	0.240674	*0.05	Alternate
17	Proprietary Ratio[Proportion]	1.660582	2.730921	1.276137	1.582727	*0.05	Alternate
18	Interest coverage ratio[Times]	20.839	49.884	34.36192	90.64682	0.473	Null

Source – Table T.4.1.3, T.4.2.3, T.4.3.3, T.4.4.3, T.4.5.3, T.4.6.3 and T.4.7.3

The table no T.4.8.3 reveals that Debt equity ratio and Fixed asset ratio declined in Post-Merger period as compared to Pre-Merger period where as Interest coverage ratio and Proprietary ratio increased in Post-Merger period.

The Standard deviation of Debt equity ratio, Interest coverage ratio and Proprietary ratio in post-merger period was higher as compared to pre- merger period indicating that these ratios fluctuated more in Post-Merger period as compared to Pre-Merger period, whereas in case of Fixed asset ratio the Standard deviation in Post-Merger period was lower as compared to pre- merger period revealing opposite situation.

Fixed asset ratio and Proprietary ratio changed significantly as the calculated P value worked out to be less than 0.05 & thus Alternate hypothesis is accepted. Debt equity ratio and Interest coverage ratios did not change significantly as the calculated P value worked out to be more than 0.05 & thus null hypothesis is accepted.

4.8.2.4 Efficiency Ratios

TableT.4.8.4 Efficiency Ratios

Sr. no	Efficiency Ratios	Pre - merger average	Post- merger average	Pre- merger SD	Post - merger SD	P value	Null/Alternate Hypothesis accepted
19	Capital Turnover ratio [Times]	1.296156	1.022931	0.538741	0.559335	*0.009	Alternate
20	Inventory Turnover ratio [Times]	3.313692	3.448227	1.335669	1.440074	0.753	Null
21	Inventory to current asset ratio [%]	33.95774	31.65847	18.33785	17.99092	0.323	Null
22	Working capital turnover ratio [Times]	2.406124	24.80629	3.552003	53.35623	0.335	Null
23	Fixed asset turnover ratio [Times]	2.360619	2.532005	1.14682	0.995	0.514	Null
24	Debtors turnover ratio [Times]	5.541269	5.105387	4.406567	2.203174	0.682	Null

Source – Table T.4.1.4, T.4.2.4, T.4.3.4, T.4.4., T.4.5.4, T.4.6.4 and T.4.7.4

The table no T.4.8.4 indicates that capital turnover ratio, Inventory to current asset ratio and debtors' turnover ratio declined in Post-Merger period as compared to pre- merger period. Inventory turnover ratio and fixed asset turnover ratio marginally improved in post- merger period as compared to pre-merger period. A Steep increase was observed in the working capital turnover ratio during post-merger period as compared to pre- merger period.

The Standard deviation in post- merger period was higher as compared to Pre-Merger period in capital turnover ratio ,Inventory turnover ratio and Working capital turnover ratio indicating more fluctuations in Post-Merger period as compared to Pre- Merger period whereas standard deviation of Inventory to current asset ratio and Fixed asset turnover ratio during post- merger period was lower as compared to pre- merger period indicating lower fluctuations observed during Post-Merger period as compared to pre- merger period

All efficiency ratios except capital turnover ratio did not change significantly as the calculated P value worked out to be more than 0.05 & thus null hypothesis is accepted whereas, capital turnover ratio changed significantly as the calculated P value was less than 0.05 and thus Alternate hypothesis is accepted

4.8.3. Differences in Averages Between and within Groups

In order to study difference in averages between and within groups i.e. Pre merger period, During the merger period and Post merger period One Way Annova is applied on all 24 average ratios of selected sample companies. The hypothesis framed is as follows

H0: there is no change in all three periods

H1: there is change in all three periods

For this purpose, Pre merger period considered from 2000-2001 to 2004-2005, During merger period is considered between 2005-2006 to 2010-2011 and Post-Merger period is considered from 2011-2012 to 2015-2016.

TableT.4.8.5 One way annova results at 5 % level of significance

Sr No	Ratio	Pre-Merger mean [2000-2001 to 2004-2005]	During merger mean [2005-2006 to 2010-2011]	Post-Merger mean [2011-2012 to 2015-2016]	Between groups and within groups [P value]	Pre-Merger and During merger [P value]	During Merger and Post merger [P value]	Pre and Post merger [P value]
1	Gross profit Margin [%]	44.12717	43.34245	43.25859	0.534	0.607	0.994	0.572
2	Net profit Margin [%]	9.176679	8.238867	25.59338	*0.029	0.987	*0.037	0.06
3	Operating ratio [%]	86.47103	90.38484	88.23582	0.074	0.062	0.377	0.539
4	Cash profit Margin [%]	13.47188	12.38379	29.32836	*0.032	0.983	*0.04	0.067

To be continue

Sr No	Ratio	Pre-Merger mean [2000-2001 to 2004-2005]	During merger mean [2005-2006 to 2010-2011]	Post-Merger mean [2011-2012 to 2015-2016]	Between groups and within groups [P value]	Pre-Merger and During merger [P value]	During Merger and Post merger [P value]	Pre and Post merger [P value]
5	Return on capital employed [%]	18.18922	15.60025	28.16431	0.104	0.890	0.101	0.241
6	Return on Total Assets [%]	12.57621	11.41507	29.88514	*0.023	0.982	*0.030	*0.052
7	Return on Equity [%]	13.6737	10.79695	21.27611	0.09	0.804	0.090	0.279
8	Earnings per share [Rs]	16.45495	19.39694	45.79928	*0.028	0.955	0.053	*0.039
9	**Equity dividend coverage ratio [Times]	5.022446	5.633522	7.26763	0.534	0.947	0.686	0.528
10	Price/Earnings Ratio [Times]	70.71031	0.885423	40.37478	0.227	0.204	0.575	0.737
11	**Dividend yield [%]	2.3511	1.3277	8.1481	0.190	0.959	0.195	0.323
12	Current ratio [Proportion]	2.041871	2.045232	1.902824	0.721	1	0.752	0.768
13	Quick ratio [Proportion]	1.435098	1.502949	1.408254	0.815	0.898	0.813	0.985
14	Super quick ratio [Proportion]	0.291771	0.243479	0.566042	*0.018	0.883	*0.019	0.056
15	Debt equity ratio [Proportion]	0.642118	0.750561	0.634182	0.535	0.631	0.579	0.996
16	Fixed asset ratio [Proportion]	0.646205	0.465846	0.431902	*0	*0	0.189	*0
17	Proprietary ratio [Proportion]	1.660582	2.379876	2.730921	*0	*0	*0.026	*0
18	Interest coverage ratio [Times]	20.839	19.448	49.884	0.152	0.996	0.178	0.230
19	Capital turnover Ratio [Times]	1.296156	1.211811	1.022931	*0.016	0.566	0.076	*0.015
20	Inventory Turnover ratio [Times]	3.313692	3.221458	3.448227	*0.073	0.570	0.061	0.352
21	Inventory to current assets ratio [%]	33.95774	29.6552	31.65847	*0.016	*0.012	0.288	0.228
22	Working capital turnover ratio [Times]	2.406124	0.798265	24.80629	0.256	0.994	0.281	0.356
23	Fixed Assets Turnover ratio [Times]	2.360619	2.85771	2.532005	0.1	0.092	0.326	0.727
24	Debtors Turnover ratio [Times]	5.5413	4.2279	5.1054	0.149	0.140	0.386	0.794

Source – Table T.4.1.1 to T.4.8.4

**Ratios calculated for 5 sample companies [Except Kerela Ayurveda Ltd and Makers Laboratories Ltd.]

From the above table it could be observed that

[A] There is significant difference between averages of pre and Post-Merger periods of selected companies for following ratios

Return on total assets, Earnings per share, Fixed asset ratio, Proprietary ratio, Capital turnover ratio

[B] There is significant difference between averages of pre period and during merger periods of selected companies for following ratios

Fixed asset ratio, Proprietary ratio Inventory to current asset ratio

[C] There is significant difference between averages of during merger periods and Post merger period of selected companies for following ratios

Net profit ratio, Cash profit margin, Return on Total assets, Super quick ratio, Proprietary ratio.

D] There is significant difference between groups and within groups of selected companies for following ratios

Net profit margin, Cash profit margin, Return on total assets, Earning per share, Super quick ratio, Fixed asset ratio, Proprietary ratio, Capital turnover ratio, Inventory to current asset ratio.

[E] There is no significant difference between the means of Pre-Merger period, during the merger period and Post-Merger period of selected companies for following ratios

Gross profit margin, operating ratio, Return on capital employed, Return on equity, Current ratio, Quick ratio, Debt equity ratio, Inventory turnover ratio, Working capital turnover ratio, Fixed asset turnover ratio, Interest coverage ratio, Equity dividend coverage ratio, Price earnings ratio and Dividend yield ratio.

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