EXECUTIVE SUMMARY

ON

"IMPACT OF MERGERS AND ACQUISITIONS ON FINANCIAL PERFORMANCE –A STUDY OF SELECTED PHARMACEUTICAL COMPANIES IN INDIA"

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BY

MAMATA CHANDRAKANT HINDOCHA

UNDER THE GUIDANCE OF

DR. JAYESH K. PANDYA

ASSOCIATE PROFESSOR

DEPARTMENT OF ACCOUNTING & FINANCIAL MANAGEMENT

FACULTY OF COMMERCE

THE M. S. UNIVERSITY OF BARODA

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1. INTRODUCTION

In today's competitive world it is not only important to get financial profits for a business entity but it is equally important to survive and get a strong base in market. Financial goals help business entity to achieve stakeholder's confidence as well as outstanding success. Shareholders [Owners of company] are predominant to be catered with gains in terms of increase in share prices and profits to be distributed in the form of dividend. Thus, Wealth maximization and Profit maximization are the measure of high importance to read success or failure for any business enterprise. For better financial performance businessmen take many strategic decisions as per situation and need of business which includes several corporate restructuring activities like Mergers and Acquisitions, Joint ventures, Takeovers and more.

Mergers and acquisitions is taking place at an unprecedented pace all over the world including India. In today's cut throat competitive age, it is imperative to enhance size by joining hands with those which have similar interests to survive in an increasingly complex and competitive global economy. The plain fact is that acquiring is much easier way to success than building an entire market. Growth through Mergers and Acquisitions is achieved speedily for companies operating in the new economy.

The term Mergers refers to a situation where two or more companies combine in to one company. It is defined as 'Transaction involving two or more companies in the exchange of securities and only one company survives' (Mukherjee & Hanif, 2003). Acquisition is defined as "a purchase of a company or a part of it so that the acquired company is completely absorbed by acquiring company and thereby no longer exists as a business entity" (Mukherjee & Hanif, 2003).

In past few years in India, various business sectors have selected mergers and acquisitions as a solution to various business hurdles and requirements. Pharmaceutical, Telecom, Finance, FMCG, Construction materials, Automobile Industry and Steel Industry are leading sectors in the list.

The Indian pharmaceutical market is third largest in terms of volume and 14th largest in terms of value globally (Indian brand equity foundation, 2022). India is the largest provider of generic drugs in the world market. Indian pharmaceutical sector supplies approximately 50% of international demand for various vaccines, almost 40% of generic demand in the US and nearly 25% of all medicine in the UK.

As per the Indian Economic Survey 2021, the Indian Pharmaceutical market is expected to grow three times in the next decade. The market is at US$ 42 billion in 2021 and is likely to reach US$ 65 billion by 2024 and further it may expand and reach US$ 120-130 billion by 2030.

India has the ability to manufacture high quality drugs at low price which gives a huge profitable business opportunity for the domestic industry. India's cost of production is 33% lower than it would cost in US.

Considered to be highly profitable and highly fragmented industry, mergers and acquisitions has increasingly become an important feature of the Indian Pharmaceutical Industry. India has achieved an eminent global position in pharma sector. The country also has a huge pool of scientists and engineers who have the potential to take industry to a very high level.

Medicines contribute enormously to the health of the nation. The discovery, development and effective use of drugs have improved many people's quality of life, reduced the need for surgical intervention and the length of time spent in hospital and saving many lives. Over the years pharmacy has grown in the form of pharmaceutical sciences through research and development processes.

The Indian pharmaceutical industry is a successful, high-technology-based industry that has witnessed consistent growth over the past years. Indian Pharmaceutical Industry has an important role in promoting public health. The origin of the Indian Pharmaceutical Industry may be traced to the establishment of the Bengal Chemicals and Pharmaceutical established in 1901.

It is observed that total number of Mergers & Acquisitions in all Industries in India between the period 2000-2001 to 2015-2016 were 6103, Out of which Mergers & Acquisitions in Manufacturing Industry numbered to 2376. In Manufacturing Industry highest number of Mergers & Acquisitions took place in Chemical and Chemical products numbering to 591 wherein majority of them took place in Drugs and Pharmaceutical industry numbering to 226.

During the period of 2005-2006 to 2010-2011, Sample selection Period the average percentage of mergers & acquisitions which took place in Chemical and Chemical products was highest i.e. 9.76%. Classifying the Chemical and Chemical products further, it was observed that the average percentage of Mergers & Acquisitions was as high as 3.04% in Drugs and Pharmaceuticals industry

2. OBJECTIVES OF THE STUDY

The main objective of the study is to analyze the impact of mergers and acquisitions on financial performance of selected pharmaceutical companies in India. In order to evaluate it, the profit and loss account and balance sheet of selected companies has been analyzed for the period between 2000-01 and 2015-16.

Overall Objective

To examine the impact of Merger and Acquisitions on financial performance of selected sample pharmaceutical companies

Specific Objectives

1. To evaluate the profitability of each of the selected sample company during pre and post-merger and Acquisition period.

2. To assess the Liquidity of each of the selected sample company during pre and post-merger and Acquisition period.

3. To examine long term financial strength of each of the selected sample company during pre and post-merger and Acquisition period.

4. To analyze financial health of the selected sample company during pre and post-merger and Acquisition period.

5. To analyze and evaluate the combined profitability, liquidity and long term financial strength of all the selected sample companies during pre and post-Merger and Acquisition period.

3. REVIEW OF LITERATURE

Review of literature based on Foreign countries lead to interpretations like Major studies concluded that overall mergers and acquisitions didn't improve financial performance of acquirer which could be in the form of profitability, liquidity or solvency etc. Hence, it's observed that Mergers and acquisitions could be response to troublesome situation but not a solution. Moreover, Mergers and acquisition had also resulted in to significant wealth loss of acquirer's stockholders. However, Industry wise impact was found to be different.

Review of literature from India including all sectors in general lead to interpretation that Indian companies mostly prefer horizontal and vertical mergers and acquisitions. Many researchers concluded Mergers and Acquisitions have not improved financial performance of acquirer, whereas many are of the opinion that Mergers and Acquisitions have positively affected operating performance of acquirer, in certain studies it was found to be significant whereas in some studies it was insignificant. Apart from this like foreign studies here also its observed that industry wise impact of M & A is different. Improvement in Shareholders wealth, the ultimate goal of any business entity is also not achieved as per certain studies. However, many studies suggested that M&A could have long run benefit.

Review of literature from India in Pharmaceutical industry lead to interpretation More number of Mergers and Acquisition found in Indian pharmaceutical industry due to globalization. It's also noticed that large and multinational companies are investing more in M & A. Out of reviewed studies, some cases show positive impact of mergers and acquisitions on financial performance of acquirers firm whereas in some cases either negative or no effect is seen on financial performance of acquirer's firm.

Research gap

- Majority of the studies conducted till date are covering different companies or covering different sectors involved in mergers and acquisitions with study period of 5 to 10 years.
- Studies done earlier are generally covering few aspects only like ratio analysis or regression analysis or event studies, Comprehensive research on specific sector with long time period of study is still less in number especially in the pharmaceutical sector.
- Present study covers wider scope of analysis though sample size is small but analysis is done in-depth for each acquirer company to understand how Merger or Acquisition had affected the financial performance.
- Study covers various techniques of analysis viz Ratio analysis [extensive coverage of 24 ratios], Shareholders wealth analysis in the form of EVA and MVA, Multiple linear Regression equation for each sample company for pre and post-merger period has been framed to understand how it has affected and which variables dominantly changed Net profit on account of merger. Altman Z score had been also computed to check financial health of company during Pre and Post-merger period and attempt has been made to assess company's financial health changes due to Merger. Composite Index score model had been build up for each sample company to check if company succeeded on account of undertaking Merger and Acquisition activity.
- Very few studies had been done with detailed analysis especially in pharmaceutical sector. Present study with period of 16 years is an attempt to fill up the above research gap.

  Considering statistics shown in Introduction present study has been selected in Drugs & pharmaceuticals industry.

4. RESEARCH METHODOLOGY

4.1 Data Collection

The study is based on secondary data collected from annual reports of the company and the required data has been extracted from various websites, books, journals, Prowess [Industrial database package] official websites of company, published and unpublished thesis and newspapers

4.2 Period of study

The period of 16 years commencing from 2000-2001 and ending on 2015-2016 is selected for the purpose of the study. The year in which Merger and Acquisition is completed is considered as Zero year. Years prior to merger and acquisition are considered as premerger deal years; and years after merger and acquisition are taken as post-merger deal years while doing the study on individual acquirer company.

For Getting the comprehensive view averages of all selected companies are combined and compared in Pre-Merger and Post-Merger period.

4.3 Sample Selection

Purposive sampling technique, one of the Non-Probability sampling technique has been used for selection of sample, as the objective of the study is to measure the impact of merger or acquisition on the financial performance.

- The sample acquirer companies selected for purpose of study are as follows**:**

[1] Dr Reddy’s Laboratories Ltd

[2] Hikal Ltd

[3] J. B. Chemicals & Pharmaceuticals Ltd.

[4] Kerela Ayurveda Ltd

[5] Lupin Ltd

[6] Makers Laboratories Ltd

[7] Strides Shashun Ltd [Now strides Pharma Science Ltd]

All the sample companies are listed on National Stock Exchange/Bombay Stock Exchange or both.

4.4 Tools and Techniques of Analysis

Financial performance of each single company is examined during Pre-Merger and Post-Merger Period separately. Following tools and techniques of analysis are applied:

[1] Ratio Analysis

The Profitability, Liquidity, Long term solvency and Efficiency of each sample company is measured and analysed for Pre-Merger and Post-Merger period with the help of different financial ratios.

Hypothesis framed are tested using one sample” T “test for all the individual sample companies.

[2] Composite Index score

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 the period of study.

Each score has been tested applying Independent Sample T test.

[3] Shareholders wealth Measurement

Economic value added “EVA” is one of the measures to check wealth maximization has been achieved or not. An Attempt has been made in said study to measure what is change in EVA on the account of Merger and Acquisition in each case. MVA is calculated as Market value of the capital employed in the firm with 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 companies.

[4] Altman Z Score

An attempt has been made in this study to check financial health of company prior to merger or Acquisition and after Merger and Acquisition by using Altman Z score.

[5] Regression Analysis

Multiple linear Regression equation for each sample company for Pre and Post-merger period has been framed to understand how Net profit has been affected and which variables are dominantly changed on account of merger.

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

5.0. CHAPTER OUTLINE

The present study comprises of five chapters

The first chapter is the introductory one constituting the background of study, the structure of the study, specification of problem, objectives of the study, limitations of study and chapter scheme of study.

The second chapter reviews related literature and researches.

The third chapter deals with the methodology adopted for the present study i.e. selection of sample, sources of data, collection of data, methods of analysis and statistical method used**.**

The fourth chapter deals with analysis and interpretation of data**.**

The fifth chapter presents the findings, conclusions, suggestions and recommendations for further research**.**

6. MAJOR FINDINGS

6.1 Profitability Analysis

1. The overall operating efficiency of all sample companies when measured by GP ratio, it was found that the average ratio increased in Post-Merger period as compared to Pre-Merger period in case of Dr Reddys Laboratories Ltd, Lupin Ltd & Strides Shashun Ltd. while it declined in all remaining sample companies. While testing the hypothesis at 5% level of significance it was observed that the average gross profit ratio changed significantly in all sample companies except for J B chemical and Pharmaceuticals ltd. & Strides Shashun ltd. Except these two, alternative hypothesis was accepted in all the remaining sample companies.

2. The Net profit ratio measuring comprehensive efficiency is calculated for all sample companies. The results revealed that average NP ratio increased in Post-Merger period as compared to Pre-Merger period in case of J B chemical & Pharmaceuticals ltd, Kerala Ayurveda Ltd. Lupin limited, Makers Lab Ltd. and Strides Shashun Ltd, while it declined in remaining cases. While testing the hypothesis at 5% level of significance, it was observed that the average net profit ratio changed significantly in case of all companies except for Dr Reddys Laboratories ltd, Kerala Ayurveda Ltd and Makers Laboratories Ltd Except these three, alternative hypothesis was accepted for all the remaining sample companies.

3. Operating efficiency of all selected sample companies is measured by calculating operating ratio. The results show that average operating ratio decreased in Post-Merger period as compared to Pre-Merger period in case of Dr Reddys Laboratories Ltd and Lupin Ltd, while it increased in remaining cases. While testing the hypothesis at 5% level of significance, it was observed that the average operating ratio changed significantly in case of all companies except of Dr Reddys Laboratories Ltd. and Strides Shashun Ltd. Except these two, alternative hypothesis was accepted for all the remaining sample companies

4. The profit in the form of cash is measured by Cash Profit margin for all selected sample companies. The calculations indicate that average Cash Profit margin increased in Post-Merger period as compared to Pre-Merger period in case of J B Chemical and Pharmaceuticals ltd, Kerela Ayurveda Ltd, Lupin Ltd., Makers Laboratories Ltd. and Strides Shashun ltd., while it declined in remaining cases. While testing the hypothesis at 5% level of significance, it was observed that average Cash Profit ratio changed significantly in case of all companies except for Dr Reddy’s Laboratories Ltd, Kerela Ayurveda Ltd and Makers Laboratories Ltd. Except these three, alternative hypothesis was accepted for all the remaining sample companies

Results based on one sample t- test case wise and Paired t test in consolidated performance [Tested at 5% level of significance]

Table T 6.1 Results Based on One Sample t- Test Case wise and Paired t-Test in Consolidated Performance

Sr. No	Ratio	Dr. Reddys Lab Ltd.		Hikal Ltd.		J B Chem. and Pharma Ltd.		Kerela Ayurveda Ltd.		Lupin Ltd.		Makers Lab Ltd.		Strides Shashun Ltd.		Consolidated	
	Profitability ratio	P value	Hypothesis accepted	P value	Hypothesis accepted	P value	Hypothesis accepted	P value	Hypothesis accepted	P value	Hypothesis accepted	P value	Hypothesis accepted	P value	Hypothesis accepted	P value	Hypothesis accepted
1	GP ratio	*0.044	Alternate	*0.001	Alternate	0.802	Null	*0.013	Alternate	*0.001	Alternate	*0.004	Alternate	0.574	Null	0.783	Null
2	NP ratio	0.553	NULL	*0.001	Alternate	*0.001	Alternate	0.960	Null	*0.001	Alternate	0.483	Null	*0.001	Alternate	0.269	Null
3	Operating ratio	0.818	NULL	*0.011	Alternate	*0.044	Alternate	*0.023	Alternate	*0.001	Alternate	*0.001	Alternate	0.438	Null	0.578	Null
4	Cash profit margin	0.484	NULL	*0.001	Alternate	*0.001	Alternate	0.551	Null	*0.001	Alternate	0.082	Null	*0.001	Alternate	0.288	Null
5	Return on capital employed	0.665	NULL	*0.001	Alternate	*0.047	Alternate	0.157	Null	*0.002	Alternate	0.151	Null	*0.001	Alternate	0.349	Null
6	Return on Total assets	0.768	NULL	*0.001	Alternate	*0.002	Alternate	*0.026	Alternate	*0.001	Alternate	0.440	Null	*0.001	Alternate	0.223	Null
7	Return on Equity	0.561	NULL	*0.001	Alternate	*0.002	Alternate	0.460	Null	0.443	Null	0.722	Null	*0.001	Alternate	0.466	Null
8	Earnings per share	*0.001	Alternate	0.816	Null	0.163	Null	0.660	Null	0.286	Null	0.219	Null	*0.001	Alternate	0.182	Null
9	Equity dividend coverage ratio	*0.001	Alternate	*0.001	Alternate	*0.001	Alternate			*0.001	Alternate			*0.001	Alternate	0.323	Null
10	Price earnings ratio	0.988	NULL	*0.029	Alternate	0.18	Null	0.401	Null	*0.023	Alternate	0.942	Null	0.416	Null	0.363	Null
11	Dividend Yield ratio	*0.001	Alternate	0.064	Null	0.286	Null			*0.023	Alternate			*0.001	Alternate	0.361	Null
	Liquidity ratios																
12	Current Ratio	*0.048	Alternate	0.882	Null	0.22	Null	*0.001	Alternate	*0.001	Alternate	0.557	Null	*0.008	Null	0.732	Null
13	Quick Ratio	*0.048	Alternate	0.532	Null	*0.042	Alternate	*0.001	Alternate	*0.001	Alternate	0.243	Null	*0.01	Alternate	0.931	Null

To be continue

Sr. No	Ratio	Dr. Reddys Lab Ltd.		Hikal Ltd.		J B Chem. and Pharma Ltd.		Kerela Ayurveda Ltd.		Lupin Ltd.		Makers Lab Ltd.		Strides Shashun Ltd.		Consolidated	
	Profitability ratio	**P value**	**Hypothesis accepted**	**P value**	**Hypothesis accepted**	**P value**	**Hypothesis accepted**	**P value**	**Hypothesis accepted**	**P value**	**Hypothesis accepted**	**P value**	**Hypothesis accepted**	**P value**	**Hypothesis accepted**	**P value**	**Hypothesis accepted**
14	Super Quick Ratio	0.061	NULL	0.323	Null	*0.001	Alternate	*0.001	Alternate	*0.023	Alternate	0.12	Null	*0.001	Alternate	0.471	Null
Long term solvency																	
15	Debt Equity ratio	*0.003	Alternate	*0.038	Alternate	0.474	Null	*0.001	Alternate	*0.001	Alternate	*0.035	Alternate	0.064	Null	0.985	Null
16	Fixed asset Ratio	0.396	NULL	0.593	Null	*0.014	Alternate	*0.001	Alternate	*0.001	Alternate	0.848	Null	*0.02	Alternate	*0.05	Alternate
17	Proprietary Ratio	0.056	NULL	0.741	Null	*0.003	Alternate	*0.002	Alternate	*0.001	Alternate	0.345	Null	*0.001	Alternate	*0.05	Alternate
18	Interest coverage ratio	0.958	NULL	*0.001	Alternate	0.072	Null	*0.036	Alternate	*0.001	Alternate	*0.005	Alternate	*0.001	Alternate	0.473	Null
Efficiency Ratios																	
19	Capital Turnover ratio	0.675	NULL	0.398	Null	*0.001	Alternate	*0.003	Alternate	*0.006	Alternate	*0.021	Alternate	0.971	Null	*0.009	Alternate
20	Inventory Turnover ratio	*0.001	Alternate	0.583	Null	0.42	Null	*0.003	Alternate	*0.05	Alternate	*0.013	Alternate	0.481	Null	0.753	Null
21	Inventory to current asset ratio	0.087	NULL	0.397	Null	*0.001	Alternate	*0.002	Alternate	0.421	Null	*0.003	Alternate	0.164	Null	0.323	Null
22	Working capital turnover ratio	0.846	NULL	*0.001	Alternate	*0.005	Alternate	0.322	Null	0.063	Null	0.843	Null	0.411	Null	0.335	Null
23	Fixed asset turnover ratio	*0.02	Alternate	0.441	Null	0.445	Null	0.203	Null	*0.001	Alternate	0.072	Null	0.783	Null	0.514	Null
24	Debtors Turnover ratio	*0.001	Alternate	0.417	Null	*0.001	Alternate	0.235	Null	*0.05	Alternate	*0.001	Alternate	*0.001	Alternate	0.682	Null

Source – Annual Reports of companies

5. The efficient utilization of long-term funds is revealed by Return on Capital Employed ratio for all selected sample companies. The results indicate that average return on capital employed ratio increased in Post-Merger period as compared to Pre-Merger Period in case of Lupin Ltd. and Strides Shashun Ltd., while it declined in remaining cases. While testing the hypothesis at 5% level of significance, it was observed that average return on capital employed ratio changed significantly in case of all companies except for Dr Reddy’s Laboratories Ltd, Kerela Ayurveda Ltd and Makers Laboratories Ltd. Except these three, alternative hypothesis was accepted for all the remaining sample companies

6. In order to evaluate how profitably the financial resources deployed in business are utilized, Return on Total Assets ratio is calculated for all selected sample companies**.** The results revealed that on an average the ratio increased in Post-Merger period as compared to Pre-Merger period in case of J B Chemical and Pharmaceuticals ltd, Lupin Ltd. and Strides Shashun Ltd while it declined in remaining cases. While testing the hypothesis at 5% level of significance, it was observed that average return on total assets ratio changed significantly in case of all companies except of Dr Reddy’s Laboratories Ltd and Makers Laboratories Ltd. Except these two, alternative hypothesis was accepted for all the remaining sample companies

7. To measure the extent to which owner’s funds are efficiently utilized for generating earnings, Return on Equity is calculated for all selected sample companies. The results indicate that on an average, the ratio increased in Post-Merger period as compared to Pre-Merger period in case of Kerela Ayurveda Ltd, Lupin Ltd and Strides Shashun Ltd while it declined in remaining cases. While testing the hypothesis at 5% level of significance, it was observed that average return on equity ratio changed significantly in case of all companies except of Dr Reddy’s Laboratories Ltd, Kerela Ayurveda Ltd, Lupin Ltd and Makers Laboratories Ltd. Except these four, alternative hypothesis was accepted for all the remaining sample companies

8. Profit available per equity share is measured through EPS ratio for all selected sample companies. The results indicate that on an average, the ratio increased in Post-Merger period as compared to Pre-Merger period in case of Dr Reddy’s Laboratories Ltd, Hikal Ltd, Lupin Limited, Makers Laboratories Limited and Strides Shashun Ltd. while declined in remaining cases. While testing the hypothesis at 5% level of significance, it was observed that average EPS changed significantly in case of all companies except of Hikal Ltd, J.B. Chemical and Pharmaceuticals Ltd, Kerela Ayurveda Ltd, Lupin ltd and Makers Laboratories Ltd. In the remaining two sample companies alternative hypothesis was accepted.

9. Calculating Equity Dividend coverage ratio in case of all selected sample companies except for Maker Laboratories Ltd and Kerela Ayurveda Ltd, it was found that on an average the ratio increased in Post-Merger period as compared to Pre-Merger period in case of Hikal Ltd, J B chemical and

Pharmaceuticals Ltd, Lupin Ltd and Strides Shashun Limited while it declined in case of Dr Reddy's laboratories ltd. While testing the hypothesis at 5% level of significance, it was observed that average equity dividend coverage ratio changed significantly in case of all five companies, alternative hypothesis was accepted.

10. The market confidence on company's equity when measured by calculating Price Earnings ratio it was found that on an average the ratio increased in Post-Merger period as compared to Pre-Merger Period in case of all companies except Kerela Ayurveda Ltd and Makers Laboratories Ltd. While testing the hypothesis at 5% level of significance, it was observed that average price earnings ratio changed significantly in case of Hikal Ltd and Lupin Ltd. Except these two, null hypothesis was accepted for all the remaining sample companies.

11. Dividend Yield ratio shows percentage of yield received by an investor on investment in equity shares at current market price of shares. The ratio was calculated for all sample companies except for Maker Laboratories Ltd and Kerela Ayurveda Ltd. It was found that on an average the ratio increased in Post-Merger period as compared to Pre-Merger Period in case of Dr Reddy's Laboratories Ltd, J B Chemical and Pharmaceuticals Ltd and Strides Shashun Ltd. while it declined in case of Hikal Ltd and Lupin Ltd. While testing the hypothesis at 5% level of significance, it was observed that average Dividend yield ratio changed significantly in case of all companies except for Hikal Ltd. and J.B. Chemical & Pharmaceuticals Ltd. Except these two, alternate hypothesis was accepted for remaining sample companies

6.2 Liquidity Analysis

1. To analyse and evaluate the company's ability to meet short term obligations, current ratio is calculated for selected sample companies. It was found that on an average the ratio increased in Post-Merger period as compared to Pre-Merger period in case of J.B. Chemical & Pharmaceuticals Ltd, Kerela Ayurveda Ltd, Lupin Ltd. and strides Shashun Ltd. while it declined in remaining cases. While testing the hypothesis at 5% level of significance, it was observed that average current ratio changed significantly in case of Dr Reddy's Laboratories Ltd, Kerela Ayurveda Ltd. and Lupin Ltd. Except these three, null hypothesis was accepted for remaining three sample companies

2. Company's ability to meet current obligations in refined manner by excluding inventories from current assets is measured by quick ratio. On an average the quick ratio increased in Post-Merger period as compared to Pre-Merger period in case of J.B. Chemical and Pharmaceuticals Ltd, Kerela Ayurveda Ltd, Lupin Ltd, Makers Laboratories Ltd and strides Shashun Ltd. while it declined in remaining cases. While testing the hypothesis at 5% level of significance, it was observed that average current ratio changed significantly in case of all companies except for Hikal Ltd and Makers Laboratories Ltd. Except these two, alternate hypothesis was accepted for remaining sample companies

3. Absolute liquidity when measured using super quick ratio for all sample companies it was observed that the ratio increased in Post-Merger period as compared to Pre-Merger period in case of J.B. Chemical and Pharmaceuticals Ltd, Kerela Ayurveda Ltd, Lupin Ltd, Makers Laboratories Ltd and Strides Shashun Ltd. while it declined in the remaining cases. While testing the hypothesis at 5% level of significance, it was observed that the average super quick ratio changed significantly in case of all companies except of Dr Reddy's Laboratories Ltd, Hikal Ltd and Makers Laboratories Ltd. Except these three, alternate hypothesis was accepted for remaining sample companies

6.3 Long Term Solvency Analysis

1. Debt equity ratio represents proportion of long term debt and shareholders fund in the capital structure of an enterprise. Measuring the long term solvency using Debt-Equity ratio it was found that on an average the ratio increased in Post-Merger period as compared to Pre-Merger period in case of Dr Reddy's Laboratories Ltd, J.B. Chemical & Pharmaceuticals Ltd and Kerela Ayurveda Ltd and Lupin Ltd while it declined in remaining cases. While testing the hypothesis at 5% level of significance, it was observed that average debt equity ratio changed significantly in case of all companies except of J.B. Chemical & Pharmaceuticals Ltd and Strides Shashun Ltd. Except these two, alternate hypothesis was accepted for remaining sample companies.

2. The extent to which the fixed assets are financed by long term funds and short term funds, the fixed asset ratio is calculated for all the selected sample companies. It was observed that on an average the ratio increased in Post-Merger period as compared to Pre-Merger period only in case of Dr Reddys Laboratories Ltd while declined in all the remaining sample companies. While testing the hypothesis at 5% level of significance, it was observed that average fixed asset ratio changed significantly in case of all companies except of Dr Reddy's Laboratories Ltd, Hikal Ltd and Makers Laboratories Ltd. Except these three, alternate hypothesis was accepted for remaining sample companies

3. Proprietary ratio reveals proportion of the total tangible assets financed by owner's funds. It was found that on an average the ratio increased in Post-Merger period as compared to Pre-Merger period in all sample companies except for Dr Reddy's Laboratories Ltd. While testing the hypothesis at 5% level of significance, it was observed that average proprietary ratio changed significantly in case of J.B. Chemical and Pharmaceuticals Ltd, Kerela Ayurveda Ltd, Lupin Ltd and Strides Shashun Ltd. In the remaining three sample companies, null hypothesis was accepted.

4. The interest coverage ratio indicates number of times a company can cover its interest payment from current profits available and also show the unused borrowing capacity. On an average interest coverage ratio increased in Post-Merger period as compared to Pre-Merger period in case of Kerela Ayurveda Ltd, Lupin ltd, Makers Laboratories Ltd and Strides Shashun Ltd while declined in remaining cases. While testing the hypothesis at 5% level of significance, it was observed that average Interest coverage ratio changed significantly in case of Hikal Ltd, Kerela Ayurveda Ltd, Lupin ltd. Makers Laboratories Ltd and Strides Shashun Ltd where alternate hypothesis was accepted.

6.4 Efficiency Analysis

1. The capital turnover ratio is mark of efficiency in utilizing capital employed for generating proportionately higher revenue for the company. It was found that on an average the ratio increased in Post-Merger period as compared to Pre-Merger period only in case of Hikal Ltd while declined in remaining cases. While testing the hypothesis at 5% level of significance, it was observed that average capital turnover ratio changed significantly in case of J.B. Chemical and Pharmaceuticals Ltd, Kerela Ayurveda Ltd, Lupin Ltd. and Makers Laboratories Ltd. Except these four, null hypothesis was accepted for remaining sample companies.

2. Inventory turnover ratio indicates how many times inventory turns over into sales and also indicates whether the inventory is efficiently managed by the company or not. Calculated results indicate that on an average Inventory turnover ratio increased in Post-Merger period as compared to Pre-Merger period in case of Hikal Ltd, J.B. Chemical & Pharmaceuticals Ltd, Kerela Ayurveda Ltd, and Makers Laboratories Ltd. While testing the hypothesis at 5% level of significance, it was observed that average inventory turnover ratio changed significantly in case of Dr Reddy's Laboratories Ltd, Kerela Ayurveda Ltd, Lupin Ltd. and Makers Laboratories Ltd. wherein alternate hypothesis was accepted.

3. The inventory to current asset ratio reveals proportion of the current assets held by company in form of Inventory. It was found that on an average Inventory to current asset ratio increased in Post-Merger period as compared to Pre-Merger Period in case of Dr Reddy's Laboratories Ltd, Hikal Ltd and Lupin Ltd. while it declined in remaining cases. While testing the hypothesis at 5% level of significance, it was observed that average inventory to current asset ratio changed significantly in case of J B Chemical & Pharmaceuticals Ltd, Kerela Ayurveda Ltd and Makers Laboratories Ltd. and thus alternate hypothesis was accepted.

4. Working capital turnover ratio reveals extent to which investment in working capital has contributed towards generating sales. On an average the ratio increased in Post-Merger period as compared to Pre-Merger period in case of Dr Reddy's Laboratories Ltd, Hikal Ltd, Kerela Ayurveda Ltd, and Strides Shashun Ltd while declined in remaining cases. While testing the hypothesis at 5% level of significance, it was observed that average working capital turnover ratio changed significantly in case of Hikal Ltd and J B Chemical and Pharmaceuticals Ltd. and thus alternate hypothesis was accepted while null hypothesis was accepted in the case of remaining sample companies.

5. Fixed asset turnover ratio reveals extent to which funds deployed in fixed assets is efficiently utilized to generate revenue from operation. On an average Fixed asset turnover ratio increased in Post-

Merger period as compared to Pre-Merger period in case of Hikal Ltd, Kerela Ayurveda Ltd and Lupin Ltd while it declined in remaining sample companies. While testing the hypothesis at 5% level of significance, it was observed that average Fixed asset turnover ratio changed significantly in case of Dr Reddy's Laboratories Ltd and Lupin Ltd. and thus, alternate hypothesis was accepted while null hypothesis was accepted in the case of remaining sample companies.

6. The efficient management of debtors and receivables so as to maintain liquidity position, can be measured by debtor's turnover ratio. On an average the Debtors Turnover ratio increased in Post-Merger period as compared to Pre-Merger period in case of J.B. Chemical & Pharmaceuticals Ltd, Kerela Ayurveda Ltd and Strides Shashun Ltd. while it declined in case of remaining sample companies. While testing the hypothesis at 5% level of significance, it was, observed that average Debtors turnover ratio changed significantly in case of Dr Reddys Laboratories Ltd, J.B. Chemical and Pharmaceuticals Ltd, Lupin Ltd., Makers Laboratories Ltd and Strides Shashun Ltd. and thus, alternate hypothesis was accepted. In the remaining two sample companies' null hypothesis was accepted.

6.5 CONSOLIDATED PROFITABILITY, SOLVENCY AND EFFICIENCY ANALYSIS

Consolidated Profitability, Solvency and Efficiency calculated for selected sample acquirer companies (all Cases) as per Table T.6.1 reveals following-

1. Analyzing the consolidated profitability performance of all selected sample companies it was found that on an average all the profitability ratios increased in Post-Merger period as compared to Pre-Merger period except for GP ratio and Price earnings ratio. While testing the hypothesis at 5% level of significance, it was observed that none of the average ratio changed significantly in Post-Merger period as compared to Pre-Merger period. Null hypothesis is accepted for all ratios.

2. Analyzing the consolidated liquidity position of all selected sample companies, it was found that average Current ratio and average quick ratio decreased in Post-Merger period as compared to Pre-Merger period while average super quick ratio increased. While testing the hypothesis at 5% level of significance, it was observed that none of the liquidity ratios changed significantly in Post-Merger period as compared to Pre-Merger period. Thus null hypothesis is accepted for all ratios.

3. Analyzing the consolidated long term solvency position of all selected sample companies, it was found that the average proprietary ratio and average interest coverage ratio increased in Post-Merger period as compared to Pre-Merger period while other ratios declined. While testing the hypothesis at 5% level of significance, it was observed that average fixed asset ratio and average proprietary ratio changed significantly in Post-Merger period as compared to Pre-Merger period. Alternate hypothesis was accepted for the above mentioned ratios while for the other two ratios null hypothesis is accepted

4. Analyzing the consolidated efficiency of all seven companies it was found that the average Inventory Turnover ratio, average Working Capital Turnover ratio and average Fixed Asset turnover ratio increased in Post-Merger period as compared to Pre-Merger period while other ratios declined. While testing the hypothesis at 5% level of significance, it was observed that average working capital turnover ratio changed significantly in Post-Merger period as compared to Pre-Merger period and thus alternate hypothesis is accepted.

5. Analyzing the difference in averages between and within the selected sample companies, one way Annova test is applied covering all the financial ratios for the three periods i.e. Pre- merger period, During the merger period and Post-Merger period. The major findings are as follows:

a. There was significant difference between averages of pre and Post-Merger periods of selected companies found in case of Return on total assets, Earnings per share, Fixed asset ratio, Proprietary ratio, Capital turnover ratio. The significant difference was found between averages of pre period and during merger periods of selected companies in case of Fixed asset ratio, Proprietary ratio Inventory to current asset ratio while significant difference between averages of during merger periods and post-merger period of selected companies was found in case of Net profit ratio, Cash profit margin, Return on Total assets, Super quick ratio and Proprietary ratio.

b. 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 while no significant difference in remaining ratios.

6.3 COMPOSITE INDEX SCORE ANALYSIS

Composite Index Score calculated for selected sample acquirer companies as per Table T.6.2 reveals following-

1. The Composite index score based on profitability increased in Post-Merger period as compared to pre- merger period in case of Dr Reddy's Laboratories Ltd Lupin Ltd and Strides Shashun Ltd while it declined in case of remaining sample companies. While testing the hypothesis at 5% level of significance it was found that composite index score changed significantly in case of Lupin Ltd and Hikal Ltd and thus alternate hypothesis is accepted.

2. The Composite index score based on Liquidity increased in Post-Merger period as compared to pre- merger period in all cases except Dr Reddy's Laboratories Ltd and Hikal Ltd. While testing the hypothesis at 5% level of significance it was observed that composite index score changed significantly in case of Dr Reddy's Laboratories Ltd and Kerela Ayurveda Ltd and thus alternate hypothesis is accepted.

3. Composite index score based on Long term solvency increased in Post-Merger period as compared to pre- merger period in all cases except, Hikal Ltd, Lupin Ltd and Makers Laboratories Ltd.

While testing the hypothesis at 5% level of significance it was observed that composite index score changed significantly in case of Hikal Ltd, Lupin Ltd and Makers Laboratories Ltd. and thus alternate hypothesis is accepted.

Composite Index score analysis and Hypothesis tested by applying Independent t- Test

Table T.6.2 Composite Index Score Analysis and Hypothesis Tested by Applying Independent t- Test [Tested at 5% Level of Significance]

Name of company	Composite index score based on Profitability				Composite index score based on Liquidity				Composite index score based on Long term solvency			
	Pre-Merger period	Post-Merger Period	P value	Hypothesis accepted	Pre-Merger period	Post-Merger Period	P value	Hypothesis accepted	Pre-Merger period	Post-Merger Period	P value	Hypothesis accepted
Dr. Reddys lab Limited	0.47	0.51	0.678	Null	0.39	0.13	*0.05	Alternate	0.30	0.42	0.091	Null
Hikal Ltd	0.70	0.27	*0.001	Alternate	0.30	0.28	0.75	NULL	0.45	0.35	*0.03	Alternate
J B chemical and Pharmaceuticals Ltd	0.27	0.25	0.818	NULL	0.30	0.46	0.08	Null	0.37	0.39	0.65	Null
Kerela Ayurveda Ltd	0.66	0.59	0.610	NULL	0.18	0.39	*0.001	Alternate	0.33	0.38	0.07	Null
Lupin Limited	0.29	0.69	*0.004	Alternate	0.26	0.33	0.07	Null	0.40	0.27	*0.02	Alternate
Makers Laboratories Limited	0.46	0.37	0.542	NULL	0.37	0.39	0.747	Null	0.35	0.26	*0.02	Alternate
Strides Shashun Limited	0.19	0.36	0.113	NULL	0.36	0.54	0.122	Null	0.30	0.34	0.17	Null

Source- Annual Reports of companies

EVA and MVA analysis and Hypothesis tested by applying one sample t- test

Table T.6.3 EVA and MVA Analysis and Hypothesis Tested by Applying One Sample t - Test [Tested at 5% Level of Significance]

Name of company	EVA Rs in Millions				MVA Rs in Millions			
	Pre-Merger period[Rs]	Post-Merger Period[Rs]	P value	Hypothesis accepted	Pre-Merger period [Rs]	Post-Merger Period [Rs]	P value	Hypothesis accepted
Dr. Reddys Lab Limited	-142.01	1697.97	*0.042	Alternate	54652.29	317195.8	*0 .001	Alternate
Hikal Ltd	168.47	33.89	*0 .001	Alternate	3278.117	2489.996	0.428	Null
J B chemical and Pharmaceuticals Ltd	89.39	(341.12).	*0 .001	Alternate	2111.026	1105.714	0.359	Null
Kerela Ayurveda Ltd	-10.82	-29.54	*0.02	Alternate	13.3838	314.6685	*0.001	Alternate
Lupin Limited	907.534	10238.51	*0.001	Alternate	30195.35	428869.8	*0.001	Alternate
Makers laboratories Limited	(23.49)	(109.31)	*0.001	Alternate	(15.3768)	(62.7436)	*0 .003	Alternate
Strides Shashun Limited	-105.48	4484.345	*0 .001	Alternate	3239.557	32747.84	*0.001	Alternate

Source – Annual Reports of companies

6.4 SHAREHOLDER'S WEALTH MEASUREMENT

The measurement of shareholder's wealth for all the sample companies is gauged by Table T.6.3 calculating EVA and MVA individually during Pre-Merger and Post-Merger period of study**.** The major findings were as follows:

a) The average EVA increased in case of Dr Reddys Laboratories Ltd, Lupin Ltd and Strides Shashun Ltd in Post-Merger period as compared to Pre-Merger period, whereas it declined in rest of the sample companies. While testing hypothesis at 5 % level of significance it was found that EVA changed significantly in all sample companies and thus alternate hypothesis was accepted.

b) The average MVA increased in case of Dr Reddys laboratories, Kerela Ayurveda Ltd, Lupin Ltd and Strides Shashun Ltd in Post-Merger period as compared to Pre-Merger period whereas it declined in rest of the sample companies. While testing hypothesis at 5 % level of significance it was found that MVA changed significantly in all sample companies except Hikal Ltd and J.B. Chemical and Pharmaceuticals Ltd. Except these two companies, alternate hypothesis was accepted in case of all remaining companies.

5.5 ANALYSIS OF FINANCIAL HEALTH USING ALTMAN Z SCORE

The Financial health of the each of the 7 sample acquirer companies (Cases) is measured using Altman Z score as revealed by Table T.6.4. The Major findings are as following

1. Analyzing the financial health of all the sample companies using Altman Z score it was found that there was improvement in financial health of Dr Reddy's Laboratories Ltd, Lupin Ltd and Strides Shashun Ltd as Altman Z score improved in Post- Merger Period as compared to Pre-Merger period and special improvement was seen in case of Strides Shashun Ltd wherein it turned to safe zone in Post-Merger period as compared to financial distress in Pre-Merger Period.

2. In case of J.B. Chemical and Pharmaceuticals Ltd there was decline in financial health of company in Post-Merger period as compared to Pre-Merger period. The Z score moved from safe zone to Grey Area However, in case of Hikal Ltd, Kerela Ayurveda Ltd and Makers Laboratories Ltd there is no change the financial health of companies.

Table T.6.4 Altman Z Score

Name of company	Pre - Merger Z score	Post- Merger Z score	Interpretation in Pre-Merger Period	Interpretation in Post-Merger Period	Result of Merger
Dr. Reddy'S Laboratories Ltd.	3.444463	3.727223	Safe Zone	Safe Zone	Success
Hikal ltd	2.069069	1.822886	Grey area	Grey area	No change
J B Chemicals & Pharmaceuticals Ltd.	3.437473	2.978668	Safe Zone	Grey area	Failure
Kerala Ayurveda Ltd.	0.764638	0.801908	Financial Distress	Financial Distress	No change
Lupin Ltd.	3.006436	6.050671	Safe Zone	Safe Zone	Success
Makers Laboratories Ltd.	2.529372	2.473375	Grey area	Grey area	No change
Strides Shashun Ltd.	1.226732	3.096918	Financial Distress	Safe Zone	Success

Source – Annual Reports of companies

Regression Analysis

Table T.6.5 Regression Analysis

Name of company	Regression equation in Pre-Merger Period	Regression equation in Post-Merger Period	Dependent variables	Pre-Merger Independent Variables	Post-Merger Independent Variables	Common Variables affecting to NP in Pre and Post Merger Period	Correlation coefficient between NP and Common Variables in Pre- merger Period	Correlation coefficient between NP and Common Variables in Post- merger Period
Dr. Reddys Lab Limited	NP= -714.556+0.361WC	NP= 6813.822+0.165WC	Net profit	Working capital	Working capital	Working capital	0.85	0.83
Hikal Ltd	NP=52.594+0.679 OE	NP= 675.411+1.509FC-0.769OE+0.140WC	Net profit	Operating Expenses	Finance cost, operating expenses and Working capital	Operating Expenses	0.97	-0.46
J B Chemical and Pharmaceuticals Ltd	NP= -13.674+0.215SF	NP=-6375.773+ 30.142FC+0.533SF	Net profit	Shareholders fund	Finance cost and Shareholders fund	Shareholders fund	0.99	0.28
Kerela Ayurveda Ltd	NP=69.072-1.004OE	NP=30.145+0.123OE-4.117FC	Net profit	Operating expenses	Finance cost and Operating expenses	Operating expenses	-0.92	0.11
Lupin Limited	NP= -053.51+0.291CE	NP=209.381+0.262 CE	Net profit	Capital employed	Capital employed	Capital employed	0.99	0.95
Makers laboratories Limited	NP=476.799+0.726FC	NP=308.200-2.098LTB-2.055OE-2.515FC	Net profit	Finance cost	Long term borrowings, Operating expenses and Finance cost	Finance cost	-0.74	-0.56
Strides Shashun Limited	NP=882.408-1.257WC-7.444FC+0.790SF	NP=10671.505+4.771FC+0.722LTB-0.550WC-1.620FA	Net profit	Working capital, finance cost and shareholders fund	Finance cost, Long term borrowings, Working capital and Fixed assets	Working capital, Finance cost	NP and WC 0.01 NP and FC -0.19	NP and WC -0.12 NP and FC 0.19

Source – Annexure I, II and III

6.6 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 based on which Multiple Linear Regression equation for each sample company for pre and Post-Merger period has been framed as revealed in Table T.6.5.

1. In case of Dr. Reddy's Laboratories Ltd., Working capital is the only independent variable affecting Net profit during Pre-Merger and Post-Merger period. Correlation co-efficient between Net profit and working capital was positive and slightly declined in Post-Merger period as compared to pre-merger period

2. In case of Hikal Ltd 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. 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.

3. In case of J B Chemical and Pharmaceuticals Ltd 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. Correlation coefficient between Net profit and shareholders fund was positive but declined in Post-Merger period as compared to pre- merger period

4. In case of Kerela Ayurveda Ltd 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. 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.

5. In case of Lupin Ltd capital employed was the only independent variable affecting net profit during Pre-Merger and Post-Merger period. Correlation coefficient between Net profit and capital employed in Post-Merger period was marginally less as compared to Pre-Merger period

6. In case of Makers Laboratories Ltd. finance cost was the 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. The Correlation coefficient between Net profit and finance cost was high negative during Pre-Merger and low negative during Post-Merger period.

7. In case of Strides Shashun Ltd Working capital, finance cost and shareholders fund were variables affecting net profit in Pre-Merger period while 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 Net profit in Pre-Merger and Post-Merger period. As more number of variables are affecting net profit of sample company during Pre-Merger and Post-Merger period thus the correlation coefficient was negligible between common variables and net profit during Pre-Merger and Post-Merger period.

7. CONCLUSIONS

The study focuses on impact of mergers and acquisition on financial performance of selected pharmaceutical companies in India. On the basis of finding and analysis following conclusions are drawn

1. Profitability of selected sample companies analyzed through various tools like ratio analysis, composite index score based on profitability, Altman Z score indicated that there was improvement in performance of Dr Reddy’s Laboratories Ltd, Lupin Ltd and Strides Shashun Ltd.in the Post-Merger period as compared to Pre-Merger period. It is evident by improvement in maximum profitability ratios in Post-Merger period as compared to Pre-Merger period in above stated companies. Composite index score based on profitability increased in above mentioned 3 companies. Altman Z score also supported the above result as score increased in Post-Merger period as compared to Pre-Merger period in above stated 3 companies. The composite index score tested by applying independent t- test at 5 % level of significance it can be concluded that in case of Lupin Ltd change in profitability was significant.

2. Profitability declined in case of Hikal Ltd, J B Chemical and Pharmaceuticals Ltd, Kerela Ayurveda Ltd and Makers Laboratories Ltd which is evident by decline in majority profitability ratios. Composite index score based on profitability had also decreased in above mentioned 4 companies. Altman Z score also supports the above result as score decrease in Post-Merger period as compared to Pre-Merger period in above stated 3 companies excepting Kerela Ayurveda Ltd where it increased marginally. The composite index score tested by applying independent t- test at 5 % level of significance it can be concluded that in case of Hikal Ltd change in profitability was significant.

3. Liquidity of selected sample companies analyzed through various tools like ratio analysis, composite index score based on liquidity. The efficiency of selected sample companies was gauged by calculating various efficiency ratios revealed that mixed performance of all selected sample companies. Some of the efficiency ratios revealing liquidity too were included in calculation of composite index score based on liquidity like Inventory turnover ratio, Working

capital turnover ratio and Debtors turnover ratio. Results indicated that there was improvement in liquidity performance of J B Chemical and Pharmaceuticals Ltd, Kerela Ayurveda Ltd, Lupin Ltd, Makers Laboratories Ltd and Strides Shashun Ltd. in Post-Merger period as compared to Pre-Merger period. It is evident by improvement in majority liquidity ratios in Post-Merger period as compared to Pre-Merger period in above stated companies. The composite index score tested by applying independent t- test at 5 % level of significance it can be concluded that in case of Kerela Ayurveda Ltd change in liquidity was significant.

4. Liquidity declined in case of Dr Reddy's Laboratories Ltd and Hikal Ltd which is evident by decline in majority of liquidity ratios. Composite index score based on liquidity had also decreased in above mentioned companies. The composite index score tested by applying independent t- test at 5 % level of significance it can be concluded that in case of Dr Reddy's Laboratories Ltd change in liquidity was significant.

5. Long term solvency of selected sample companies analyzed through various tools like ratio analysis, composite index score based on long term solvency indicated that there was improvement in long term financial strength of Dr Reddy's Laboratories Ltd, J B Chemical and Pharmaceuticals Ltd, Kerela Ayurveda Ltd and Strides Shashun Ltd. as also evident by improvement in composite index score based on Long term solvency ratios of above stated companies. In other words, the capital structure became more sound and the companies were taking utmost advantage of financial leverage in the Post-Merger period as also reflected by increase in EPS. The composite index score tested by applying independent t- test at 5 % level of significance it can be concluded that in the change in long term solvency was not significant in above stated companies.

6. Long term solvency declined in case of Hikal Ltd, Lupin Ltd and Makers Laboratories Ltd which is evident by decline in composite index score based on long term solvency. The composite index score tested by applying independent t- test at 5 % level of significance it can be concluded that in all stated companies change in long term solvency was significant.

7. Impact of merger and acquisition on shareholder's wealth of selected sample companies was measured through EVA and MVA during Pre-Merger and Post-Merger period. It is concluded that overall wealth of shareholders improved in case of Dr Reddy's Laboratories Ltd, Lupin Ltd and Strides Shashun Ltd. Thus, there is a positive impact of merger and acquisition. In case of Kerela Ayurveda Ltd only MVA improved showing positive effect of merger and acquisition. In remaining 2 sample companies the shareholder's wealth declined.

8. Based on regression analysis it can be concluded that independent variables like working capital, operating expenses, capital employed, shareholders fund and finance cost affected net profit in majority of sample companies throughout the period of study.

9. Consolidated performance of all seven companies revealed that overall profitability, liquidity and long term solvency did not change significantly. However, fixed asset ratio, proprietary ratio and capital turnover ratio changed significantly. In other words, it can be concluded that there is no impact of mergers and acquisition on consolidated performances of all selected seven companies taken together. [Supported by (Ahmed & Ahmed, 2014). (S & M, 2007).

10. From selected seven companies Mergers and Acquisitions was overall fruitful in for three sample companies viz. Dr Reddys Laboratories Ltd, Lupin Ltd and Strides Shashun Ltd. whereas it was not benefiting in case of rest of the sample companies viz. Hikal Ltd. J B Chemical and Pharmaceuticals Ltd, Kerela Ayurveda Ltd and Makers Laboratories Ltd. Combined profitability performance of all seven cases together showed mixed results in Post-Merger period.

8.1 SCOPE FOR FURTHER RESEARCH

1. Study can be done considering more number of cases and different industries

2. Detailed analysis can be done considering factors responsible for success or failure of Merger and Acquisitions in different industries

3. Study can be done on different restructuring activities like Demergers asset acquisitions, divestitures etc.

4. Research can be done on other variables from cash flow statement and fund flow statement affected by mergers and acquisitions

5. Study can also be undertaken on the impact of mergers and acquisitions [other than financial performance] on employees, shareholders and society in general.

6. Study can be done considering individual profitability, liquidity and long term analysis separately.

8.2 LIMITATIONS OF THE STUDY

1. Present study is based on secondary data so limitations related to secondary data are applicable to study.

2. Sample selection is confined to year 2005-06 to 2010-2011 however larger span can be selected for selecting more companies.

3. Period of study is from 2000-2001 to 2015-2016 which can be extended further.

4. Study is limited to pharmaceutical sector only. More sectors can be involved for further study.

5. During the period of study any significant structural and law related changes can also affect the results.

6. Present study is based on only Mergers and Acquisitions which is one of the corporate restructuring activities. It doesn't take it to account other restructuring activities like Joint Venture, Asset Acquisition, Demerger etc.

BIBLIOGRAPHY

Books

Das, B., Debdas, R., & Debasish, S. S. (2012). *Corporate Restructuring, Merger, Acquisition and other forms.* Mumbai: Himalaya Publishing house Pvt ltd.

Gupta. S. P. (2005). *Statistical Methods*, Thirty Fourth Edition, Sultan Chand and sons, Educational Publishers, New Delhi.

Jha, D. (2011). Mergers, Acquisitions and corporate Restructuring. In D. Jha, *Mergers, Acquisitions and corporate Restructuring* (pp. 1-30). Mumbai: Himalaya publishing house PVT Ltd.

Kishore, R. M. (2017). Financial Management. In R. M. Kishore, *Financial Management* (pp. 61-76). New Delhi: Taxmann.

Kothari, C. R. (2004). *Research methodology: Methods and techniques (2nd revised edition)*. New Delhi: New Age International (P) Limited.

Mukherjee, A., & Hanif, M. (2003). *Modern Accountancy.* Noida: McGraw-Hill publishing company ltd.

Rabi, N. K., & Soni, A. (2009). *Mergers and acquisitions in India: A strategic impact analysis for the corporate enterprises in the post liberalisation period*. New Delhi: Taxmann Publication

Rachna, J. (2009). *Mergers, Acquisitions and corporate restructuring in India.* New Delhi: New Century Publications.

Ross, Stephen A, Westerfield, Randolh W., and Jaffe, Jeffrey. (2013), *Corporate Finance, Tenth edition*, McGraw Hill Irwin

Journals / Online Articles

Aghagaiah, R., & Thangavelu, S. (2014). Impact of merger and acquisitions on operating performance:evidence from manufacturing firms in India. *Managing global transitions:International research journal ,vol-12,(2),Issn no-1854-6935*, 121-139.

Agrawal, A., Jaffe, J. F., & Mandelkar, G. N. (1992). The Post-Merger Performance of Acquiring Firms: A Re-Examination of an Anomaly. *The Journal of Finance, Vol. 47, (4*), 1605-1621.

Agrawal, M., & Bhattacharjea, A. (2006). Mergers in India:A response to regulatory shocks. *Emerging markets finance and trade,vol-42,(3)*, 46-65.

Ahmed, M., & Ahmed, Z. (2014). Mergers and Acquisitions:Effect on Financial Performance of Manufacturing Companies of Pakistan. *Middle-East Journal of Scientific Research 21 (4),ISSN 1990-9233*, 689-699.

Astha, D. (2007). Effect of Mergers and Acquisitions on Operating Performance: A Study of Acquiring Firms in India. *Effect of Mergers and Acquisitions on Operating Performance: A Study of*

Acquiring Firms in India. Delhi, India.Retrieved from file:///C:/Users/Admin/Desktop/PHD/literature%20review/ms%20astha.pdf

Capron, L. (1999). The Long-Term Performance of Horizontal Acquisitions. *Strategic Management Journal, Vol. 20, (11),* 987-1018.

Christopher, D., & Arishma. (2013). Pharmaceutical Mergers and Acquisitions. *International Journal of Advanced Research,Volume 1,(5),* 119-130.

Datta, D. K. (1991). Organizational Fit and Acquisition Performance: Effects of Post-Acquisition Integration. *Strategic Management Journal Vol. 12,(4),* 281-297.

Dhinaiya, G. M. (2012). Impact of mergers & acquisitions on the performance of companies. *International journal of research in commerce & managemenT,Vol-3 ,(9),* 102-106.

Dickerson, ,. A., Heather, G. D., & Euclid, T. (1997). The Impact of Acquisitions on Company Performance: Evidence from a Large Panel of UK Firms. *Oxford Economic Papers, New Series, Vol. 49, (3),* 344-361.

Dubey, N., Sharma, R. K., Gupta, H., Dubey, N., & Dubey, N. (2011). Performance of the Indian Pharmaceutical Industry Pre and Post TRIPS Era: A Study. *Asian Journal of Pharmacy & Life Science,Vol-1(2)Issn No-2231-4423*, 187-194.

Ghatak, A. (2012). Effect of Mergers and Acquisitions on the Profitability of India Pharmaceutical Industry. *The International Journal's: Research Journal of social science and Management,Vol-2,(6),Issn-2251-1571*, 131-138.

Gupta, P. K. (2012). MERGERS AND ACQUISITIONS (M&A): THE STRATEGIC CONCEPTS FOR THE NUPTIALS OF CORPORATE SECTOR. *INNOVATIVE JOURNAL OF BUSINESS AND MANAGEMENT 1*, 60-68.

Hitesh, P. (2009). Effect of merger on operational performance of acquiring firms in India. *Srgcmzn*, 1-10.

Hubert, O., Elisabeth, V. L., & Tine, D. L. (2006). Are Acquisitions Worthwhile? An Empirical Study of the Post-Acquisition Performance ofPrivately Held Belgian Companies. *Small Business Economics, Vol. 27, (2/3*), 223-243.

K.Jaykumar. (2013). Impact of acquisition on operating performance in Indian Pharmaceutical Industry. *Indian Journal of Economics and Development,Vol-1,(3),Issn no-2320-9836*, 67-70.

Kumara, M., & Satyanarayana. (2013). Comparative study of pre and post corporate integration through mergers and acquisitions. *International journal of business and management invention,ISSN (online):2319-8028,Issn (print):2319-801x,vol-2, (3),* 31-38.

Leepsa, N. M., & Mishra, C. (2017). Predicting the Success of Mergers and Acquisitions in Manufacturing Sector in India: A Logistic Analysis. *Singapore Management Journal*, 43-72.

Leepsa, N. M., & Mishra, C. S. (2014). An Examination of Success of Mergers and Acquisitions in Manufacturing sectors in India Using Index score. *Annual symposium on Management and social science* (pp. 1-18). seoul,Korea(south): ASMSS conference proceeding.

Mantravadi, P., & Reddy, A. V. (2008). Post merger performance of acquiring firms from different industries in India. *International Journal of Finance and Economics,(22),ISSN 1450-2887*, 192-204.

Martin, C. L. (1992). Postacquisition Performance of Acquiring Firms. *Financial Management, Vol. 21,(3) (Autumn, 1992)*, 69-79.

Menapara, M., & Pithadia, V. (2012). A study of financial performance of selected companies during pre-post merger and acquisition. *Abhinav-volume no.1,(11),Issn 2277-1166*, 192-198.

Mishra, P., & Chandra, T. (2010). Mergers,Acquisitions and Firms' performance:Experience of Indian Pharmaceutical Industry. *Eurasian Journal of Business and Economics,3(5)*, 111-126.

Omah, I., Okolie, J. U., & Durowoju, S. T. (2013). Mergers and Acquisitions: Effects on Shareholders Value Evidence from Nigeria. *International Journal of Humanities and Social Science,vol 3,No-6*, 150-159.

P.L.Beena. (2004). Towards understanding a merger- wave in the indian corporate sector : A comparative perspective. *Towards understanding a merger- wave in the indian corporate sector : A comparative perspective*. Retrieved from www.cds.edu.

Patricia, M. D., Andrew, E., & Sean, N. (2007). Mergers and Acquisitions in the Pharmaceutical and Biotech Industries. *Managerial and Decision Economics, Vol. 28, (4/5), Economic and Policy Issues in thePharmaceutical Industry*, 307-328.

Paul Andre, M. K.-F. (winter 2004). The long- run performance of mergers and acquisitions :Evidence from canadian stock market. *Financial management,Vol.33,(4)*, pp27-43.

Prakash, S. (2016). The Impact of Mergers and Acquisitions (M&As) on OperatingPerformance : An Empirical Study of Select Companies in India. *SUMEDHA Journal of management*, 102-115.

Priya, B. (2014). Mergers & Acquisitions in India:A sectoral analysis. *International journal of Business and economic development,Vol-2, (2), ISSN NO-2051848x,Accession No-9786693*, 119-134.

Ramaswamy, K. P., & Waegelein, J. F. (2003). Firm financial performance following mergers. *Review of quantitative finance and accounting,Vol-20,(2)*, 115-126.

Rani, N., Yadav, S. s., & Jain, P. K. (2011). Impact of Mergers and Acquisitions on Shareholders' Wealth in Short-Run: An Empirical Study of Indian Pharmaceutical Industry. *International Journal of Global Business and Competitiveness,Vol-6,(1)*, 40-52.

Reddy, K. S., Nangia, V. K., & Agrawal, R. (2013). Corporate mergers and financial performance : a new assesment of Indian cases. *Nankai Business Review International 4(2)*, 107-129.

S, V., & M, S. (2007). Financial performance of Indian manufacturing companies during pre and post merger. *International research journal of finance and economics,vol 12*, 7-35.

S.Beena. (2006). Mergers and acquisitions in the Indian Pharmaceutical Industry:Nature, Structure and Performance. *Munich personal RePEc archive*, 1-20.

Shrivastav, A. (2016). Opportunities and threats of mega merger: A case study of sun pharmaceuticals and Ranbaxy laboratories. *International Journal of Commerce and Management Research*, 112-115.

Shukla, D. R. (2014). Review of Major Companies Merger Failures inThe First Decade of 21st Century. *International Journal of Enhanced Research in Management & Computer Applications,*, 1-5.

Singh, K. B. (2013). The impact of Mergers and Acquisitions on Corporate Financial Performance in India. *Indian Journal of Research in Management ,Business and social sciences(IJRMBSS)Vol no-1,(2),Issn No-2319-6998*, 13-16.

Smita, m. (2011). A study of impact of mergers and acquisitions on selected sectors in India. *Journal of doctoral studies,Vol-1,(1-2)*, 104-119.

Vardhana, P. (2001). Effects of mergers on corporate performance of India. *Vikalpa,vol 26 (1)*, 19-32.

Vyas, V., Narayanan, K., & Ramanathan, A. (2012). Determinants of Mergers and Acquisitions in Indian Pharmaceutical Industry. *Eurasian Journal of Business and Economics , 5 (9)*, 79-102.

Yook, K. C. (2004). The Measurement of Post-Acquisition Performance Using EVA. *Quarterly Journal of Business and Economics,Vol. 43, (3/4)*, 67-83.

THESIS/DISSERTATION

Argade, N. U. (2016, December). A study of Impact of merger and acquisition on the performance of selected indian companies. Vadodara, Gujarat, India. doi:http://hdl.handle.net/10603/151378

Kumar, S. R. (2014). Impact of Merger on Financial Performance of Corporate Sector in India. Jaipur, Rajasthan, India. doi: http://hdl.handle.net/10603/37440

Sathishkumar, T. (2013, February). A Study on the Impact of Merger and Acquisitions on Operating Performance and Shareholders' Wealth in Indian Manufacturing Industry. Puducherry, Pondicherry, India. doi:http://hdl.handle.net/10603/20843

Shah, C. A. (2017, December). Impact of Mergers and Acquisitions on Value of Firms : A Study of Selected Pharmaceutical and Chemical Companies in India. vallabh vidyanagar, Gujarat, India. doi:http://hdl.handle.net/10603/218547

Prajapati, G. (2018). A Comprehensive Study on the Effect of Mergers and Acquisitions on Corporate Financial Performance of Selected Pharmaceutical Companies in India. *Thesis-School of Doctoral Research And Innovations,GLS University, Ahmedabad,*. Ahmedabad, Gujarat, India. doi:http://hdl.handle.net/10603/307032

Ransaria, S. N. (2010, April). Financial Growth indicator of merger and acquisition in Indian corporate sector. Morbi, Saurashtra, India.

V, V. (2014, July). A Study of the Financial Performance of Selected Companies Before and After Merger and Acquisition. Bharathiar University, Coimbatore, Tamilnadu, India. doi:http://hdl.handle.net/10603/40432

V, V. R. (2012, September). Mergers and Acquisitions in India. Vadodara, Gujarat, India. doi:http://hdl.handle.net/10603/28963

Webliography

Anglim, J., 2009. *Calculating Composite Scores of Ability and Other Tests in SPSS.* [Online]Available at: http://jeromyanglim.blogspot.in/2009/03/calculating-composite-scores-ofability.htm l[Accessed 23 February 2013].

CFI team. (2023, March 14). *https://corporatefinanceinstitute.com/resources/commercial-lending/altmans-z-score-model/*. Retrieved from https://corporatefinanceinstitute.com/resources/commercial-lending/altmans-z-score-model/: https://corporatefinanceinstitute.com/resources/commercial-lending/altmans-z-score-model/

Dr Reddys laboratories ltd. (n.d.). *https://www.capitalmarket.com/Company-Information/Information/About-Company/Dr-Reddys-Laboratories-Ltd/815*. Retrieved from https://www.capitalmarket.com/Company-Information/Information/About-Company/Dr-Reddys-Laboratories-Ltd/815: https://www.capitalmarket.com/Company-Information/Information/About-Company/Dr-Reddys-Laboratories-Ltd/815

Elyh, A. (2019, September 23). A Historical Analysis of M&A Waves.

Economy watch. (2021, May 18). *https://www.economywatch.com/history-of-mergers-and-acquisitions.* Retrieved from https://www.economywatch.com/history-of-mergers-and-acquisitions: https://www.economywatch.com/history-of-mergers-and-acquisitions

Economic outlook. (n.d.). *https://economicoutlook.cmie.com/*. Retrieved from https://economicoutlook.cmie.com/: https://economicoutlook.cmie.com/

EMIS. (n.d.). *https://www.emis.com/php/company-profile/IN/Kerala_Ayurveda_Ltd_en_1625379.html*. Retrieved from https://www.emis.com/php/company-profile/IN/Kerala_Ayurveda_Ltd_en_1625379.html: https://www.emis.com/php/company-profile/IN/Kerala_Ayurveda_Ltd_en_1625379.htm

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

IBEF. (2016, July). *Indian brand equity foundation*. Retrieved July 2016, from www.ibef.org: http://www.ibef.org

Indian brand equity foundation. (2022). *Indian Brand equity foundation*

India law offices. (n.d.). *www.indialawoffices.com*. Retrieved from India law offices website: http://www.indialawoffices.com

JUS corpus Law Journal . (2022, August 13). *https://www.juscorpus.com/regulatory-framework-governing-mergers-and-acquisitions/*. Retrieved from https://www.juscorpus.com/regulatory-framework-governing-mergers-and-acquisitions/: https://www.juscorpus.com/regulatory-framework-governing-mergers-and-acquisitions/

Kleinert, J., & Klodt, h. (2002, January). *https://www.files.ethz.ch/isn/124239/kap1092.pdf.* Retrieved from https://www.files.ethz.ch/isn/124239/kap1092.pdf: https://www.files.ethz.ch/isn/124239/kap1092.pdf

Luenendonk, M. (2016, August 13). Merger Waves.

P.L.Beena. (2004). Towards understanding a merger- wave in the Indian corporate sector: A comparative perspective. *Towards understanding a merger- wave in the Indian corporate sector: A comparative perspective*. Retrieved from www.cds.edu.

The Economic Times. (2007, september 28). Lupin buys Baroda co Rubamin. Retrieved from https://economictimes.indiatimes.com/industry/healthcare/biotech/pharmaceuticals/lupin-buys-baroda-co-rubamin/articleshow/2410048.cms?from=mdr

The Economic Times. (n.d.). Retrieved from https://economictimes.indiatimes.com/makers-laboratories-ltd/infocompanyhistory/companyid-11903.cms

Q finance dictionary. (2009). *Q finance-The ultimate resource.*

Samisti Legal. (2020, April 4). *https://samistilegal.in/mergers-and-amalgamations-under-companies-act-2013/*. Retrieved from https://samistilegal.in/mergers-and-amalgamations-under-companies-act-2013/: https://samistilegal.in/mergers-and-amalgamations-under-companies-act-2013/

Wikepedia. (2021, March 12). Strides Pharma Science Limited. Retrieved from https://en.wikipedia.org/wiki/Strides_Pharma_Science_Limited_retrieved_on_dated_12/03/2021

Wikipedia. (2016, October 28). Retrieved from https://en.wikipedia.org/wiki/Pharmaceutical_industry.

Zauba corp. (n.d.). *https://www.zaubacorp.com/company*. Retrieved from https://www.zaubacorp.com/company: https://www.zaubacorp.com/company

Annual Reports of companies

Dr Reddy's Laboratories ltd. (2000-2001, 2001-2002, 2002-2003, 2003-2004, 2004-2005, 2005-2006, 2006-2007, 2007-2008, 2008-2009, 2009-2010, 2010-2011, 2011-2012, 2012-2013, 2013-2014, 2014-2015, 2015-2016). *Annual Report.*

Hikal Ltd. (2000-2001, 2001-2002, 2002-2003, 2003-2004, 2004-2005, 2005-2006, 2006-2007, 2007-2008, 2008-2009, 2009-2010, 2010-2011, 2011-2012, 2012-2013, 2013-2014, 2014-2015, 2015-2016). *Annual Report.*

J B Chemical and Pharmaceuticals ltd. (2000-2001, 2001-2002, 2002-2003, 2003-2004, 2004-2005, 2005-2006, 2006-2007, 2007-2008, 2008-2009, 2009-2010, 2010-2011, 2011-2012, 2012-2013, 2013-2014, 2014-2015, 2015-2016). *Annual Report.*

Kerela Ayurveda Ltd. (2000-2001, 2001-2002, 2002-2003, 2003-2004, 2004-2005, 2005-2006, 2006-2007, 2007-2008, 2008-2009, 2009-2010, 2010-2011, 2011-2012, 2012-2013, 2013-2014, 2014-2015, 2015-2016). *Annual Report.*

Lupin ltd. (2000-2001, 2001-2002, 2002-2003, 2003-2004, 2004-2005, 2005-2006, 2006-2007, 2007-2008, 2008-2009, 2009-2010, 2010-2011, 2011-2012, 2012-2013, 2013-2014, 2014-2015, 2015-2016). *Annual Report.*

Makers Laboratories ltd. (2000-2001, 2001-2002, 2002-2003, 2003-2004, 2004-2005, 2005-2006, 2006-2007, 2007-2008, 2008-2009, 2009-2010, 2010-2011, 2011-2012, 2012-2013, 2013-2014, 2014-2015, 2015-2016). *Annual Report.*

Strides Pharma science ltd. (2000-2001, 2001-2002, 2002-2003, 2003-2004, 2004-2005, 2005-2006, 2006-2007, 2007-2008, 2008-2009, 2009-2010, 2010-2011, 2011-2012, 2012-2013, 2013-2014, 2014-2015, 2015-2016). *Annual Report.*