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A STUDY ON MERGER AND ACQUISITION OF SELECTED ALUMINIUM COMPANIES OF INDIA

Lekha Nair
Teaching Assistant
Ahmedabad University
lekhanm96@gmail.Com

Komal Raval
Research Scholar
S.D. School of Commerce, Gujarat University

Abstract

Merger and acquisition are strategic decision which involves consolidation of two or more business entity in to single entity for reasons such as diversification and growth, market expansion, synergy orfor survival factor. The concept of Merger and Acquisition has been emerged as a natural process of business restructuring throughout the world.Since past few years due to increase in competition, as a result of globalization and other economic reforms India has witnessed a drastic growth in mergers and acquisition. These have helped the economy to grow as merger and acquisition result into increased profitability, production growth and cost reduction. Thus the present paper is to analyze the impact of Merger and Acquisition's on Profitability of Aluminium Companies in India. For this purpose, 3 cases of merger and acquisition are selected based on adequacy of data for a period of 3 years before the merger took place (i.e. pre-merger period) and for a period of 3 years after the merger took place (i.e. post-merger period). Paired sample t-test is applied to study the mean difference in the profitability of the companies in the pre-merger and post-merger periods. The profitability ratios considered for the study include Operational profit ratio, Net profit ratio and Return on net worth ratio. The study proves that there is no significant impact of merger and acquisition on the profitability of selected Indian aluminium companies except in the case of merger of Hindalco Industries Ltd and IndalAluminium Corporation Ltd, which shows a positive impact of merger and acquisition on the operational profit ratio and net profit ratio of pre and post-merger duration. On the basis of such response of firms towards the activity of merger and acquisition one can conclude that profitability depends on many more factors other than merger and acquisition making it company specific concept. This means the result might differ company to company thus merger and acquisition doesn't always result in to profitability and secondly merger and acquisition are long term process which provides benefit to the firm in long run.

Key Words: Merger and Acquisition, Globalization and Economic reforms, Aluminium Industry, Operational profit ratio, Net profit ratio and Return on net worth.

INTRODUCTION

Merger and Acquisition is a growth strategy tool often adopted by corporations to swiftly increase its market share, customer base, talent pool and resources in one fell swoop. It's an activity done for value creation. Usually mergers and acquisition are terms used interchangeably as the end result of both processes is one and the same but the difference occurs in the relationship between the two companies.

Merger

Merger means blending of two or more existing undertakings into one, as a result of which each undertaking would lose their individual identity and become a part of new entity.

Acquisition

Acquisition on the other hand refers to the purchase of controlling stake in existing company by another company. In simple terms when a company buys another company and folds it into its routine operation such that it is a single entity refers to acquisition. Thus in this case only one entity loses their identity.

The broad bifurcation of Merger and Acquisition is as follow:

Horizontal Merger

Horizontal merger take place between two or more firms which belong to same industry i.e. firms operating and competing in the same type of business activities.

Vertical Merger

Merger between entities in different stages of production operation i.e. forward or backward integration is termed as vertical merger.

Conglomerate Merger

Conglomerate merger refers tocombining two or more business units engaged in entirely unrelated business activity.

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Indian Aluminium Industry

India plays a significant role in aluminium industry due to the availability of huge bauxite reserves, which is the 5th largest with deposit of about 3 billion tones (i.e. 5 % of world). Indian Aluminium Industry began its operation in the year 1808 but almost took 46 years to make its production commercially viable. The end user segment of aluminium industry involves Power transmission;Packaging; Canstock; Building and Construction;Consumer Durables as well as Machinery and Equipment production. It is a highly concentrated non ferrous metal industry with giants like Hindalco,NALCO,BALCO,MALCO, INDAL and more. Domestic aluminiumproductionshavewitnessed a growth rate of 13% CARG and 3% in case of consumption since 2013 thus registering a growth of 31.5% year-on-year. The surplus of productionis exported mainly to South Korea (38% of total export) and Malaysia (14% of total export). The global consumption of primary aluminium is expected to touch around 66 to 67 MT within the end of 2019 as well as the domestic aluminium consumption is expected to witness a robust growth due to the increased industrial activity and various Government schemes like Make-in-India and Smart Cities.

The concept of Merger and Acquisition in India was not popular until 1988, due to stringent legal regulations and prohibitive provisions. Though there were increase in number of Merger and Acquisition after liberalization and other economic reforms, the entire scenario have been changed after 2007 with increasing competition and globalization of companies.Aluminium Industry have also witnessed several merger and acquisition which have sustained in the list of top merger deals which include Hindalco and Novelis Merger, Vedanta Acquisition of Sesa Goa and many more. Most of the mergers and acquisition in aluminium industry are in the form of stake acquisition.

LITERATURE REVIEW

Cartwright and Cooper (1990) stated that though the mergers and acquisition have attained great importance in terms of financial and managerial strategies, the failure rate haven't reduced and the contribution of psychological factors in this failure in form of combination of people, the fusion of organizational culture etc is analyzed in this literature. This study concludes that the response of employees to the news that their organization is merging with another is dealt very negatively making it more difficult to accept the new culture and managerial practices. Secondly during the merger duration the employees despite having the feeling of loss also face several other issues such as job security, reward system, loss of identity etc resulting to stress resulting to low performance and contributing to failure of merger.

Tambi (2005) analyzed the impact of merger and acquisition using t test for mean difference on 40 selected companies for four parameters; total performance improvement, economies of scale, operating synergy and financial synergy. The study proved that mergers have failed to contribute positively in the performance of the company regarding the selected four parameters might be the short duration (i.e. 2 years) have resulted to such conclusion.

Vanitha and Selvam (2011) found that in India the merging companies are taken over by well reputed companies which help to enhance its performance. The study focused on the mergers and acquisitions taking place in manufacturing industry (which includes food & beverages, textiles, chemicals, non-metallic mineral products, metal and metallic products, machinery, miscellaneous manufacturing and diversified)of India during 2000, 2001 and 2002 and out of total 58 mergers 17 mergers (i.e. 30% of 58) are selected randomly to evaluate the financial performance of manufacturing industry pre and post-merger and acquisition based on secondary data analysis of three years pre and post-merger. Thus this study suggested that the profitability parameters showcased mixed response specific to firms where some firms improved in terms of profit while others didn't but all sample firms showcased expansion of their business after merger

Saxena and Rawat (2012) found that mergers and acquisition doesn't always lead to accelerated growth, efficiency and profitability as in the case of Hindalco, concluded on the basis of analysis of financial performance indicators of Hindalco (a merging firm)and Nalco (a non-merging firm), pioneers of Indian aluminium industry. Thus holding the assumption false that mergers and acquisitions are the strategic tools that always lead to maximization of company's growth.

Reddy et al.(2013) found that acquiring firm shows a better performance post-merger and balance sheet also shows a positive surge in long run for both manufacturing and service sector. The conclusion was derived based on earning management analysis and suggested sector wise financial assessment method (cylinder models) to determine the long run financial performance of the acquiring firm pre and post-merger. Contrary to the financial performance improvement average abnormal returns have declined during the merger announcement duration proving the assumption false.

Kato and Schoenberg (2014) explored the important role played by the critical customer relationship antecedents, through which the post-merger integration actions exert their impact on customer's purchase decisions.While the effect of merger and acquisition on internal stakeholders has attained comparatively adequate academic attention, the effect on external one haven't got equal importance might be due to its qualitative nature. This study revealed three primary conclusions basedoncase study methodology appliedon B2B service provider. Firstly it found that same qualitative factors affect the strength of customer relationship as prior to merger, secondly the study revealed the important 8 factors such as supplier's service performance, customer orientation, flexibility etc through Q sort data that particularly impacted during the merger integration and lastly the accompanying qualitative interview data provided the process of its implication on merger integration.

Sathishkumar and Azhagaiah (2014) tested the impact of mergers and acquisition on profitability of manufacturing firms in India with the help of paired t test based on financial data of sample 39 manufacturing companies for a span of 5 years prior and post-merger. From the comparison of profitability ratios it is inferred that there is significant shift in profitability thus supporting the assumption that most of the manufacturing firms in India show positive shift in profitability post-merger in long run.

Soni (2016) concluded that market return has minor effect on the script return in pre and post-merger duration based on the regression line analysis of top 10 (value wise) merger and acquisition but the paired t test do reveal that there is significance between market return, script return and abnormality among them but no specific difference pre and post-merger. Thus one can conclude that there are many other factors besides merger and acquisition that effect shareholder wealth creation.

Wann and Lamb (2016) stated that most of the merger and acquisition between a span of around 42 years (i.e. 1971 to 2013) took place in technical, industrial, financial and health care industry. Further the literature conveyed with proof that frequency of same industry merger and acquisition is more than that of cross industry merger and acquisition cases during the sample period and the event of merger and acquisition have increased trend during non-recession cycle as compared to recession cycle. Secondly the study revealed that the cumulative abnormal returns of same industry merger is higher as compared to the cross industry merger, this might be due to the assumed effect of synergy but there is no significant effect of economic cycle on abnormal returns of same industry merger compared to cross industry merger.

Pandya(2017) analyzed that the merger and acquisitions activityin India is growing at more than 100% growth rate per decade since 1980. It further stated that maximum mergers and acquisitions take place in manufacturing sector compared to non-manufacturing one and financial service sector as well as the real estate sector has shown surprising increase in the numbers of merger and acquisition in last decade (i.e. 2000-10). The periodic analysis bifurcated the tenure in to three different phases, first phase (1990-95) is termed as era of consolidation the second phase (1995-02) being era of foreign acquisition and the last phase (2002-09) can be considered as venturing abroad. Lastly the study stated that merger and acquisition is no longer.

RESEARCH GAP

Until now there has been very few research work in explaining specific industry performance with respect to Merger and Acquisition for Indian sectors. Though case specific analysis of merger and acquisition is carried out there are negligible papers considering the impact of merger and acquisition on aluminiumindustry of India as a whole. Thus under this research study efforts are made in this direction.

RESEARCH METHODOLOGY

Objective

The study has been undertaken to understand the merger and acquisition scenario in Indian Aluminium sector as well as to make comparative analysis of the impact of merger and acquisition on profitability of the selected entity of aluminium industry in India.

Hypotheses of the Study

The conclusion of the study is based on the hypotheses formulated below:

H_0: There is no significant impact of Merger and Acquisition on Profitability of selected AluminiumCompanies of India.

H_1: There is significant impact of Merger and Acquisition on Profitability of selected AluminiumCompanies of India.

Data Collection

Sample Size: 3 cases of Merger and Acquisition in Aluminium Companies.

Source:The present study is mainly based on Secondary Data, collected from the capital market database called **Prowess CIME** as well as **Company's Annual Reports**.

Period of Study: The period of study comprises of data on profitability for a period of 3 years prior to the merger and 3 years post-merger for each of the selected Aluminium Company.

Sample

Convenience sampling technique is being used due to lack of availability of data and the cases selected as per this technique are:

1. Case of Merger of Ess Dee Aluminium Ltd. and Indian Foils Ltd.

2. Case of Merger of Hindalco Industries Ltd and Novelis Ltd.
3. Case of Merger of Hindalco Industries Ltd and IndalAluminium Corporation Ltd.

Limitation of the study

- The foremost limitation of this study is that it is entirely based on secondary data.
- The scope of the study is limited to 3 mergers and acquisition that took place in aluminium sector hence making it difficult to generalize the result for entire sector.
- The present study is focused only on profitability ratio and that to Operational profit Ratio, Net Profit Ratio and Return on Net worth are only analyzed.
- The data analyzed is limited to 3 years duration pre and post merger.

Methodology Adopted

The purpose of the study is to analyze the extent to which Profitability of selected aluminium company is impacted by the activity of merger and acquisition. This is carried out by comparing the mean profitability between pre and post-merger period.
The profitability measure considered for the study are;

1. Operating Profit Ratio
2. Net Profit Ratio
3. Return on Net worth Ratio

Paired sample t-test is used to conclude whether there is a significant difference between the mean values of the same measure (profitability)used in two different conditions. Confidence levels of 95% have been set for difference in mean.The calculated ratios are shown below:

ESS DEE ALUMINIUM AND INDIAN FOILS MERGER								
Ratios	Pre-Merger Period Acquirer Company				Post-Merger Period			
	2005-06	2006-07	2007-08	Avg	2009-10	2010-11	2011-12	Avg
Operating Profit Ratio	23.35	24.06	26.54	24.65	26.48	25.9	20.54	24.31
Net Profit Ratio	15.03	19.63	22	18.89	32.85	17.34	10.32	20.17
Return on Net Worth	54	13.43	18.04	28.49	38.14	16.9	8.97	21.34

HINDALCO AND NOVELIS MERGER								
Ratios	Pre-Merger Period Acquirer Company				Post-Merger Period			
	2004-05	2005-06	2006-07	Avg	2008-09	2009-10	2010-11	Avg
Operating Profit Ratio	21.77	19.86	20.07	20.57	2.55	17.14	76	31.90
Net Profit Ratio	13.95	14.52	14	14.16	8.74	16.46	16.27	13.82
Return on Net Worth	20.65	17.23	17.33	18.40	0.75	16.39	126.53	47.89

HINDALCO AND INDAL MERGER								
Ratios	Pre-Merger Period Acquirer Company				Post-Merger Period			
	1997-98	1998-99	1999-00	Avg	2001-02	2002-03	2003-04	Avg
Operating Profit Ratio	41.78	44.8	46.53	44.37	30.85	21.47	20.63	24.3167
Net Profit Ratio	33.67	32.07	30.14	31.96	20.63	11.02	12.42	14.69
Return on Net Worth	18.09	17.4	16.11	17.2	6.17	9.9	12.34	9.47

ANALYSIS

➢ **Case of Merger of Ess Dee Aluminium Ltd. and Indian Foils Ltd.**

A) Operating Profit Ratio:

t-Test: Paired Two Sample for Means		
	Variable 1	Variable 2
Mean	24.65	24.31
Variance	2.81	10.72
Observations	3	3
Pearson Correlation	-0.99	
Df	2	
t Stat	0.12	
P(T<=t) two-tail	0.92	
t Critical two-tail	4.30	

The mean operating profit ratio for Ess Dee Aluminium Ltd was 24.65% for the period of 2005-06 to 2007-08 (pre-merger period) which has remained the same for period of 2009-10 to 2011-12 (post-merger period) i.e. 24.31%. The test for difference of mean was applied to check whether the difference between the pre and post period are significant or not. The test **accepts null hypothesis** as $t_{stat} \leq t_{tab}$ (i.e. 0.12 ≤ 4.30) thus **rejecting** that **"There is significant impact of Merger and Acquisition on Profitability of selected Aluminium Companies of India".**

B) Net Profit Ratio:

t-Test: Paired Two Sample for Means		
	Variable 1	Variable 2
Mean	18.89	20.17
Variance	12.56	132.91
Observations	3	3
Pearson Correlation	-1.00	
Df	2	
t Stat	-0.15	
P(T<=t) two-tail	0.90	
t Critical two-tail	4.30	

The mean net profit ratio for Ess Dee Aluminium Ltd was 18.89% for the period of 2005-06 to 2007-08 (pre-merger period) which has increased to 20.17% for period of 2009-10 to 2011-12 (post-merger period). The test for difference of mean was applied to check whether the difference between the pre and post period are significant or not. The test **accepts null hypothesis** as $t_{stat} \leq t_{tab}$ (i.e. -0.15 ≤ 4.30) thus **rejecting** that **"There is significant impact of Merger and Acquisition on Profitability of selected Aluminium Companies of India".**

C) Return on Net worth:

t-Test: Paired Two Sample for Means		
	Variable 1	*Variable 2*
Mean	28.49	21.34
Variance	493.38	227.49
Observations	3	3
Pearson Correlation	0.93	
Df	2	
t Stat	1.26	

P(T<=t) two-tail	0.33	
t Critical two-tail	4.30	

The mean return on net worth for Ess Dee Aluminium Ltd was 28.49% for the period of 2005-06 to 2007-08 (pre-merger period) which has reduced to 21.34% for period of 2009-10 to 2011-12 (post-merger period). The test for difference of mean was applied to check whether the difference between the pre and post period are significant or not. The test **accepts null hypothesis** as $t_{stat} \leq t_{tab}$ (i.e. 1.26 ≤ 4.30) thus **rejecting** that **"There is significant impact of Merger and Acquisition on Profitability of selected Aluminium Companies of India".**

➢ **Case of Merger of Hindalco Industries Ltd and Novelis Ltd.**

A. Operating Profit Ratio:

t-Test: Paired Two Sample for Means		
	Variable 1	Variable 2
Mean	20.57	31.90
Variance	1.10	1512.05
Observations	3	3
Pearson Correlation	-0.57	
Df	2	
t Stat	-0.50	
P(T<=t) two-tail	0.67	
t Critical two-tail	4.30	

The mean operating profit ratio for Hindalco Industries Ltd was 20.57% for the period of 2004-05 to 2006-07 (pre-merger period) which has increased to 31.90% for period of 2008-09 to 2010-11 (post-merger period). The test for difference of mean was applied to check whether the difference between the pre and post period are significant or not. The test **accepts null hypothesis** as $t_{stat} \leq t_{tab}$ (i.e. -0.50 ≤ 4.30) thus **rejecting** that **"There is significant impact of Merger and Acquisition on Profitability of selected Aluminium Companies of India".**

B. Net Operating Ratio:

t-Test: Paired Two Sample for Means		
	Variable 1	Variable 2
Mean	14.16	13.82
Variance	0.10	19.39
Observations	3	3
Pearson Correlation	0.58	
Df	2	
t Stat	0.14	
P(T<=t) two-tail	0.90	
t Critical two-tail	4.30	

The mean net profit ratio for Hindalco Industries Ltd was 14.16% for the period of 2004-05 to 2006-07 (pre-merger period) which has reduced to 13.82% for period of 2008-09 to 2010-11 (post-merger period). The test for difference of mean was applied to check whether the difference between the pre and post period are significant or not. The test **accepts null hypothesis** as $t_{stat} \leq t_{tab}$ (i.e. 0.14 ≤ 4.30) thus **rejecting** that **"There is significant impact of Merger and Acquisition on Profitability of selected Aluminium Companies of India".**

C. Return on Net worth:

t-Test: Paired Two Sample for Means		
	Variable 1	Variable 2
Mean	18.40	47.89

Variance	3.79	4699.34
Observations	3	3
Pearson Correlation	-0.57	
Df	2	
t Stat	-0.73	
P(T<=t) two-tail	0.54	
t Critical two-tail	4.30	

The mean return on net worth ratio for Hindalco Industries Ltd was 18.40% for the period of 2004-05 to 2006-07 (pre-merger period) which has increased to 47.89% for period of 2008-09 to 2010-11 (post-merger period). The test for difference of mean was applied to check whether the difference between the pre and post period are significant or not. The test **accepts null hypothesis** as $t_{stat} \leq t_{tab}$ (i.e. -0.73 ≤ 4.30) thus **rejecting** that **"There is significant impact of Merger and Acquisition on Profitability of selected Aluminium Companies of India".**

- **Case of Merger of Hindalco Industries Ltd and IndalAluminium Corporation Ltd.**

A. Operating Profit Ratio:

t-Test: Paired Two Sample for Means		
	Variable 1	Variable 2
Mean	44.37	24.32
Variance	5.78	32.19
Observations	3	3
Pearson Correlation	-0.96	
Df	2	
t Stat	4.34	
P(T<=t) two-tail	0.05	
t Critical two-tail	4.30	

The mean operating profit ratio for Hindalco Industries Ltd was 44.37% for the period of 1997-98 to 1999-00 (pre-merger period) which has drastically reduced to 24.32% for period of 2001-02 to 2003-04 (post-merger period). The test for difference of mean was applied to check whether the difference between the pre and post period are significant or not. The test **accepts alternative hypothesis** as $t_{stat} \geq t_{tab}$ (i.e. 4.34 ≥ 4.30) thus **rejecting** that **"There is no significant impact of Merger and Acquisition on Profitability of selected Aluminium Companies of India".**

B. Net Operating Ratio:

t-Test: Paired Two Sample for Means		
	Variable 1	*Variable 2*
Mean	31.96	14.69
Variance	3.12	26.95
Observations	3	3
Pearson Correlation	0.76	
Df	2	
t Stat	7.43	
P(T<=t) two-tail	0.02	
t Critical two-tail	4.30	

The mean net profit ratio for Hindalco Industries Ltd was 31.96% for the period of 1997-98 to 1999-00 (pre-merger period) which has drastically reduced to 14.69% for period of 2001-02 to 2003-04 (post-merger period). The test for difference of mean was applied to check whether the difference between the pre and post period are significant or not. The test **accepts alternative hypothesis** as $t_{stat} \geq t_{tab}$ (i.e. 7.43 ≥ 4.30) thus

rejecting that **"There is no significant impact of Merger and Acquisition on Profitability of selected Aluminium Companies of India".**

C. Return on Net worth:

t-Test: Paired Two Sample for Means		
	Variable 1	Variable 2
Mean	17.2	9.47
Variance	1.01	9.66
Observations	3	3
Pearson Correlation	-0.96	
Df	2	
t Stat	3.28	
P(T<=t) two-tail	0.08	
t Critical two-tail	4.30	

The mean return on net worth ratio for Hindalco Industries Ltd was 17.2% for the period of 1997-98 to 1999-00 (pre-merger period) which has drastically reduced to 9.47% for period of 2001-02 to 2003-04 (post-merger period). The test for difference of mean was applied to check whether the difference between the pre and post period are significant or not. The test **accepts null hypothesis** as $t_{stat} \leq t_{tab}$ (i.e. 3.28 ≤ 4.30) thus **rejecting** that **"There is significant impact of Merger and Acquisition on Profitability of selected Aluminium Companies of India".**

CONCLUSION

On the basis of analytical study of sample cases with the use of t-test reveals that the alternative hypothesis (H_1) is rejected for most of the aluminium firms in India. Overall it is inferred from the comparison of Profitability Ratios that there is no significant impact of merger and acquisition on profitability of selected aluminium companies pre and post-merger. The positive impact is only seen in the operational profit ratio and net profit ratio of Hindalco Industries Ltd. after merger with IndalAluminium Corporation Ltd. Thus the study concludes with the supporting findings of the existing research studies viz. Tambi (2005), Vanitha and Selvam (2011) and others that impact of profitability pre and post-merger is company specific which means it differs company to company.

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