# EFFECT OF MERGERS AND ACQUISITIONS ON FINANCIAL PERFORMANCE OF FIRMS ACROSS DIFFERENT SECTORS IN INDIA

*** Dr. Bisma Afzal Shah    ** Dr. Khursheed Ahmad Butt**

***Abstract :***

*Mergers and acquisitions are an integral and big part of corporate finance world. Mergers and acquisitions play a vital role in corporate finance by enabling firms achieve varied objectives and financial strategies. The objective of the study is to examine the impact of mergers and acquisitions on the financial performance of the various companies that have undergone merger or an acquisition across different sectors in India. The aim of the present study is to investigate whether there is any significant difference in the performance of the firms pre-merger/acquisition and post-merger/acquisition periods. Financial ratio analysis has been used to calculate change in the financial position of the companies during the period 2004-2009 has been calculated. The data has been collected from Centre for Monitoring Indian Economy. A paired sample t-test is adopted to check for any statistically significant difference between the means pre and post the deals. Besides, a regression analysis has been done to test the relationship between the dependent variable and the independent variable.The results revealed that M&A'swere not able to create significant changes in financial performancefor the individual firms. Majority of the changes in the financial ratios was found to be positive but the change was not found to be statistically significant.*

***Keywords :*** *Mergers and Acquisitions, Financial Performance, Financial Ratio Analysis*

## INTRODUCTION

With globalization and technological advancement, survival and sustaining of companies has become a big challenge. Companies are forced to rework on its strategies to survive in current market scenario. Routine activity in long term leads to a failure of the organization in no time. Hence, to survive in this highly competitive environment expanding at an explorative pace, it is necessary to diversify and explore the underutilized markets where by it would facilitate in enhancing its developmental process by gaining at a macro level. This would in turnraise the shareholders wealth. In order to attain the vision of the organization and to maintain sustainability, companies need to restructure their strategies. Corporate restructuring has facilitated thousands of companies to re-establish their competitive advantage and respond more quickly and effectively to new opportunities and unexpected challenges. Under different dynamic situations, a profitable growth of business can be achieved successfully, if as a proper strategic tool is

I Author :
**Dr. Bisma Afzal Shah**
Assistant Professor
Management Studies
Central University of Kashmir

II Author :
**Dr. Khursheed Ahmad Butt**
Professor, Dept of Commerce
University of Kashmir

adopted. A corporate may grow either by way organically or inorganic mode expansion strategy. Historically seen, companies achieve growth and expansion through Merger & Acquisitions. Since last twenty years, globalization and privatization have resulted into powerful competition not solely in Indian business but globally as well. In the modern global economy, mergers and acquisitions are being increasingly used world all over for improving competitiveness of companies through gaining greater market share, broadening the portfolio to reduce business risk, for entering new markets and geographies, attaining tax benefits, capitalizing on economies of scale etc. The reason behind any corporate merger or acquisition is that two companies are better than one because they increase shareholder value over and above that of the two separate firms. Financially strong companies comes forward to acquire other companies to create a more competitive, cost efficient company, to capture a great market share globally. The desire to sell parts of a company may come from poor performance of a division, or a change in the strategic orientation of the company. Because of these reasons, target companies will often agree to be acquired, knowingly unable to compete and survive alone in the cutthroat competitive market.

Mergers and acquisitions are one of the most effective and efficient way to survive and grow. India has emerged as one of the top countries with respect to merger and acquisition (M&A) deals. Indian corporate firms have been actively involved in merger and acquisition deals, domestically as well as internationally. Today mergers, acquisitions and other types of strategic alliances are on the agenda of most industrial groups intending to have an edge over their competitors. Different companies in India are expanding through mergers and acquisitions. In fact, since the past two decades,there has emerged a phenomenon called merger wave. Indian enterprises were subjected to strict control regime before 1990's. This led to haphazard growth of Indian corporate enterprises during that period. In Indian industry, mergers and acquisitions activity picked up in response to various economic reforms introduced by the Government of India since 1991, in its move towards liberalization and globalization.The cut-throat competition in international market compelled the Indian firms to opt for mergers and acquisitions strategies, making it a vital premeditated option.

Mergers and acquisitions decisions are critical to the success of corporations and their managers. The growing tendency towards mergers and acquisitions world-wide, has been driven by intensifying competition. There is a need to reach global size, to reduce costs, take advantage of economies of scale, increase investment in R&D for strategic gains, expand business into new areas and improve shareholder value which is the ultimate goal of every organisation. Investors need to consider the complex issues involved in such deals and as such, a proper cost-benefit analysis is required for the success of such deals.

## LITERATURE REVIEW

There have been numerous studies on mergers and acquisitions in India as well as abroad. An extensive review of literature has been carried out in order to enhance the level ofunderstanding in the area of mergers and acquisitions and gain insight into the impact of mergers and acquisitions on financial performance of firms across different sectors.

Kithinji (2007) analysed the effects of mergers on financial performance of non-listed banks in Kenya by focusing on the profitability of banks that merged between 1994 and 2001. The results revealed significant improvements in performance of non-listed companies that had not merged within the same period. Despite findings in previous researches on mergers, there is conflicting evidence on the financial implication of mergers in the banking industry in Kenya.

Yusuf (2016), in his study evaluated the post-merger financial health of Jordanian industrial sectors where in seven firms were selected as sample size for study involved in financial restructuring deal from period 2000 and 2014. Financial ratios and parametric t test was used to assess the significance of pre-post financial performance of selected firms. The study concluded that there was insignificant improvement seen in the post-merger period. Liquidity, profitability and market share showed no improvement in the selected manufacturing firms after merger deals.

Moctar & Chen (2014), examined the impact of merger and acquisitions on financial performance of commercials banks in West Africa. Two groups of banks that experienced mergers and acquisitions in economic community of West African states were selected as sample. Secondary data was collected through annual financial statement reviews of selected banks. To analyse the data, financial ratios viz liquid ratio, return on equity (ROE) and return on investment (ROI) were used to analyse the performance. The study revealed negative impact of mergers and acquisitions on the financial performance.

Jin et al., (2004), analysed the impact mergers and acquisitions had on the operational aspects of the publicly traded firms in China. The study used changes in revenue, profit margin, return on assets and the total asset turnover ratio before and after the mergers and acquisitions as proxies for firm performance and conducted tests to determine whether mergers and acquisitions resulted in significant changes. The study showed that there were significant improvements in total revenue, profit margin, and return on assets following mergers and acquisitions but there was no evidence of any significant impact on asset turnover ratio. They results also found evidence of significant market anticipation and over reaction to the mergers and acquisitions announcements.

Selvam et al.,(2009), conducted a study on the impact of mergers on the corporate performance of acquirer and target companies in India. A sample of companies which underwent merger in the same industry during the period of 2002-2005 listed on the Bombay Stock Exchange were studied. The study compared the liquidity performance of the thirteen sample acquirer and target companies before and after the period of mergers by using ratio analysis and t-test. It was found that the shareholders of the acquirer companies increased their liquidity performance after the merger event.

Ullah et al., (2010), evaluated whether merger delivers value, taking the case of Glaxo Smith/cline Merger. They analysed the pre and post-merger performance of the firm by applying the net present value approach of valuation. The study revealed that mega pharmaceutical merger failed to deliver value. The stock prices underperformed both in absolute and relative terms against the index. The merger resulted into substantial research and development reduction and downsizing instead of a potential employment haven.

Ismail et al.,(2010), conducted a study to explore improvements in the corporate performance of firms involved in merger and acquisition deals, using a sample of Egyptian companies in the period from 1996 to 2005 in the construction and technology sector. The results showed that merger and acquisition deals in the construction sector has contributed in improving the profitability of firms while in the technology sector, no improvements were discovered. For both the sectors, M & A's failed to improve efficiency, liquidity, solvency and cash flow positions.

Martynova, Oosting and Renneboog (2006), analysed the long term operating performance of European acquisitions that have undergone mergers and acquisitions during 1997–2001 and found that the profitability of the combined firm decreased significantly following the deals. Mode of payment, geographical scope and industry relatedness did not have significant explanatory power on profitability. Companies with excessive cash holdings are negatively related to performance while acquisitions of relatively larger targets result in better profitability of the combined firm subsequent to the acquisition.

Liargovas and Repousis (2011), examined the impact of mergers and acquisitions on the operating performance of Greek banking sector during 1996–2009 and found that bank mergers and acquisitions did not create value and operating performance did not improve following mergers and acquisitions.

Markides and Oyon (1988), compared a sample of 236 acquisitions by US firms of 189 European and 47 Canadian acquisitions. The findings revealed positive announcement effects for acquisitions of continental European targets but not for British or Canadian target firms.

Shahrur (2005), examined the returns that occurred around the announcement of 463 horizontal mergers and tender offers over the period 1987-1999. He found positive combined bidder and target returns and interpreted these findings to imply that market perceived these deals as efficiency enhancing.

Choi and Russell (2004), studied whether mergers and acquisitions in the construction sector in U.S. made any positive contributions to the performance of merging companies. They studied the deals that occurred between 1980 and 2002 and determined the factors that might have affected post-merger and acquisition performance as: method of payment, acquisition timing and transaction size. The findings revealed that the firms experienced insignificant improvements in performance and the method of payment, acquisition time, or target status, related diversifications, unrelated diversifications had no impact on post-merger or acquisition performance. Unlike the majority of studies that supported the method of payment as a primary factor influencing mergers and acquisitions, Choi and Russell (2004) found no evidence to support such results.

## OBJECTIVES OF THE STUDY

The present study has been carried out with an aim to access the impact of mergers and acquisitions on the financial performance of firms across different industries in India.

## RESEARCH METHODOLOGY

The present study is based on secondary data. The annual reports of the companies has been collected from CMIE database. Besides, money control, sify finance and BSE & NSE publications databases have also been used to collect the required data. A total number of 50 sample companies that have undergone merger or an acquisition from the period 2004-2009 have been studied.

Financial ratio analysis has been used to calculate key financial ratios before and after the merger or acquisition over an eight year period, four years before the merger or acquisition and four years post-merger or acquisition. Gross Profit Margin Ratio (%), Net Profit Margin Ratio (%), Return on Assets Ratio (%) and Return on Equity Ratio (%) are the ratios used for measuring financial performance.

A "paired sample t-test" at 5% level of significance has been used to test for any statistical difference between the means before and after the merger/acquisition. Besides, a cross-sectional regression analysis has also been conducted to test the relationship between the dependent variable and the independent variable.

This model takes the form:

$$AIAV_{POST} = \alpha + \beta . AIAV_{PRE} + \varepsilon$$

*AIAV* denotes the aggregate industry-adjusted values of the variables and the subscripts POST and PRE refer to the period after and before the deal. Alpha (α )is the intercept parameter, β, the slope parameter and ε denotes the error term. This equation depicts the aggregate post-merger/acquisition performance of the merging/acquiring firms using data pertaining to the aggregate pre-merger/acquisition performance by interpreting slope (β). But here, the researcher is interested in knowing the impact of an event i.e. merger or acquisition on post-merger/acquisition performance, so regression equation has been interpreted on the basis of value of alpha. Alpha (α)denotes the increase or decrease in post-merger/acquisition performance irrespective of the fact how the firm was performing before merger or acquisition. A positive alpha (α ) implies positive impact whereas a negative alpha means negative impact, reflecting a decline in post event performance.

## SAMPLING

A total of 1,368 mergers and acquisitions have taken place during the reference period of 2004-09. Due to time constraints and unavailability of financial data for a large number of companies, only 50 sample companies were analysed for the current study. Convenience sampling method was used to arrive at the final sample. The sample companies were selected across different industries viz: Banking, Computer Software, Cement, Drugs and Pharmaceuticals, Chemicals and Fertilizers, Textiles, Infrastructure, FMCG and Others. "Others" included the firms belonging to the industries like metal industry, paper industry, chemical industry beverage industry, and trading industry. Firms belonging to the above industries were clubbed together under the name "others", as fewer number of mergers and acquisitions have taken place in these industries. The list of the industries along with the merging/acquiring firms and merged/acquired firms is given in table below:

**List of Merging/Acquiring and Merged/Target Firms Undertaken for the Study**

| S.No | Industry | Merging/Acquiring Firm | Merged/Target Firm | Year |
|---|---|---|---|---|
| 1. | **Banking** | Axis Bank Ltd. | Shriram Investments Ltd. | 2004 |
| 2. | | HDFC Bank Ltd. | Centurion Bank of Punjab Ltd. | 2006 |
| 3. | | ICICI Bank Ltd. | CMC Ltd. | 2007 |
| 4. | | IDBI Bank Ltd. | Gajra Bevel Gears Ltd. | 2005 |
| 5. | | Oriental Bank of Commerce | Global Trust Bank Ltd. | 2004 |
| 6. | **Cement** | ACC Ltd. | Shiva Cement Ltd. | 2007 |
| 7. | | Ambuja Cements Ltd. | Ambuja Cement Eastern Ltd. | 2006 |
| 8. | | Keerthi Industries Ltd. | Hyderabad Flextech Ltd. | 2008 |

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| 9. | Chemicals & Fertilizers Ltd. | Chambal Fertilizers & Chemicals Ltd. | India Steamship Company Ltd. | 2004 |
| 10. | | Coromandel International Ltd. | Ficom Organics Ltd. | 2006 |
| 11. | | Grauer Weil (India) Ltd. | Bombay Paints Ltd. | 2006 |
| 12. | | Gujarat Narmada Valley Fertilizers & Chemicals Ltd. | Narmada Chematur Petrochemicals Ltd. | 2005 |
| 13. | | Gulshan Polyols Ltd. | Gulshan Sugars & Chemicals Ltd. | 2007 |
| 14. | | Southern Petrochemical Industries Corporation Ltd. | SPEL Semiconductor Ltd. | 2004 |
| 15. | Computer Software | Commex Technology Ltd. | Orient Information Technology Ltd. | 2007 |
| 16. | | Dion Global Solutions Ltd. | Relgare Technova Global Solutions Ltd. | 2009 |
| 17. | | Glodyne Technoserve Ltd. | Compulink Systems Ltd. | 2009 |
| 18. | | Megasoft Ltd. | Visualsoft Technologies Ltd. | 2006 |
| 19. | | Mindtree Ltd. | Aztechsoft ltd. | 2008 |
| 20. | Pharmaceuticals | Arch Pharmalabs Ltd. | Avon Organics Ltd. | 2007 |
| 21. | | Emami Ltd. | Zandu Realty Ltd. | 2008 |
| 22. | | IPCA Lab. Ltd. | Tonira Pharma Ltd. | 2007 |
| 23. | | Pfizer Ltd. | Pharmacia Healthcare Ltd. | 2004 |
| 24. | FMCG | Dalmia Bharat Sugar & Industries Ltd. | OCL India Ltd. | 2009 |
| 25. | | Golden Tobacco Ltd. | GHCL Ltd. | 2005 |
| 26. | | Hindustan Unilever Ltd. | Vashiti Detergents Ltd. | 2005 |
| 27. | | Mirc Electronics Ltd. | Onida Savak Ltd. | 2005 |
| 28. | | Videocon Industries Ltd. | EKL Appliances Ltd. | 2005 |
| 29. | Infrastructure | IVRCL Ltd. | Hindustan Dorr-Oliver Ltd. | 2005 |
| 30. | | Larsen & Tourbo Ltd. | Data Switchgear Ltd. | 2005 |
| 31. | | Peninsula Land Ltd. | Piramal Holdings Ltd. | 2004 |
| 32. | Textiles | Banswara Syntex Ltd. | Banswara Textile Mills Ltd. | 2004 |
| 33. | | GTN Industries Ltd. | Patspin India Ltd. | 2006 |
| 34. | | Nahar Industrial Enterprises Ltd. | Nahar Polyfilms Ltd. | 2006 |
| 35. | | RSWM Ltd. | Cheslind Textiles Ltd. | 2006 |
| 36. | | Shree Rajasthan Syntex Ltd. | Shree Rajasthan Texchem Ltd. | 2006 |
| 37. | | Spentex Industries Ltd. | CLC Global Ltd. | 2004 |
| 38. | | Welpsun India Ltd. | Glofame Cotspin Industries Ltd. | 2004 |

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|---|---|---|---|---|
| 39. | Others | DCM Shriram Industries Ltd. | Daurala Organics Ltd. | 2004 |
| 40. | | Forbes Company Ltd. | FAL Industries Ltd. | 2005 |
| 41. | | HIL Ltd. | Malabar Building Products Ltd. | 2005 |
| 42. | | Hindalco Industries Ltd. | Indian Aluminium Company Ltd. | 2007 |
| 43. | | ISMT Ltd. | Indian Seamless Metal Tubes Ltd. | 2005 |
| 44. | | Supreme Petrochemical Ltd. | SPL Polymers Ltd. | 2007 |
| 45. | | United Spirits Ltd. | Balaji Distilleries Ltd. | 2008 |
| 46. | | VIP Industries Ltd. | Aristocrat Luggage Ltd. | 2005 |
| 47. | | Pittsburgh Iron & Steel Ltd. | Bellary Steels & Alloys Ltd. | 2005 |
| 48. | | JL Morison (India) Ltd. | Hindustan Composites Ltd. | 2006 |
| 49. | | Seshasayee Paper & Boards Ltd. | Ponni Sugars Ltd. | 2008 |
| 50. | | West Coat Paper Mills Ltd. | Shree Rama Newsprint Ltd. | 2009 |

***Source:*** *CMIE*

## RESULTS AND DISCUSSIONS

In the present study, an effort has been made to assess the impact of mergers & acquisitions on the financial performance of individual sample firms. Operating performance generally gets reflected in the financial performance keeping all the other things constant. The financial performance is generally measured using profitability ratios expressed in relation to sales and investments. It is in view of this fact, the impact of M&A's on financial performance is assessed with the help of GPM, NPM, ROA and ROE. GPM and NPM measures profitability in relation to sales and the other two ratios viz. ROA and ROE assesses profitability in relation to investments in assets and equity. The values of financial ratios used to analyse the impact on financial performance of firms have been detailed out in tables I, II, III and IV.

Perusal of ratios detailed out in table I and II reveals that the GPM ratio with respect to 29 firms has recorded an improvement. Somewhat similar results are witnessed with respect to NPM ratio which has shown an increase with respect to 32 firms out of a sample of 50 firms. The remaining firms viz. 21 (42 percent) and 18 (36 percent) have witnessed a decline in GPM ratio & NPM ratio respectively post M&A, thus indicative of mixed results about the impact of M&A's on the profitability expressed in relation to sales.

Mean differences of industry-adjusted pre and post GPM ratio and NPM ratio is important. What is more important is the statistical significance of mean differences. Paired sample t-test has been used to assess whether the mean differences are statistically significant, the results of which have been shown in the below referred table. It can be seen from the table that based on the GPM ratio, out of 29 sample firms which recorded an improvement, the mean difference with respect to 12 (41.37 percent) firms viz HDFC Bank Ltd., Chambal Fertilizers & Chemicals Ltd., Pfizer Ltd., Mirc Electronics Ltd., Videocon

Industries Ltd., Larsen & Tourbo Ltd., Welpsun India Ltd., DCM Shriram Industries Ltd., Forbes Company Ltd., HIL Ltd., ISMT Ltd. and VIP Industries Ltd. is found statistically significant at 5 percent level of significance. Similarly on the basis of NPM ratio, the mean difference is found statistically significant at 5 percent level of significance with respect to 10 (31.5 percent) sample firms, who have recorded improvement in the ratio. With respect to the firms which have recorded negative performance, 5 and 3 firms based on GPM and NPM ratio respectively has been found statistically significant. This in other words means that though good number of sample M&A's have witnessed decline in profitability but the decline in majority of the cases is not found statistically significant.

Impact on financial performance also has been analysed using profitability expressed in relation to investment and assets by employing ROA and ROE ratios (table III and table IV). ROA depicts the return earned on the total capital employed in different assets of a firm. Whereas, ROE reveals the net return earned on the equity capital. Perusal of the data contained in the below referred table brings to fore that the industry-adjusted ROA has increased with respect to 29 sample firms, which means 21 firms have witnessed a decline in ROA out of the total sample of 50 firms. With respect to the firms whose ROA has increased post M&A, the difference in industry-adjusted mean ROA is found statistically significant at 5 percent level of significance in case of 6 companies. In case of the sample firms which have witnessed decline in industry-adjusted mean ROA after merger or acquisition, the difference in mean returns has been found statistically significant at 5 percent level of significance in case of 3 sample firms only out of total 21 firms.

The overall picture that emerges from the above is that the M&A's has been found to have impacted industry-adjusted ROA in both ways i.e. positively and negatively. But the positive impact in majority of the cases is found statistically insignificant. Similarly, negative impact was also found to be statistically insignificant for majority of the firms. All the sample firms in the banking industry, 5 out of 6 sample firms in chemical and fertilizer industry and 4 out of 5 firms in FMCG industry witnessed positive impact on industry-adjusted mean ROA, however, the positive impact with respect to 3 sample firms only is found statistically significant. The performance of only 1 firm namely Southern Petrochemical Industries Ltd. is found to have deteriorated and is statistically significant at 5 percent level of significance. Compared to the firms of these industries, majority of sample firms belonging to computer software industry have witnessed negative impact on industry-adjusted mean ROA, and the impact is found to be statistically insignificant at 5 percent level of significance for all the firms. The firms belonging to other industry groups have witnessed mixed results with respect to the impact of merger or acquisition on industry-adjusted ROA.

Perusing the data about the ROE contained in table IV has revealed that the industry- adjusted mean ROE has increased in case of 29 sample firms out of the total sample of 50 firms whereas, the industry-adjusted mean ROE has declined post-merger or acquisition in case of 21 firms, accounting for 42 percent of the total sample. From the paired t-test, the data of which is contained in the below referred table, it becomes clear that in case of 29 sample firms, whose ROE has increased post-merger or acquisition, the industry-adjusted mean difference in ROE is found statistically significant only in case of 8 firms at 5 percent level of significance. This implies that though, it seems that merger or acquisition has positively impacted ROE, yet in majority of the cases, the impact on ROE is not found statistically significant. With respect to the companies which have witnessed negative impact on industry-adjusted mean ROE, the difference in industry- adjusted mean ROE is not found statistically significant in majority of the sample firms at 5 percent level of significance. It can be seen from the below referred table that the negative performance in case of 2 firms only out of 21 firms is found statistically significant, implying thereby, that though out of a sample of 50 firms, 21 firms have revealed a decline industry-adjusted mean ROE, yet in majority of the case, the negative impact is not found statistically significant.

**Table I-Pre & Post Industry-Adjusted Mean GPM of the Sample Firms**

| Firm | Post M & A | Pre M & A | Change in Performance | Impact on Performance | T-Test (P-Value) |
|---|---|---|---|---|---|
| *AXIS Bank Ltd.* | 2.92 | 5.22 | -2.31 | Deteriorated | 0.39 |
| *HDFC Bank Ltd.* | 13.88 | -3.69 | 17.57 | Improved | 0.00* |
| *ICICI Bank Ltd.* | -6.22 | -5.27 | -0.94 | Deteriorated | 0.82 |
| *IDBI Bank Ltd.* | -13.05 | -13.20 | 0.15 | Improved | 0.40 |
| *Oriental Bank ofCommerce* | 0.36 | -2.75 | 3.11 | Improved | 0.59 |
| *ACC Ltd.* | 30.22 | 6.39 | 23.82 | Improved | 0.48 |
| *Ambuja Cements Ltd.* | 4.53 | 8.95 | -4.43 | Deteriorated | 0.21 |
| *Keerthi Industries Ltd.* | -7.23 | -24.38 | 17.15 | Improved | 0.08 |
| *Chambal Fertilizers & Chemicals Ltd.* | 0.50 | -6.64 | 7.14 | Improved | 0.04* |
| *Coromandel International Ltd.* | -7.69 | -3.82 | -3.87 | Deteriorated | 0.05* |
| *Grauer Weil (India) Ltd.* | 6.44 | 7.68 | -1.24 | Deteriorated | 0.16 |
| *Gujarat Narmada Valley Fertilizers & Chemicals Ltd.* | 4.65 | 8.42 | -3.78 | Deteriorated | 0.23 |
| *Gulshan Polyols Ltd.* | 7.22 | 11.26 | -4.04 | Deteriorated | 0.40 |
| *Southern Petrochemical Industries Corporation Ltd.* | -11.47 | -2.24 | -9.23 | Deteriorated | 0.02* |
| *Commex Technology Ltd.* | -9.20 | -39.64 | 30.44 | Improved | 0.12 |
| *Dion Global Solutions Ltd.* | 27.67 | 45.85 | -18.18 | Deteriorated | 0.18 |
| *Glodyne Technoserve Ltd.* | 2.47 | 8.85 | -6.38 | Deteriorated | 0.29 |
| *Megasoft Ltd.* | 25.74 | 17.37 | 8.37 | Improved | 0.48 |
| *Mindtree Ltd.* | -10.70 | -5.23 | -5.47 | Deteriorated | 0.11 |

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|---|---|---|---|---|---|
| *ARCH Pharmalabs Ltd.* | -7.31 | -6.61 | -0.70 | Deteriorated | 0.83 |
| *EMAMI Ltd.* | 13.82 | 5.89 | 7.93 | Improved | 0.24 |
| *IPCA Lab. Ltd.* | 4.54 | 4.14 | 0.40 | Improved | 0.49 |
| *Pfizer ltd* | 15.32 | 5.95 | 9.37 | Improved | 0.00* |
| *Dalmia Bharat Sugar &IndustriesLtd* | -14.09 | 2.32 | -16.40 | Deteriorated | 0.21 |
| *Golden Tobacco ltd* | 30.45 | 19.18 | 11.26 | Improved | 0.38 |
| *Hindustan Unilever Ltd* | 4.23 | -4.13 | 8.36 | Improved | 0.35 |
| *Mirc Electronics Ltd* | -13.18 | -22.96 | 9.79 | Improved | 0.03* |
| *Videocon Industries Ltd* | -1.66 | -25.50 | 23.85 | Improved | 0.01* |
| *IVRCL Ltd* | -6.52 | -10.07 | 3.56 | Improved | 0.29 |
| *Larsen & Tourbo Ltd* | 1.52 | -32.80 | 34.32 | Improved | 0.05* |
| *Peninsula Land Ltd.* | 28.02 | 31.87 | -3.86 | Deteriorated | 0.83 |
| *Banswara Syntex Ltd.* | 9.85 | 23.70 | -13.85 | Deteriorated | 0.01* |
| *GTN Industries Ltd.* | 0.45 | 5.83 | -5.38 | Deteriorated | 0.12 |
| *Nahar Industrial Enterprises Ltd* | 2.71 | 1.93 | 0.79 | Improved | 0.78 |
| *RSWM Ltd* | 5.30 | 4.73 | 0.57 | Improved | 0.76 |
| *Shree Rajasthan Syntex Ltd* | -0.43 | 0.26 | -0.69 | Deteriorated | 0.81 |
| *Spentex Industries Ltd* | -1.21 | -1.10 | -0.11 | Deteriorated | 0.97 |
| *Welpsun India Ltd* | 16.20 | 6.40 | 9.80 | Improved | 0.01* |
| *DCM Shriram Industries Ltd* | 11.14 | 2.36 | 8.78 | Improved | 0.04* |
| *Forbes Company Ltd* | -0.38 | -11.81 | 11.43 | Improved | 0.01* |
| *HIL Ltd* | 12.13 | -1.16 | 13.29 | Improved | 0.00* |
| *Hindalco Industries Ltd* | 3.16 | -0.33 | 3.49 | Improved | 0.16 |

***Note:*** *(*) Statistically significant at 5% level of Significance*

***Source:*** *CMIE*

## Table II - Pre & Post Industry-Adjusted Mean NPM of the Sample Firms

| Firm | Post M & A | Pre M & A | Change in Performance | Impact on Performance | T-Test (P-Value) |
|---|---|---|---|---|---|
| *Axis Bank Ltd.* | 4.83 | -1.61 | 6.44 | Improved | 0.00* |
| *HDFC Bank Ltd.* | 5.53 | -4.88 | 10.41 | Improved | 0.04* |
| *ICICI Bank Ltd.* | 2.44 | 1.45 | 0.99 | Improved | 0.51 |
| *IDBI Bank Ltd.* | -0.99 | -4.13 | 3.14 | Improved | 0.06 |
| *Oriental Bank ofCommerce* | 2.85 | -11.90 | 14.75 | Improved | 0.05* |
| *ACC Ltd.* | 1.34 | 1.12 | 0.22 | Improved | 0.95 |
| *Ambuja Cements Ltd.* | 6.42 | 6.20 | 0.22 | Improved | 0.92 |
| *Keerthi Industries Ltd.* | -8.32 | 24.27 | -32.59 | Deteriorated | 0.60 |
| *Chambal Fertilizers & Chemicals Ltd.* | 2.16 | -2.94 | 5.10 | Improved | 0.09 |
| *Coromandel International Ltd.* | 0.60 | -3.78 | 4.38 | Improved | 0.01* |
| *Grauer Weil (India) Ltd.* | 0.82 | -6.11 | 6.93 | Improved | 0.12 |
| *Gujarat Narmada Valley Fertilizers & Chemicals Ltd.* | 5.41 | 0.74 | 4.67 | Improved | 0.02* |
| *Gulshan Polyols Ltd.* | 2.86 | -1.33 | 4.19 | Improved | 0.06 |
| *Southern PetrochemicalIndustries Corporation Ltd.* | -26.60 | -13.43 | -13.17 | Deteriorated | 0.08 |
| *Commex Technology Ltd.* | -99.28 | -84.47 | -14.81 | Deteriorated | 0.90 |
| *Dion Global Solutions Ltd.* | -34.36 | -23.28 | -11.08 | Deteriorated | 0.71 |
| *Glodyne Technoserve Ltd.* | 0.05 | -1.15 | 1.20 | Improved | 0.93 |
| *Megasoft Ltd.* | 7.87 | 3.45 | 4.42 | Improved | 0.44 |
| *Mindtree Ltd.* | 3.17 | 6.17 | -3.01 | Deteriorated | 0.28 |
| *Arch Pharmalabs Ltd.* | -5.15 | -0.73 | -4.42 | Deteriorated | 0.01* |
| *Emami Ltd.* | -1.22 | 4.80 | -6.03 | Deteriorated | 0.04* |
| *IPCA Lab. Ltd.* | 0.66 | 2.59 | -1.93 | Deteriorated | 0.45 |
| *Pfizer Ltd.* | 7.30 | -2.63 | 9.93 | Improved | 0.36 |
| *Dalmia Bharat Sugar &Industries Ltd.* | -4.02 | 6.30 | -10.32 | Deteriorated | 0.14 |

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|---|---|---|---|---|---|
| *Golden Tobacco Ltd.* | 0.23 | -8.81 | 9.04 | Improved | 0.10 |
| *Hindustan Unilever Ltd.* | 6.43 | 0.82 | 5.61 | Improved | 0.03* |
| *MIRC Electronics Ltd.* | -4.27 | -7.38 | 3.11 | Improved | 0.50 |
| *Videocon Industries Ltd.* | 2.48 | -23.30 | 25.78 | Improved | 0.03* |
| *IVRCL Ltd.* | -1.60 | 1.37 | -2.97 | Deteriorated | 0.02* |
| *Larsen & Tourbo Ltd.* | 1.09 | -215.81 | 216.90 | Improved | 0.00* |
| *Peninsula Land Ltd.* | 22.35 | -7.29 | 29.64 | Improved | 0.14 |
| *Banswara Syntex Ltd.* | 1.39 | 4.80 | -3.41 | Deteriorated | 0.35 |
| *GTN Industries Ltd.* | -3.77 | 1.68 | -5.45 | Deteriorated | 0.13 |
| *Nahar Industrial Enterprises Ltd.* | 1.62 | -0.71 | 2.33 | Improved | 0.50 |
| *RSWM Ltd.* | -0.17 | 1.11 | -1.28 | Deteriorated | 0.59 |
| *Shree Rajasthan Syntex Ltd.* | -1.20 | -0.10 | -1.10 | Deteriorated | 0.42 |
| *Spentex Industries Ltd.* | -0.33 | -6.54 | 6.21 | Improved | 0.00* |
| *Welpsun India Ltd.* | 4.50 | -7.08 | 11.58 | Improved | 0.14 |
| *DCM Shriram Industries Ltd.* | -3.21 | -1.91 | -1.30 | Deteriorated | 0.19 |
| *Forbes Company Ltd.* | -9.17 | -4.00 | -5.17 | Deteriorated | 0.48 |
| *HIL Ltd.* | 0.20 | -1.12 | 1.32 | Improved | 0.55 |
| *Hindalco Industries Ltd.* | 5.78 | 4.00 | 1.78 | Improved | 0.08 |
| *ISMT Ltd.* | 2.84 | -7.13 | 9.97 | Improved | 0.02* |
| *Supreme Petrochem ical Ltd.* | -2.31 | -5.30 | 3.00 | Improved | 0.10 |
| *United Spirits Ltd.* | -3.97 | -5.75 | 1.78 | Improved | 0.30 |
| *VIP Industries Ltd.* | -2.19 | -3.40 | 1.21 | Improved | 0.22 |
| *Pittsburgh Iron & Steel Ltd.* | -44.45 | -103.31 | -452.36 | Improved | 0.33 |

***Note:*** *(*) Statistically significant at 5% level of Significance*

***Source:*** *CMIE*

**Table III - Pre & Post Industry-Adjusted Mean ROA of the Sample Firms**

| Firm | Post M & A | Pre M & A | Change in Performance | Impact on Performance | T-Test (P-Value) |
|---|---|---|---|---|---|
| *Axis Bank Ltd.* | 0.32 | 0.06 | 0.26 | Improved | 0.00* |
| *HDFC Bank Ltd.* | 0.68 | -0.57 | 1.25 | Improved | 0.08 |
| *ICICI Bank Ltd.* | 0.26 | 0.10 | 0.17 | Improved | 0.53 |
| *IDBI Bank Ltd.* | -0.16 | -0.25 | 0.09 | Improved | 0.35 |
| *Oriental Bank ofCommerce* | 0.17 | -0.98 | 1.15 | Improved | 0.13 |
| *ACC Ltd.* | 2.09 | 2.24 | -0.15 | Deteriorated | 0.97 |
| *Ambuja Cements Ltd.* | 8.76 | 5.85 | 2.91 | Improved | 0.57 |
| *Keerthi Industries Ltd.* | -9.21 | 6.60 | -15.81 | Deteriorated | 0.36 |
| *Chambal Fertilizers & Chemicals Ltd.* | -0.62 | -4.48 | 3.86 | Improved | 0.08 |
| *Coromandel International Ltd.* | 2.75 | -2.09 | 4.84 | Improved | 0.08 |
| *Grauer Weil (India) Ltd.* | -1.65 | -5.96 | 4.31 | Improved | 0.38 |
| *Gujarat Narmada Valley Fertilizers & Chemicals Ltd.* | 2.89 | -0.47 | 3.36 | Improved | 0.11 |
| *Gulshan Polyols Ltd.* | 3.10 | -0.21 | 3.31 | Improved | 0.17 |
| *Southern Petrochemical Industries Corporation Ltd.* | -19.10 | -8.77 | -10.33 | Deteriorated | 0.03* |
| *Commex Technology Ltd.* | -38.39 | -16.04 | -22.35 | Deteriorated | 0.31 |
| *Dion Global Solutions Ltd.* | -12.99 | 3.39 | -16.38 | Deteriorated | 0.29 |
| *Glodyne Technoserve Ltd.* | 7.33 | 9.10 | -1.77 | Deteriorated | 0.90 |
| *Megasoft Ltd.* | -1.64 | -0.89 | -0.75 | Deteriorated | 0.83 |
| *Mindtree Ltd.* | 6.30 | 6.70 | -105.64 | Deteriorated | 0.85 |
| *Arch Pharmalabs Ltd.* | -5.34 | -4.66 | -0.68 | Deteriorated | 0.75 |
| *Emami Ltd.* | 1.26 | 11.80 | -10.54 | Deteriorated | 0.02* |
| *IPCA Lab. Ltd.* | 2.68 | -1.37 | 4.04 | Improved | 0.29 |
| *Pfizer Ltd.* | 6.25 | -3.88 | 10.13 | Improved | 0.10 |

| | | | | | |
|---|---|---|---|---|---|
| *Dalmia Bharat Sugar &Industries Ltd.* | -4.18 | 1.60 | -5.77 | Deteriorated | 0.14 |
| *Golden Tobacco Ltd.* | 4.02 | -7.57 | 11.59 | Improved | 0.14 |
| *Hindustan Unilever Ltd.* | 21.06 | 7.70 | 13.36 | Improved | 0.02* |
| *MIRC Electronics Ltd.* | -0.98 | -3.01 | 2.03 | Improved | 0.45 |
| *Videocon Industries Ltd.* | 1.08 | -18.78 | 19.86 | Improved | 0.02* |
| *IVRCL Ltd.* | -2.25 | 3.01 | -5.27 | Deteriorated | 0.02* |
| *Larsen & Tourbo Ltd.* | 1.34 | -13.62 | 14.96 | Improved | 0.00* |
| *Peninsula Land Ltd.* | 6.38 | -9.45 | 15.83 | Improved | 0.13 |
| *Banswara Syntex Ltd.* | 1.39 | 21.34 | -19.95 | Deteriorated | 0.29 |
| *GTN Industries Ltd.* | -3.38 | 0.86 | -4.24 | Deteriorated | 0.10 |
| *Nahar Industrial Enterprises Ltd.* | 0.45 | -0.79 | 1.24 | Improved | 0.65 |
| *RSWM Ltd.* | -0.50 | 1.67 | -2.17 | Deteriorated | 0.43 |
| *Shree Rajasthan Syntex Ltd.* | -1.36 | 0.05 | -1.41 | Deteriorated | 0.39 |
| *Spentex Industries Ltd.* | 1.20 | -4.42 | 5.62 | Improved | 0.06 |
| *Welpsun India Ltd.* | 1.75 | -5.69 | 7.44 | Improved | 0.16 |
| *DCM Shriram Industries Ltd.* | -2.39 | -2.41 | 0.03 | Improved | 0.99 |
| *Forbes Company Ltd.* | -6.36 | -4.08 | -2.28 | Deteriorated | 0.52 |
| *HIL Ltd.* | 3.14 | -0.94 | 4.08 | Improved | 0.24 |
| *Hindalco Industries Ltd.* | 1.59 | 0.87 | 0.72 | Improved | 0.47 |
| *ISMT Ltd.* | 0.96 | -6.15 | 7.11 | Improved | 0.01* |
| *Supreme Petrochem ical Ltd.* | 1.32 | -4.46 | 5.78 | Improved | 0.01* |
| *United Spirits Ltd.* | -3.81 | -14.12 | 10.31 | Improved | 0.26 |
| *VIP Industries Ltd.* | -1.00 | -4.70 | 3.70 | Improved | 0.06 |

***Note:*** *(*) Statistically significant at 5% level of Significance*

***Source:*** *CMIE*

**Table IV- Pre & Post Industry-Adjusted Mean ROE of the Sample Firms**

| Firm | Post M & A | Pre M & A | Change in Performance | Impact on Performance | T-Test (P-Value) |
|---|---|---|---|---|---|
| *Axis Bank Ltd.* | 6.79 | -1.97 | 8.76 | Improved | 0.02* |
| *HDFC Bank Ltd.* | 4.76 | -43.01 | 47.77 | Improved | 0.25 |
| *ICICI Bank Ltd.* | -1.88 | 4.61 | -6.49 | Deteriorated | 0.26 |
| *IDBI Bank Ltd.* | -1.48 | -5.34 | 3.86 | Improved | 0.02* |
| *Oriental Bank ofCommerce* | 2.19 | -25.70 | 27.89 | Improved | 0.29 |
| *ACC Ltd.* | 8.20 | 5.91 | 2.29 | Improved | 0.80 |
| *Ambuja Cements Ltd.* | 13.30 | 19.04 | -5.74 | Deteriorated | 0.59 |
| *Keerthi Industries Ltd.* | -4.82 | -15.18 | 10.37 | Improved | 0.95 |
| *Chambal Fertilizers & Chemicals Ltd.* | 2.43 | -17.15 | 19.58 | Improved | 0.01* |
| *Coromandel International Ltd.* | 16.57 | -9.82 | 26.39 | Improved | 0.03* |
| *Grauer Weil (India) Ltd.* | -5.00 | -16.00 | 11.00 | Improved | 0.11 |
| *Gujarat Narmada Valley Fertilizers & Chemicals Ltd.* | 2.47 | -3.28 | 5.75 | Improved | 0.17 |
| *Gulshan Polyols Ltd.* | 3.47 | 7.02 | -3.56 | Deteriorated | 0.67 |
| *Southern PetrochemicalIndustries Corporation Ltd.* | -115.64 | -79.46 | -36.18 | Deteriorated | 0.69 |
| *Commex Technology Ltd.* | -18.22 | -18.66 | 0.45 | Improved | 0.89 |
| *Dion Global Solutions Ltd.* | -46.67 | -80.22 | 33.55 | Improved | 0.25 |
| *Glodyne Technoserve Ltd.* | 7.05 | 16.14 | -9.10 | Deteriorated | 0.68 |
| *Megasoft Ltd.* | -7.53 | -4.50 | -3.03 | Deteriorated | 0.55 |
| *Mindtree Ltd.* | 3.63 | 7.27 | -3.65 | Deteriorated | 0.59 |
| *Arch Pharmalabs Ltd.* | -6.59 | 8.40 | -14.99 | Deteriorated | 0.35 |
| *Emami Ltd.* | 1.58 | 16.63 | -15.05 | Deteriorated | 0.04* |
| *IPCA Lab. Ltd.* | 4.73 | -6.39 | 11.12 | Improved | 0.15 |
| *Pfizer Ltd.* | 14.32 | -15.12 | 29.44 | Improved | 0.10 |
| *Dalmia Bharat Sugar &Industries Ltd.* | -11.30 | 10.95 | -22.25 | Deteriorated | 0.12 |

| | | | | | |
|---|---|---|---|---|---|
| *Golden Tobacco Ltd.* | 116.46 | -34.13 | 150.58 | Improved | 0.35 |
| *Hindustan Unilever Ltd.* | 78.09 | 13.35 | 64.74 | Improved | 0.04* |
| *MIRC Electronics Ltd.* | -3.00 | 16.70 | -19.70 | Deteriorated | 0.79 |
| *Videocon Industries Ltd.* | -0.27 | -93.72 | 93.45 | Improved | 0.08 |
| *IVRCL Ltd.* | -5.53 | 10.70 | -16.23 | Deteriorated | 0.01* |
| *Larsen & Tourbo Ltd.* | 7.19 | -44.00 | 51.19 | Improved | 0.10 |
| *Peninsula Land Ltd.* | -133.87 | -62.65 | -71.22 | Deteriorated | 0.68 |
| *Banswara Syntex Ltd.* | 8.00 | -21.97 | 29.97 | Improved | 0.51 |
| *GTN Industries Ltd.* | -19.39 | 1.17 | -20.56 | Deteriorated | 0.12 |
| *Nahar Industrial Enterprises Ltd.* | -0.54 | -4.44 | 3.90 | Improved | 0.58 |
| *RSWM Ltd.* | -3.11 | 2.43 | -5.54 | Deteriorated | 0.67 |
| *Shree Rajasthan Syntex Ltd.* | -6.97 | -1.50 | -5.47 | Deteriorated | 0.47 |
| *Spentex Industries Ltd.* | 2.17 | -98.41 | 100.58 | Improved | 0.25 |
| *Welpsun India Ltd.* | 4.37 | -264.69 | 269.06 | Improved | 0.14 |
| *DCM Shriram Industries Ltd.* | -1.00 | -0.45 | -0.55 | Deteriorated | 0.93 |
| *Forbes Company Ltd.* | -16.17 | -10.95 | -5.58 | Deteriorated | 0.61 |
| *HIL Ltd.* | 8.45 | -6.87 | 15.32 | Improved | 0.16 |
| *Hindalco Industries Ltd.* | -1.54 | -1.82 | 0.28 | Improved | 0.90 |
| *ISMT Ltd.* | 11.30 | -20.92 | 32.22 | Improved | 0.01* |
| *Supreme Petrochem ical Ltd.* | 8.19 | -9.45 | 17.64 | Improved | 0.03* |
| *United Spirits Ltd.* | -10.42 | -24.16 | 13.74 | Improved | 0.23 |
| *VIP Industries Ltd.* | 1.99 | -12.66 | 14.65 | Improved | 0.27 |
| *Pittsburgh Iron & Steel Ltd.* | -51.24 | -73.61 | 22.37 | Improved | 0.02* |

***Note:*** *(*) Statistically significant at 5% level of Significance*

***Source:*** *CMIE*

## REGRESSION ANALYSIS

The paired sample t-test has been used to analyse the statistical significance of the difference between pre and post-merger or acquisition performance. A cross-sectional regression analysis has also been used as a confirmatory tool for the findings based on paired sample t-test. The cross-sectional regression is used to determine whether post- merger or acquisition performance of sample firms improves irrespective of the possible impact of the performances of pre-merger or acquisition period. The results of cross-sectional regression model has been illustrated in table given below. The intercept or alpha (α) shown in column 2 reflects the change in controlled annual industry-adjusted performance due to merger/acquisition and is independent of the pre-merger/acquisition performance as its value is obtained when the value of pre-merger industry-adjusted performance is zero. The beta reflects the slope i.e. the correlation between the performance measures in the pre and post M&A years. In other words, it depicts how much each unit change in a given measure before merger or acquisition changes its value post-merger/acquisition. Further an R2 shows to what extent variation in dependent variable is explained by the independent variable.

The impact of M&A's on the financial performance of sample firms has been assessed. Perusal of the results of the ratios used for measuring financial performance has revealed that with respect to GPM and ROE, the aggregate intercept is positive with 2.771 for GPM and 0.305 for ROE. This is indicative of the fact that the sample mergers/acquisitions have positive impact on the post M&A financial performance of sample firms reflected by these two measures. The beta of GPM ratio is 0.519 with R2 of 0.270 implying average correlation between pre and post M&A aggregate GPM and only 27 percent variation in the dependent variable is explained by the independent variable. The beta and R2 for ROE is low as compared to GPM ratio which is evident from the difference in statistical significance of the two measures.

Compared to GPM & ROE ratios, the impact of M&A on financial performance revealed by the aggregate NPM and ROA ratios is found negative as the intercept (α) of these two ratios is found to be negative. As can be seen from the table, the intercept (α) for the aggregate NPM and ROA ratios is -1.226 & -0.542 respectively. However, the negative impact of M&A's on post-merger/acquisition aggregate NPM and ROA ratios is not found statistically significant at 5 percent level of significance as revealed by the p-values of their t-static. The differing results of aggregate profitability ratios expressed in relation to sales and also the ratios expressed in relation to investments may be attributed to the differences in the financial structure of the sample firms. Positive impact on the aggregate GPM ratio is expected to get reflected in aggregate NPM ratio. But the aggregate NPM ratio turns out to be negative, this may be attributed to the changes in financial structure of the sample firms post-merger or acquisition i.e. increased financial expenses. The similar explanation may apply to the differing results of ROA and ROE ratios.

**Regression Analysis of Financial Performance of Sample Firms**

| Ratios | Constant | Sig. (t) | Beta (R) | Sig. (t) | $R^2$ | Sig. (F) |
|---|---|---|---|---|---|---|
| **GPM (%)** | 2.771 | 0.079 | 0.519 | 0.000 | 0.270 | 0.000 |
| **NPM (%)** | -1.226 | 0.601 | 0.400 | 0.004 | 0.160 | 0.004 |
| **ROA (%)** | -0.542 | 0.658 | 0.407 | 0.003 | 0.165 | 0.003 |
| **ROE (%)** | 0.305 | 0.954 | 0.225 | 0.117 | 0.050 | 0.117 |
| | a. Dependent Variable: Post industry -adjusted mean value | | | | | |
| | b. Predictors: (Constant): Pre industry-adjusted mean value | | | | | |

***Note:*** *(*) Statistically Significant at 5% Level of Significance*
***Source:*** *CMIE*

## CONCLUSION

The overall picture that emerges from the above is that M&A's have impacted profitability of sample firms in some cases positively and in some cases negatively, therefore, revealing mixed results. However, most of the sample firms have been found to have witnessed positive impact. The financial performance of all the sample firms belonging to banking industry have registered improvements in GPM and NPM ratios after merger or acquisition and in most of the cases, the improvements in financial performance is found statistically significant with respect to NPM ratios. With respect to the firms belonging to other sample industries, mixed results were obtained. It has been found that M&A's has been found to have impacted industry-adjusted ROA in both ways i.e. positively and negatively. But the positive impact in majority of the cases is found statistically insignificant. Similarly, negative impact was also found to be statistically insignificant for majority of the firms. The majority of sample firms belonging to banking industry, chemicals and fertilizers industry and FMCG have witnessed positive impact of merger or acquisition on ROE, but the impact is found statistically significant only with respect to few of the sample firms of these industries. The firms belonging to other sample industries have recorded mixed results with respect to positive or negative impact of merger or acquisition on ROE. With respect to ROA, M&A's have impacted profitability of sample firms both positively and negatively, therefore, revealing mixed results. However, more sample firms have been found to have witnessed positive impact. While comparing industry-adjusted ROA and ROE, it becomes clear that the results of ROA are not fully reflected in ROE in all the sample firms. This is mainly due to changes or difference in financial structures of these firms. The regression results were found to be insignificant which in turn confirm the earlier findings.

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