

IMPACT OF M&A ON PROFITABILITY AND COST EFFICIENCY: EVIDENCES FROM CORPORATE ACQUIRER FIRMS IN INDIA

Anshu Agrawal¹, P.K. Jain² and Sushil³

The paper explores the financial implications of M&A in long run, with particular focus on profitability and cost aspects of acquirers firms. The study uses a sample of 268 acquirer firms (undergone M&A in Indian auto-ancillary, IT, and pharmaceutical sectors) during M&A wave (2002-2008). Findings show that M&A are not financial viable/ successful ventures for acquirer firms, in long-run. Acquirer firms do not gain any significant cost-synergies, improvement in profit margins and rates of returns after M&A; no magnifying effects on sales turnover, as was expected due to pooled resources/larger assets base, have been observed. Decline in assets turnover ratio and rates of returns after M&A, prima-facie, indicates inefficient utilization of pooled resources of acquisition by acquirer firms. Surprisingly, M&A impact has been averse for auto-ancillary sector (emerging sector in M&A market) than IT and pharmaceutical sector. Findings are suggestive of the need of improved integration measures that could be developed over a period, to make M&A into value-enhancing prepositions / ventures. Findings corroborate the pro-cyclic occurrence of M&A wave; economic environment has been observed as predictor factor for post-M&A performance.

Key words: M&A Performance; Long-Term; Profitability; Cost-Efficiency; Acquirer Firms; Ratio Analysis; Yearly Concept.

1. INTRODUCTION

Mergers and acquisitions (M&A)^{*} constitute significant corporate investment decisions. Along with involving huge stake of funds, these decisions are practically irreversible. M&A, conventionally, are expected to enhance the value of the acquirer firms in terms of

¹ Anshu Agrawal, PhD, Indian Institute of Technology Delhi, Assistant Professor, ITM University, Gurgaon. anshu.shishir@gmail.com, 09810068720

² P.K. Jain, Professor, Department of Management Studies, Indian Institute of Technology Delhi, Vishwakarma Bhavan, Hauz Khas, New Delhi - 110016. pkjain@iitd.ac.in

³ Sushil, Professor, Department of Management Studies, Indian Institute of Technology Delhi, Vishwakarma Bhavan, Hauz Khas, New Delhi - 110016. sushil@dms.iitd.ac.in

* Study uses term mergers and acquisitions interchangeably.

synergistic benefits of consolidated large-scale operations, enhanced customers' base, large assets-base, access to complementary resources, knowledge, skills, etc. The financial aspect of M&A decisions has gained traction of financial analysts, researchers, and decision-makers. Enriched with the valuable contribution of researchers, from financial as well as strategic disciplines, the performance aspect of M&A constitutes one of the extensive bodies of literature.

The genesis of M&A, though, relates with the western economies of America and Europe; however, the wave of globalization and openness has made M&A a global phenomenon, with major inclination towards the developing Asian-Pacific nations. M&A panorama has undergone major paradigm shift over different phases (waves); for instance, the initial M&A waves were characterized with horizontal or vertical deals and hostile takeovers by large acquirers. With the eve of liberalization and globalization, M&A market has witnessed widespread participation of developing nations. In post-nineties, inorganic growth *via* M&A has been observed as a preferred route/ option for the corporate firms in India, striving for growth and survival with the challenging environment of opportunities and threats (internal as well as external). Last decade (commencing from 2002 onwards) has proved to be a decade of M&A mania, with wide-spurt observed in M&A activity in terms of value as well as volume; in 2007, the investment in M&A activities in India were recorded all times high, valuing USD 70 billion.**

The pattern of M&A observed during the recent wave in India was different in many aspects; the wave was much vibrant; deal size had entered billion category; all major sectors, ranging from manufacturing to ancillary, have been observed as the active participants. Additionally, the corporate landscape in terms of competition level, entrepreneur ability, risk perception, experience, way of thinking, corporate visions' and objectives, etc. has also undergone fundamental changes; the environment was more dynamic; opportunities as well as threats level was high. This then constitutes rationale for having separate assessment of M&A observed during the period. The paper is a modest attempt to assess the impact of M&A on the financial performance of corporate acquirer firms in India in long-run. The study focuses on M&A taken place during financial years*** 2002 to 2008, bearing in mind the wide uprising observed in M&A in

** Deal Tracker, Grant Thornton Survey, 2007-08

*** Financial year connotes Indian financial year from 1-April to 31st March.

India during recent M&A wave (2002-2008). M&A activities, in present environment are no more sector-specific; in fact, by and large, all the sectors ranging from manufacturing to auxiliary have shown active participation in M&A activities during last few years. Present study covers three major segments of Indian industry, namely, pharmaceutical, IT, and auto-ancillary sectors.

The study contributes to the unresolved puzzle of M&A performance; it explores the M&A impact in context of Indian acquirer firms, seemingly an inadequately attended and inconclusive aspect of literature. The study focuses on the profitability and cost-efficiency aspects of acquirer firms; in other words, all major parameters, likely to be influenced by M&A decision, have been examined. The multi-sectoral framework of the study would be helpful in getting insight of M&A significance across sectors. Additionally, elongated sample frame covering entire M&A wave would facilitate the insight of M&A performance during different economic scenarios (boom- up to 2008; recession- 2008 onwards). Equally important methodological contribution of the study is that M&A impact has been analyzed using yearly concept; pre-acquisition-year performance has been compared with the performance of post-acquisition years: 1, 2 and 3; the proposed methodology is expected to do away the possibility of distortion, that could result from averaging concept. It is worth emphasizing here that there is built-in bias to show distorted picture of better/ poor performance (over the years), in average concept. Assume firm's post-merger rates of return (ROR) on total capital employed are 12 %, 14 % and 22 % in years 1-3 respectively; the three years average concept would indicate 16 % ROR *vis-à-vis* an impressive increasing trend registering speculator ROR of 22 % in year 3. In reverse situation, assume these RORs as 16%, 14%, and 9% in respective years, the average concept indicates 13 % reasonably satisfactory ROR; in contrast the fact is that performance has registered significant decline over the years in as much as 9 % in year-3 indicates unsatisfactory performance. Further, the years-wise analysis, would likely to bestow a more clear view of the most effective year(s), in which substantial impact of M&A has (have) been experienced by the acquirer firms.

2. THEORETICAL FRAMEWORK AND PRIOR RESEARCH

Performance impact of M&A (particularly financial perspective) constitutes one of the widely explored aspects in literature. Financial performance studies on M&A are composed of event studies, accounting studies, or a blend of the two. These studies have attempted to assess the actual economic gains to the merging entities and the long-term

stability of M&A using financial fundamentals such as profitability, liquidity, solvency, growth prospect, cash flows, etc. In spite of ample number of studies attempted by scholars using different parameters, relating to different time-horizon, different regions, deals with varied attributes (stock-financed, cash financed, domestic, cross-border), different industries, and so on, performance impact of M&A is largely inconclusive. Some studies empirically support that M&A lead to improved performance (Healy *et al.* 1992; Grabowski *et al.* 1995; Switzer 1996); on the contrary, few studies suggest, M&A to be value-deteriorating strategy (Mueller 1985; Revenscraft and Scherer 1987; Datta, *et al.* 1992; Ghosh 2001; Cartwright and Schoenberg 2006). Some studies even indicate no significant impact of M&A on the performance of corporate firms (Mishra and Chandra 2010).

Revenscraft and Scherer (1989) in a study of US manufacturing sector have observed deterioration in the firms' value with no positive synergies and substantial reduction of 13.34 per cent in the post-acquisition profitability. Switzer's (1996) study based on the operating performance of a sample of 327 mergers has observed positive improvement. Parrino and Harris (1999) have observed similar facts; their study suggests significant improvement in the operating performance and significant cash flow return for the acquirer firms subsequent to M&A. In the study of M&A among Malaysian companies during 1988 to 1992, Rahman and Limmack (2004) have identified improvement in the operating performance.

On the contrary, the study by Ghosh (2001) suggests no significant improvement in the operating performance of the acquirers firms after M&A. Sharma and Ho (2002) in the Australian study of 36 manufacturing firms undergone M&A in Australia during 1986 to 1991 have noted no notable improvement in the operating performance. Gugler *et al.* (2003) have examined the 15 years M&A taken place across the globe; findings suggest positive impact on profitability and negative impact on sales. Pazarskis *et al.* (2009) on examining the impact of M&A on the economic performance of Greek firms have observed no significant betterment in the post-acquisition performance of the firms.

Albeit the tremendous rise observed in M&A activities in India, M&A studies pertaining to Indian industry (Pandey 2001; Anand and Singh 2008; Pawaskar 2001; Beena 2006; Kumar 2004; Mantravadi 2007; Kumar and Rajib 2007; Vanitha and Selvam 2007; Ramakrishnan 2008) constitute a negligible proportion *vis-à-vis* western developed economies, particularly US and UK. Moreover, the findings reported from these studies

largely, reflect similar pattern of non-convergence as evidenced from other financial studies.

Pawaskar (2001) in the study of 36 M&A deals among Indian corporate firms (during 1992 to 1995) has observed no significant change in the operating performance in post-M&A period. Ramakrishnan (2008) in a study of 86 mergers among Indian companies (during 1996 to 2002) has suggested positive improvement in the operating performance of the merging entities during post-merger period. Study by Chakrabarti (2008) has reported the negative impact of M&A on the performance of corporate firms, in the long-run. Study by Mittal, *et al.* (2012) has observed no significant impact of M&A on the performance of corporate firms from Indian pharmaceutical sector. Study by Rani, *et al.* (2013) has suggested favorable impact of M&A on financial performance of the acquirer firms. Barai and Mohanty (2014) have examined the impact of industry relatedness on the performance of acquirer firms, considering mergers and acquisitions as separate events; findings are suggestive of value-creation in related as well as unrelated mergers; however, unrelated acquisitions have been observed as value deteriorating.

M&A are strategic-cum investment decisions; the massive investment in these decisions is supposed to set foundation for the series of future cash-inflows. The performance outcome of M&A seems to be largely inconclusive with no convergence on whether M&A are value-enhancing or deteriorating strategies, albeit constituting a prime focus of researchers from financial field, for a long-time. M&A performance, particularly from the perspective of acquirer firms, seems to be largely discouraging, indicating M&A performance to be a break-even situation or failure (Agrawal and Jaffee 2000; King *et al.* 2004).

In view of wide surge witnessed in M&A investment in India in recent years, positive aspirations for more vibrant activities in the coming years, and given the research gaps, comprehensive analysis of M&A performance in Indian context would be quite useful.

M&A have significant implications for firms' performance (Laamanen and Keil 2008). These decisions are expected to improve the financial performance of the merging entities, irrespective of the underlying intents (Mishra and Chandra 2010). These are practically irreversible decisions (Capron and Pistre 2002); this lays an additional emphasis that M&A, at least, should not deteriorate the wealth of the shareholders.

Majority of studies suggest high failure rate in M&A (Scherer 1988; Agrawal *et al.* 1992;

Hubbard 1999; Bruner 2004, Cartwright and Schoenberg 2006). In the present dichotomy of increasing trend of M&A followed by an outsized failure rate, a very first issue that strikes the mind is as to what inspires the corporate management for M&A decisions. Literature presents manifold reasons and theories supporting M&A motives (Lubatkin 1987; Trautwein 1990; Brouther *et al.* 1998; Nguyen *et al.* 2012). Value-maximization hypothesis emphasizes on M&A as value-creating strategies. It corroborates the corporate goal of wealth-maximization, in that M&A should enhance the performance of the acquirer firms. Therefore, shareholders of acquirer firms are generally expected to gain sound abnormal returns (in short-term). If seen from resource-based perspective, M&A by providing access to pooled resources/ assets base, knowledge base, customers' base, infrastructure, better managerial ability, open avenues for value-enhancement for the acquirer firms. Therefore, M&A, to be successful, are supposed to have positive impact on the financial health of the merging entities.

Efficiency/ synergy hypothesis, based on the premise of large size, scale expansion contributed by M&A, emphasizes on synergistic benefits contributed by M&A; operating synergies/ cost-efficiencies due to large scale operation, bulk buying, access to specialized and scarce resources, etc. (Chatterjee 1986; Bradley, *et al.* 1983, 1988; Katz and Ordover 1990); financial synergies in form of reduced cost of capital, efficient capital structure, overcoming the financial market constraints, and tax-advantage (Brouthers and Brouthers 2000); collusive synergies in terms of enhanced market power, improved product portfolios, ability to charge high prices, high bargaining power, entering new market, etc. (Mueller 1985; Walter *et al.* 2002; Schweiger and Very 2003; Kumar and Bansal 2008). Of late, knowledge-acquisition is emerging as one of the essential factors for value-creation in M&A; acquisition of knowledge, developing new capabilities (Hamel 1991; Chakrabarti, *et al.* 1994; Berkema and Vermeulen 1998), technology up-gradation, quick and economic access to new technology, tapping external knowledge (Jensen and Ruback 1983; Katz and Ordover 1990), etc. are various motivations that persuade corporate firms for M&A decisions. Various studies suggest managerial economies in terms of restructuring the inefficient managed companies *via* effective management from M&A (Bradley, *et al.* 1983, 1988; Chatterjee and Lubatkin 1990); market discipline hypothesis states M&A as a measure for replacing the inefficient management (Jensen and Ruback 1983). The resource-based view (Barney 1986) supports M&A as strategies to access the critical resources (Bradley, *et al.* 1983, 1988; Teece, *et al.* 1997; Gammelgaard 2004), acquiring complementary indispensable resources, fill in the competence gap (Metzenthin 2004), gaining access to new

technologies, power, resources to compete in global arena (Yadav and Kumar, 2005), etc.

In view of the above, it has been hypothesized that financial performance of the corporate acquirer firms for the post-acquisition years would be significantly better compared to the performance of pre-acquisition year.

To what extent M&A contributes in the realization of expected benefits/ synergies (in term of improved profit margins due to cost-efficiency). Profitability has been examined based on profit margins as well as rates of return earned on assets employed, capital employed and shareholders' funds. Cost-efficiency analysis has been attempted to assess the cost benefits in terms of cost of goods sold, purchases of raw material, labor costs, operating costs, administrative expenses, selling and distribution expenses, advertisement costs, R&D expenditure, expected from M&A.

Market power/ monopoly theory suggests enhanced market power to be the intent for M&A; the rationale for the same seems to be leveraging effect of large asset base/ pooled resources on magnifying sales turnover; to view this aspect, the assets turnover ratio has been assessed. Operating and investment activities are reckoned as imperative sources of value creation; the framework attempts to analyze both the aspects.

3. METHODOLOGY

3.1. *Sample and data*

The study is confined to M&A carried-out in IT, pharmaceutical and auto-ancillary sector during the financial years 2002 to 2008 in India. M&A information has been collected from CMIE**** database PROWESS. For the financial information of the acquirer firms, study uses PROWESS, Capitaline, and website of concerned companies. For the purpose of analysis, the acquirer firms whose financial information was available for the period of analysis (*i.e.* one year prior to M&A year or zero year and three years after) form the sample of the study.

Detailed sample description has been depicted in Table 1. Out of total 348 M&A announcements, 265 form the part of study, constituting 76 per cent of the universe. As far as sector-wise distribution is concerned, 73 per cent firms from IT sector, 80 per cent

**** Centre for Monitoring Indian economy

from pharmaceutical, and 78 per cent from auto-ancillary constitute the sample for the study. Given such wide coverage of the universe, the sample can be reckoned as adequate representative of the universe, in totality as well as from sectors-wise perspective, thus, lending support to the credibility of the results of our study.

Table 1: Sample description

| Years | M&A announcements | | | Sample firms analyzed | | |
|--------------|-------------------|----------------|----------------|-----------------------|----------------|----------------|
| | IT | Pharmaceutical | Auto-ancillary | IT | Pharmaceutical | Auto-ancillary |
| 2002-03 | 24 | 22 | 7 | 14 | 17 | 6 |
| 2003-04 | 24 | 18 | 11 | 15 | 13 | 7 |
| 2004-05 | 21 | 11 | 9 | 19 | 9 | 7 |
| 2005-06 | 31 | 14 | 6 | 22 | 11 | 5 |
| 2006-07 | 41 | 18 | 8 | 27 | 22 | 8 |
| 2007-08 | 49 | 25 | 9 | 42 | 15 | 6 |
| Total | 190 | 108 | 50 | 139 | 87 | 39 |

3.2. Evaluation model

To assess the impact of M&A on the financial performance of the acquirer firms, the study uses pre-post performance comparison model. Ratio analysis, a widely accepted approach of financial analysis, has been used for the purpose. The study compares pre-acquisition year performance of the corporate acquirer sample firms with post-acquisitions performance of consecutive three years: 1, 2 and 3.

M&A year has been excluded from the analysis; merging year is usually expected to involve large complexities (integration issues-operations, human resources, culture, regulations, management; compatibility issues; disinvestment and other crucial decisions); further, it involves change in the financial reporting due to adjustment in accounting. The possible effects of the above circumstances on the performance of the merging entities could cause distortion. The period of one year seems sufficient for integration measures; to survive with the flow of environment, the merging entities are generally expected to sort-out their integration and other related issues at earliest, so that, operations could be streamlined for the successful attainment of the pre-determined objectives. In view of dynamic business environment, the period of three years subsequent to M&A year has been considered adequate to judge the long-term impact of M&A.

3.3. Validation model

The study uses paired sample t-test to examine the statistical significance of the findings; significance of findings have been tested at 95 per cent ($1.96 < 2.58$) and 99 percent

(>2.58) confidence level interval for the acceptance or rejection of the hypotheses.

3.4. Measures

To have an all-inclusive view of the M&A impact on the profitability of the acquirer firms, study attempts to assess profitability in relation to sales, rates of returns in terms of assets used, capital employed and shareholders' funds. Further, the cost-efficiency has been examined in terms of all possible cost-parameters (cost of goods sold, purchases, raw-material, labor costs, operating costs, administrative, selling & distribution, advertisement expenses and research and development expenditure). Above all, the efficiency in relation to assets backup/ pooled resources has been assessed to examine as to what extent M&A justify the pooled resources of acquisition, one of the imperative source of enhancing firm's performance/ value.

3.4.1. Profitability analysis

Profitability is a conventional test of operating and economic efficiency. It is a significant indicator of financial soundness. Adequate profits are prerequisite for long-run success and survival. According to Grant Thornton Survey (2006), profitability is among the main objectives for M&A in India. M&A, in general, are expected to have positive impact on the profitability of the merging entities. To assess this aspect, profitability analysis in terms of rates of return earned has been attempted; the analysis covers operational as well as investment aspects.

Profitability from operations: Gross-profit, operating profit, and net profit margins are the key constituent of operational profitability. Gross-profit is the excess of net sales over cost of goods sold (COGS); it indicates a safety cushion available to a business concern to meet cost of goods sold. Gross profit margin signifies the dimension of gross profit in relation to sales.

$$\text{Gross profit margin (GPM)} = \frac{\text{Sales} - \text{Cost of goods sold (COGS)}}{\text{Net Sales}} \times 100 \dots\dots\dots(1)$$

Operating profit indicates the earnings of a firm from its core business operations; it signifies earnings (excluding non-operating incomes) before interest and taxes. Operating profit margin signifies the magnitude of operating profit *vis-a-vis* sales.

$$\text{Operating profit margin (OPM)} = \frac{\text{Earning before interest and taxes-non operating income}}{\text{Net Sales}} \times 100 \text{ .(2)}$$

Net-profit margin (NPM) reflects the magnitude of profit after taxes related to net sales; it is residual left from sum of operating profit and non-operating incomes, after meeting financial costs and provision of taxes.

$$\text{Net profit margin (NPM)} = \frac{\text{Earning after taxes (EAT)}}{\text{Net Sales}} \times 100 \text{(3)}$$

Profit margins, namely, GPM, OPM, and NPM reflect the operating efficiency; adequate profit margins indicate firms' ability to meet its expenses successfully and earn satisfactory returns on investments. M&A, in general, are expected to improve firms' profitability due to positive synergies, in terms of purchase economies, production economies, technical economies, managerial economies, marketing economies, financial economies and so on. The GPM, OPM, and NPM aspects have been analyzed to assess the operating synergies from M&A.

Profitability on investments: M&A pool the resources of merging entities; integration and efficient utilization of the pooled resources are considered among critical success factors for M&A. Along with/ apart from, earning satisfactory profit margins from operations, equally important aspect is to have adequate/satisfactory returns on investment made in the business on its total assets, capital employed and equity shareholders funds. To assess as to whether, M&A justify the return on pooled resources, the profitability in relation to total assets, effective capital employed and funds of equity shareholders has been attempted.

Return on total assets (ROTA): Return on total assets (ROTA) signifies return in terms of total assets employed in business. The ratio would be helpful in providing an insight of the firms' profitability in relation to pooled assets; in operational terms, it would also shed light on the effectiveness of assets integration measures of acquirer firms.

$$\text{Return on total assets (ROTA)} = \frac{\text{EBIT@}}{\text{Average total assets}} \text{(4)}$$

Total assets, here, represent total assets excluding non-earning/fictitious assets.

@ To circumvent with the influence of variable tax-rate and the heterogeneous capital structure the impact of taxes and interest rate has been precluded in computing ROTA and ROCE and EBIT, instead of EAT+ interest (1-tax), has been taken as numerator.

Return on effective capital employed (ROCE): Return on effective capital employed (ROCE) indicates the returns earned on capital employed, *i.e.* the profitability in relation to funds supplied by the lenders as well as the owners. To have credence of ROCE, the capital employed, in present context, represents the capital actually employed in the business, *i.e.* it excludes investment made outside the business.

Return on effective capital employed (ROCE)

$$= \frac{\text{EBIT@} - \text{Interest and dividend income earned on investments made outside the business}}{\text{Average capital employed in business}} \dots(5)$$

For the purpose, EBIT (earnings before interest and taxes) excluding the interest and dividend income earned on investments made outside the business has been considered as numerator.

Return on equity shareholders' funds (ROE): Returns on equity funds measure returns in relation to funds of the equity/ordinary shareholders. Equity shareholders are the real owners and bearer of the risk of the business. They are entitled for the residual profits after the outsiders' claims including the provision/payment of preference share dividend. ROE measures magnitude of residual earnings after taxes and preference shares dividend in relation to net-worth (equity share capital plus reserves and surplus).

Return on equity shareholders' fund (ROE) =

$$= \frac{\text{Earning after tax (EAT)} - \text{Preference shares dividend (Dp)}}{\text{Average net worth}} \dots(6)$$

3.4.2. Cost efficiency analysis

In present competitive environment, cost-efficiency has become a necessity for corporate success and survival. Attaining/facilitating cost-efficiency is often considered as one of the significant motives of M&A. Profitability, particularly in horizontal M&A, is positively related to cost-efficiency (Gugler, *et al.* 2003; Christos, *et al.* 2008). The extent to which M&A have succeeded in this endeavor has also been assessed in this paper.

In operational terms, cost-efficiency gains from M&A signify synergistic benefits of consolidation. M&A are rationalized by the claim of economies of scale and scope in production, marketing, R&D, etc. M&A lead to the consolidation of assets, operations,

administrative functions, marketing activities, business contracts (suppliers' collaboration); large size, *prima-facie*, should lead to decrease in buying cost of raw materials, administrative expenses, advertisement costs, R&D expenditure, etc. For instance, production economies due to scale expansion and rationalization; purchase economies in terms of extra discount on bulk purchases of raw materials; increased product efficiency, quality of product offering due to technical economies (better technical know-how) are likely to accrue from M&A. Other expected sources of cost-synergies are reduction in redundant operations; for instance, M&A could facilitate economies in administrative expenses, selling and distribution costs, advertisement costs, etc., as after M&A the expenses incurred under single head could cover the activities of both the entities. Therefore, it was useful to ascertain whether,

- (i) There have been economies in the purchase cost (raw material and finished goods) as a part of total cost of goods manufactured.
- (ii) There have been economies in the raw material consumed as a part of total production cost.
- (iii) There have been economies in the labor cost as a part of total production cost.
- (iv) There have been economies in the purchase cost as a part of total cost of goods manufactured.
- (v) There has been reduction in operating costs incurred in relation to net sales.
- (vi) There has been a decrease in administrative expenses as a part of total operating costs.
- (vii) There has been a decrease in personnel expenses (salaries) as a part of total operating costs.
- (viii) There has been a decrease in selling and distribution expenses *vis-à-vis* sales or operating costs.
- (ix) There has been any decrease in advertisement expenses as a part of total selling and distribution expenses, or in relation to net sales.
- (x) There has been a decrease in research and development (R&D) expenditure in relation to operating profit, net sales, and earnings after tax (EAT).

For a better insight of operating cost synergies from M&A, the impact of M&A on all possible expected sources of cost-economies have been assessed. The cost component analysis is supposed to be helpful in crystallizing the probable sources of operating

synergies. For instance, if M&A lead to economies in terms of raw-material cost and there has been an increase in any other component (s), the combined effect of both the events will eventually neutralize, showing no effect on the cost of goods. Evidently, it is distorted result; to have a more credible result, therefore, the cost component analysis has been attempted. Its redeeming feature is that it presents the impact of M&A for each cost parameter separately. This point should be borne in mind while interpreting the results.

The cost-efficiency analysis is appropriate for horizontal M&A. It is a matter of satisfaction to note that studies indicate that large proportion of M&A deal observed world around, during last three decades (1980 onwards) were horizontal (Gugler, *et al.* 2003). In Indian context also, studies have similar observation in that there has been a predominance of horizontal M&A transaction in India (Beena 1998; Roy 1999; Basant 2000; Agarwal and Bhattacharjea 2006). The sample covered by present study consists of M&A, by and large, between the firms belonging to related Industry/ business line; in operational terms, there is a preponderance of horizontal M&A in our sample. Being so, the results obtained through cost-efficiency analysis are likely to be credible.

Cost parameters analyzed include:

Cost of goods sold ratio (COGSR): Cost of goods sold (COGS) is a prime constituent indicating the operating effectiveness of the manufacturing firms; the decrease in the COGS, in general, is a positive indicator for cost synergy leading to improved profit margins. As the cost of goods sold ratio (COGSR) represents the magnitude of production cost of goods sold; therefore, the decrease in the COGSR after the M&A clearly signifies the production cost efficiency.

$$\text{Cost of goods sold ratio (COGSR)} = \frac{\text{Cost of goods sold}}{\text{Net Sales}} \times 100 \dots\dots\dots(7)$$

Purchase to production cost ratio (PPCR): Purchase to production cost ratio has been computed to assess the purchase economies, if any, contributed by M&A to the acquirer firms.

Purchase to production cost ratio (PPCR)

$$= \frac{\text{Purchase of finished goods+ Raw materials}}{\text{Production Cost}} \times 100 \dots\dots\dots(8)$$

Raw material consumption cost ratio (RMCR): Raw-material consumption to

production cost ratio (RMPCR) has been analyzed to measure the economy in purchases of raw materials from the market. It is expected that the ratio should show a decline as higher quantity of material purchases are likely to be cheaper, albeit its amount.

$$\text{RMCR} = \frac{\text{Raw material consumed}}{\text{Production Cost}} \times 100 \quad \dots\dots\dots(9)$$

Labor cost to production cost ratio (LCR): Further, economies related to labor cost in terms of optimum utilization of resources, resources sharing (particularly, expertise) are also expected from M&A. Labor cost ratio has been examined to ascertain the pecuniary economies from M&A gained by acquirers firms, in terms of paying less for the labor factor input.

$$\text{Labor cost ratio} = \frac{\text{Labour expenses}}{\text{Production Cost}} \times 100 \quad \dots\dots\dots(10)$$

Operating cost ratio (OCR): Operating cost is an important constituent determining operating efficiency; decrease in operating cost implies better operating profit margin; in addition, it yields better net-profit margin, healthier cushion to meet the cost of debt-funds and better returns to shareholders. Operating cost ratio signifies magnitude of operating costs incurred per rupee of sale.

$$\text{Operating cost ratio (OCR)} = \frac{\text{Operating costs}}{\text{Net sales}} \times 100 \quad \dots\dots\dots(11)$$

Administrative expenses ratio (ADMR): Administrative expenses ratio has been measured to assess the economies, if any, gained by acquirer firms from M&A, in terms of sharing of administrative expenses or reduction in the cost of redundant operations.

$$\text{Administrative expenses ratio} = \frac{\text{Administrative expenses}}{\text{Net sales}} \times 100 \quad \dots\dots\dots(12)$$

Personnel expenses ratio (PER): Human resource is another important parameter likely to be influenced by M&A; study attempts to measure the impact of M&A on personnel costs of the acquirer firms quantitatively using personnel expenses (salaries) ratio.

$$\text{Personnel expenses ratio} = \frac{\text{Personnel expenses}}{\text{Net sales}} \times 100 \quad \dots\dots\dots(13)$$

Market synergies: Marketing synergies constitute yet another equally important intent for M&A. To examine the market synergies from M&A, the impact on selling &

distribution expenses and advertisement cost has been assessed.

Selling and distribution expenses (SDE): The selling and distribution expenses are measured in relation to sales (SDE_{NS}) as well as operating costs (SDE_{OC}).

Selling and distribution expenses to net sales (SDE_{NS})

$$= \frac{\text{Selling and distribution expenses}}{\text{Net sales}} \times 100 \dots\dots\dots(14)$$

Selling and distribution expenses to operating costs (SDE_{OC})

$$= \frac{\text{Selling and distribution expenses}}{\text{Operating cost}} \times 100 \dots\dots\dots(15)$$

Advertisement expenses (ADV)

Among selling and distribution expenses, advertisement cost is generally considered as prominent source of market synergies. M&A are expected to provide the benefit of reduced advertisement costs to the acquirer firms; M&A by merging two or more separate business entities into single would obviate separate advertisement cost for the merging entities. The advertisement expenses has been examined both in relation to net sales (ADV_{NS}) and selling and distribution costs (ADV_{SD}).

Advertisement expenses to net sales ratio (ADV_{NS})

$$= \frac{\text{Advertisement expenses}}{\text{Net sales}} \times 100 \dots\dots\dots(16)$$

Advertisement expenses to selling and distribution costs (ADV_{SD})

$$= \frac{\text{Advertisement expenses}}{\text{Selling and distribution expenses}} \times 100 \dots\dots\dots(17)$$

Research and development expenditure (RDE): In the present era, where innovation and technological advancement are requisite for success and survival, acquisition of knowledge has emerged as important corporate intent for M&A. To gain an insight of M&A impact on knowledge-perspective of acquirer firms, research and development (R&D) expenditure has been assessed in relation to operating profit, net sales, and earnings after tax.

$$RDE_{OPM} = \frac{\text{Research and development expenses}}{\text{Operating profit}} \times 100 \dots\dots\dots(18)$$

$$RDE_{NS} = \frac{\text{Research and development expenses}}{\text{Net sales}} \times 100 \dots\dots\dots(19)$$

$$RDE_{EAT} = \frac{\text{Research and development expenses}}{\text{Earning after taxes}} \times 100 \dots\dots\dots(20)$$

4. EMPIRICAL FINDINGS

Impact on operational profitability: M&A are conventionally required to improve/enhance the profitability of the acquirer firms. The empirical findings do not corroborate the same; contrary to the expectation of positive synergies, the profit margins of the acquirer firms analyzed have declined after M&A (Tables 2, 3 and 4).

For the auto-ancillary sector, significant decline has been noted in profit margins for most of the years. For instance, out of the six years (M&A 2002-08), the GPM pertaining to three years (M&A- 2002-03, 2003-04, and 2007-08) has declined significantly; similar facts have been observed for operating and net profit margins; for years 2005 to 2008 there has been a consistent decline in OPM and NPM. Likewise, no significant improvement has been noted in the profit margins of the firms affiliated to pharmaceutical sector, with sole exception of single year 2002-03, in which GPM has improved appreciably from 5 per cent to 9 per cent. Similar conclusions follow from OPM and NPM; in fact, OPM for the M&A-2007-08 has manifested a significant decline.

The GPM, cost of goods sold (COGS) and direct cost components (raw-material, wages, manufacturing expenses, etc.) are crucial parameters for manufacturing firms, but they have less relevance for service sector firms; therefore, there has been a constraint to have gross-profit margin, COGS, and direct cost component analysis only for auto-ancillary and pharmaceutical sector. The findings pertaining to profit margins of the IT firms also seem to be largely unfavorable; except for a significant improvement in the NPM for M&A-2004-05, for the remaining years no worth-noting improvement has been observed; instead, OPM for the M&A 2002-04 has significantly declined.

From the preceding empirical facts, it is reasonable to conclude that M&A have not contributed, by and large, towards better profit margins of the acquirer firms. In other

words, the acquirer firms have gained no significant operating synergies in terms of improved profits margins; contrary to the normal expectations of increase, the profit margins, in fact, have shown a marginal decline in most of the post-acquisition years.

Table 2: Impact on gross-profit margin of the acquirer firms involved in M&A during 2002-2008, sector-wise: (auto-ancillary and pharmaceutical sector)

| M&A years | years analyzed | Auto-ancillary sector | | | Pharmaceutical sector | | |
|-----------|----------------|-----------------------|----------|-------------|-----------------------|----------|-------------|
| | | Mean | % change | T-statistic | Mean | % change | T-statistic |
| 2002-03 | 2001-02 | 38.72 | | | 42.55 | | |
| | 2003-04 | 33.28 | (14.05) | (1.29) | 44.90 | 5.52 | 0.86 |
| | 2004-05 | 35.82 | (7.49) | (2.25)* | 46.74 | 9.85 | 2.52* |
| | 2005-06 | 29.71 | (23.27) | (2.08)* | 46.46 | 9.19 | 2.31* |
| 2003-04 | 2002-03 | 39.57 | | | 51.28 | | |
| | 2004-05 | 35.87 | (9.35) | (3.04)** | 53.35 | 4.04 | 0.42 |
| | 2005-06 | 35.33 | (10.72) | (2.70)** | 51.49 | 0.41 | 0.04 |
| | 2006-07 | 34.13 | (13.75) | (2.56)* | 52.72 | 2.81 | 0.40 |
| 2004-05 | 2003-04 | 39.77 | | | 42.88 | | |
| | 2005-06 | 36.82 | (7.42) | (0.71) | 42.73 | (0.36) | (0.04) |
| | 2006-07 | 37.28 | (6.26) | (0.53) | 42.49 | (0.91) | (0.09) |
| | 2007-08 | 28.59 | (28.11) | (1.25) | 44.04 | 2.71 | 0.25 |
| 2005-06 | 2004-05 | 36.23 | | | 39.20 | | |
| | 2006-07 | 34.27 | (5.41) | (0.66) | 37.90 | (3.32) | (0.74) |
| | 2007-08 | 33.18 | (8.42) | (0.92) | 39.19 | (0.03) | (0.01) |
| | 2008-09 | 33.30 | (8.09) | (1.07) | 40.03 | 2.12 | 0.43 |
| 2006-07 | 2005-06 | 33.13 | | | 45.65 | | |
| | 2007-08 | 32.50 | (1.90) | (0.54) | 45.11 | (1.18) | (0.45) |
| | 2008-09 | 31.99 | (3.44) | (1.10) | 46.13 | 1.05 | 0.36 |
| | 2009-10 | 32.23 | (2.72) | (0.93) | 46.17 | 1.14 | 0.39 |
| 2007-08 | 2006-07 | 30.40 | | | 36.66 | | |
| | 2008-09 | 27.86 | (8.36) | (3.31)** | 36.66 | 0.00 | - |
| | 2009-10 | 28.14 | (7.43) | (2.78)** | 38.40 | 4.75 | 1.22 |
| | 2010-11 | 28.21 | (7.20) | (5.00)** | 37.70 | 2.84 | 0.91 |

** Significant at 99%; *significant at 95% confidence level; [Ⓞ] GPM has been computed for manufacturing sectors only

Table 3: Impact on the operating profitability margin of the acquirer firms involved in M&A during 2002-2008, sector-wise (Auto-ancillary, pharmaceutical, and IT sector)

| M&A years | years analyzed | Auto-ancillary sector | | | Pharmaceutical sector | | | IT sector | | |
|-----------|----------------|-----------------------|----------|-------------|-----------------------|----------|-------------|-----------|----------|-------------|
| | | Mean | % change | T-statistic | Mean | % change | T-statistic | Mean | % change | T-statistic |
| 2002-03 | 2001-02 | 14.48 | | | 19.70 | | | 18.95 | | |
| | 2003-04 | 7.23 | (50.07) | (1.00) | 21.15 | 7.36 | 0.47 | 13.92 | (26.54) | (2.25)* |
| | 2004-05 | 12.48 | (13.81) | (0.79) | 20.31 | 3.10 | 0.32 | 13.77 | (27.34) | (1.76) |
| | 2005-06 | 12.23 | (15.54) | (0.83) | 21.62 | 9.75 | 0.80 | 10.82 | (42.90) | (1.75) |
| 2003-04 | 2002-03 | 19.84 | | | 20.84 | | | 27.94 | | |
| | 2004-05 | 17.84 | (10.08) | (1.48) | 28.64 | 37.43 | 1.04 | 22.45 | (19.65) | (2.05)* |
| | 2005-06 | 16.64 | (16.13) | (1.33) | 28.05 | 34.60 | 0.78 | 26.10 | (6.59) | (0.55) |
| | 2006-07 | 16.40 | (17.34) | (1.64) | 30.63 | 46.98 | 1.18 | 21.29 | (23.80) | (1.29) |
| 2004-05 | 2003-04 | 16.39 | | | 18.40 | | | 26.75 | | |
| | 2004-05 | 14.81 | (9.64) | (0.30) | 16.79 | (8.75) | (0.39) | 25.73 | (3.81) | (0.17) |
| | 2005-06 | 15.79 | (3.66) | (0.12) | 14.43 | (21.57) | (1.18) | 26.10 | (2.43) | (0.11) |
| | 2006-07 | 11.91 | (27.33) | (0.83) | 14.93 | (18.86) | (0.70) | 21.04 | (21.35) | (1.00) |
| 2005-06 | 2004-05 | 17.93 | | | 14.54 | | | 22.21 | | |
| | 2006-07 | 16.53 | (7.81) | (0.50) | 12.71 | (12.59) | (0.90) | 28.61 | 28.82 | 1.56 |
| | 2007-08 | 14.42 | (19.58) | (1.48) | 11.84 | (18.57) | (0.90) | 28.34 | 27.60 | 1.50 |
| | 2008-09 | 10.36 | (42.22) | (2.32)* | 12.46 | (14.31) | (0.78) | 24.47 | 10.18 | 1.32 |

| | | | | | | | | | | |
|---------|---------|-------|---------|----------|-------|---------|---------|-------|---------|--------|
| 2006-07 | 2005-06 | 14.60 | | | 15.55 | | | 24.25 | | |
| | 2007-08 | 13.98 | (4.25) | (0.44) | 14.86 | (4.44) | (0.53) | 23.61 | (2.64) | (0.34) |
| | 2008-09 | 12.32 | (15.62) | (2.50)* | 14.51 | (6.69) | (0.75) | 22.97 | (5.28) | (0.46) |
| | 2009-10 | 13.63 | (6.64) | (1.20) | 15.78 | 1.48 | 0.15 | 17.82 | (26.52) | (1.02) |
| 2007-08 | 2006-07 | 18.43 | | | 17.86 | | | 20.50 | | |
| | 2008-09 | 15.71 | (14.76) | (3.17)** | 15.10 | (15.45) | (2.07)* | 16.87 | (17.71) | (0.89) |
| | 2009-10 | 15.82 | (14.16) | (2.11)* | 16.91 | (5.32) | (0.71) | 20.68 | 0.88 | 0.04 |
| | 2010-11 | 15.97 | (13.35) | (4.56)** | 15.68 | (12.21) | (1.42) | 20.76 | 1.27 | 0.06 |

** Significant at 99%; *significant at 95% confidence level

Table 4: Impact on the net profit margin (NPM) of the acquirer firms involved in M&A in India during 2002-2008, sector-wise (Auto-ancillary, pharmaceutical, and IT sector)

| M&A year | Years analyzed | Auto-ancillary sector | | | Pharmaceutical sector | | | IT sector | | |
|----------|----------------|-----------------------|----------|-------------|-----------------------|----------|-------------|-----------|----------|-------------|
| | | Mean | % change | T-statistic | Mean | % change | T-statistic | Mean | % change | T-statistic |
| 2002-03 | 2001-02 | 1.41 | | | 7.99 | | | 6.49 | | |
| | 2003-04 | (5.45) | (486.52) | (0.85) | 10.34 | 29.41 | 0.70 | (3.63) | (155.93) | (1.16) |
| | 2004-05 | 2.20 | 56.03 | 0.37 | 9.05 | 13.27 | 0.39 | (4.54) | (169.95) | (1.26) |
| | 2005-06 | 4.00 | 183.69 | 0.75 | 10.71 | 34.04 | 0.82 | (10.17) | (256.70) | (1.05) |
| 2003-04 | 2002-03 | 7.43 | | | 9.54 | | | 15.89 | | |
| | 2004-05 | 7.85 | 5.65 | 0.32 | 17.86 | 87.21 | 0.60 | 13.79 | (13.22) | (0.64) |
| | 2005-06 | 6.78 | (8.75) | (0.32) | 18.61 | 95.07 | 0.62 | 17.48 | 10.01 | 0.44 |
| | 2006-07 | 6.45 | (13.19) | (0.57) | 22.20 | 132.70 | 1.05 | 14.40 | (9.38) | (0.30) |
| 2004-05 | 2003-04 | 5.70 | | | 7.41 | | | 14.96 | | |
| | 2005-06 | 5.99 | 5.09 | 0.06 | 6.22 | (16.06) | (0.26) | 16.25 | 8.62 | 0.36 |
| | 2006-07 | 6.60 | 15.79 | 0.21 | 5.99 | (19.18) | (0.35) | 16.32 | 9.09 | 0.36 |
| | 2007-08 | 1.54 | (72.98) | (0.90) | 5.06 | (31.71) | (0.42) | 13.66 | (8.69) | (0.39) |
| 2005-06 | 2004-05 | 8.83 | | | 6.00 | | | 11.42 | | |
| | 2006-07 | 7.67 | (13.14) | (0.53) | 4.38 | (27.00) | (0.74) | 13.64 | 19.44 | 0.74 |
| | 2007-08 | 4.99 | (43.49) | (2.09)** | 3.44 | (42.67) | (0.88) | 13.28 | 16.29 | 0.61 |
| | 2008-09 | 0.84 | (90.49) | (1.96) | 1.67 | (72.17) | (1.48) | 12.56 | 9.98 | 0.38 |
| 2006-07 | 2005-06 | 6.87 | | | 7.22 | | | 5.82 | | |
| | 2007-08 | 5.05 | (26.49) | (1.26) | 5.23 | (27.56) | (1.46) | 13.45 | 131.10 | 0.66 |
| | 2008-09 | 1.87 | (72.78) | (2.60)** | 5.74 | (20.50) | (0.87) | 13.20 | 126.80 | 0.62 |
| | 2009-10 | (11.61) | (269.00) | (1.41) | 6.89 | (4.57) | (0.21) | (0.57) | (109.79) | (0.40) |
| 2007-08 | 2006-07 | 8.24 | | | 9.46 | | | 8.91 | | |
| | 2008-09 | 4.14 | (49.76) | (2.78)** | 8.38 | (11.42) | (0.75) | 0.65 | (92.70) | (1.63) |
| | 2009-10 | 2.93 | (64.44) | (1.99) | 8.47 | (10.47) | (0.73) | 8.91 | 0.00 | 0.00 |
| | 2010-11 | 2.77 | (66.38) | (1.60) | (9.92) | (204.86) | (1.17) | 12.56 | 40.97 | 1.06 |

** Significant at 99%; *significant at 95% confidence level

Profitability from investments: Empirical findings are not consistent with the corporate objective of wealth-maximization. Contrary to the expectation of improved rates of returns, decline has been observed in the returns in relation to total assets, capital employed as well shareholders' funds (Tables 5, 6, and 7).

Return on total assets (for all the sectors) has reduced after M&A; the ROTA for pharmaceutical and auto-ancillary sectors has shown a considerable decline in four out of six years of M&A analyzed; likewise, for the IT sector, the decline has been notable for M&A during 2006 to 2008 (Table 5).

As far as returns on capital employed (ROCE) is concerned, sizeable fall in returns has been apparent for most of the years in auto-ancillary and pharmaceutical sectors. Similarly, for the IT sector, trends are largely unfavorable; with an exception to a

considerable hike observed for M&A in 2004-05, ROCE pertaining to all the years has declined (Table 6).

It is worth mentioning that the IT sector has witnessed boom during 2004-07; high demand, low interest rate, and favorable regulatory environment perhaps could be the reasons for significant improvement in the returns pertaining to M&A-2004-05. Sturdy decline in returns during the years 2008 to 2010, when recessionary waves were in vogue, *prima-facie*, suggests economic environment to be an important predictor of the post-acquisition performance.

From the perspective of returns on equity shareholders fund, the findings are in tune with ROTA and ROCE. The auto-ancillary sector has revealed a notable decline in ROE during the last three years (M&A 2005-08); for the IT sector also, there has been a significant decline in ROE pertaining to M&A during 2006 to 2008; however, no major changes have been observed in the ROE of pharmaceutical sector (Table 7).

In view of declining rates of returns observed in relation to varied sets of investments (total assets, capital employed and equity shareholders' funds), it is reasonable to conclude that M&A have not contributed towards the better return on pooled resources; perhaps, inadequate integration measures, as suggested by previous studies, might be the reason.

Table 5: Impact on returns on total assets (ROTA) for the acquirer firms involved in M&A during 2002-2008, sector-wise (Auto-ancillary, pharmaceutical, and IT sector)

| M&A years | Years analyzed | Auto-ancillary sector | | | Pharmaceutical sector | | | IT sector | | |
|-----------|----------------|-----------------------|----------|-------------|-----------------------|----------|-------------|-----------|----------|-------------|
| | | Mean | % change | T-statistic | Mean | % change | T-statistic | Mean | % change | T-statistic |
| 2002-03 | 2001-02 | 16.05 | | | 25.34 | | | 13.06 | | |
| | 2003-04 | 18.77 | 2.72 | 0.49 | 24.71 | (0.63) | (0.23) | 11.37 | (1.69) | (0.75) |
| | 2004-05 | 16.90 | 0.85 | 0.26 | 19.47 | (5.87) | (2.13)* | 12.21 | (0.85) | (0.38) |
| | 2005-06 | 13.04 | (3.01) | (0.96) | 19.19 | (6.15) | (1.68) | 14.26 | 1.20 | 0.41 |
| 2003-04 | 2002-03 | 24.37 | | | 22.89 | | | 17.66 | | |
| | 2004-05 | 23.93 | (0.44) | (0.17) | 29.16 | 6.27 | 0.90 | 15.36 | (2.30) | (0.85) |
| | 2005-06 | 19.92 | (4.45) | (1.52) | 28.00 | 5.11 | 0.70 | 19.13 | 1.47 | 0.41 |
| | 2006-07 | 18.56 | (5.81) | (2.34)* | 26.39 | 3.50 | -0.80 | 14.93 | (2.73) | (0.65) |
| 2004-05 | 2003-04 | 14.72 | | | 18.01 | | | 6.88 | | |
| | 2004-05 | 15.66 | 0.94 | 0.19 | 15.08 | (16.30) | (0.59) | 21.60 | 9.34 | 2.40 * |
| | 2005-06 | 14.78 | 0.06 | 0.01 | 13.44 | (25.37) | (1.11) | 18.61 | 8.67 | 2.60 ** |
| | 2006-07 | 9.33 | (5.39) | (1.06) | 13.90 | (22.83) | (0.53) | 14.06 | 5.47 | 1.92 |
| 2005-06 | 2004-05 | 23.94 | | | 14.87 | | | 23.91 | | |
| | 2006-07 | 18.88 | (5.06) | (2.19)* | 12.50 | (2.37) | (0.83) | 17.27 | (27.77) | (1.11) |
| | 2007-08 | 14.16 | (9.78) | (2.46)* | 10.26 | (4.61) | (1.46) | 14.97 | (37.38) | (1.41) |
| | 2008-09 | 10.71 | (13.23) | (2.56)** | 11.67 | (3.20) | (1.26) | 15.38 | (35.70) | (1.32) |

| | | | | | | | | | | |
|---------|---------|-------|--------|----------|-------|--------|----------|-------|--------|----------|
| 2006-07 | 2005-06 | 15.89 | | | 14.58 | | | 22.03 | | |
| | 2007-08 | 11.35 | (4.54) | (2.51)* | 12.05 | (2.53) | (1.54) | 19.41 | (2.62) | (1.17) |
| | 2008-09 | 8.45 | (7.44) | (4.68)** | 11.87 | (2.71) | (2.05)* | 19.04 | (2.99) | (1.06) |
| | 2009-10 | 9.70 | (6.19) | (3.39)** | 11.81 | (2.77) | (1.92) | 15.11 | (6.92) | (2.34)* |
| 2007-08 | 2006-07 | 15.65 | | | 15.49 | | | 16.89 | | |
| | 2008-09 | 9.98 | (5.67) | (5.23)** | 11.41 | (4.08) | (2.36)* | 12.82 | (4.07) | (2.89)** |
| | 2009-10 | 10.39 | (5.26) | (3.34)** | 11.51 | (3.98) | (2.07)* | 11.59 | (5.30) | (3.54)** |
| | 2010-11 | 11.31 | (4.34) | (2.38)* | 9.28 | (6.21) | (3.20)** | 9.71 | (7.18) | (4.50)** |

** Significant at 99%; *significant at 95% confidence level

Table 6: Impact on returns on effective capital employed (ROCE) for the acquirer firms involved in M&A in India during 2002-2008, sector-wise (auto-ancillary, pharmaceutical, and IT sector)

| M&A year | Years analyzed | Auto-ancillary sector | | | Pharmaceutical sector | | | IT sector | | |
|----------|----------------|-----------------------|----------|-------------|-----------------------|----------|-------------|-----------|----------|-------------|
| | | Mean | % change | T-statistic | Mean | % change | T-statistic | Mean | % change | T-statistic |
| 2002-03 | 2001-02 | 28.17 | | | 39.28 | | | 24.45 | | |
| | 2003-04 | 29.17 | 1.00 | (0.07) | 41.00 | 1.72 | (0.36) | 26.52 | 2.07 | (0.43) |
| | 2004-05 | 31.46 | 3.29 | (0.31) | 31.30 | (7.98) | 2.08* | 38.28 | 13.83 | (1.77) |
| | 2005-06 | 26.34 | (1.83) | 0.26 | (19.02) | (58.30) | 1.06 | 51.37 | 26.92 | (1.55) |
| 2003-04 | 2002-03 | 40.52 | | | 35.83 | | | 34.07 | | |
| | 2004-05 | 43.77 | 3.25 | (0.36) | 70.63 | 97.10 | (1.66) | 41.56 | 7.49 | (0.85) |
| | 2005-06 | 36.86 | (3.66) | 0.50 | 63.31 | 76.69 | (1.57) | 68.49 | 34.42 | (1.87) |
| | 2006-07 | 35.64 | (4.88) | 0.58 | 46.75 | 30.47 | (1.45) | 43.42 | 9.35 | (0.73) |
| 2004-05 | 2003-04 | 38.03 | | | 26.52 | | | 26.34 | | |
| | 2004-05 | 28.51 | (9.52) | 0.93 | 23.40 | (11.77) | 0.39 | 64.38 | 38.04 | (2.46)* |
| | 2005-06 | 26.70 | (11.33) | 1.07 | 23.15 | (12.71) | 0.39 | 50.66 | 24.32 | (2.32)* |
| | 2006-07 | 19.30 | (18.73) | 1.97* | 21.87 | (17.55) | 0.37 | 34.15 | 7.81 | (0.91) |
| 2005-06 | 2004-05 | 38.13 | | | 23.05 | | | 47.33 | | |
| | 2006-07 | 32.65 | (5.48) | 1.00 | 18.76 | (4.29) | 1.12 | 34.87 | (26.32) | 0.99 |
| | 2007-08 | 27.28 | (10.85) | 1.53 | 15.69 | (7.36) | 1.64 | 40.76 | (13.87) | 0.44 |
| | 2008-09 | 20.74 | (17.39) | 2.26* | 17.30 | (5.75) | 1.77 | 38.15 | (19.39) | 0.68 |
| 2006-07 | 2005-06 | 25.49 | | | 23.25 | | | 58.75 | | |
| | 2007-08 | 18.84 | (6.65) | 2.09* | 20.76 | (2.49) | 0.83 | 44.54 | (14.21) | 1.47 |
| | 2008-09 | 15.22 | (10.27) | 3.95** | 19.25 | (4.00) | 1.80 | 48.65 | (10.10) | 0.97 |
| | 2009-10 | 19.33 | (6.16) | 1.58 | 19.88 | (3.37) | 1.57 | 44.81 | (13.94) | 1.23 |
| 2007-08 | 2006-07 | 28.12 | | | 24.52 | | | 35.60 | | |
| | 2008-09 | 16.15 | (11.97) | 2.83** | 18.33 | (6.19) | 2.70* | 32.35 | (3.25) | 0.74 |
| | 2009-10 | 19.74 | (8.38) | 3.58** | 19.35 | (5.17) | 1.82 | 37.54 | 1.94 | (0.39) |
| | 2010-11 | 23.12 | (5.00) | 1.09 | 16.33 | (8.19) | 2.58* | 30.64 | (4.96) | 0.85 |

** Significant at 99%; *significant at 95% confidence level

Table 7: Impact on return on equity (ROE) for the acquirer firms involved in M&A during 2002-2008, sector-wise (Auto-ancillary, pharmaceutical, and IT sector)

| M&A years | Years analyzed | Auto-ancillary sector | | | Pharmaceutical sector | | | IT sector | | |
|-----------|----------------|-----------------------|----------|-------------|-----------------------|----------|-------------|-----------|----------|-------------|
| | | Mean | % change | T-statistic | Mean | % change | T-statistic | Mean | % change | T-statistic |
| 2002-03 | 2001-02 | 7.06 | | | 19.40 | | | 7.96 | | |
| | 2003-04 | (13.72) | (20.78) | (0.90) | 21.24 | 1.84 | 0.26 | 2.23 | (5.73) | (0.87) |
| | 2004-05 | 54.45 | 47.39 | 1.08 | 12.23 | (7.17) | (1.22) | 6.32 | (1.64) | (0.48) |
| | 2005-06 | 9.00 | 1.94 | 0.29 | 7.92 | (11.48) | (1.08) | 7.09 | (0.87) | (0.16) |
| 2003-04 | 2002-03 | 21.54 | | | 22.49 | | | 11.56 | | |
| | 2004-05 | 25.17 | 3.63 | 1.01 | 33.43 | 10.94 | 0.96 | 11.25 | (0.31) | (0.10) |
| | 2005-06 | 16.91 | (4.63) | (0.66) | 31.81 | 9.32 | 0.85 | 15.97 | 4.41 | 1.15 |
| | 2006-07 | 13.31 | (8.23) | (1.09) | 26.76 | 4.27 | 0.64 | 12.83 | 1.27 | 0.31 |
| 2004-05 | 2003-04 | 11.45 | | | 10.60 | | | 3.09 | | |
| | 2004-05 | 13.43 | 1.98 | 0.30 | 8.13 | (23.27) | (0.42) | 13.09 | 10.00 | 2.37* |
| | 2005-06 | 13.68 | 2.23 | 0.30 | 9.81 | (7.45) | (0.11) | 13.79 | 10.70 | 3.59** |
| | 2006-07 | 6.26 | (5.19) | (0.72) | 8.74 | (17.59) | 0.18 | 9.22 | 6.13 | 2.65** |

| | | | | | | | | | | |
|---------|---------|--------|---------|----------|-------|--------|--------|-------|---------|----------|
| 2005-06 | 2004-05 | 53.66 | | | 9.53 | | | 16.06 | | |
| | 2006-07 | 18.74 | (34.92) | (2.03)* | 12.91 | 3.38 | 0.44 | 13.83 | (13.88) | (0.36) |
| | 2007-08 | 12.00 | (41.66) | (1.89) | 9.81 | 0.28 | 0.04 | 11.25 | (29.97) | (0.90) |
| | 2008-09 | 7.10 | (46.56) | (1.94) | 7.12 | (2.41) | (0.32) | 15.03 | (6.42) | (0.18)v |
| 2006-07 | 2005-06 | 16.18 | | | 4.95 | | | 21.21 | | |
| | 2007-08 | 6.38 | (9.80) | (1.65) | 10.10 | 5.15 | 0.57 | 17.73 | (3.48) | (1.26) |
| | 2008-09 | 3.00 | (13.18) | (3.56)** | 11.87 | 6.92 | 0.75 | 21.50 | 0.29 | 0.07 |
| | 2009-10 | 3.11 | (13.07) | (3.38)** | 11.80 | 6.85 | 0.73 | 11.86 | (9.35) | (2.01)* |
| 2007-08 | 2006-07 | 18.59 | | | 11.36 | | | 12.56 | | |
| | 2008-09 | (0.96) | (19.55) | (1.67) | 14.01 | 2.65 | 0.85 | 4.31 | (8.25) | (2.18)* |
| | 2009-10 | 4.83 | (13.76) | (2.95)** | 12.58 | 1.22 | 0.44 | 6.79 | (5.77) | (2.25)* |
| | 2010-11 | 8.73 | (9.86) | (2.56)* | 7.10 | (4.26) | (1.04) | 2.00 | (10.56) | (3.14)** |

** Significant at 99%; *significant at 95% confidence level

Impact on cost-efficiency: Cost-efficiency is reckoned as an important source of value creation in M&A. To view this aspect, all possible sources of cost efficiency/synergy have been assessed. Findings are revealing in nature. It is surprising to note that, acquirer firms have not shown any evidence of cost synergies/ economies gained contributed by M&A, in respect of relevant cost ratios analyzed. Costs of goods sold (the major cost constituent), purchase, raw material costs, operating costs, and other relevant cost components, which have been expected to have reduced after M&A, due to large scale benefits (in terms of real economies, pecuniary economies), benefits of resource sharing, etc. have, on the contrary, increased after M&A (Tables 8 to 13).

For the auto-ancillary sector, rise in COGS has been observed in three out of the six years analyzed (M&A 2002-03, 2003-04, and 2007-08); there has been an increase in raw-materials consumption cost ratio in these years; perhaps, this seems to be the factor that has attributed to declined profit-margins in the aforesaid years. Further, in the pharmaceutical sector no considerable changes have been observed in COGS and sub-cost components examined.

Findings are not suggestive of any significant operating cost-synergies contributed by M&A to acquirer firms pertaining to operating cost and fundamental cost-components, namely, administrative and personnel costs. Administrative expenses (ADM_{NS}) pertaining to auto-ancillary and pharmaceutical sectors have increased after M&A; further, for IT sector no significant changes have been noted (Table 12). Perhaps, the acquirer firms have not gained cost-advantage in terms of sharing administrative expenses, possibly of operating from single office and thereby, reducing the expenses of electricity, rent, office staff, etc.; it appears both set of administrative complexes continue to operate at separate places. In terms of personnel expenses also, no significant cost-economies have been observed; in fact, personnel costs have shown a rise for the all the sectors respectively (Table 13).

Table 8: Impact on cost of goods sold ratio (COGSR) for the acquirer firms involved in M&A during 2002-2008, sector-wise (Auto-ancillary, IT and pharmaceutical sector)

| M&A year | years analyzed | Auto-ancillary sector | | | Pharmaceutical sector | | |
|----------|----------------|-----------------------|----------|-------------|-----------------------|----------|-------------|
| | | Mean | % change | T-statistic | Mean | % change | T-statistic |
| 2002-03 | 2001-02 | 61.28 | | | 57.45 | | |
| | 2003-04 | 66.72 | 8.88 | 1.29 | 55.10 | (4.09) | (0.86) |
| | 2004-05 | 64.19 | 4.75 | 2.25 * | 53.26 | (7.29) | (2.52) * |
| | 2005-06 | 53.63 | (12.48) | (0.59) | 53.54 | (6.81) | (2.31) * |
| 2003-04 | 2002-03 | 60.43 | | | 48.72 | | |
| | 2004-05 | 64.13 | 6.12 | 3.04 ** | 46.65 | (4.25) | (0.42) |
| | 2005-06 | 64.67 | 7.02 | 2.70** | 48.51 | (0.43) | (0.04) |
| | 2006-07 | 65.87 | 9.00 | 2.56* | 47.28 | (2.96) | (0.40) |
| 2004-05 | 2003-04 | 60.23 | | | 59.99 | | |
| | 2005-06 | 63.18 | 4.90 | 0.71 | 55.51 | (7.47) | (0.93) |
| | 2006-07 | 62.72 | 4.13 | 0.53 | 59.97 | (0.03) | (0.00) |
| | 2007-08 | 57.13 | (5.15) | (0.42) | 66.16 | 10.29 | 0.51 |
| 2005-06 | 2004-05 | 63.77 | | | 60.80 | | |
| | 2006-07 | 65.73 | 3.07 | 0.66 | 62.10 | 2.14 | 0.74 |
| | 2007-08 | 66.82 | 4.78 | 0.92 | 60.81 | 0.02 | 0.01 |
| | 2008-09 | 66.70 | 4.59 | 1.07 | 59.97 | (1.37) | (0.43) |
| 2006-07 | 2005-06 | 66.87 | | | 54.35 | | |
| | 2007-08 | 67.50 | 0.94 | 0.54 | 54.89 | 0.99 | 0.45 |
| | 2008-09 | 68.02 | 1.72 | 1.10 | 53.87 | (0.88) | (0.36) |
| | 2009-10 | 67.77 | 1.35 | 0.93 | 53.83 | (0.96) | (0.39) |
| 2007-08 | 2006-07 | 69.60 | | | 63.34 | | |
| | 2008-09 | 72.14 | 3.65 | 3.31** | 63.34 | 0.00 | - |
| | 2009-10 | 71.86 | 3.25 | 2.78 ** | 61.60 | (2.75) | (1.22) |
| | 2010-11 | 71.79 | 3.15 | 5.00 ** | 55.63 | (12.17) | (1.19) |

** Significant at 99%; *significant at 95% confidence level

Table 9: Impact on purchases to production cost ratio (PPCR) for the acquirer firms involved in M&A during 2002-2008, sector-wise (Auto-ancillary, IT and pharmaceutical sector)

| M&A year | years analyzed | Auto-ancillary sector | | | Pharmaceutical sector | | |
|----------|----------------|-----------------------|----------|-------------|-----------------------|----------|-------------|
| | | Mean | % change | T-statistic | Mean | % change | T-statistic |
| 2002-03 | 2001-02 | 86.94 | | | 85.72 | | |
| | 2003-04 | 88.66 | 1.98 | 1.82 | 84.67 | (1.22) | (0.75) |
| | 2004-05 | 88.04 | 1.27 | 0.93 | 84.24 | (1.73) | (1.01) |
| | 2005-06 | 76.80 | (11.66) | (0.81) | 84.27 | (1.69) | (0.91) |
| 2003-04 | 2002-03 | 87.58 | | | 76.00 | | |
| | 2004-05 | 90.82 | 3.70 | 2.02 * | 81.41 | 7.12 | 0.75 |
| | 2005-06 | 90.56 | 3.40 | 1.49 | 82.52 | 8.58 | 0.85 |
| | 2006-07 | 91.08 | 4.00 | 1.59 | 80.39 | 5.78 | 0.61 |
| 2004-05 | 2003-04 | 87.10 | | | 85.74 | | |
| | 2005-06 | 88.62 | 1.75 | 0.98 | 83.39 | (2.74) | (0.43) |
| | 2006-07 | 88.35 | 1.44 | 0.52 | 78.95 | (7.92) | (0.68) |
| | 2007-08 | 76.48 | (12.19) | (0.93) | 68.48 | (20.13) | (1.19) |
| 2005-06 | 2004-05 | 84.73 | | | 87.02 | | |
| | 2006-07 | 85.69 | 1.13 | 0.71 | 87.85 | 0.95 | 0.46 |
| | 2007-08 | 86.11 | 1.63 | 0.83 | 87.49 | 0.54 | 0.22 |
| | 2008-09 | 87.51 | 3.28 | 1.45 | 88.41 | 1.60 | 0.65 |
| 2006-07 | 2005-06 | 91.08 | | | 81.26 | | |
| | 2007-08 | 92.40 | 1.45 | 1.49 | 81.36 | 0.12 | 0.06 |
| | 2008-09 | 91.70 | 0.68 | 0.74 | 81.19 | (0.09) | (0.04) |
| | 2009-10 | 80.50 | (11.62) | 0.92 | 82.84 | 1.94 | 1.69 |
| 2007-08 | 2006-07 | 92.20 | | | 88.99 | | |
| | 2008-09 | 93.39 | 1.29 | 1.81 | 89.56 | 0.64 | 1.16 |
| | 2009-10 | 92.89 | 0.75 | 0.95 | 90.32 | 1.49 | 2.50 * |
| | 2010-11 | 92.28 | 0.09 | 0.13 | 85.15 | (4.32) | (0.58) |

** significant at 99%; *significant at 95% confidence level

Table 10: Impact on raw material to production cost ratio (RMPC) for the acquirer firms involved in M&A during 2002-2008, sector-wise (Auto-ancillary, IT and pharmaceutical sector)

| M&A year | Years analyzed | Auto-ancillary sector | | | Pharmaceutical sector | | |
|----------|----------------|-----------------------|----------|-------------|-----------------------|----------|-------------|
| | | Mean | % change | T-statistic | Mean | % change | T-statistic |
| 2002-03 | 2001-02 | 79.26 | | | 60.99 | | |
| | 2003-04 | 81.70 | 3.08 | 2.07* | 59.04 | (3.20) | (1.01) |
| | 2004-05 | 82.61 | 4.23 | 1.77 | 58.69 | (3.77) | (0.95) |
| | 2005-06 | 69.66 | (12.11) | (0.79) | 57.07 | (6.43) | (1.14) |
| 2003-04 | 2002-03 | 87.46 | | | 52.69 | | |
| | 2004-05 | 90.47 | 3.44 | 1.92 | 59.60 | 13.11 | 0.96 |
| | 2005-06 | 90.51 | 3.49 | 1.53 | 60.57 | 14.96 | 1.02 |
| | 2006-07 | 91.08 | 4.14 | 1.67 | 55.46 | 5.26 | 0.58 |
| 2004-05 | 2003-04 | 72.79 | | | 58.07 | | |
| | 2005-06 | 84.75 | 16.43 | 1.24 | 39.69 | (31.65) | (1.84) |
| | 2006-07 | 84.11 | 15.55 | 1.30 | 46.72 | (19.55) | (0.92) |
| | 2007-08 | 71.31 | (2.03) | (0.11) | 51.55 | (11.23) | (0.47) |
| 2005-06 | 2004-05 | 80.61 | | | 59.19 | | |
| | 2006-07 | 83.35 | 3.40 | 1.63 | 63.04 | 6.50 | 1.88 |
| | 2007-08 | 83.70 | 3.83 | 1.84 | 62.70 | 5.93 | 1.95 |
| | 2008-09 | 84.41 | 4.71 | 2.43* | 62.22 | 5.12 | 1.52 |
| 2006-07 | 2005-06 | 88.75 | | | 62.70 | | |
| | 2007-08 | 91.10 | 2.65 | 2.99** | 63.48 | 1.24 | 0.26 |
| | 2008-09 | 90.55 | 2.03 | 2.38* | 63.31 | 0.97 | 0.18 |
| | 2009-10 | 90.72 | 2.22 | 2.24* | 66.59 | 6.20 | 1.26 |
| 2007-08 | 2006-07 | 92.20 | | | 64.03 | | |
| | 2008-09 | 93.39 | 1.29 | 1.81 | 71.24 | 11.26 | 1.06 |
| | 2009-10 | 92.89 | 0.75 | 0.95 | 70.86 | 10.67 | 0.96 |
| | 2010-11 | 92.28 | 0.09 | 0.13 | 65.17 | 1.78 | 0.12 |

** Significant at 99%; *significant at 95% confidence level

Table 11: Impact on the operating cost ratio (OC) for the acquirer firms involved in M&A in India during 2002-2008, sector-wise (auto-ancillary, IT and pharmaceutical sector)

| M&A year | years analyzed | Auto-ancillary sector | | | Pharmaceutical sector | | | IT sector | | |
|----------|----------------|-----------------------|----------|-------------|-----------------------|----------|-------------|-----------|----------|-------------|
| | | Mean | % change | T-statistic | Mean | % change | T-statistic | Mean | % change | T-statistic |
| 2002-03 | 2001-02 | 85.52 | | | 83.49 | | | 81.05 | | |
| | 2003-04 | 92.77 | 8.48 | 1.00 | 82.55 | (1.13) | (0.30) | 86.09 | 6.22 | 2.25* |
| | 2004-05 | 87.52 | 2.34 | 0.79 | 84.47 | 1.17 | 0.41 | 86.23 | 6.39 | 1.76 |
| | 2005-06 | 71.11 | (16.85) | (0.78) | 82.82 | (0.80) | (0.29) | 82.04 | 1.22 | 0.12 |
| 2003-04 | 2002-03 | 80.16 | | | 88.87 | | | 69.48 | | |
| | 2004-05 | 82.16 | 2.50 | 1.48 | 80.87 | (9.00) | (1.12) | 79.04 | 13.76 | 2.00* |
| | 2005-06 | 83.36 | 3.99 | 1.33 | 80.65 | (9.25) | (0.92) | 90.18 | 29.79 | 1.09 |
| | 2006-07 | 83.60 | 4.29 | 1.64 | 77.16 | (13.18) | (1.43) | 67.15 | (3.35) | (0.26) |
| 2004-05 | 2003-04 | 88.41 | | | 81.60 | | | 90.43 | | |
| | 2005-06 | 87.44 | (1.10) | (0.19) | 83.21 | 1.97 | 0.38 | 77.85 | (13.91) | (1.17) |
| | 2006-07 | 86.15 | (2.56) | (0.56) | 85.57 | 4.87 | 1.18 | 78.61 | (13.07) | (1.12) |
| | 2007-08 | 75.83 | (14.23) | (1.08) | 85.07 | 4.25 | 0.70 | 77.81 | (13.96) | (1.11) |
| 2005-06 | 2004-05 | 87.92 | | | 85.78 | | | 99.92 | | |
| | 2006-07 | 88.67 | 0.85 | 0.28 | 87.56 | 2.08 | 0.88 | 72.70 | (27.24) | (1.59) |
| | 2007-08 | 91.50 | 4.07 | 1.46 | 88.43 | 3.09 | 0.8 | 71.76 | (28.18) | (1.66) |
| | 2008-09 | 95.90 | 9.08 | 2.19* | 87.79 | 2.34 | 0.75 | 74.26 | (25.68) | (1.53) |
| 2006-07 | 2005-06 | 85.49 | | | 84.45 | | | 75.75 | | |
| | 2007-08 | 85.51 | 0.02 | 0.02 | 85.14 | 0.82 | 0.53 | 76.39 | 0.84 | 0.34 |
| | 2008-09 | 87.48 | 2.33 | 2.20* | 85.49 | 1.23 | 0.75 | 77.03 | 1.69 | 0.46 |
| | 2009-10 | 74.83 | (12.47) | (0.92) | 84.22 | (0.27) | (0.15) | 74.77 | (1.29) | (0.14) |
| 2007-08 | 2006-07 | 81.57 | | | 82.14 | | | 77.12 | | |
| | 2008-09 | 84.29 | 3.33 | 3.17** | 84.90 | 3.36 | 2.07* | 83.13 | 7.79 | 1.39 |
| | 2009-10 | 84.18 | 3.20 | 2.11* | 83.09 | 1.16 | 0.71 | 79.32 | 2.85 | 0.39 |
| | 2010-11 | 84.03 | 3.02 | 4.56** | 77.66 | (5.45) | (0.64) | 72.10 | (6.51) | (0.94) |

** Significant at 99%; *significant at 95% confidence level

Table 12: Impact on the administrative expenses to net sales ratio (ADM_{NS}) for the acquirer firms involved in M&A in India during 2002-2008, sector-wise (auto-ancillary, IT and pharmaceutical sector)

| M&A years | years analyzed | Auto-ancillary sector | | | Pharmaceutical sector | | | IT sector | | |
|-----------|----------------|-----------------------|----------|-------------|-----------------------|----------|-------------|-----------|----------|-------------|
| | | Mean | % change | T-statistic | Mean | % change | T-statistic | Mean | % change | T-statistic |
| 2002-03 | 2001-02 | 20.45 | | | 19.86 | | | 38.19 | | |
| | 2003-04 | 22.21 | 8.61 | 0.53 | 20.31 | 2.27 | 0.39 | 36.70 | (3.90) | (0.33) |
| | 2004-05 | 19.70 | (3.67) | (0.39) | 23.94 | 20.54 | 2.34* | 35.84 | (6.15) | (0.48) |
| | 2005-06 | 14.02 | (31.44) | (1.25) | 22.07 | 11.13 | 2.02* | 33.41 | (12.52) | (0.78) |
| 2003-04 | 2002-03 | 15.98 | | | 32.46 | | | 35.31 | | |
| | 2004-05 | 15.05 | (5.82) | (1.19) | 25.41 | (21.72) | (0.96) | 30.97 | (12.29) | (0.72) |
| | 2005-06 | 15.27 | (4.44) | (0.43) | 23.94 | (26.25) | (1.01) | 48.19 | 36.48 | 0.74 |
| | 2006-07 | 14.63 | (8.45) | (0.88) | 22.06 | (32.04) | (1.18) | 29.49 | (16.48) | (0.92) |
| 2004-05 | 2003-04 | 24.76 | | | 17.51 | | | 41.81 | | |
| | 2005-06 | 20.94 | (15.43) | (1.10) | 19.11 | 9.14 | 1.22 | 33.26 | (20.45) | (1.23) |
| | 2006-07 | 19.99 | (19.26) | (1.26) | 20.62 | 17.76 | 1.45 | 32.06 | (23.32) | (1.56) |
| | 2007-08 | 16.45 | (33.56) | (1.51) | 23.07 | 31.75 | 2.74** | 31.13 | (25.54) | (1.68) |
| 2005-06 | 2004-05 | 19.69 | | | 19.60 | | | 36.25 | | |
| | 2006-07 | 19.08 | (3.10) | (0.65) | 19.69 | 0.46 | 0.07 | 33.17 | (8.50) | (0.45) |
| | 2007-08 | 20.99 | 6.60 | 1.11 | 21.49 | 9.64 | 0.78 | 33.01 | (8.94) | (0.45) |
| | 2008-09 | 25.26 | 28.29 | 1.61 | 21.16 | 7.96 | 0.85 | 34.73 | (4.19) | (0.21) |
| 2006-07 | 2005-06 | 14.39 | | | 23.20 | | | 30.34 | | |
| | 2007-08 | 14.68 | 2.02 | 0.70 | 23.89 | 2.97 | 0.85 | 32.83 | 8.21 | 0.82 |
| | 2008-09 | 15.72 | 9.24 | 2.31* | 24.83 | 7.03 | 1.32 | 31.25 | 3.00 | 0.32 |
| | 2009-10 | 13.12 | (8.83) | (0.59) | 24.39 | 5.13 | 0.95 | 26.83 | (11.57) | (0.84) |
| | 2010-11 | 9.84 | | | 14.69 | | | 31.58 | | |
| 2007-08 | 2008-09 | 10.28 | 4.47 | 0.50 | 16.69 | 13.61 | 2.25* | 37.05 | 17.32 | 1.30 |
| | 2009-10 | 10.64 | 8.13 | 2.21* | 16.72 | 13.82 | 1.72 | 31.48 | (0.32) | (0.03) |
| | 2010-11 | 10.27 | 4.37 | 0.77 | 17.17 | 16.88 | 2.19* | 25.74 | (18.49) | (1.48) |

** significant at 99%; * significant at 95% confidence level

Table 13: Impact on the personnel costs for the acquirer firms involved in M&A in India during 2002-2008, sector-wise (auto-ancillary, IT and pharmaceutical sector)

| M&A year | years analyzed | Auto-ancillary sector | | | Pharmaceutical sector | | | IT sector | | |
|----------|----------------|-----------------------|----------|-------------|-----------------------|----------|-------------|-----------|----------|-------------|
| | | Mean | % change | T-statistic | Mean | % change | T-statistic | Mean | % change | T-statistic |
| 2002-03 | 2001-02 | 14.12 | | | 11.86 | | | 33.94 | | |
| | 2003-04 | 13.79 | (2.34) | (0.30) | 12.78 | 7.76 | 1.87 | 36.34 | 7.07 | 0.76 |
| | 2004-05 | 13.10 | (7.22) | (0.65) | 14.68 | 23.78 | 2.39* | 37.07 | 9.22 | 0.92 |
| | 2005-06 | 9.10 | (35.55) | (1.39) | 13.31 | 12.23 | 2.53* | 37.83 | 11.46 | 0.88 |
| 2003-04 | 2002-03 | 11.83 | | | 16.04 | | | 43.09 | | |
| | 2004-05 | 10.76 | (9.04) | (1.34) | 14.08 | (12.22) | (0.73) | 43.55 | 1.07 | 0.10 |
| | 2005-06 | 11.35 | (4.06) | (0.45) | 15.54 | (3.12) | (0.17) | 40.86 | (5.18) | (0.52) |
| | 2006-07 | 10.92 | (7.69) | (0.66) | 15.91 | (0.81) | (0.05) | 35.33 | (18.01) | (1.05) |
| 2004-05 | 2003-04 | 16.67 | | | 10.69 | | | 39.41 | | |
| | 2005-06 | 14.82 | (11.10) | (1.45) | 14.27 | 33.49 | 1.52 | 47.39 | 20.25 | 1.82 |
| | 2006-07 | 14.23 | (14.64) | (1.46) | 15.17 | 41.91 | 0.90 | 51.52 | 30.73 | 2.75** |
| | 2007-08 | 11.36 | (31.85) | (1.42) | 19.82 | 85.41 | 1.53 | 48.37 | 22.74 | 1.61 |
| 2005-06 | 2004-05 | 16.07 | | | 10.87 | | | 36.01 | | |
| | 2006-07 | 15.63 | (2.74) | (0.40) | 10.51 | (3.31) | (0.51) | 37.93 | 5.33 | 0.47 |
| | 2007-08 | 16.50 | 2.68 | 0.24 | 11.38 | 4.69 | 0.59 | 39.19 | 8.83 | 0.82 |
| | 2008-09 | 19.56 | 21.72 | 1.31 | 11.87 | 9.20 | 1.46 | 39.18 | 8.80 | 0.78 |
| 2006-07 | 2005-06 | 10.00 | | | 10.94 | | | 36.98 | | |
| | 2007-08 | 10.30 | 3.00 | 0.83 | 11.72 | 7.13 | 2.15* | 41.48 | 12.17 | 1.96 |
| | 2008-09 | 11.28 | 12.80 | 2.36* | 12.70 | 16.09 | 2.52* | 40.89 | 10.57 | 1.61 |
| | 2009-10 | 9.46 | (5.40) | (0.35) | 12.94 | 18.28 | 4.19** | 41.17 | 11.33 | 1.05 |
| | 2010-11 | 8.29 | | | 8.34 | | | 42.10 | | |
| 2007-08 | 2008-09 | 8.01 | (3.38) | (0.47) | 9.02 | 8.15 | 2.38* | 42.59 | 1.16 | 0.15 |
| | 2009-10 | 8.65 | 4.34 | 1.45 | 9.19 | 10.19 | 2.14* | 47.43 | 12.66 | 1.38 |
| | 2010-11 | 7.95 | (4.10) | (1.06) | 9.90 | 18.71 | 3.02** | 46.20 | 9.74 | 0.93 |

** significant at 99%; * significant at 95% confidence level

Impact on market synergies: M&A are considered as significant source of market synergies; acquirer firms are expected to gain by sharing in terms of spending less on selling and distribution expenses and advertisement costs. Findings suggest realization of the market-synergies by the acquirer firms from auto-ancillary and IT sectors in terms of selling and distribution expenses as well as advertisement costs. Relevant data (depicted in Tables 14 to 17) signifies marginal decline in the selling and distribution expenses as well as advertisement cost for the auto-ancillary sector, in all the years. For the IT sector, decline seems to be more significant; there has been a notable decline in SDE_{NS} and SDE_{OC} in most all the years; and for M&A during 2004 to 2006, the decline is statistically significant; similar trend has been exhibited in advertisement expenses also.

However, for the pharmaceutical sector, no significant decline in the SDE as well as advertisement expenses has been observed; instead, the expenses have increased marginally. Perhaps, the M&A in pharmaceutical sector were intended for the entry into the new market, customer segment or new business or product line, which might have enhanced the sales promotion requirements.

Table 14: Impact on the selling and distribution expenses to net sales (SDE_{NS}) for the acquirer firms involved in M&A in India during 2002-2008, sector-wise (auto-ancillary, IT and pharmaceutical sector)

| M&A years | years analyzed | Auto-ancillary sector | | | Pharmaceutical sector | | | IT sector | | |
|-----------|----------------|-----------------------|----------|----------------|-----------------------|----------|--------------|-----------|----------|----------------|
| | | Mean | % change | T-statistic | Mean | % change | T-statistic | Mean | % change | T-statistic |
| 2002-03 | 2001-02 | 3.79 | | | 6.18 | | | 4.14 | | |
| | 2003-04 | 3.84 | 1.32 | 0.09 | 7.14 | 15.53 | 1.90 | 2.61 | (36.96) | (1.72) |
| | 2004-05 | 3.64 | (3.96) | (0.22) | 7.28 | 17.80 | 2.16* | 2.66 | (35.75) | (1.64) |
| | 2005-06 | 3.45 | (8.97) | (0.36) | 7.20 | 16.50 | 2.24* | 2.25 | (45.65) | (1.71) |
| 2003-04 | 2002-03 | 3.75 | | | 7.70 | | | 1.19 | | |
| | 2004-05 | 2.98 | (20.53) | (1.05) | 8.82 | 14.55 | 1.61 | 3.72 | 212.61 | 1.50 |
| | 2005-06 | 3.43 | (8.53) | (0.64) | 8.19 | 6.36 | 0.40 | 2.87 | 141.18 | 1.47 |
| | 2006-07 | 3.10 | (17.33) | (1.21) | 7.81 | 1.43 | 0.09 | 2.51 | 110.92 | 1.18 |
| 2004-05 | 2003-04 | 3.41 | | | 6.27 | | | 4.16 | | |
| | 2005-06 | 3.32 | (2.64) | (0.09) | 7.96 | 26.95 | 0.89 | 2.32 | (44.23) | (1.56) |
| | 2006-07 | 3.44 | 0.88 | 0.02 | 17.83 | 184.37 | 1.04 | 1.54 | (62.98) | (2.15)* |
| | 2007-08 | 2.25 | (34.02) | (0.76) | 6.98 | 11.32 | 0.38 | 1.27 | (69.47) | (2.34)* |
| 2005-06 | 2004-05 | 4.46 | | | 5.38 | | | 4.77 | | |
| | 2006-07 | 3.85 | (13.68) | (1.26) | 5.77 | 7.25 | 0.85 | 1.10 | (76.94) | (2.07)* |
| | 2007-08 | 3.68 | (17.49) | (1.30) | 6.13 | 13.94 | 0.72 | 0.96 | (79.87) | (2.21)* |
| | 2008-09 | 3.94 | (11.66) | (2.04)* | 6.67 | 23.98 | 1.56 | 0.73 | (84.70) | (2.31)* |
| 2006-07 | 2005-06 | 4.17 | | | 6.90 | | | 2.89 | | |
| | 2007-08 | 3.47 | (16.79) | (1.33) | 6.36 | (7.83) | (1.29) | 1.21 | (58.13) | (1.60) |
| | 2008-09 | 3.83 | (8.15) | (0.61) | 6.79 | (1.59) | (0.22) | 2.34 | (19.03) | (0.30) |
| | 2009-10 | 3.53 | (15.35) | (1.38) | 5.99 | (13.19) | (1.41) | 2.32 | (19.72) | (0.33) |
| 2007-08 | 2006-07 | 2.13 | | | 4.11 | | | 1.60 | | |
| | 2008-09 | 1.87 | (12.21) | (0.89) | 4.87 | 18.49 | 1.75 | 2.21 | 38.13 | 1.00 |
| | 2009-10 | 1.68 | (21.13) | (1.36) | 4.76 | 15.82 | 1.04 | 2.61 | 63.13 | 1.02 |
| | 2010-11 | 1.96 | (7.98) | (0.45) | 4.85 | 18.00 | 1.39 | 1.35 | (15.63) | (0.77) |

** Significant at 99%; * significant at 95% confidence level

Table 15: Impact on the selling and distribution expenses to operating costs (SDE_{oc}) for the acquirer firms involved in M&A in India during 2002-2008, sector-wise (auto-ancillary, IT and pharmaceutical sector)

| M&A year | years analyzed | Auto-ancillary sector | | | Pharmaceutical sector | | | IT sector | | |
|----------|----------------|-----------------------|----------|-------------|-----------------------|----------|-------------|-----------|----------|-------------|
| | | Mean | % change | T-statistic | Mean | % change | T-statistic | Mean | % change | T-statistic |
| 2002-03 | 2001-02 | 4.49 | | | 7.46 | | | 5.00 | | |
| | 2003-04 | 4.41 | (1.78) | (0.16) | 8.60 | 15.28 | 2.04* | 3.17 | (36.60) | (1.62) |
| | 2004-05 | 4.39 | (2.23) | (0.14) | 8.64 | 15.82 | 2.20* | 3.15 | (37.00) | (1.64) |
| | 2005-06 | 3.92 | (12.69) | (0.77) | 8.73 | 17.02 | 2.17* | 2.71 | (45.80) | (1.71) |
| 2003-04 | 2002-03 | 4.78 | | | 9.70 | | | 1.63 | | |
| | 2004-05 | 3.67 | (23.22) | (1.21) | 11.07 | 14.12 | 1.97 | 4.31 | 164.42 | 1.56 |
| | 2005-06 | 4.09 | (14.44) | (1.08) | 9.89 | 1.96 | 0.14 | 2.74 | 68.10 | 1.81 |
| | 2006-07 | 3.66 | (23.43) | (1.66) | 9.98 | 2.89 | 0.17 | 2.95 | 80.98 | 1.19 |
| 2004-05 | 2003-04 | 3.83 | | | 7.20 | | | 4.03 | | |
| | 2005-06 | 3.86 | 0.78 | 0.03 | 7.08 | (1.67) | (0.22) | 3.00 | (25.56) | (0.93) |
| | 2006-07 | 4.01 | 4.70 | 0.14 | 8.13 | 12.92 | 0.93 | 2.02 | (49.88) | (1.72) |
| | 2007-08 | 2.54 | (33.68) | (0.78) | 6.00 | (16.67) | (1.09) | 1.64 | (59.31) | (1.98) |
| 2005-06 | 2004-05 | 5.20 | | | 6.31 | | | 4.79 | | |
| | 2006-07 | 4.32 | (16.92) | (1.76) | 6.63 | 5.07 | 0.75 | 1.63 | (65.97) | (1.83) |
| | 2007-08 | 4.09 | (21.35) | (1.69) | 6.79 | 7.61 | 0.53 | 1.42 | (70.35) | (2.11)* |
| | 2008-09 | 4.28 | (17.69) | (2.32)* | 7.44 | 17.91 | 1.50 | 1.01 | (78.91) | (2.24)* |
| 2006-07 | 2005-06 | 4.79 | | | 8.18 | | | 3.44 | | |
| | 2007-08 | 3.85 | (19.62) | (1.56) | 7.51 | (8.19) | (1.45) | 1.49 | (56.69) | (1.78) |
| | 2008-09 | 4.24 | (11.48) | (0.82) | 7.91 | (3.30) | (0.44) | 2.92 | (15.12) | (0.24) |
| | 2009-10 | 3.97 | (17.12) | (1.42) | 7.07 | (13.57) | (1.57) | 3.08 | (10.47) | (0.16) |
| 2007-08 | 2006-07 | 2.49 | | | 5.06 | | | 2.03 | | |
| | 2008-09 | 2.10 | (15.66) | (1.17) | 5.87 | 16.01 | 1.53 | 2.52 | 24.14 | 0.77 |
| | 2009-10 | 1.93 | (22.49) | (1.51) | 5.92 | 17.00 | 1.01 | 2.65 | 30.54 | 0.83 |
| | 2010-11 | 2.25 | (9.64) | (0.56) | 5.79 | 14.43 | 1.31 | 1.76 | (13.30) | (0.73) |

** Significant at 99%; * significant at 95% confidence level

Table 16: Impact on the advertisement expenses/ net sales (ADVNS) for the acquirer firms involved in M&A in India during 2002-2008, sector-wise (auto-ancillary, IT and pharmaceutical sector)

| M&A year | years analyzed | Auto-ancillary sector | | | Pharmaceutical sector | | | IT sector | | |
|----------|----------------|-----------------------|----------|-------------|-----------------------|----------|-------------|-----------|----------|-------------|
| | | Mean | % change | T-statistic | Mean | % change | T-statistic | Mean | % change | T-statistic |
| 2002-03 | 2001-02 | 0.27 | | | 1.71 | | | 1.75 | | |
| | 2003-04 | 0.57 | 111.11 | 1.00 | 2.06 | 20.47 | 1.39 | 1.04 | (40.57) | (1.73) |
| | 2004-05 | 0.66 | 144.44 | 1.26 | 1.98 | 15.79 | 1.03 | 0.84 | (52.00) | (2.15)* |
| | 2005-06 | 0.64 | 137.04 | 1.00 | 2.00 | 16.96 | 0.80 | 0.71 | (59.43) | (1.80) |
| 2003-04 | 2002-03 | 0.78 | | | 2.81 | | | 0.26 | | |
| | 2004-05 | 0.20 | (74.36) | (1.61) | 2.87 | 2.14 | 0.63 | 0.27 | 3.85 | 0.15 |
| | 2005-06 | 0.25 | (67.95) | (1.46) | 2.91 | 3.56 | 1.03 | 1.46 | 461.54 | 1.08 |
| | 2006-07 | 0.19 | (75.64) | (1.68) | 2.73 | (2.85) | (0.36) | 1.06 | 307.69 | 1.13 |
| 2004-05 | 2003-04 | 0.12 | | | 3.05 | | | 0.29 | | |
| | 2005-06 | 0.17 | 41.67 | 0.48 | 2.82 | (7.54) | (0.63) | 0.29 | 0.00 | 0.01 |
| | 2006-07 | 0.08 | (33.33) | (0.56) | 7.45 | 144.26 | 1.02 | 0.31 | 6.90 | 0.13 |
| | 2007-08 | 0.06 | (50.00) | (0.76) | 1.98 | (35.08) | (1.65) | 0.40 | 37.93 | 0.58 |
| 2005-06 | 2004-05 | 1.10 | | | 0.69 | | | 1.62 | | |
| | 2006-07 | 1.08 | (1.82) | (0.63) | 0.79 | 14.49 | 0.42 | 0.55 | (66.05) | (0.69) |
| | 2007-08 | 1.05 | (4.55) | (0.69) | 1.11 | 60.87 | 0.80 | 0.40 | (75.31) | (0.79) |
| | 2008-09 | 0.85 | (22.73) | (1.37) | 1.34 | 94.20 | 0.89 | 0.31 | (80.86) | (0.85) |
| 2006-07 | 2005-06 | 0.05 | | | 1.45 | | | 1.15 | | |
| | 2007-08 | 0.07 | 40.00 | 0.74 | 1.37 | (5.52) | (0.80) | 0.37 | (67.83) | (0.84) |
| | 2008-09 | 0.09 | 80.00 | 0.94 | 1.58 | 8.97 | 0.32 | 0.26 | (77.39) | (0.96) |
| | 2009-10 | 0.06 | 20.00 | 0.56 | 1.35 | (6.90) | (0.29) | 0.22 | (80.87) | (1.01) |
| 2007-08 | 2006-07 | 0.00 | | | 0.66 | | | 0.56 | | |
| | 2008-09 | 0.00 | 0.00 | 1.00 | 0.78 | 18.18 | 0.59 | 0.72 | 28.57 | 1.20 |
| | 2009-10 | 0.00 | 0.00 | 0.00 | 0.74 | 12.12 | 0.39 | 1.64 | 192.86 | 1.00 |
| | 2010-11 | 0.00 | 0.00 | 0.41 | 0.94 | 42.42 | 0.79 | 0.57 | 1.79 | 0.08 |

** Significant at 99%; * significant at 95% confidence level

Table 17: Impact on the advertisement expenses to selling and distribution expenses (ADV_{SDE}) for the acquirer firms involved in M&A in India during 2002-2008, sector-wise (auto-ancillary, IT and pharmaceutical sector)

| M&A year | years analyzed | Auto-ancillary sector | | | Pharmaceutical sector | | | IT sector | | |
|----------|----------------|-----------------------|----------|-------------|-----------------------|----------|-------------|-----------|----------|-------------|
| | | Mean | % change | T-statistic | Mean | % change | T-statistic | Mean | % change | T-statistic |
| 2002-03 | 2001-02 | 2.61 | | | 21.73 | | | 42.14 | | |
| | 2003-04 | 4.55 | 74.33 | 1.04 | 21.55 | (0.83) | (0.06) | 38.87 | (7.76) | (0.40) |
| | 2004-05 | 7.20 | 175.86 | 1.53 | 21.18 | (2.53) | (0.16) | 38.18 | (9.40) | (0.43) |
| | 2005-06 | 4.89 | 87.36 | 0.98 | 20.69 | (4.79) | (0.29) | 33.34 | (20.88) | (0.79) |
| 2003-04 | 2002-03 | 16.63 | | | 11.05 | | | 30.93 | | |
| | 2004-05 | 14.45 | (13.11) | 0.30 | 11.25 | 1.81 | 0.27 | 25.60 | (17.23) | (0.47) |
| | 2005-06 | 10.14 | (39.03) | 0.91 | 14.37 | 30.05 | 0.96 | 37.40 | 20.92 | 0.53 |
| | 2006-07 | 7.90 | (52.50) | 1.35 | 14.45 | 30.77 | 0.95 | 26.02 | (15.87) | (0.46) |
| 2004-05 | 2003-04 | 3.77 | | | 30.12 | | | 17.78 | | |
| | 2005-06 | 6.63 | 75.86 | 0.86 | 24.56 | (18.46) | (0.70) | 18.37 | 3.32 | 0.16 |
| | 2006-07 | 2.58 | (31.56) | (0.70) | 26.19 | (13.05) | (0.59) | 19.56 | 10.01 | 0.38 |
| | 2007-08 | 2.56 | (32.10) | (0.88) | 26.93 | (10.59) | (0.30) | 24.44 | 37.46 | 1.17 |
| 2005-06 | 2004-05 | 18.07 | | | 9.00 | | | 21.62 | | |
| | 2006-07 | 16.63 | (7.97) | 0.76 | 11.08 | 23.11 | 0.68 | 38.12 | 76.32 | 1.78 |
| | 2007-08 | 19.26 | 6.59 | (0.56) | 11.92 | 32.44 | 0.89 | 40.82 | 88.81 | 1.94 |
| | 2008-09 | 13.90 | (23.08) | 1.71 | 11.70 | 30.00 | 0.59 | 35.47 | 64.06 | 1.26 |
| 2006-07 | 2005-06 | 1.05 | | | 17.99 | | | 27.61 | | |
| | 2007-08 | 2.59 | 146.67 | 1.17 | 20.08 | 11.62 | 0.59 | 33.16 | 20.10 | 1.15 |
| | 2008-09 | 2.22 | 111.43 | 1.43 | 19.14 | 6.39 | 0.27 | 23.61 | (14.49) | (0.71) |
| | 2009-10 | 1.57 | 49.52 | 1.22 | 19.08 | 6.06 | 0.27 | 22.20 | (19.59) | (0.78) |
| 2007-08 | 2006-07 | 1.19 | | | 10.51 | | | 26.03 | | |
| | 2008-09 | 0.63 | (47.06) | (0.89) | 10.08 | (4.09) | (0.18) | 27.51 | 5.69 | 0.49 |
| | 2009-10 | 0.63 | (47.06) | (0.50) | 10.43 | (0.76) | (0.04) | 32.38 | 24.39 | 1.33 |
| | 2010-11 | 0.18 | (84.87) | (0.89) | 9.73 | (7.42) | (0.42) | 28.57 | 9.76 | 0.53 |

** Significant at 99%; *significant at 95% confidence level

Impact on R&D expenditure: Knowledge acquisition is often considered as one of the driving intent for M&A, in present dynamic environment. Therefore, assessing the impact of M&A on firms R&D perspective is considered useful. Relevant ratios assessed, signify no significant changes in the R&D expenditure for the acquirer firms affiliated to auto-ancillary and IT sectors in the post-M&A period; R&D expenditure ratios computed in relation to net sales, operating profit as well EAT seem to be uninfluenced by M&A. However, for the pharmaceutical sector, R&D expenditure in relation to OPM, net sales as well as EAT has, by and large, exhibited rising trend. RDE_{EAT} ratio has shown a rise in most of the years; this increase has been notable. Further, RDE_{NS} has revealed a significant increase during M&A 2002-03, but for M&A during 2006-08, decline in $R\&D_{NS}$ has been observed. However, in subsequent years (2008 to 2010), decline in R&D expenditure ratios has been noted when recessionary waves were in vogue. It is worth mentioning that improvement in the knowledge-perspective is a pertinent factor for the M&A in pharmaceutical sector. R&D expenditure, which is among the crucial growth elements for pharmaceutical firms, has been impacted positively by M&A. The growth pattern of R&D expenses in terms of sales as well as profitability reveals that M&A has strengthened the R&D activity of the

acquirer firms. Further, R&D expenditure is a controllable factor that firms could modify depending upon the need and circumstances. For instance, during M&A 2002-2005, when economy was stable and firms' profitability was on rise, the R&D expenditure has shown increasing trend; perhaps, with the advent of recession during 2008-2011, shrinking market demand and increased market instability might have induced the firms to curtail their R&D spending.

Table 18: Impact on research and development expenses to operating profit (R&D_{OPM}) for the acquirer firms involved in M&A in India during 2002-2008, sector-wise (auto-ancillary, IT and pharmaceutical sector)

| M&A year | years analyzed | Auto-ancillary sector | | | Pharmaceutical sector | | | IT sector | | |
|----------|----------------|-----------------------|----------|-------------|-----------------------|----------|-------------|-----------|----------|-------------|
| | | Mean | % change | T-statistic | Mean | % change | T-statistic | Mean | % change | T-statistic |
| 2002-03 | 2001-02 | 2.72 | | | 8.89 | | | 1.80 | | |
| | 2003-04 | 2.82 | 3.68 | 0.05 | 12.56 | 41.28 | 1.83 | 1.67 | (7.22) | (0.10) |
| | 2004-05 | 3.21 | 18.01 | 0.24 | 15.28 | 71.88 | 2.62** | 1.70 | (5.56) | (0.08) |
| | 2005-06 | 4.42 | 62.50 | 1.07 | 14.39 | 61.87 | 2.80** | 0.96 | (46.67) | (0.96) |
| 2003-04 | 2002-03 | 3.65 | | | 1.59 | | | 15.78 | | |
| | 2004-05 | 3.37 | (7.67) | (0.32) | 29.98 | 1785.53 | 1.38 | 12.41 | (21.36) | (1.21) |
| | 2005-06 | 4.21 | 15.34 | 0.27 | 21.40 | 1245.91 | 1.87 | 7.84 | (50.32) | (2.13)* |
| | 2006-07 | 3.86 | 5.75 | 0.14 | 16.46 | 935.22 | 1.81 | 0.03 | (99.81) | (1.93) |
| 2004-05 | 2003-04 | 0.18 | | | (27.71) | | | 6.97 | | |
| | 2005-06 | 0.18 | 0.00 | 0.16 | 21.64 | (178.09) | (1.60) | 12.27 | 76.04 | 0.62 |
| | 2006-07 | 0.64 | 255.56 | 1.28 | 22.85 | (182.46) | (1.68) | 6.62 | (5.02) | (0.04) |
| | 2007-08 | 0.60 | 233.33 | 0.95 | 22.48 | (181.13) | (1.56) | 2.56 | (63.27) | (0.65) |
| 2005-06 | 2004-05 | 1.81 | | | 26.53 | | | 3.74 | | |
| | 2006-07 | 1.33 | (26.52) | (1.59) | (19.19) | (172.33) | (1.07) | 5.76 | 54.01 | 0.97 |
| | 2007-08 | 1.41 | (22.10) | (0.99) | 18.24 | (31.25) | (1.54) | 2.19 | (41.44) | (1.10) |
| | 2008-09 | 3.15 | 74.03 | 1.27 | 27.32 | 2.98 | 0.09 | 0.13 | (96.52) | (1.06) |
| 2006-07 | 2005-06 | 7.77 | | | 47.54 | | | 21.41 | | |
| | 2007-08 | 18.23 | 134.62 | 1.82 | 33.66 | (29.20) | (0.97) | 18.55 | (13.36) | (0.49) |
| | 2008-09 | 10.82 | 39.25 | 1.06 | (7.76) | (116.32) | (1.67) | (8.62) | (140.26) | (1.70) |
| | 2009-10 | 5.61 | (27.80) | (1.30) | 81.06 | 70.51 | 0.83 | (1.28) | (105.98) | (1.61) |
| 2007-08 | 2006-07 | 5.95 | | | 22.58 | | | 2.02 | | |
| | 2008-09 | 18.54 | 211.60 | 1.57 | 23.51 | 4.12 | 0.19 | (5.74) | (384.16) | (1.02) |
| | 2009-10 | 10.75 | 80.67 | 0.80 | 20.50 | (9.21) | (0.38) | (0.49) | (124.26) | (0.86) |
| | 2010-11 | 9.48 | 59.33 | 0.74 | 24.63 | 9.08 | 0.26 | (0.26) | (112.87) | (0.90) |

** significant at 99%; * significant at 95% confidence level

Table 19 Impact on research and development expenses/ net sales (R&D_{NS}) for the acquirer firms involved in M&A in India during 2002-2008, sector-wise (auto-ancillary, IT and pharmaceutical sector)

| M&A year | Years analyzed | Auto-ancillary sector | | | Pharmaceutical sector | | | IT sector | | |
|----------|----------------|-----------------------|----------|-------------|-----------------------|----------|-------------|-----------|----------|-------------|
| | | Mean | % change | T-statistic | Mean | % change | T-statistic | Mean | % change | T-statistic |
| 2002-03 | 2001-02 | 0.74 | | | 1.94 | | | 0.27 | | |
| | 2003-04 | 0.71 | (4.05) | (0.14) | 2.45 | 26.29 | 1.61 | 0.16 | (40.74) | (0.81) |
| | 2004-05 | 0.79 | 6.76 | 0.48 | 3.06 | 57.73 | 2.21* | 0.30 | 11.11 | 0.15 |
| | 2005-06 | 0.67 | (9.46) | (0.72) | 3.51 | 80.93 | 2.56* | 0.15 | (44.44) | 1.01) |
| 2003-04 | 2002-03 | 0.54 | | | 8.23 | | | 2.31 | | |
| | 2004-05 | 0.34 | (37.04) | (0.82) | 7.14 | (13.24) | (0.17) | 1.93 | (16.45) | (0.64) |
| | 2005-06 | 0.53 | (1.85) | (0.03) | 5.90 | (28.31) | (0.45) | 1.56 | (32.47) | (1.13) |
| | 2006-07 | 0.48 | (11.11) | (0.19) | 5.32 | (35.36) | (0.53) | 0.01 | (99.57) | (2.04)* |
| 2004-05 | 2003-04 | 0.03 | | | 2.62 | | | 0.72 | | |
| | 2005-06 | 0.03 | 0.00 | 1.55 | 3.74 | 42.75 | 0.43 | 1.31 | 81.94 | 1.14 |
| | 2006-07 | 0.07 | 133.33 | 1.08 | 3.20 | 22.14 | 0.25 | 0.60 | (16.67) | (0.15) |
| | 2007-08 | 0.07 | 133.33 | 0.61 | 37.35 | 1325.57 | 0.99 | 0.32 | (55.56) | (0.63) |
| 2005-06 | 2004-05 | 0.35 | | | 3.79 | | | 0.55 | | |
| | 2006-07 | 0.22 | (37.14) | (2.06)* | 2.92 | (22.96) | (1.51) | 0.54 | (1.82) | (0.96) |
| | 2007-08 | 0.24 | (31.43) | (1.45) | 2.34 | (38.26) | (1.85) | 0.30 | (45.45) | (1.06) |
| | 2008-09 | 0.37 | 5.71 | 0.47 | 2.19 | (42.22) | (1.98)* | 0.04 | (92.73) | (1.13) |
| 2006-07 | 2005-06 | 0.67 | | | 5.64 | | | 1.78 | | |
| | 2007-08 | 1.30 | 94.03 | 1.03 | 3.62 | (35.82) | (2.71)** | 0.85 | (52.25) | (1.16) |
| | 2008-09 | 0.69 | 2.99 | 0.17 | 3.53 | (37.41) | (2.93)** | 0.48 | (73.03) | (1.37) |
| | 2009-10 | 0.48 | (28.36) | (1.35) | 3.31 | (41.31) | (3.20)** | 0.52 | (70.79) | (1.31) |
| 2007-08 | 2006-07 | 0.60 | | | 4.27 | | | 0.41 | | |
| | 2008-09 | 1.22 | 103.33 | 1.19 | 3.83 | (10.30) | (0.61) | 0.31 | (24.39) | (1.16) |
| | 2009-10 | 1.06 | 76.67 | 0.76 | 3.49 | (18.27) | (1.02) | 0.53 | 29.27 | 0.54 |
| | 2010-11 | 0.82 | 36.67 | 0.50 | 2.88 | (32.55) | (1.75) | 0.49 | 19.51 | 0.35 |

** Significant at 99%; *significant at 95% confidence level

Table 20: Impact on research and development expenses/ EAT (R&D_{EAT}) for the acquirer firms involved in M&A during 2002-2008, sector-wise (auto-ancillary, IT and pharmaceutical sector)

| M&A year | Years analyzed | Auto-ancillary sector | | | Pharmaceutical sector | | | IT sector | | |
|----------|----------------|-----------------------|----------|-------------|-----------------------|-----------|-------------|-----------|-----------|-------------|
| | | Mean | % change | T-statistic | Mean | % change | T-statistic | Mean | % change | T-statistic |
| 2002-03 | 2001-02 | 29.08 | | | 20.01 | | | 3.43 | | |
| | 2003-04 | 11.84 | (59.28) | (0.71) | 25.82 | 29.04 | 1.14 | 6.30 | 83.67 | 0.54 |
| | 2004-05 | 7.98 | (72.56) | (0.90) | 30.22 | 51.02 | 2.20 | 3.67 | 7.00 | 0.10 |
| | 2005-06 | 7.16 | (75.38) | (1.35) | 52.85 | 164.12 | 1.18 | 1.98 | (42.27) | (0.83) |
| 2003-04 | 2002-03 | 22.03 | | | 9.81 | | | (3.06) | | |
| | 2004-05 | 11.98 | (45.62) | (0.90) | 10.02 | 2.14 | 0.01 | 0.05 | (101.63) | (0.09) |
| | 2005-06 | 17.02 | (22.74) | (0.41) | 48.88 | 398.27 | 1.27 | (50.26) | 1542.48 | 0.93 |
| | 2006-07 | 18.88 | (14.30) | (0.35) | 24.88 | 153.62 | 1.47 | 0.04 | (101.31) | (0.11) |
| 2004-05 | 2003-04 | 0.48 | | | 38.88 | | | (5.55) | | |
| | 2004-05 | 0.46 | (4.17) | (0.14) | 53.54 | 37.71 | 0.38 | (191.27) | 3346.31 | 1.24 |
| | 2005-06 | 1.92 | 300.00 | 1.42 | 30.12 | (22.53) | (0.24) | 48.52 | (974.23) | (1.13) |
| | 2006-07 | 2.16 | 350.00 | 1.08 | 116.74 | 200.26 | 0.61 | 52.97 | (1054.41) | (1.12) |
| 2005-06 | 2004-05 | 3.52 | | | 48.44 | | | 6.68 | | |
| | 2006-07 | 3.63 | 3.13 | 0.16 | (4.92) | (110.16) | (1.41) | 41.97 | 528.29 | 1.00 |
| | 2007-08 | 4.02 | 14.20 | 0.60 | 127.43 | 163.07 | (0.84) | 45.78 | 585.33 | 1.00 |
| | 2008-09 | 29.47 | 737.22 | 1.07 | (61.91) | (227.81) | (0.88) | 0.19 | (97.16) | (1.05) |
| 2006-07 | 2005-06 | (52.45) | | | 25.45 | | | 6.86 | | |
| | 2007-08 | 10.01 | (119.08) | (1.04) | 4.74 | (81.38) | (0.17) | 40.46 | 489.80 | 0.17 |
| | 2008-09 | 36.06 | (168.75) | (1.34) | 80.77 | 217.37 | 0.50 | 8.59 | 25.22 | 0.01 |
| | 2009-10 | 15.73 | (129.99) | (1.07) | 66.02 | 159.41 | 0.33 | 4.16 | (39.36) | (0.02) |
| 2007-08 | 2006-07 | 11.39 | | | 46.89 | | | 4.77 | | |
| | 2008-09 | 51.02 | 347.94 | 0.75 | 82.12 | 75.13 | 0.73 | 0.16 | (96.65) | (1.03) |
| | 2009-10 | 28.11 | 146.80 | 0.94 | (488.71) | (1142.25) | (1.02) | 1.51 | (68.34) | (0.77) |
| | 2010-11 | 28.11 | 146.80 | 0.94 | 144.09 | 207.29 | 0.79 | 1.06 | (77.78) | (0.88) |

** Significant at 99%; *significant at 95% confidence level

In view of above findings, it is reasonable to infer that M&A have no favorable impact on the cost-efficiency of the acquirer firms; on the contrary, the acquirer firms experience marginal increase in operating costs during the post-acquisition years (may be attributable to inflation prevailing in Indian economy). Acquirer firms seem to have solely benefited in respect of market synergies in terms of reduced selling and distribution expenses and advertisement cost. It appears that the acquirer firms expect the benefits in some other ways, say better name, brand acquisitions, bigger size (as suggested by hubris theory), etc. Sometimes companies prefer even after M&A to operate under separate domain, with different production facilities, administrative set-up, different marketing functions, R&D efforts, etc.; this perhaps seem to be one of the reasons for not observing the anticipated economies. Further, late or ineffective integration measures of acquirer firms may be conceived as the additional factor/hurdle in realizing the expected economic benefits.

M&A provide an opportunity to the acquirers firms to access the large assets base, which perforce should augment/yield more sales; the findings, however, are not supporting the realization of the desired benefits by the acquirer firms. Relevant data (Table 21) exhibits no evidences of magnified sales over the pooled assets of acquisitions, as decline has been noted in assets turnover ratio for all the sectors. Assets-turnover ratio of auto-ancillary and pharmaceutical sectors has shown a decline in all the years; and in four out six years, the decline has been statistically significant. IT sector also has evidenced a significant decline in the assets utilization ratio for M&A 2005-07. Notable decline observed in the assets turnover ratio in the most of the years for all the sectors respectively, *prima-facie*, indicates that acquirer firms have not gained any significant advantage of the pooled resources contributed by M&A. In other words, M&A have failed to justify the pooled resources of acquisition. The declined efficiency in terms of assets utilization may be attributed, perhaps to the insufficient integration of the operations of the acquired firm with acquiring firms.

Table 21: Impact on assts turnover ratio of the acquirer firms from auto-ancillary sector involved in M&A during 2002-08, sector-wise (Auto-ancillary, IT and pharmaceutical sector)

| M&A years | Years analyzed | Auto-ancillary sector | | | Pharmaceutical sector | | | IT sector | | |
|-----------|----------------|-----------------------|----------|-------------|-----------------------|----------|-------------|-----------|----------|-------------|
| | | Mean | % change | T-statistic | Mean | % change | T-statistic | Mean | % change | T-statistic |
| 2002-03 | 2001-02 | 1.06 | | | 1.15 | | | 0.71 | | |
| | 2003-04 | 0.99 | (0.07) | (0.30) | 1.05 | (0.10) | (1.25) | 0.76 | 0.05 | 0.72 |
| | 2004-05 | 1.04 | (0.02) | (0.07) | 0.90 | (0.25) | (2.57)* | 0.76 | 0.05 | 0.65 |
| | 2005-06 | 0.85 | (0.21) | (0.86) | 0.87 | (0.28) | (2.22)* | 0.80 | 0.09 | 0.53 |
| 2003-04 | 2002-03 | 1.24 | | | 0.91 | | | 0.61 | | |
| | 2004-05 | 1.25 | 0.01 | 0.17 | 0.88 | (0.03) | (0.33) | 0.61 | 0.00 | - |
| | 2005-06 | 1.20 | (0.04) | (0.34) | 0.83 | (0.08) | (0.94) | 0.72 | 0.11 | 1.10 |
| | 2006-07 | 1.18 | (0.06) | (0.43) | 0.76 | (0.15) | (1.38) | 0.62 | 0.01 | 0.06 |
| 2004-05 | 2003-04 | 1.11 | | | 0.95 | | | 0.50 | | |
| | 2004-05 | 0.83 | (0.28) | (1.78) | 0.78 | (17.84) | (4.19)** | 0.69 | 0.19 | 1.90 |
| | 2005-06 | 0.82 | (0.29) | (1.67) | 0.76 | (20.24) | (2.57)* | 0.72 | 0.22 | 2.22* |
| | 2006-07 | 0.60 | (0.51) | (2.34)* | 0.68 | (28.94) | (5.57)** | 0.66 | 0.16 | 1.68 |
| 2005-06 | 2004-05 | 1.34 | | | 0.85 | | | 0.77 | | |
| | 2006-07 | 0.97 | (0.37) | (2.40)* | 0.78 | (0.07) | (1.04) | 0.65 | (0.12) | (1.10) |
| | 2007-08 | 0.99 | (0.35) | (1.60) | 0.68 | (0.17) | (2.35)* | 0.56 | (0.21) | (1.85) |
| | 2008-09 | 0.90 | (0.44) | (1.23) | 0.74 | (0.11) | (1.30) | 0.53 | (0.24) | (2.25)* |
| 2006-07 | 2005-06 | 1.03 | | | 0.85 | | | 0.72 | | |
| | 2007-08 | 0.92 | (0.11) | (1.87) | 0.71 | (0.14) | (2.58)** | 0.70 | (0.02) | (0.34) |
| | 2008-09 | 0.85 | (0.18) | (2.65)** | 0.76 | (0.09) | (0.93) | 0.67 | (0.05) | (0.89) |
| | 2009-10 | 0.79 | (0.24) | (2.35)* | 0.72 | (0.13) | (1.91) | 0.54 | (0.18) | (3.15)** |
| | 2010-11 | 0.95 | (0.04) | (0.52) | 0.53 | (0.27) | (2.79)** | 0.95 | (0.04) | (0.52) |
| 2007-08 | 2006-07 | 0.99 | | | 0.80 | | | (3.40) | | |
| | 2008-09 | 0.80 | (0.19) | (2.80)** | 0.67 | (0.13) | (2.42)* | 0.63 | 4.03 | 0.44 |
| | 2009-10 | 0.85 | (0.14) | (15.74)** | 0.68 | (0.12) | (2.86)** | 5.17 | 8.57 | 1.03 |
| | 2010-11 | 0.95 | (0.04) | (0.52) | 0.53 | (0.27) | (2.79)** | 0.95 | (0.04) | (0.52) |

** Significant at 99%; *significant at 95% confidence level

5. CONCLUDING OBSERVATIONS

M&A are considered as significant corporate strategies used by management for attaining multiplicity of objectives (financial as well strategic). Involving huge investments, these decisions are expected to have positive financial implications for the acquirer firms. Additionally, large size, expanded scale of operations, access to specialized resources, better managerial ability, etc. are expected sources of likely synergistic benefits from M&A. The study attempts to explore the long-term financial consequences of M&A for the acquirer firms, involved in M&A in Indian auto-ancillary, IT and pharmaceutical sector during the years 2002-2008. Focusing on profitability perspective, impact on profit margins, rates of returns, cost-efficiency/ synergies and efficiency in terms of pooled resources/ assets has been assessed.

Findings are revealing in nature. M&A have not emerged as profitable and financially successful business ventures/propositions (in long-run) as was expected of them. The acquirer firms have shown no evidences of operating synergies, better profit margins, rates of returns, or cost-efficiency contributed by M&A; on the contrary, the

performance in respect of the parameters assessed has declined in the post-acquisition period. Operational and investments activities are reckoned as imperative sources for enhancing firms' performance; it implies that performance of a firm could be improved either in terms of enhanced profit margins per rupee of sales or by enhancing sales per rupee of investments/assets. Cost-synergies expected from M&A (due to large-scale operations, bulk buying, elimination of redundant operations, etc.) seem to be hardly realized by the acquirer firms. It is surprising to note that acquirer firms have not shown any magnified sales turnover, albeit the large asset base/ pooled resources, which perforce should augment the firms performance. These findings are, *prima-facie*, suggestive of acquirer firms' failure to justify / utilize the pooled resources of acquisition. The findings are in conformity with the past studies (Lubatkin 1983; Ravenscraft and Scherer 1989; Datta *et al.* 1992; King *et al.* 2004; Mantavaddi and Reddi 2008; Kumar 2009; Mishra and Chandra 2010; Trivedi 2013; Sahni 2013).

In the present competitive environment, where firms are required to play on small margins for survival, cost-efficiency seems to be a distant possibility. In fact, maintaining cost-competitiveness, survival with the market dynamism, acquiring brand-image, ease to market entry seem to be the more justified reasons for M&A by corporate firms in India. M&A, in terms of providing access to pool of resources, infrastructural, assets base, skill, expertise, market-base, and so on, open avenues for the acquirer firms for enhancing their overall performance; there is an imperative need to have better utilization of pooled resources. The declined assets turnover ratio has indicated the poor-integration attempts of acquirer firms. Initially, the hundred percent utilization of the additional capacity created with the pooled resources seems to be a challenging task; but with pre-planned strategy, well-defined motive, and improved streamlined integration measures, M&A have potentials to be cultivated into financially successful ventures.

Although, the results pertaining to all sectors have been largely unfavorable, yet profit margins of the IT and pharmaceutical sectors have been observed to be largely stable *vis-a-vis* auto-ancillary sector (emerging sector in M&A); additionally, during the recession years, decline noted in the profit margins of the auto-ancillary sector was much sturdier. In view of these evidences, it seems reasonable to conclude that impact of M&A is more adverse for the emerging sectors compared to established sectors as IT and pharmaceutical.

Further, the acquirer firms from auto-ancillary and IT sectors have shown collusive benefits in terms of selling and distribution expenses and advertisement costs; additionally, R&D expenditure in the case of pharmaceutical sector has shown favorable changes. The different behavior across the sectors signifies the difference in M&A objective and nature among them.

Findings also support the pro-cyclic occurrence of M&A wave. For instance, the period ranging from years 2008 to 2010, when the recessionary waves were in vogue, has been observed to have caused dent in profitability of business enterprises; similarly, extraordinary improvement has been noted in all major profitability parameters, namely, profit margins, ROTA, ROCE, ROE, for IT sector during the years 2004 to the end of 2007, the IT boom period, characterized by inflated demand, cheaper credit, and supportive regulatory environment. The findings are suggestive of economic environment as important predictors of M&A performance; M&A taken during economic prosperity could be beneficial for acquirer firms in enhancing their overall performance. Perhaps this seems to be major factor for the emergence of M&A waves during economic booms.

Poor performance of acquirer firms, although, has become a well stylized fact in literature, however, the ever-increasing growth pattern of M&A market do not substantiate the same. Additionally, with the existence of the mechanism of market of corporate control where to be efficient is requisite for survival and sustainable growth, taking inefficient decisions seems to be rare possibility. Further, with efficient information system, increasing investors' awareness, regulatory vigilance, taking inefficient/ non-profitable/ value-deteriorating decisions by corporate firms are not affordable. Perhaps, the financial improvement is not the motive of acquirer firms in India; these decisions seem to be induced for reputation, brand acquisition, brand strengthening, entry in new market, enhanced customers' base. Anticipation for declined performance could also be the motive for M&A; perhaps there could be more substantial decline in the profitability, if these decisions have not been taken. M&A affect various aspects of a corporate firm. Post-acquisition performance is influenced by numerous factors; therefore, assessment of M&A performance as a complete system, incorporating all possible perspective likely to have bearing on firm performance, as observed in Situation-Actors-Process-Performance framework proposed by Mittal and Jain (2012) could be useful for precise insight of M&A performance and could facilitate decision-making for performance enhancement.

REFERENCES

- Agrawal, A. and Jaffe, J. F.** 2000. The post-merger performance puzzle, *Advances in Mergers and Acquisitions*, Elsevier, Amsterdam, Netherland, 1: 7-41.
- Agrawal, A., Jaffe, J. F. and Mandelker, G. N.** 1992. The post-merger performance of acquiring firms: A re-examination of an anomaly, *Journal of Finance*, 47: 1605-1621.
- Anand, J., Capron, L. and Mitchell, W.** 2005. Using acquisitions to access multinational diversity: Thinking beyond the domestic versus cross-border M&A comparison, *Industrial and Corporate Change*, 14: 191-224.
- Anand, M. and Singh, J.** 2008. Impact of merger announcements on shareholders wealth: Evidence from Indian private sector banks, *Vikalpa*, 33(1): 35-54.
- Barai, P., and Pitabas M.** 2014. Role of industry relatedness in performance of Indian acquirers—Long and short run effects, *Asia Pacific Journal of Management*: 1-29.
- Barney, J. B.** 1986. Strategic factor markets: Expectations, luck, and business strategy. *Management Science*, 32(10): 1231-1241.
- Beena, P.L.** 1998. Mergers and amalgamations: An analysis in the changing structure of Indian Oligopoly, Ph.D Thesis, Jawaharlal Nehru University, New Delhi.
- Berkema H., Vermeulen F.** 1998. International expansion through start-up or acquisition: A learning perspective, *Academic Management Journal*, 41 (1): 7-26.
- Bradley, M., Desai, A. and Kim, E. H.** 1983. The rationale behind inter-firm tender offers: Information or synergy?, *Journal of Financial Economics*, 11(1-4): 183-206.
- Bradley, M., A. Desai and E.H. Kim** 1988. Synergistic gains from Corporate Acquisitions and Their Division between the Stockholders of Target and Acquiring Firms, *Journal of financial Economics*, 21 (1): 3-40.
- Brouthers, K.D., van, P. V., Hastenburg, J. and van, Den, Ven.** 1998. If Most Mergers Fail Why Are They So Popular?, *Long Range Planning*, 31(3): 347-353.
- Brouthers, K. D. and L. E. Brouthers** 2000. Acquisition or Greenfield start-up? Institutional, cultural and transaction cost influences, *Strategic Management Journal*, 21: 89-97.
- Bruner, R.** 2004. *Applied Mergers and Acquisitions*, John Wiley and Sons Inc.
- Cann, M. C. J. E. III.** 1996. The growth of acquisitions in services, *A Long Range Planning*, 29 (6): 835-841.
- Capron, L. and Pistre, N.** 2002. When do acquirers earn abnormal returns?, *Strategic Management Journal*, 23(9): 781-794.
- Cartwright, S. and Schoenberg, R.** 2006. Thirty years of mergers and acquisitions research: Recent advances and future opportunities, *British Journal of Management*, 17.
- Chatterjee, S.** 1986) Type of synergy and economic value: The impact of acquisitions on merging and rival firms, *Strategic Management Journal*, 7: 119-139.
- Chatterjee, S. and Lubatkin M.** 1990. Corporate mergers, stockholder diversification, and changes in systematic risk, *Strategic Management Journal*, 11: 255-268.
- Datta, D. K., Pinches, G. E. and Narayanan, V. K.** 1992. Factors influencing wealth creation from mergers and acquisitions - A meta-analysis, *Strategic Management Journal*, 13: 67-84.
- Gammelgaard, J.** 2004. Access to competence: An emerging acquisition motive, In *European Business Forum*, 17: 44-47.
- Ghosh, A.** 2001. Does operating performance really improve following corporate acquisitions? *Journal of Corporate Finance*, 7(2): 151-178.
- Grabowski, R., Mathur, I. and Rangan, N.** 1995. The role of takeovers in increasing efficiency, *Managerial and Decision Economics*, 16(3): 211-223.
- Gugler, K., Mueller, D. C., Yurtoglu, B. B. and Zulehner, C.** 2003. The effects of mergers: An international comparison, *International Journal of Industrial Organization*, 21(5): 625-653.

- Pazarskis, M., Vogiatzoglou, M., Christodoulou, P., and Drogalas, G.** 2006.. Exploring the improvement of corporate performance after mergers-The case of Greece. *International Research Journal of Finance and Economics*, 6(1): 184-192.
- Hamel, G.** 1991. Competition for competence and interpartner learning within international strategic alliances, *Strategic management journal*, 12(S1): 83-103.
- Healy, P., K. Palepu, and R. Ruback** 1992. Does corporate performance improve after mergers? *Journal of Financial Economics*, 31:135-175.
- Hubbard, N.** 1999. *Acquisition: Strategy and Implementation*, Palgrave MacMillan.
- Katz, M. and Ordovery, J. A.** 1990. R&D cooperation and competition, *Brookings Papers on Economic Activity: Microeconomics*, 137-91.
- King, D. R., Dalton, D. R., Daily, C. M. and Covin, J. G.** 2004. Meta-analyses of post-acquisition performance: Indications of unidentified moderators, *Strategic Management Journal*, 25(2): 187-200.
- Kumar, R.** 2004. Effect of RPL-RIL Merger on Shareholder's Wealth and Corporate Performance, *The ICFAI Journal of Applied Finance*, 10(9): 13-35.
- Kumar, R. B. and Rajib, P.** 2007. Characteristics of merging firms in India: An empirical examination, *Vikalpa*, 32(1): 27-44.
- Kumar, Satish and Bansal, Lalit, K.** 2008. The impact of mergers and acquisitions on corporate performance in India, *Management Decision*, 46(10): 1531-1543.
- Laamanen, T. and Kiel, T.** 2008. Performance of serial acquirers: Toward an acquisition program perspective, *Strategic Management Journal*, 29: 663-672.
- Lubatkin, M.** 1987) Merger strategies and stockholder value, *Strategic Management Journal*, 8: 39-53.
- Mantravadi, P. and Reddy, A. V.** 2007. Relative size in mergers and operating performance: Indian experience, *Economic and Political Weekly*, 3936-3942.
- Metzenthin, R.** 2004. Mergers and acquisitions as gap-closing activities in competence building and leveraging, *Advances in Applied Business Strategy*, 7: 129-150.
- Mishra, P. and Chandra, T.** 2010. Mergers, acquisitions and firms' performance: Experience of Indian pharmaceutical industry, *Eurasian Journal of Business and Economics*, 3(5): 111-126.
- Mittal, A. and Jain, P. K.** 2012. Mergers and acquisitions performance system: Integrated framework for strategy formulation and execution using flexible strategy game-card, *Global Journal of Flexible Systems Management*, 13(1), 41-56. Springer
- Mittal, A., Sushil and Jain, P. K.** 2012. Financial perspective of mergers and acquisitions: A study from Indian pharmaceutical sector, *Journal of Accounting and Finance*, 26 (2): 38-69.
- Mueller, D** 1985. Mergers and market share, *Review of Economics and Statistics*, 67: 259-267.
- Nguyen, H. T., Yung, K. and Sun, Q.** 2012. Motives for mergers and acquisitions: Ex-post market evidence from the US, *Journal of Business Finance and Accounting*, 39(9-10): 1357-1375.
- Pandey, Ajay** 2001. Takeover announcement, open offers and shareholder's return in target firms, *Vikalpa*, 26 (3): 19-29.
- Parrino, J. D. and Harris, R. S.** 1999. Takeovers, management replacement, and post-acquisition operating performance: Some evidence from the 1980s, *Journal of Applied Corporate Finance*, 11(4): 88-96.
- Pawaskar, Vardhana** 2001. Effect of mergers on corporate performance in India, *Vikalpa*, 26 (1): 19-32.
- Rahman, R. A. and Limmack, R. J.** 2004. Corporate acquisitions and the operating performance of malaysian companies, *Journal of Business Finance and Accounting*, 31(3-4): 359-400.
- Rani, N.** 2013. Mergers and acquisitions: A study of short-term abnormal returns, long-term financial performance and corporate governance, Ph.D. Dissertation submitted at Department of Management Studies, Indian Institute of Technology Delhi.
- Ramakrishnan, K.** 2008. Long-term post-merger performance of firms in India, *Vikalpa, The Journal for Decision Makers*, 33(2) 47-63.
- Revenscraft, D. and Scherer, F. M.** 1987. *Mergers, sell-offs, and economic efficiency*, Brookings

Institution: Washington DC.

Revenscraft DJ and Scherer FM 1989. The profitability of mergers, *International Journal of Industrial Organization*, 38 (7): 101-116.

Saxton, T. and Dollinger, M. 2004. Target reputation and appropriability: Picking and deploying resources in acquisitions, *Journal of Management*, 30(1): 123-147.

Scherer, F. M. 1988. Corporate Takeovers: The Efficiency Arguments, *Journal of Economic Perspective*, 2 (1): 69-82.

Scherer, F. M. and Ross, D. 1990. Industrial market structure and economic performance, University of Illinois at Urbana-Champaign's Academy for Entrepreneurial Leadership Historical Research Reference in Entrepreneurship.

Schwert, G.W. 1996. Markup pricing in mergers and acquisitions, *Journal of Financial Economics*, 41: 153-192.

Seth, Anju 1990. Sources of value creation in acquisition: A empirical investigation, *Strategic Management Journal*, 11: 431-446.

Seth, A., Song, K. P. and Pettit, R. 2000. Synergy, managerialism or hubris? An empirical examination of motives for foreign acquisitions of US firms, *Journal of International Business Studies*, 31(3): 387-405.

Schweiger, D. M., and Very, P. 2003.. Creating value through merger and acquisition integration. *Advances in Mergers and Acquisitions*, 2(1): 1-26.

Sharma, D. S. and Ho, J. 2002. The impact of acquisitions on operating performance: Some Australian evidence, *Journal of Business Finance and Accounting*, 29(1-2): 155-200.

Switzer, J. A. 1996. Evidence on real gains in corporate acquisitions, *Journal of Economics and Business*, 48(5): 443-460.

Teece, D. J., Pisano, G. and Shuen, A. 1997. Dynamic capabilities and strategic management.

Trautwein, F. 1990. Merger motives and mergers prescriptions, *Strategic Management Journal*, 11 4): 283-295.

Vanitha, S. and Selvam, M. 2007. Financial performance of Indian manufacturing companies during pre and post merger, *International Research Journal of Finance and Economics*, 12: 7-35.

Walter, G. A., Barney, J. B., and Herbane, B. 2002.. Management objectives in mergers and acquisitions, *Mergers and Acquisitions-Motivation*, London: Routledge, 41-52.

Yadav, A.K. and Kumar, B. R. 2005. Role of organization culture in mergers and acquisition, *SCMS Journal of Management*, 2(3): 51-63.