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Effectiveness of Merger & Acquisitions as a Tool for Growth: A Study from Indian Corporate Sector

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Abstract:

Purpose: Merger is a corporate restructuring strategy that affects the performance of the firm on many parameters. This study measures the effect of merger announcement on market returns and the impact of merger on the financial performance of the acquiring firm.

Methodology: The data of 108 mergers during the year 2009-10 to 2011-12 is analysed to see the impact of merger. We have used the event study methodology to measure the announcement impact. The financial performance is measured on seven variables divided into three categories- profitability, liquidity and solvency. The financial performance of five years', 3 years, and one year, pre-merger is compared with the similar performances post-merger. Paired sample 't' test and Wilcoxon signed rank test is performed to compare the financial performance.

Findings: We found stock prices of acquiring firms do not show any significant movement during event window period. However, the merger has significant positive impact on the profitability and liquidity position of the acquiring firm in five years but has no significant impact on solvency position of the acquiring firm.

Limitations of this study: We have taken only listed companies for the comparison of financial performance also. This is done because we have used the same data set for both comparisons. Second, there could be factors other than merger also which might have impacted the stock prices and financial performance of the acquiring firms. The same has not been captured in our study.

Keywords: Merger; Financial performance; Profitability; Liquidity; Solvency
JEL Classification: G34, L25, M41

1. Introduction

This world is in a state of flux, being influenced by the forces of globalization and fast technological changes and as a consequence firms are facing intense competition. To face these challenges, firms are continuously updating themselves through corporate restructuring. Corporate

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restructuring could be done through integration mergers & acquisitions, strategic alliances, joint ventures, etc. Regardless of the huge number of companies that are going for corporate restructuring it is still uncertain whether corporate restructuring really adds any value to these companies. Thus the value creation from corporate restructuring especially mergers & acquisitions (M&A) have been one of the most prolific topics in the accounting and finance literature in the last few decades. The activity level of M&A can be seen from the fact that the combined value of worldwide M&A deals exceeded $4 trillion in 2015 (Stiebale & Vencappa, 2018).

It is not enough for the companies to keep pace with the economic changes but is expected to beat competitors and innovate in order to continuously maximize shareholder value. Mergers and acquisitions (M&A) are the inorganic growth strategies for achieving accelerated and consistent growth (Leepsa & Mishra, 2012). The purpose of a merger could be to achieve growth at a faster pace, acquire new technology, improvement in revenues and profitability or to expand in domestic markets and/or international markets (Mantravadi and Reddy, 2008). The potential economic benefits of M&A are changes that increase value that would not have been made in the absence of a change in control (Pazarskis *et al*., 2006).

Indian industries are facing intense competition due to increased globalization in the last decade. M&A is a strategy to regain or retain or increase the market share of the firm with in the industry. Plethora of literature is available on the impact of merger. Some researchers have examined the effect of announcement of merger on stock prices and thus analysed its impact on shareholder's wealth. On the other hand, some researchers opined that the impact of merger can be better seen with its impact on financial performance of the acquiring firm.

The review of literature suggests that the studies available have examined two aspects of mergers, first, the impact of merger announcement on stock prices and second is the impact of merger on financial performance. Both these aspects have been examined individually. We could not find any study where both these significant impacts have been examined together. We felt that both these aspects are vital for any firm going for merger and acquisitions. This enabled us to compare the investor's expectations and the actual impact of merger on financial statements of acquiring firm.

We examined both the aspects on sample size of 108 Indian firms. To comprehend the effect of merger on the performance of the acquiring firm in a holistic manner, we have analysed stock market performance and financial performance both for an acquiring firm in Indian context.

To study the impact of merger on stock prices, event study methodology is used. For examining the impact of merger on financial performance of the acquiring firm, we have considered the financial data of 10 years, 5 years' pre-merger, and 5 years' post-merger and applied paired sample 't' test to know if there is significant impact of merger on financial performance of the acquiring firm in long term. We have also done similar comparison for medium term (3 years) and short term (1 year). The results of the 't' test are further substantiated by Wilcoxon Signed Rank test. It is interesting to see the results of stock prices simultaneously with the results of financial performance comparison.

The rest of the paper is organised as follows. Section 2 describes the literature review on the mergers. Section 3 defines the data and research design. Section 4 reports the main findings and finally, Section 5 concludes the paper.

2. Literature Review

Mergers & Acquisitions is an extensively applied restructuring strategy by firms across the world. Corresponding to the growing volume of mergers and acquisitions are the number of researches examining the merger activity (Boateng *et al*., 2011). Different researchers have examined the impact of mergers in different ways. Some have evaluated the success of mergers by studying its impact on stock prices and some studies have examined the success by measuring its impact on financial performance. We have attempted to examine the success of merger by studying both these aspects.

We have divided the review of literature in two broad categories. First part is review of studies that have examined the impact of merger on stock market performance of acquiring firm. In second part we have reviewed the studies which have measured the impact of merger on financial performance of the acquiring firm.

2.1 Impact of merger on stock market performance

Studies on emerging markets show that returns on stock prices of acquiring companies can be either positive or negative. One section of literature shows that shareholders of acquiring firms do not get any abnormal returns as a result of merger. Studies conducted by Dodd and Ruback (1977), Asquith and Kim (1982), Cornett & Tehranian (1992), Kennedy and Limmack (1996), and Bauer *et al.* (2009) showed that acquiring firms' shareholders recorded zero or negative abnormal returns. On the other hand, Desai and Stover (1985), Dodd (1980) and Cornett and De (1991), reported positive abnormal returns to acquiring firms. As we can see that researchers have reported different conclusions with alternate data sets and research period. This signifies that there is no consensus in literature about the impact of merger on stock returns. Studies have also been conducted for different geographical locations to know the impact of merger on the wealth of shareholders but no consistent pattern can be drawn on the basis of geographical locations also.

Liang (2009) conducted a study on stock market returns of acquiring firms upon M&A announcements taking US and Chinese companies. By adopting event study methodology, he observed that the impact of merger announcements was not significant for US companies. However, Chinese companies showed significant abnormal returns over same event window. Bianconi & Tan (2019) exploited a large sample of 65,521 M&A deals globally from the Communications, Technology, Energy and Utilities sectors. As per their findings, the firm value gets an instantaneous increase due to M&A deal, since the EV via stock market moves much faster in response to M&A activity. The effect of M&A in medium term was found to be negative. Rani *et al*. (2018) studied 150 Indian merger announcements and found that shareholders of Indian acquiring companies experience negative abnormal returns over event window of 41 days (−20, +20).

Markides and Oyon (1998) studied 236 acquisition by US firms. Out of the total sample, 189 acquisitions were European and 47 were Canadian. They found positive announcement effects for European acquisitions but not for Canadian acquisitions. Examining the reaction of stock prices of firms involved in domestic Japanese mergers, Kang *et al*. (2000) find that cumulative abnormal returns for acquiring firms are significantly positive. Jakobsen and Voetmann (2003) categorized their study into short-run and long-run price adjustments around acquisition announcements. They studied a sample size of 138 and concluded that market efficiency hypothesis is intact in long-run.

Kale and Singh (2005) examined value creation from mergers in post liberalization period in India. They divided the study period in two phases 1992-1997 and 1998-2002. They observed significant variance in the two segments. During the phase of 1992-1997, acquirers in India earned significant positive returns but the average acquisition returns were much lower during the period 1998-2002 *vis-à-vis* 1992-1997 periods. Rani *et al*. (2012) examined the returns to shareholders of the acquiring companies in India and found that shareholders of acquiring firms earn significantly higher returns post M&A. Mall & Gupta (2019) studied a sample of 429 merger announcements in India . They found that shareholders of acquirer firms generate abnormal returns from merger.

2.2 Impact of merger on financial performance

Market-based measures instinctively appear to be superior indicators of firm's performance but top executives lay more emphasis on financial measures for long-term post-merger performance. Accounting rates of return are used widely in empirical studies to assess post-merger performance (Stanton, 1987). Kukalis (2007) conducted a survey of CEOs where they were asked their opinion about alternate measures to best scale the post-merger performance. The majority of surveyed CEOs opined that financial measures are superior to evaluate the post-merger performance and are preferred over market-based measures.

There are ample studies in literature that found positive influence of mergers on financial performance of the acquiring firm. The period of study, sample size and area of study are varied. Healy *et al.* (1992) observed post-merger cash flow performance of acquiring firms. They found that acquiring firm displays improvements in asset productivity that leads to enhancement of operating cash flows. Heron and Lie (2002) examined a large sample of acquisitions that were effected between 1985-1997. They found that after acquisitions, acquiring firms display operating performance levels greater than their industry counterparts. Hong Kong firms also show that mergers help acquiring firms increase their market power and market share (Lee, 2005). Akin conclusions are drawn by Alhenawi & Stilwell (2017) where they study acquisitions from USA. They observe that M&A generate value in long-run. Rahman and Limmack (2004) studied Malaysian acquiring firms between the period. They concluded that operating cash flows of acquiring firms improved in long-run after acquisition.

Like Rahman and Limmack (2004), some studies have diverged post-merger performance into long run and short run. The majority of these kind of studies reveal that in long-run the performance of merged entity has amplified as compared to short-run. Kumar and Rajib (2007) studied operating performance of 57 Indian firms after merger during the period 1995-2002. They found that performance of acquiring firm based on book value of assets and sales model enhances after merger but the model based on market value of assets does not maintain this view. Kumar and Bansal (2008) have also established that financial performance of acquiring firms from India improve after merger. Sinha *et al*. (2010) analysed Indian mergers between 2000-2008 and observed that in the long-run acquiring firms were able to create value. Ramakrishnan (2008) also studied Indian data and found that mergers have been beneficial for acquiring firms on financial parameters. Rani *et al*. (2015) studied 305 Indian M&As and observed that there is significant improvement in profitability of the acquiring companies.

Not all studies conclude that M&A is an effective contrivance for growth. Many researchers have observed a drop in financial performance of acquiring firm after acquisition. Dickerson *et al.* (1997) observes that acquisition does not have a favourable effect on firm performance as mapped by profitability. Ghosh (2001) compared pre and post-acquisition operating cash flows. He did not find any indication of surge in operating performance of acquiring firms after the acquisition. Langhe and Ooghe (2001) examined performance of small unlisted firms and did not find any improvement in financial performance after the merger. Sharma & Ho (2002) evaluated Australian acquisitions and found that corporate acquisition does not tantamount to significant enhancement in firms' operating performance. Andre *et al*. (2004) studied long-term performance of 267 Canadian mergers and concluded that Canadian acquiring firms significantly underachieve over 3 year post-acquisition period. Pazarskis *et al*. (2006) examined M & A's during the period 1998-2002 and got a strong indication that profitability of a firm diminished after the merger. Singh and Mogla (2008) studied a sample of 56 firms merged between 1994 and 2002 in India and found that profitability declined significantly after mergers. Kumar (2009) studied 30 mergers from India and found that the post-merger profitability, assets turnover and solvency of acquiring companies showed no improvement when compared with pre-merger values. Singh (2013) analysed 20 mergers and found that mergers is an effective method of corporate restructuring. Azhagaiah & Sathishkumar (2014) studied 39 manufacturing acquiring firms from India. Their study reveals that M&A has significant positive impact on operating performance of the acquiring firms. Pawaskar (2001) studied 36 acquiring firms and showed that merger had negative impact on performance of the acquiring firm.

Mehrotra and Sahay (2018) have observed that literature on performance analysis of M&A is scant in developing countries like India. Limited evidence is available on the performance of recent deals in India.

Moreover, the existing studies are either examining the impact of merger on stock market performance or on financial performance. We did not come across any study which has looked at both these aspects together as the impact of merger. We have tried to fill this gap by considering Indian data of merging firms and have analysed the stock market performance as well as financial performance of the firms till 2016-17 which is the latest available financial statements. Our study would add to the existing literature on the post-merger performance of the acquiring firms by considering both the significant impacts of M&A on acquiring firms simultaneously.

3. Study Objective, Data, and Methodology

3.1 Objective of the study

The present study is an attempt to examine the performance of merger and acquisition and deals with following objectives:

(1) To examine the growth of M&A deals in recent times in India.

(2) To study the impact of merger announcement on stock market performance of acquiring firm.

(3) To study the impact of M&As on financial performance of acquiring firm in

medium and long-term.

3.2 Data

We have studied Indian mergers during 2009-10 to 2011-12. The data of acquisitions during research period is sourced from Thomson Reuters. We got the data of 207 firms which went into M&A during our research period. Out of 207 firms, 34 firms were not listed. Out of the rest 173 firms, for 48 firms, pre-merger data of all the 7 variables for 5 years was not available. For 17 firms, post-merger data for 5 years was not available as they had got merged with some other firm within that period. After removing all these firms, we finally left with 108 public limited firms listed at Bombay Stock Exchange which went into M&A during 2009-10 to 2011-12. We have considered the acquisitions only till 2011-12 so that we can take into account the financial performance for five years' post-acquisition which goes up to 2016-17. The 108 firms represent the three years under study largely on symmetrical basis. The announcement date and effective year of acquisition are taken from Bloomberg and also manually verified from the corporate announcements section of Bombay stock exchange website. The stock market data is taken from the website of BSE and financial data is taken from Ace Equity.

Table 1 shows the evolution of M&A covenants in India in the past two decades (1998-2018). The progression is splendid with CAGR of 43%.

Table 1 depicts that M&A covenants surged till 2005-06. Post liberalisation, Indian firms required restructuring as a result of competition from off-shore firms coming to India. Government also facilitated restructuring by easing out the relevant regulations. Lot of firms found it worthy to go for merger to bring cost effectiveness, increased production and expansion. M&A activity increased in the first few years till 2005-06 but this could not continue for long. As table 1 shows, the volume of M&A deals drastically fell till 2013-14. The probable reason was lack of experience at the hands of Indian firms to effectively integrate with acquired firm. They entered into M&A deals in acceleration, to beat the competition and hoped to gain synergies in short period of time without taking into account the challenges of M&A. Indian firms took time to come up to the terms and conditions of successful M&A. During 2006-07 to 2013-14, less number of M&A deals were announced but majority of them were able to gain from resulting synergies. They learnt from the mistakes done by earlier firms. Our period of study is between this period and shows that acquisitions had a positive impact on financial performance of the acquired firms.

Table 1. Evolution of M&A in India in past two decades

Year	Total Mergers	Change (%)
1998-99	99	---
1999-00	324	69.44
2000-01	554	41.51
2001-02	401	-38.15
2002-03	419	4.29
2003-04	500	16.2
2004-05	556	10.07
2005-06	1005	44.67
2006-07	944	-6.46
2007-08	950	0.63
2008-09	958	0.83
2009-10	918	-4.35
2010-11	870	-5.51
2011-12	726	-19.83
2012-13	746	2.68
2013-14	574	-29.96
2014-15	774	25.83
2015-16	885	12.54
2016-17	914	3.17
2017-18	1026	10.91

Data source: Ace Equity

Since Indian firms became more mature and experienced, we again see an upward trend in M&A deals from 2014-15.

3.3 Methodology

3.3.1 It has been a standard to use event study methodology to examine the impact of a specific event on stock price (McWilliams and Siegel, 1997). The methodology embraced in our paper is similar to the one used by Rosenfeld, J.D. (1984).

Date of announcement of acquisition is considered as day 0. For the study, announcement day is defined as the day when acquiring firm informed the stock exchange about board approval of the M&A deal. These dates are manually verified from the archives of corporate announcements section of BSE website. Estimation period of 256(-276,-20) days is taken in the study. The estimation period is the period preceding to the occurrence of the event.

To capture the early share price reactions prompted by the expectation of stock market of a forthcoming announcement before and relatively relaxed information processing after the event, the cumulative abnormal returns during alternative windows are examined. The abnormal returns over varying windows, namely (–20,-15), (–15,-10), (–10,-5), (–5,0) (–1,0), (–1,+1), (0,+1), (0,+5), (+5, +10), (+10,+15) and (+15,+20) have been studied to seize the leakage effect.

The market model is applied to estimate the expected returns. It includes regression of a stock's returns against a market index. S&P BSE 500 is used for regression. The strategic question in event study is what part of the price variation is actually produced by the event under study. This leads to the concept of Abnormal Returns.

To take into account any cross-sectional dependence of abnormal returns over the observation period, t-tests are performed using crude adjustment method (CAM) suggested by Brown and Warner.

3.3.2 For measuring the impact of merger on financial performance of acquiring firm, the financial data of acquiring firm is measured for ten years, five years before the acquisition and five years after acquisition. The data for the year during which the merger got effected has not been considered. The financial data so collected is analysed at three echelons, short-term, medium-term and long-term. For analysing the impact of merger in short-term, financial data for one year before and after acquisition is considered, for medium tern analysis three years before and after merger and for long term, financial data for five years before and after merger is considered. The study in three different stages is done to identify the time which is usually taken by a merger to get its impact visualized. Seven variables are used to analyse financial data, these seven variables are further classified into three broad parameters. The three parameters are, Profitability, Liquidity and solvency. The seven variables under these three parameters are:

a) For Profitability (Return to shareholders) three variable are studied: Return to Equity(ROE), Return on capital employed(ROCE) and Return on Total Assets(ROTA).
b) For Liquidity , two variables are studied: Liquid Ratio and Quick Ratio
c) For Solvency, two variables are studied: Debt Equity ratio and Interest coverage ratio.

The aim of any corporate strategy is to give snowballing return to shareholders. Accordingly, it is imperative to analyse profitability position of the firm after acquisition. Liquidity position showcases the capacity of the firm to meet its short term obligations. It is a known fact that acquisition results in change in the working capital structure of the firm which in turn affects liquidity position of the firm. If the acquisition is carried out effectively then liquidity position should show an improvement after acquisition.

Solvency position of acquiring firm undergoes immense change due to merger. The mode of bankrolling an acquisition could be any but solvency position is bound to get a hit initially when the acquisition takes place. All the three parameters are vital to measure the success of a merger.

For the 108 firms under study, all the seven variables mentioned above are analysed. Average of these individual variables one, three and five years before and after the acquisition are compared to observe the increase or decrease in these variables. Also, Paired sample 't' test is applied to analyse the significance of change in profitability, liquidity and solvency position of acquiring firm in one, three as well as in five years after acquisition. The two variables are then compared using Wilcoxon signed-rank test. Wilcoxon signed-rank test is a non-parametric test used to test the median difference in paired data (interdependent samples). This test is non-parametric equivalent of paired t-test. In this test, the test statistic z is computed and probabilities observed are compared with desired level of significance.

4. Research Findings

Table 2 represents the average abnormal returns (AAR) across all days in the event window. AAR's are presented for all the 41 days in the event window. Cumulative Average Abnormal Returns (CAAR) for each day in event window is also shown along with AAR. It can be seen from the table that average abnormal returns start getting positive from day -6 and remain positive till day +5, except a minor negativity on day -2. AAR being 0.839 is the highest on day -2, i.e., two days before the date of announcement of the merger. Since the AAR's are positive till day +5, the cumulative average abnormal returns are highest on day +5.

Table 2. Analysis of day-wise abnormal returns: Merger & Acquisitions

Day	AAR(%)	CAAR(%)	t-Stat.	p-value	Day	AAR(%)	CAAR(%)	t-Stat.	p-value
-20	0.133	0.133	0.056	0.955	**1**	0.164	1.608	-0.807	0.421
-19	0.115	0.248	1.380	0.170	**2**	-0.035	1.572	-1.976	0.051
-18	-0.503	-0.255	-0.167	0.867	**3**	0.113	1.686	0.194	0.846
-17	-0.445	-0.700	-0.511	0.610	**4**	0.172	1.858	0.239	0.811
-16	-0.001	-0.702	0.207	0.836	**5**	0.134	1.993	0.681	0.497
-15	0.133	-0.568	-0.704	0.483	**6**	-0.112	1.880	2.495	0.014
-14	0.182	-0.386	0.259	0.796	**7**	-0.289	1.590	0.208	0.835
-13	0.133	-0.252	-0.122	0.903	**8**	-0.204	1.386	-1.042	0.299
-12	0.160	-0.092	0.843	0.401	**9**	-0.018	1.367	-2.183	0.031
-11	-0.155	-0.247	-0.215	0.830	**10**	0.344	1.712	-1.121	0.265
-10	-0.123	-0.370	1.779	0.078	**11**	0.498	2.210	-1.142	0.256
-9	0.608	0.237	-1.120	0.265	**12**	-0.449	1.760	-0.103	0.917
-8	-0.076	0.160	-1.358	0.177	**13**	0.146	1.907	-0.584	0.560
-7	-0.244	-0.084	0.121	0.903	**14**	-0.572	1.335	0.098	0.922
-6	0.247	0.163	0.626	0.532	**15**	-0.214	1.121	0.040	0.967
-5	0.043	0.207	-0.332	0.740	**16**	-0.398	0.722	0.705	0.482
-4	-0.306	-0.099	-0.252	0.801	**17**	-0.370	0.352	-0.897	0.371
-3	0.306	0.206	0.102	0.918	**18**	-0.077	0.274	0.202	0.839
-2	0.839	1.046	0.264	0.792	**19**	0.526	0.800	-0.228	0.819
-1	0.213	1.259	-0.023	0.981	**20**	0.210	1.011	-1.064	0.290
0	0.185	1.444	0.161	0.872					

This table shows the average abnormal returns and cumulative average abnormal returns as a result of merger announcement. Significance of the same is also tested.

Table 2 provides the day wise average abnormal returns and cumulative average annual returns to measure the impact of merger announcement. Significance of AAR and CAAR is also tested.

This table signifies that due to leakage effect the market starts responding positively to the news of prospective merger before actual date of announcement. The AAR's were then tested for their significance by applying Browne & Warner test. Results of the test clearly show that the positive returns in response to announcement of merger are not significant. As shown in Table 2, the p-values of the AARs depicts that returns are insignificant. Although market seems to react positively to merger announcement but the response is not significant to call it a positive impact. Accordingly, we can say that there is no significant impact of merger announcement on stock prices of the acquiring firm.

Table 3. Analysis of AAR and CAAR over different intervals

Interval	AAR(%)	CAAR(%)	t-Statistic	p-value
(-20 - 15)	-0.094	-0.094	-0.142	0.886
(-15 -10)	0.012	-0.082	0.852	0.396
(-10 -5)	0.113	0.030	-0.539	0.591
(-5 0)	0.188	0.218	0.198	0.843
(-1 0)	0.180	0.398	0.426	0.67
(-1 +1)	0.156	0.554	-0.124	0.901
(0 +5)	0.145	0.699	-0.693	0.489
(+5 +10)	0.037	0.736	-0.597	0.551
(+10 +15)	-0.055	0.681	-1.28	0.203
(+15 +20)	-0.077	0.604	-0.654	0.514

Table 3 shows that AAR is not significant for any of the interval around the date of announcement of merger. Although AARs are positive for the windows (-15-10), (-10 -5), (-5 0), (-1 0), (-1+1), (0+5) and (+5+10), and CAAR is maximum during the window (+5+10), but returns are not significant. Since returns are not significant during any of the windows, we can conclude that merger announcement had no significant impact on stock prices of the acquiring firm.

The results obtained in Tables 2 and 3 are related to each other rather they verify each other.

Table 4. Number of firms showing improvement in financial parameters after acquisition

Financial Parameter (Ratio)	No. of acquiring firms showing improvement in 1 years of acquisition	No. of acquiring firms showing improvement in 3 years of acquisition	No. of acquiring firms showing improvement in 5 years of acquisition
ROCE	12(11%)	57(53%)	91(84%)
ROE	9(8%)	55(51%)	84(77%)
ROTA	10(9%)	53(49%)	93(86%)
D/E	0	10(9%)	15(14%)
ICR	2(2%)	22(20%)	41(38%)
CR	14(13%)	56(52%)	85(78%)
LR	13(12%)	59(55%)	87(81%)

This table shows the number and percentage of acquiring firms which has shown improvement in financial parameters after one, three and five years of acquisition.

Table 4 shows the number of years it would take for an acquiring firm to reap the benefits of acquisition. The table clearly shows that it takes five years approximately for most of the companies to realize the gains of synergies occurring on account of acquisitions. The results in table 4 can be summarized as below:

1. Acquiring firm takes time to reap the benefits of acquisition in terms of returns on increased capital employed. 53% companies show increase in 3 years and 84% companies witness increase in ROCE in 5 years of acquisition.

2. Similarly, 51% increase their ROE in 3 years but in 5 years 77% of the acquiring firms demonstrate an increase in ROE. This indicates that investors do not get benefitted in the short-run.
3. 86% of the acquiring firms show improvement in ROTA in 5 years of acquisition. This signifies that asset utilization improves only in long-run.
4. Even in 5 years only 14% show an increase in D/E Ratio. This ratio cannot be evaluated independently. Increase or decrease in D/E ratio might not indicate improvement or deterioration.
5. Interest Coverage Ratio is a factor of profitability and debt. Majority of the firms do not show any increase even in long term. This means where the firms' avail debt, it takes longer than 5 years to improve its ability to pay the finance cost.
6. Liquidity ratios are also not impacted in one year of acquisition. In three years of acquisition, more than 50% firms show increase in their liquidity position. 85-87% of the firms' witness improvement in their liquidity position in 5 years of acquisition.

It is clearly evident from the above analysis that acquiring firms do not realize the benefits of acquisition in short-term or even in medium-term. For majority of firms it takes approx. 5 years to reap the expected benefits from the synergies arising out of merger. The above analysis is further endorsed by the results of paired sample 't' test. The test is applied on all the seven variables for the 108 acquiring firms. The results are summarised in Table 5.

Table 5. Paired sample 't' test results for 1, 3 and 5 years pre and post comparison

Ratio	t- Statistic for 1y	t- Statistic for 3y	t- Statistic for 5y
Return on Capital Employed	0.124 (0.902)	1.696 (0.092)	9.453*** (0.00)
Return on Equity	-0.362 (0.718)	0.919 (0.102)	9.020*** (0.00)
Return on Total Assets	-0.380 (0.704)	0.843 (0.110)	9.100*** (0.00)
Debt Equity Ratio	-0.384 (0.702)	-0.458 (0.647)	-0.390 (0.696)
Interest Coverage Ratio	0.850 (0.397)	0.537 (0.591)	0.687 (0.456)
Current Ratio	0.193 (0.847)	2.288** (0.023)	9.818*** (0.00)
Liquid Ratio	0.176 (0.935)	1.999** (0.034)	9.645*** (0.00)

Notes: In parentheses are the corresponding p-values of the t-Statistics above; ** and *** denote statistical significance at the 5% and 1% levels, respectively.

The results obtained in table 5 signifies that 5 out of 7 variables improve over 5 years after acquisition. Return on capital employed has significantly improved over 5 years. After 3 years of acquisition, improvement in ROCE was significant at 10% level of significance but after 5 years it is showing an exemplary improvement at 1% level of significance. Return on equity did not improve significantly till 3 years of acquisition. However, after 5 years it seems the synergies are encashed by acquiring firms in terms of increased ROE also. 5 years pre and post comparison show that ROE improved significantly at 1% level of significance. Similarly Return on Total assets does not display any upsurge until 3 years of acquisition. After acquisition, operating capabilities of a firm undergo a change, assets deployed also increase. The results of paired sample ‘t’ test demonstrate that it takes time to effectively and profitably deploy the acquired assets. After 5 years, ROTA is showing a significant increase at 1% level of significance.

D/E of the acquired firm is not changing significantly even after 5 years of acquisition. This may be due to the fact that debt raised for acquisition would normally be for a long period as firm would know that realization of synergy benefits will take time. Accordingly, Interest coverage ratio has also increased but not significantly. Surprisingly, liquidity ratios are showing a significant improvement after three years of acquisition only. Increasing profits leads to increase in liquidity position of the firm. This increased liquidity will be used to repay off the debt in future.

Further Wilcoxon signed rank test is carried out to validate the results of paired sample ‘t’ test. The results of Wilcoxon test are interesting and supporting our results of ‘t’ test.

Table 6. Wilcoxon signed rank test 5 years pre and post comparison

Ratio	z-Statistic for 5 years	p-value for 5 years
Return on Capital Employed	-11.473	0.00^{***}
Return on Equity	-13.171	0.00^{***}
Return on Total Assets	-12.406	0.00^{***}
Debt Equity Ratio	-3.791	0.00^{***}
Interest Coverage Ratio	-5.002	0.00^{***}
Current Ratio	-15.073	0.00^{***}
Liquid Ratio	-14.980	0.00^{***}

Note: *** denotes statistical significance at the 1% level.

Table 6 shows the result of Wilcoxon signed rank test. The test was carried out on all the seven ratios over 5 years that were tested as per paired sample ‘t’ test.

The results obtained in Table 6 further validates the results of table 5. All the five ratios that were significantly positive as per the results of ‘t’ test are also showing significant change at 1% level of significance when compared using Wilcoxon signed rank test. On the basis of the results of parametric and non-parametric tests we can say that profitability and liquidity of an acquiring firm significantly improves in long-run after acquisition. Regarding solvency position of the company, whereas ‘t’ test did not show any significant decrease in debt equity ratio, results of Wilcoxon test shows that debt equity ratio decreases significantly in 5 years which is a further positive impact. This means the acquiring companies are able to repay off their debt significantly over the period of 5 years. Interest coverage ratio is also showing a significant positive change over 5 years as per Wilcoxon test results. When profitability ratios are significantly improving and debt equity is significantly decreasing, it is imperative for Interest coverage ratio to show a significant improvement which is also clearly reflected from the results of Wilcoxon signed rank test.

5. Conclusion

The results of this study are quite stimulating. We see that market does not respond positively to the announcement of acquisition made by the acquiring firm. The stock price of acquiring firm does not show any significant movement during the event window. Signalling effect is not observed in our study. Our results are in line with the conclusions given by Dodd and Ruback (1977), Cornett and Tehranian (1992), Ramakrishnan (2010), and Rani *et al*. (2018). Although, due to leakage effect stock prices increase 5-6 days before the announcement date but the increase is not significant to be accounted for. On the other hand, when acquisitions are evaluated on financial variables, a significant upsurge is witnessed in profitability and liquidity parameters in the long-term. As reflected in Table 1, our period of study is the one where the number of Indian firms going for merger and acquisitions was reduced. As stated earlier also, the probable reason for decline in mergers could be the unsuccessful story of earlier mergers. This may also be the reason of stock market not responding positively towards merger announcement. The general sentiment towards merger and acquisitions was not positive during the period.

However, our results of the financial performance analysis reveal that Indian firms learnt from mistakes of past and took calculative decisions that led to success stories. Indian acquiring firms significantly improved their financial performance in the long-run after merger. The result of our study is in consonance with Healy *et al*. (1992), Rahman & Limmack (2004), Mantravadi & Reddy (2008), Ramakrishnan (2008) and Rani *et al*. (2015). Although Ramakrishnan (2008) and Ramakrishnan (2010) have also evaluated stock market performance and financial performance of acquiring firms but they have studied these two aspects separately in different research articles. Data set used by them for their study in the two articles is different, as a result, the impact of mergers on market performance and financial performance cannot be viewed together. Rani *et al*. (2015) & Rani *et al*. (2012) have also studied the impact of merger on financial performance and market performance respectively. These are also two different studies conducted at different time period so the impact of merger on the two performances is not seen simultaneously. We have considered both these aspects on the same data set to get the unblemished impact of merger on both, stock prices as well as financial performance of the acquiring company.

As per the results, it can be concluded that although stock market did not respond favourably yet, acquiring firms are able to synergise and reap the benefits of acquisitions in long-term. It is pragmatic to say that M & A give results in long-term. Cost involved in acquiring a firm is enormous and it also takes time to operationally integrate the two firms. Not only operational integration but cultural integration is also challenging. Due to all these factors, the synergies do not arise in short period of time. Generally, companies acquire another firm for the long run benefits like economies of scale keeping costs low. This indicates that even if the companies do not gain in a short period of time, acquisition will benefit in the long run (Leepsa & Mishra, 2013). It is recommended that target companies should be chosen strategically so that synergy benefits can accrue to the acquiring firms. The strengths of the two companies should complement each other. The integration should be done efficiently taking into account various operational and cultural challenges. We can say M&A is a long-term investment which gives positive results and improves accounting and financial position of a firm in long term. Indian firms are able to generate synergy gains in the long-term from the acquisitions made by them. Further there is a scope of future research by using longer time period and higher sample size. Also cross border acquisitions can be analysed separately to measure their impact on performance of the domestic acquiring firms.

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