

Measurement of Long-Term Post-Merger Performance and Method of Payment.

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Abstract

Using a sample of mergers between 2000 and 2010, we investigate the long-run performance of Indian acquiring companies. The measurement of long-run performance has been made on the basis of long-run CAR and BHAR using market index and control firms as reference portfolios. The results suggest that in India mergers in the long run bring gains to shareholders of acquiring companies. When the performance is analyzed on the basis of payment method, it can be concluded that in India cash-financed mergers perform better than stock-financed mergers using both long run CAR and BHAR approaches.

Keywords: *Acquisitions, Buy and Hold Abnormal Returns, Cash Mergers, Cumulative Abnormal Returns, Mergers*

1. Introduction

M&As are the major events in a firm's life. One of the most important research findings in M&As over the years has been the ability of mergers to create value in the long run. Studies in general on long run performance following mergers conclude a significant underperformance up to five years in the post merger period. Several U.S studies such as Asquith (1983), Jensen and Ruback (1983), Malatesta (1983), Malatesta (1988), Agrawal et al. (1992), Loderer and Martin (1992), Loughran and Vjih (1997), Rau and Vermaelen (1998), and Agrawal and Jaffe (2000) and UK studies such as Firth (1979), Franks and Harris (1989), Limmack (1991), Limmack and McGregor (1995), Kennedy and Limmack (1996), Gregory (1997), Chatterjee (2004) etc., have examined the long-term stock performance of acquiring firms engaged in domestic M&As. The results of both positive the negative performance in the long run. Some studies have produced mixed results for acquiring firms. Franks, Harris and Titman (1991) reported a positive and significant long term abnormal returns only for small transactions. In contrast, Agrawal, Jaffe and Mandelker (1992) found negative and significant abnormal returns for 937 mergers over 5 subsequent years and positive, but insignificant abnormal returns for 227 tender offers that took place between 1955 and 1987. Sudarsanam and Mahate (2003) pointed out that long-run post acquisition performance is inconclusive.

Empirical studies have shown that the method of payment used in mergers has a significant effect on bidder and target returns. A firm will issue stock only when it is overvalued and will prefer to pay cash if their stock is undervalued (Myer and Majluf 1984). Abnormal returns to target shareholders are higher in cash offers than in stock offers. Bidder's returns are also higher in cash offers although abnormal returns were zero reflecting a competitive takeover market (Weston, 2001). Several theories attempt to explain the effect of method of payment. Target shareholder taxable gains in a stock-for-stock exchanges may be deferred indefinitely, while the taxes on gains in cash transactions are payable immediately. Cash offers must therefore be higher to compensate. The availability of asset write-ups for future depreciation tax shelters may also explain the higher return to bidders in cash offers. Some writers argue for the information effect of stock vs cash. Using stock implies that the bidder thinks its stock is overvalued. The signalling hypothesis says that using cash is a positive signal that future cash flows will be large enough to exploit investment opportunities or the takeover will generate large cash flows; using stock suggests that the bidder may not have sufficient internal financing.

In India a majority of studies on performance of mergers and acquisitions has focused on stock returns surrounding announcement dates. A smaller body of study has investigated long-run post merger performance. Studies by Bhaumik and Selarka (2008), Singh and Mogla (2008), Pawaskar (2001), Vanitha and Selvam (2007), Mantravadi and Reddy (2008a) have analyzed the long run performance based on financial ratios. But studies on long run stock market performance based on method of finance are very rare in India. Considering the limited research on performance of mergers based on the method of payment in the Indian corporate industry, the present study has been aimed at analyzing the long run stock price performance of acquiring firms based on method payment over the 3-year period.

2. Review of Literature

Several studies have investigated the long run abnormal stock returns following mergers and acquisitions. Several approaches were followed to examine the impact of M&A on corporate performance. Among them are long run CAR method, CAPM Method, Fama French 3 factor model, Buy and Hold Abnormal Returns model, The Dimson-Marsh risk and size adjusted model, size and book-to-market adjustment model, and operating performance based on financial ratios etc. In addition, many researchers found that factors such as method of payment (Cash or Stock), book to market ratio, type of merger or acquisition transactions (related or unrelated), cross-border versus domestic M&A, mergers versus tender offers, firm size, macro-economic conditions, and time of transaction etc. affect the performance of mergers and acquisitions. This paper covers an overview of long run performance of mergers in general and payment method in particular.

Mandelker (1974) analyses 241 mergers that took place during 1941-1962 and finds the Cumulative Abnormal Return (CAR) of -0.014% over the 40-month after merger completion. A study by Dodd and Ruback (1977) shows that the insignificant CAR of -0.0591 for successful acquirers and CAR of -0.0262 for unsuccessful acquirers after 60-months period. Langetieg (1978) finds significant CAR between -2.23% and -2.62% over +1 to +70 month period. Malatesta (1983) reports a significant CAR of -7.6% after one year from the date of merger event by examining 256 acquiring companies over the period of 1969 to 1974. Barnes (1984) finds that the CAR over the 60 months following the month of merger announcement is -0.063. Dodds and

Quek (1985) obtained a CAR of -0.068 over 60 months after the merger announcement from the 70 mergers listed on the London Stock Exchange during 1974 to 1976. Magenheim and Mueller (1988) report a significant CAR of -2.4% over 30 months after merger from 78 NYSE takeovers over the period 1976 to 1981. Franks and Harris (1988) show a significant positive return of 4.5% in the 24 months following takeovers using CAPM model. Limmack (1991) finds significant negative CARs of -9% in the 2-year period after the merger using three benchmarks.

Palepu and Ruback (1992) investigate whether merger return is a real economic gain or it is due to market inefficiency. Results show that merged firms have significant improvement in performance relative to their industry after the merger and this is due to higher asset productivity and higher post merger operating cash flow return. Agarwal, Jaffe and Mandelker (1992) finds the CAR of -10% over five year post merger period indicating wealth loss to acquiring firms. Kennedy and Limmack (1996) examine the post acquisition performance of 247 UK companies making successful takeover bids during 1980 to 1989. The study finds a significant CAR of -4.92% over 24 month period. Loughran and Vijh (1997) report a statistically significant five year Buy and Hold Abnormal Return (BHAR) of -15.9% following mergers relative to a size and book to market adjusted benchmark from 947 acquisitions of NYSE between 1970 and 1989. Gregory (1997) examines the long run returns for all successful UK domestic takeovers for the period 1984-1992 by using six models and the results of the study show that 2-year CAR vary from -11.82% to -18% over the 6 models, with all models showing statistical significance. Using BHAR method Mitchell and Stafford (2000) finds an equal weighted BHAR of -2% and value weighted BHAR of -5% over the first three post acquisition years.

L'Her and Francois (2004) investigate the long run performance of 267 Canadian acquisitions between 1980 and 2000 using Calendar time and the Fama and French Regression models. The study finds no significant abnormal return for all cases in three year post acquisition period. Further the study also finds that M & A financed entirely by equity underperform relative to cash transactions and cross border deals perform poorly in the long run. Dutta and Jog (2009) investigate the long term stock return performance of 1300 Canadian acquiring firms between 1993-2002 using both event time and Calendar time approach. The study finds negative abnormal long term abnormal returns for the acquirers following the acquisition event. Da Silva et al. (2003) finds that acquirers who made cash based tender offers exhibit abnormally positive returns in the three-year following target listing where as it shows negative for the acquirers involved in mergers. A study by Francoeur (2005) reveals that Canadian firms carrying out cross border M&As generate significant abnormal returns of 0.1622% in the five year period after the announcement month. The results also show that cash financed mergers show BHAR of -0.0563% for 60 months after the merger announcement and for non cash mergers BHAR is 0.5577%. Using BHAR model Abhyankar et al. (2006) find for 305 public mergers from 1985 to 2000, underperformance over three year post merger period. The classification of sample on payment basis shows that cash mergers outperforms merger financed by stock.

Studies by Mishra and Goel (2005), Gupta (2008) Rajesh Kumar and Panneerselvam (2009), Hyderabad (2010), Rani (2012), Subramanian (2013), Mallikarjunappa (2013) etc. have analyzed the short run performance of Indian companies using the event methodology. Studies by Bhaumik and Selarka (2008), Singh and Mogla (2008), Pawaskar (2001), Agarwal and Bhattacharjea (2006), Vanitha and Selvam (2007), Mantravadi and Reddy (2008a), Mantravadi and Reddy (2008b), Satish Kumar and Bansal (2008), Beena (2000), Ramakrishnan (2008), Sinha et al.,

(2010), Leepsa and Mishra (2012), etc. analyzed the long run performance of Indian M&As using financial ratios.

In India very few studies have explored the long run share price performance of companies after merger in general and financing method in particular. A study by Hyderabad (2013) examines 100 merger announcements in India for the period 2001-2006 the post-merger, share price performance of the acquiring firms using CAR and BHAR methods. The study finds a BHAR value of 0.62% for 36 month period after the merger announcement using a market index as a reference portfolio. On the other hand, BHAR using control form benchmark shows no additional returns to acquiring firms. Considering the limited research on the long run performance of mergers based on the method of payment in the Indian corporate industry, the present study has been aimed at analyzing the share price performance of acquiring firms based on method payment in the long run.

3. Research Methodology

In contrast to initial excess returns, long run performance seems to be more complicated, and there is no consensus on the appropriate way of calculating long run abnormal returns (Barber and Lyon, 1997). As a result, to analyze the long term post-acquisition shareholder returns, two commonly employed models of stock price behavior are:

1. Long-Run Cumulative Abnormal Return (CAR) Method
2. Buy and Hold Abnormal Returns (BHAR) Method, and

3.1 Long-Run Cumulative Abnormal Return (Car) Method

The CAR method is very commonly used in long term studies and cumulates the abnormal returns so that the cumulative impact of the abnormal returns could be assessed. The CAR method adds the returns of a security at specific time intervals and measures the consistency of monthly abnormal returns over the period of the event study. In comparison to the BHAR method, the CAR method is less subject to skewness and will not magnify the abnormal returns as much as the BHAR method as it does not compound the abnormal returns. As a result, the robustness and effectiveness of the long term abnormal returns can be perceived with greater confidence by using these two specific methods.

In the present study, the long term abnormal returns are being computed month-wise for 36 months post-merger period as well as year-wise for 1, 2, and 3 year window. The reason to conduct the study over different window intervals is mainly to help see whether the abnormal returns have been affected by the market efficiency. Also, by looking at different window intervals, a greater range of data can be used which will help when conducting the various tests. Furthermore, studying different window intervals can be very good when comparing results not only for its robustness but also to use as the basis in analyzing why results may be different over the different window intervals.

To compute the long term abnormal returns for months and 1, 2 and 3 year window intervals, the benchmark return is derived from the Market Adjusted Model. The rationale for using the Market Adjusted Model, rather than the carefully constructed reference portfolios (e.g. Firm size and

book-to-market ratios) to proxy returns for the event study (Lyon, Barber and Tsai, 1999) to help reduce the different sources of bias that may affect holding period returns, lies mainly in the fact that it is difficult to find a significant number of representative reference portfolios. Thus, by simply selecting a ‘commonly used’ reference portfolio instead of the Market Adjusted Model may have in fact increased the chances of the abnormal returns being biased. Furthermore, as the sample under research is composed of diverse deals comprised of all sectors, it would be more accurate to compare the returns to broad market indices rather than specific ones. Had the analysis been industry specific, the benchmark return would have been based on the reference portfolios as specific industries may well outperform or underperform the market indices at a given period of time.

Market indices are composed of a specific number of equally weighted or value weighted stocks and act as a tool designed to help investors measure the performance of the overall broad stock market. Market indices also function as benchmarks against which investors can evaluate the performance of their portfolios as it provides a good estimate of the degree of profitability and growth potential of listed firms. As a result, the market indices act as an unbiased broad benchmark to which the abnormal return results can be validated against.

The CAR method measures whether the abnormal returns earned by acquirers are continual and measures the cumulative impact of the abnormal return of stock ‘t’ with the summation of the of the average abnormal returns based on the equation given below, computed using the market adjusted model:

$$AR_{it} = R_{it} - R_{mt}$$

Where: AR_{it} is the abnormal returns for an event firm i over time interval t

R_{it} is the return during the month t for the event firm i

R_{mt} is the appropriate market return during the month t

The market-adjusted model is used as the basis for analysis because of its simplicity in implementation and interpretation. This model assumes nothing more than the expected return on a given security for a given period of time is predicted by the return on the entire market for the same period of time. As stated by Brown and Warner (1980), put simply, the Market Adjusted Model assumes that each security has the same systematic risk as the entire market. The abnormal returns are cumulated to find the cumulative abnormal return of a particular security over ‘t’ period. Therefore, the CAR is given by:

$$CAR_{it} = \sum_{i=1}^t AR_{it}$$

Where: A_{it} is the abnormal returns for an event firm i over time interval t

The mean CAR is calculated over the event period t using the following equation:

$$\overline{CAR}_t = \frac{1}{N} \sum_{i=1}^t CAR_t$$

The statistical significance of the CAR is tested using a simple one-tailed test and a traditional test statistic.

$$t - test_{CAR} = \overline{CAR}_{it} / (\sigma(CAR_{it}) / \sqrt{N})$$

3.2 Buy-And-Hold Abnormal Returns (BHARs)

Buy-and-hold abnormal returns have become the standard method of measuring long-term abnormal returns (Ritter, 1997; Barber and Lyon, 1997; Lyon et al. 1999). Buy-and-hold the abnormal returns measure the average multi-year or multi-month return from a strategy of investing in all firms that complete an event, and selling at the end of a pre-specified holding period versus a comparable strategy using otherwise similar non-event firms (Mitchell and Stafford, 2000). The BHAR method compounds the return of a security at predefined intervals to measure the abnormal returns at the end of a specific time period whilst mimicking the experience of investors.

The buy-and-hold abnormal return (BHAR) has been defined as the return on buy-and-hold investment in the sample firm less return on a buy-and-hold investment in an asset/portfolio with an appropriate expected return. The holding period return (BHR) for a firm ‘i’ stock is calculated for the period ‘t’ as shown below:

$$BHR_{it} = [(1 + R_{i,1})(1 + R_{i,2}) \dots \dots \dots (1 + R_{i,t})] - 1 \dots \dots \dots (1)$$

This can be written as:

$$BHR_{i,t} = \left[\prod_{t=1}^{\tau} (1 + R_{i,t}) \right] - 1 \dots \dots \dots (2)$$

Where R_{it} is the raw return of firm i stock at time t , and T is the time period for which the BHR is calculated. For an equally weighted portfolio of stock returns are calculated as follows:

$$\overline{BHR}_{p,t} = \frac{1}{N} \sum_{i=1}^N BHR_{i,t} \dots \dots \dots (3)$$

Where $\overline{BHR}_{p,t}$ is the average BHR of the portfolio, N is the number of firm stocks in the portfolio and ‘t’ is the time period for which the BHR is calculated. In order to calculate the BHAR on firm i over ‘t’ period, the expected return of the benchmark is subtracted from the return of the bidder, which can be calculated as follows:

$$BHAR_{i\tau} = \prod_{t=1}^{\tau} [1 + R_{it}] - \prod_{t=1}^{\tau} [1 + E(R_{it})] \dots \dots \dots (4)$$

Expected return $E(R_{it})$, in Equation 4, is calculated in two ways: by using (i) a Reference portfolio return (such as market index return), and (ii) control firm return (such as a matching firm based on size and book to market value ratio). To test the null hypothesis that the mean cumulative abnormal returns are equal to zero for a sample of ‘N’, the common parametric test statistics used is:

$$t_{BHAR} = \overline{BHAR}_{i\tau} / (\sigma(BHAR_{i\tau}) / \sqrt{N}) \dots \dots \dots (5)$$

Where $\overline{BHAR}_{i\tau}$ is the sample average and $\sigma(BHAR_{i\tau})$ is the cross-sectional sample standard deviations of abnormal returns for the sample of ‘N’ firms.

As reported by Barber and Lyon (1997), BHAR with reference portfolio is subject to a new listing bias, a skewness bias and a rebalancing bias. Subsequently, Lyon et al. (1999) have presented the following skewness adjusted 't' statistics to test the null hypothesis of abnormal return.

$$t_{sa} = \sqrt{N} \left(S + \frac{1}{3} \hat{\gamma} S^2 + \frac{1}{6N} \hat{\gamma} \right) \dots \dots \dots (6)$$

Where

$$s = \frac{\overline{BHAR}_{\tau}}{\sigma(BHAR_{\tau})}, \text{ and } \hat{\gamma} = \sum_{i=1}^N (BHAR_{i\tau} - \overline{BHAR}_{\tau})^3 / N\sigma(BHAR_{\tau})^3$$

3.3 Reference Portfolio/Benchmark

The present study uses the size adjusted model as the benchmark model for two main reasons. Firstly, the size effects will be very important in a study of long term returns. Kothari et al. (1995) and Gregory (1997) state that whilst it appears that beta does have a role in explaining returns, so does firm size. Secondly, the normal market model or others estimate of the alpha is hardly relied upon to adequately capture size effects (Dimson and Marsh, 1986). Therefore, the size effects have been used in many empirical studies by different methods, such as size decile control portfolios, risk and size control model.

In the present study reference portfolio is constructed by developing a portfolio of non-merging control firms belonging to the same industry and size. The BHAR is calculated by subtracting the BHR of control firms from BHR of sample merging firms. The size portfolio is constructed with the help of following steps:

1. The control-firm to be included in the benchmark portfolio should belong to the same industry or sector.
2. Only a non merging firm gets selected for the reference portfolio.
3. Of all the firms in the industry, the size is determined taking into account the book value of total assets outstanding as at the end of the financial year in which merger is announced.
4. Three firms are selected for inclusion in the reference portfolio based on a size decile calculated in the range of 70% to 130% of size of sample firm in the same industry, announcing merger.
5. The financial data of all three firms are verified before final selection of the firm. For this purpose, the study employs CMIE Prowess Database for accessing various financial data of the sample and control firms. A firm is finally selected if all the relevant financial data is available for all the 3-year periods considered by the study for computing BHAR and whose size deciles is nearer to the sample.

3.4 Research Data

The study considers 135 merger announcements of companies listed on Bombay Stock Exchange for the period 2000 to 2010. Due to lack of information regarding method of payment we could identify the 91 stock-financed mergers and 37 cash financed mergers. Overall the study uses two sample sizes, 130 companies in analyzing acquiring firm stock performance in general and 128 firms (91 stock financed mergers and 37 cash financed mergers) to analyze the long run performance based on the method of payment in particular. A post merger period of 3 years is selected for the purpose of analyzing the post merger share price performance of the acquiring

firms. The cumulative Abnormal Return (CAR) and Buy and Hold Abnormal Returns (BHAR) using market index methodology is computed only for 130 companies due to lack of data. The Car and BHAR based on control firm approach is computed only for 128 firms as some of control firms possess no data for some of the sample firms there are no comparable control firms. For CAR and BHAR based on method of payment is computed for only 128 firms. The market related data of the sample and control firms are accessed from the CMIE Prowess database. The study employs different time yardsticks for computing both long-run CAR and BHAR, monthly and yearly returns are computed by taking the adjusted closing prices.

4. Analysis of Data

4.1 Descriptive Statistics

Table 1 and 2 provide descriptive statistics of sample acquiring and control firms respectively. The analysis would help in understanding the financial characteristics of acquiring firms in India in broad terms and also the extent of comparability between the sample and control firms.

Table 1: Descriptive Statistics of Sample Acquiring Firms

Variables	Total assets	Total debt	Leverage Ratio (%)	PBDITA	Profit after tax	ROCE (%)	RONW (%)	MTB RATIO (%)
Mean	19577.09	11919.02	53	3151.53	1267.38	23	10	2.14
Median	4723.18	2500.90	55	720.85	247.41	19	13	1.21
Standard Deviation	41360.73	29229.21	17	6529.05	3011.47	13	.51	3.05
Variance	1710710326.76	854346895.09	3	42628537.45	9068947.02	2	.26	9.28
Minimum	57.00	0.34	1	4.88	-3895.60	3	-5.30	0.38
Maximum	250967.94	204476.48	.86	46074.98	16603.82	.68	.63	27.65

Source: Computed from the CMIE Prowess Database.

A perusal of Table 1 depicts the financial characteristics of 130 acquiring firms. The average amount of debt employed by the sample firms is Rs. 11919.02 crore with mean and median debt to total assets ratio of 53% and 55% respectively. There is a wide variation, both, in the amount and proportion of debt employed. The minimum and maximum amount of debt employed ranges from Rs. 0.34 lakh to Rs. 204476.48 crores with a maximum leverage ratio of 86%. The average asset size of Indian acquiring firms is Rs. 19577.09 crore with minimum and maximum values of Rs. 57 crore and Rs. 250967.94 crore respectively.

The sample Indian acquiring firms are fairly valued with a mean MTB ratio of 2.14times. The average operating profits are Rs. 3151.53crore with a minimum operating profit of Rs. 4.88 crore. There is a high degree of variance in profitability position. The profit after tax averages Rs. 1267.38 crore for the study period with greater standard deviation. The ROCE is 23% of the study period while the return on equity (ROE) is 10%.

Table 2 provides the financial characteristics of 128 control firms selected for developing a reference portfolio:

Table No 2: Descriptive Statistics of Control Firms

Variables	Total assets	Total debt	Leverage Ratio (%)	PBDITA	Profit after tax	ROCE (%)	RONW (%)	MTB Ratio (%)
Mean	39892.08	12655.79	0.30	5794.83	3312.03	0.25	0.10	5.04
Median	24086.70	4316.50	0.30	3296.90	1074.75	0.19	0.15	1.40
Standard Deviation	60940.74	24517.61	0.22	9928.29	8619.35	0.21	1.22	14.48
Variance	3713773466.18	601112973.50	0.05	98570863.45	74293116.07	0.04	1.49	209.76
Minimum	92.20	1.90	0.00	-64.50	-8126.70	-0.01	-11.98	0.36
Maximum	530780.20	206357.70	0.73	79670.00	58190.00	1.49	4.07	114.68

Source: Computed from the CMIE Prowess Database.

The average amount of debt employed by control firms is Rs. 12656 crore with a comparable leverage ratio of 30%. The average debt employed by sample firms is Rs. 11919 crore. The control firms are on average almost similar to the size of sample firms with an asset size of Rs. 39892 crore. The MTB ratio of control firms is 5.04 times as against 2.14 times in case of sample firms. This clearly indicates that control firms are highly valued and sample firms’ value is just 40% of the control firms’ value. The minimum and maximum MTB ratio varies from a negative of 0.05 times to a high of 5.26 times. Though the control firms more profitable than sample firms, but ROCE and ROE are almost similar with sample firms.

4.2 Long-Run Cumulative Abnormal Returns (Car)

Table 3 shows details relating to long-run cumulative abnormal return (CAR) for 130 sample acquiring firms. The CAR is computed using the methodology explained earlier.

Table 3: Long –run CAR for sample firms

Months	AAR	CAR	No. of companies with positive AAR	%
1	1.13	1.13	62	48.44
2	2.31	3.44	66	51.56
3	0.35	3.79	58	45.31
4	-0.18	3.61	53	41.41
5	-0.24	3.37	58	45.31
6	-0.37	3.00	62	48.44
7	0.99	3.99	63	49.22
8	0.28	4.27	62	48.44
9	0.10	4.37	52	40.63
10	1.59	5.96	61	47.66
11	0.38	6.34	59	46.09
12	-0.91	5.43	60	46.88
13	1.31	6.74	63	49.22
14	-1.35	5.39	47	36.72
15	0.13	5.51	59	46.09
16	-0.05	5.46	53	41.41

17	-0.05	5.41	58	45.31
18	1.94	7.36	66	51.56
19	1.31	8.67	67	52.34
20	-0.96	7.71	49	38.28
21	-1.61	6.09	49	38.28
22	3.49	9.58	69	53.91
23	-1.59	7.99	58	45.31
24	0.85	8.85	57	44.53
25	-0.64	8.20	53	41.41
26	1.78	9.98	59	46.09
27	-1.59	8.40	56	43.75
28	2.18	10.57	65	50.78
29	1.64	12.21	66	51.56
30	1.17	13.38	58	45.31
31	-1.13	12.25	56	43.75
32	-0.86	11.39	52	40.63
33	1.38	12.77	59	46.09
34	-1.10	11.67	51	39.84
35	0.86	12.53	55	42.97
36	1.27	13.80	58	45.31
Mean		7.52		
Median		7.05		
S.D		3.434		
Minimum		1.13		
Maximum		13.80		
t-test		13.13		

Source: Computed from the CMIE Prowess Database.

Table 3 shows that long term CAR for 36 month period for sample acquiring firms is 13.80%. The CAR increases from 1.13% in the first month after merger to 13.80% in the 36th month after the merger, an increase of almost 12% in 3-year period. The CAR increases from 1.13% in the first month to 3.79% in the third month and it comes down to 3% in the sixth month. After this it rises to 5.43% in the twelfth month. This indicates the fluctuating trend in the first 12-month period. During the second 12-month period the CAR increases from 6.74% in the 13th month to 8.85 % in 24th month and to 13.80% at the end of 36th month. The increasing trend of CAR in the second and third 12-month period indicates a positive higher 5 year long run CAR for acquiring firms in India. As far as the number of companies reporting positive CAR is considered, it shows quite fluctuating pattern, i.e. it decreases from 48% in the first month to 46% in 12th month, 44% in the 24th month respectively and again it increases to 45% at the end of 36th month.

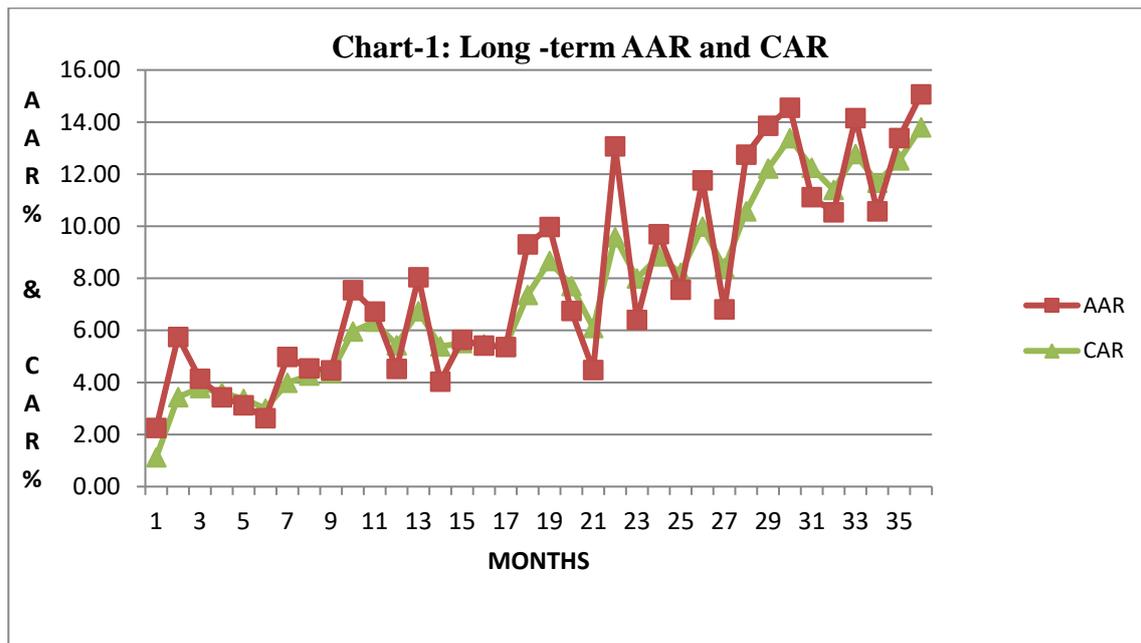


Chart 1-shows the pictorial depiction of the movement of long-run AAR and CAR

Long –Run Excess Car For Sample Firms (Control Firm Bench Mark)

The Excess long run CAR is computed from deducting the CAR of sample firms from the CAR of control firms. The identification of control firms is described in the methodology topic. Table 4 depicts the details relating to half yearly mean of Long Run Excess Cumulative Abnormal Return for sample acquiring firms.

Table 4: Year-wise Mean Excess Long-run CAR

	6 months	12 months	18 months	24 months	30 months	36 months
Avg	0.15	-0.95	-2.44	-3.62	-5.69	-6.96
Median	0.37	-0.85	-1.94	-3.71	-5.88	-6.68
S.D	2.24	2.14	3.04	3.38	5.23	5.59
Minimum	-3.16	-4.26	-7.32	-7.97	-15.78	-15.78
Maximum	2.73	2.73	2.73	2.73	2.73	2.73
t-test	0.17	-1.53	-2.77	-3.71	-3.77	-7.46
% of Cos With +ve CAR	50.78	49.74	50.52	54.17	49.74	48.44

Source: Computed from the CMIE Prowess Database.

The mean long run excess CAR is negative for all the periods except for the 6th month period. This decreasing trend in excess CAR indicates that in the long run the shareholders of sample acquiring firms will definitely loose while the shareholders of control firms will perform better than control firms. The number of companies reporting positive AAR also shows decreasing trend.

Year Wise Long Car of Acquiring Companies Based On Method Of Payment

Table 5 provides the details relating to long-run cumulative abnormal return on the basis of method of payment. In this study the CAR is calculated for 37 cash financed mergers and the 91 stock-financed mergers.

Table 5: Movement of Payment wise Mean Long-run CAR

	6 months		12 months		18 months		24 months		30 months		36 months	
	Cash	Stock	Cash	Stock	Cash	Stock	Cash	Stock	Cash	Stock	Cash	Stock
Mean (%)	3.85	2.73	2.45	4.71	2.20	5.71	3.64	6.34	5.85	6.82	7.82	7.14
Median (%)	4.44	2.77	2.09	3.84	1.73	6.20	3.09	6.84	4.21	7.41	5.32	7.92
Std.Dev (%)	2.09	0.82	2.28	2.44	1.94	2.56	3.31	2.52	5.80	2.49	6.98	2.47
Minimum (%)	4.53	8.19	3.72	6.67	4.82	9.48	5.39	12.30	5.52	14.99	6.72	17.32
Maximum (%)	0.01	1.58	-0.69	1.58	-0.69	1.58	-0.69	1.58	-0.69	1.58	-0.69	1.58
t-test	5.69	3.69	5.69	8.56	5.69	9.68	12.08	9.68	22.56	9.68	22.56	10.59

Source: Computed from the CMIE Prowess Database.

The mean CAR is significant for all the periods in case of both types of mergers. In the first twelve months the CAR of cash mergers is 2.45% and 4.71% in the case of stock mergers. At the end of 36th month the CAR increases to 7.82% in the case of cash mergers and 7.14% in the case of stock mergers. In case of cash financed mergers the mean long run CAR decreases from 3.85% in 6th month or 2.45% in 12th month and 2.20% in 18th month periods. While in case of stock financed mergers the mean long run CAR shows an increasing trend, i.e. it increases from 2.73% in the first six month period to 7.82% by the end of 36th month. The analysis of the above Table indicates that in the first two 12 month period investor holdings in stock financed mergers realizes more gain than cash mergers. But when the 3 year long period is considered investors holding in cash financed mergers earn more than stock financed mergers.

Mean Excess Long-Run Car Based On Method Of Payment (Control Firm Bench Mark)

Table No 6 depicts the half year wise excess long-run CAR of sample acquiring firms based on method of payment.

Table 6: Movement of Payment wise Mean Excess Long-run CAR

	6 months		12 months		18 months		24 months		30 months		36 months	
	Cash	stock	cash	stock	cash	stock	cash	stock	cash	Stock	cash	stock
Mean (%)	4.26	-1.52	-2.06	-0.50	-5.18	-1.32	-5.53	-2.84	-7.52	-4.94	-9.54	-5.91
Median (%)	5.07	-1.73	-5.83	-0.96	-8.38	-1.51	-7.98	-1.86	-9.43	-4.08	-10.37	-5.65
Std.Dev (%)	7.12	0.48	8.30	1.39	8.10	2.33	7.12	3.41	7.64	5.30	8.30	5.40
Minimum (%)	-6.18	-1.93	11.52	-1.93	13.24	-4.91	13.24	-9.24	18.73	15.32	-21.66	15.32
Maximum (%)	11.32	-0.63	11.32	2.04	11.32	3.22	11.32	3.22	11.32	3.22	11.32	3.22
t-test	1.47	-7.69	-0.86	-1.23	-2.71	-2.40	-3.80	-4.09	-5.39	-5.11	-6.90	-6.56

Source: Computed from the CMIE Prowess Database.

The mean long run excess CAR in case of cash mergers at the end of 6th month is 4.26% and it decreases to -9.54% at the end of the 36th month period, whereas the mean long-run CAR for stock mergers is negative for all the sub periods. This analysis shows that investors of only cash mergers of sample acquiring firms will earn profit only in the short run (i.e. in 6th month period). But in the long run sample firm’s investors will lose in case of both types of mergers. While the

case of control firms the investors of cash financed mergers earn more than stock financed mergers. In short, we can say that in India in the long run shareholders of control firms in case of cash financed mergers will gain more than stock financed mergers.

4.3 Buy and Hold Abnormal Return (BHAR)

Using BHAR method, we calculate annual abnormal returns over three years following the month of merger took effect. The study uses market index and control firm benchmarks to calculate BHAR. Table 7 provides the details relating to BHAR of acquiring firms based on a market index for various sub-periods. For this purpose, we use BSE-500 as a reference portfolio. The BHAR has been measured over each month of the 3-year period along with the number and per cent of firms reporting positive BHAR.

Table-7: Movement in 36-month BHAR of Acquiring Firms (Based on Market Index)

Months	No of firms	Average BHAR %	Median	Std. Dev	t-test	No of Cos with +ve BHAR	% of Cos with +ve BHAR
1	130	-1.535	1.535	16.633	-1.052	70	53.85
2	130	-1.871	0.166	14.381	-1.483	70	53.85
3	130	-1.233	0.376	12.207	-1.151	70	53.85
4	130	-0.934	0.594	11.423	-0.932	72	55.38
5	130	-0.520	0.623	10.464	-0.567	73	56.15
6	130	-0.327	0.466	10.230	-0.365	71	54.62
7	130	-0.447	0.420	10.342	-0.492	69	53.08
8	130	-0.408	0.569	10.589	-0.440	72	55.38
9	130	-0.332	0.336	10.211	-0.370	72	55.38
10	130	-0.390	0.398	10.075	-0.441	73	56.15
11	130	-0.377	0.523	9.998	-0.430	75	57.69
12	130	-0.258	0.543	9.893	-0.297	77	59.23
13	130	-0.307	0.417	9.876	-0.354	73	56.15
14	130	-0.180	0.486	9.758	-0.210	78	60.00
15	130	-0.145	0.724	9.613	-0.172	76	58.46
16	130	-0.119	0.706	9.577	-0.142	75	57.69
17	130	-0.085	0.723	9.534	-0.102	75	57.69
18	130	-0.177	0.679	9.572	-0.211	76	58.46
19	130	-0.237	0.536	9.571	-0.282	74	56.92
20	130	-0.197	0.594	9.561	-0.235	78	60.00
21	130	-0.126	0.873	9.503	-0.151	77	59.23
22	130	-0.283	0.519	9.518	-0.339	72	55.38
23	130	-0.184	0.682	9.457	-0.222	76	58.46
24	130	-0.197	0.688	9.441	-0.238	76	58.46
25	130	-0.182	0.646	9.478	-0.219	75	57.69
26	130	-0.190	0.453	9.530	-0.227	73	56.15
27	130	-0.141	0.527	9.542	-0.168	77	59.23
28	130	-0.208	0.478	9.573	-0.247	77	59.23

29	130	-0.251	0.506	9.557	-0.300	78	60.00
30	130	-0.259	0.573	9.592	-0.308	76	58.46
31	130	-0.296	0.569	9.577	-0.353	74	56.92
32	130	-0.287	0.551	9.600	-0.340	76	58.46
33	130	-0.320	0.422	9.588	-0.380	75	57.69
34	130	-0.308	0.479	9.534	-0.369	78	60.00
35	130	-0.290	0.522	9.477	-0.349	78	60.00
36	130	-0.443	0.516	9.619	-0.525	80	61.54

Source: Computed from the CMIE Prowess Database.

The Sample acquiring companies underperform the BSE-500 index for the 36 month period. The BHAR of acquiring firms for all 36 months shows insignificant negative returns. The holding of the sample acquiring a firm’s portfolio of securities yields an insignificant return of -0.443% in 3-year period. The negative returns for all the 36 months indicate that the mergers in India will not benefit the shareholders of acquiring companies in the 3-year long-run period. The number of companies depicting positive BHAR shows fluctuating trend showing a high of 80 at the end of 36th month.

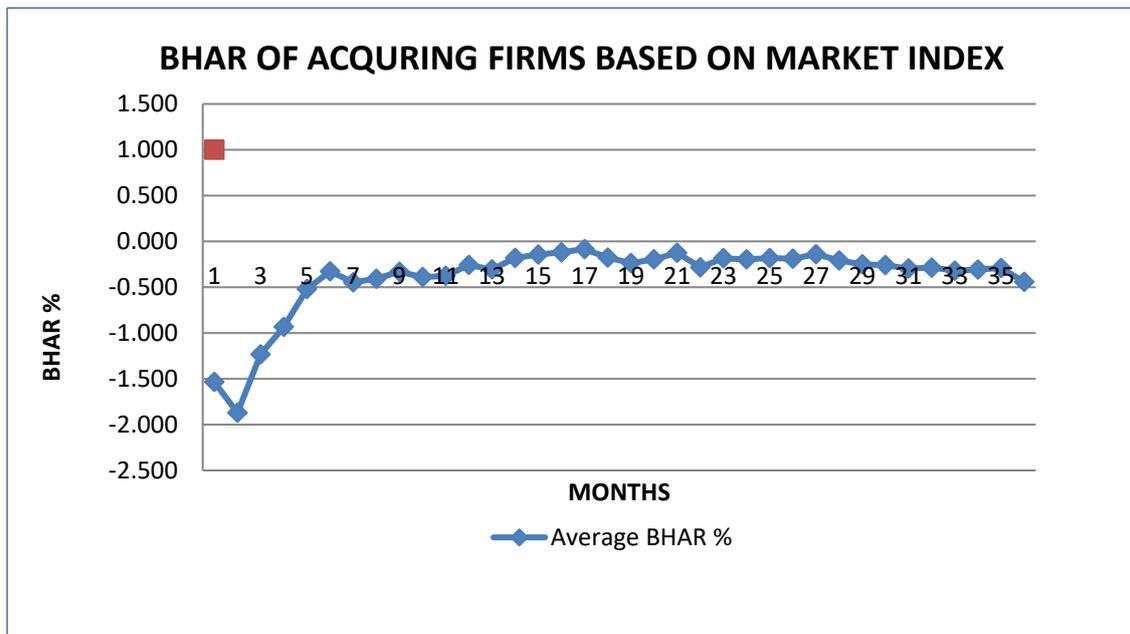


Chart-3: Shows the Movement of 36-month BHAR for sample acquiring companies.

The acquiring firms underperform in all the sub-periods as BHAR of acquiring firms shows insignificant negative returns with 62% companies reporting positive BHAR at the end of 36 months. The results of the study are consistent with the studies by Dutta & Jog (2009) who reports -0.54% BHAR for the 3-year period for Canadian acquiring firms in the post event period by using 1300 M&As events in the 1993-2002 period. Moeller et al find for 12023 US acquisitions 3-year BHAR of -16.02.

Sub-Period Analysis of BHAR (Based on Control Firm Bench Mark)

Table 8 shows the BHAR of sample acquiring firms based on control firm benchmark method for various sub-periods.

Table -8: BHAR for All acquired companies (Based on Control Firm Bench Mark)

Months	No. Of Firms	Mean BHAR	Median	Std Dev	t-test	No of firms with +BHAR	% of firms with +BHAR
6	128	0.006	-0.088	7.374	0.009	63	49.22
12	128	0.003	-0.455	5.759	0.007	61	47.66
18	128	0.002	-0.087	4.519	0.006	63	49.22
24	128	-0.002	-0.068	5.148	-0.004	64	50.00
30	128	0.001	-1.264	6.458	0.001	50	39.06
36	128	0.016	-0.831	16.238	0.011	58	45.31

Source: Computed from the CMIE Prowess Database.

Above Table disclose that the BHAR fir acquiring firms based on control firm benchmarks is positive for 5 sub-periods except for the 24th month period. The mean BHAR is increasing from 0.006% in the 6th month to 0.016% at the end of 36th month. This indicates that the sample acquiring firms will be in profit than control firms.

Sub-Period Analysis of Payment Wise BHAR

An attempt is made to analyze the movement of payment wise BHAR based on a market index by sub-dividing the 3-year BHAR into 6,12,18,24,30 & 36 months. Table 9 provides the details.

Table-9: Movement in Payment wise Mean Long-Run BHAR (Based on Market Index):

Months	Cash	Stock	Combined
6	0.055	-0.653	-0.327
12	0.829	-0.744	-0.258
18	0.680	-0.542	-0.177
24	0.208	-0.421	-0.197
30	0.074	-0.434	-0.259
36	0.273	-0.792	-0.443

Source: Computed from the CMIE Prowess Database.

The method of payment forecast the post-merger abnormal performance. The above Table shows that the 91 stock-financed mergers had a BHAR of -0.792 and the acquirers in the 37 cash-financed mergers earn a positive BHAR of 0.273% at the end of the 36th month period. The combined BHAR for all the 128 acquiring companies is -0.443%. The abnormally weak performance of stock based mergers and better performance of cash acquirers is inconsistent with Myers and Maljuf (1984) information asymmetry hypothesis and from other studies by Franks, Harris and Titman (1991), Loughran & Vjih (1997), Da Silva Rosa (2000) and Mitchell and Stafford (2000) who investigates the impact of payment method on performance of M&As. The above analysis shows that in India cash financed mergers outperform the stock financed mergers in the long run.

Payment Wise BHAR Based on Control Firm Bench Mark

The Table 10 provides the details of movement of payment wise BHAR based on control firm benchmark.

**Table-10: Movement in Payment wise Mean Long-Run BHAR
(Based on Control Firm Bench Mark)**

Months	Cash	Stock	Combined
6	-0.148	0.858	0.006
12	0.232	0.388	0.003
18	0.440	0.163	0.002
24	0.439	-0.457	-0.002
30	1.218	-0.389	0.001
36	1.088	1.783	0.016

Source: Computed from the CMIE Prowess Database.

The BHAR of cash mergers is positive for all the sub-periods except for the 6th month period and it shows negative for two periods (24 months and 36 months) in case of stock financed mergers. The mean excess BHAR at the end of 36 months is 1.088% in the case of cash financed mergers and 1.783% in the case of stock financed mergers, while the combined BHAR for 128 companies shows a negligible return of 0.016 by the end of the 36th month period. The analysis of the table indicates that in India the investors of Sample acquiring firms of stock financed mergers perform better than the cash mergers.

5. Conclusion

Using a sample of mergers between 2000 and 2010, we investigate the long-run performance of Indian acquirers. The measurement of long-run performance has been made on the basis of long-run CAR and BHAR using market index and control firms as reference portfolios. The main results are as follows

1. The long run CAR increases from 3.06% in the first month to 7.52% in the 36th month after the merger and the long run CAR for Cash financed mergers and stock financed mergers are 7.82% and 7.14% respectively at the end of the 36th month after the merger.
2. Using control firm approach long run CAR of acquiring companies shows negative earnings of -6.96% by the end of the 36th month after the merger. This indicates the Indian acquirers underperform over the three year post merger period. While the excess CAR for cash mergers is -9.54% and stock mergers it is -5.91% at the end of 36 months. In this case cash mergers of control firms perform better than stock mergers.
3. The BHAR based on the market index approach reveals no additional benefit to the sample acquiring firms. While cash financed mergers and Stock financed mergers shows a BHAR of 0.27% and 0.7916% respectively at the end of three year post merger period.
4. The gains to acquiring company shareholders are only 0.016% when BHAR is calculated using control firm benchmark. Whereas the cash mergers earn a BHAR of 1.088% and stock mergers earn a BHAR of 1.783% at the end of the 36th month after the merger.

The above analysis indicates that in India in the long run mergers bring gains to shareholders of acquiring companies. When the performance is analyzed on payment method it can be concluded that in India cash financed mergers outperform stock financed mergers using both long run CAR and BHAR approaches.

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