

LONG-RUN MARKET PERFORMANCE OF ACQUIRING COMPANIES USING BHAR APPROACH: EVIDENCE FROM INDIA

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Abstract

The paper has empirically investigated the long-term market performance of the acquiring companies in the Indian context with a sample of 383 acquiring firms from the period 2004-2014. The long-term market performance of the acquiring companies has been analysed by using namely the 'Buy-and-hold-abnormal-return' (BHAR) methodology. The Buy-and-hold-abnormal return (BHAR) has been calculated by using both the market index and the matching firm approach. The traditional t-statistics and skewness adjusted t-statistics have been used to evaluate the significance of long-run abnormal returns.

Keywords: Market Performance, BHAR, Matching firm. Acquiring firms

Introduction

While most of the existing literature on short-term market-based measures. Few studies has been done on long-run stock market returns such as Mandelker (1974); Langetieg (1978); Firth, (1980); Malatesta (1983); Franks *et al* (1991); Dutta & Jog, 2009 and Bhabra & Huang (2013). The long-term market-based measure studies predominated in western countries like the US, UK, Canada, etc. The results of underperformance of acquiring companies reported because of methodological issues like such as BHAR (Buy-and-hold abnormal return). The literature in the Indian context is limited to the perspective of long-term stock market performance.

Literature review

Most of the long-term studies have been conducted predominantly from western countries like the US, UK, Canada, and France. Most of the studies in western countries in long-term stock market performances has described negative returns to the acquiring companies' shareholder. The result reported in the context of long-run stock market performance has been debated for the methodological issues like choice of benchmark and use of buy-and-hold abnormal return (BHAR) methodology. The literature in the Indian context is scarce in perspective to long-term stock market performance. We have reviewed some of the studies relating to the long-term market performance abroad. The same is listed in Table 1.

Table 1: Summary of Studies on Long-term Stock Market Performance in Abroad

Authors	Sample Periods	Sample Size	Market	Methodology	Event Window (Month)	Findings
Andre <i>et al</i> (2004)	1980-2000	267	Canada	Calendar time portfolio: Fama-French-3-Factors Model	[0,36]	No significant abnormal return
Antoniou <i>et al</i> (2007)	1985-2004	4173 whole total 2607 for long run studies	UK	Calendar time portfolio: Fama-French-3-Factors Model	[0,36]	Significant negative return
Dutta and Jog (2009)	1993-2002	1300	Canada	BHAR and Calendar time portfolio method	[0,36]	Statistically insignificant return
Laabs and Schiereck (2010)	1981-2003	230	France	BHAR and Calendar time: Fama-French-3 Factors-Model	[0,36]	Significant negative abnormal return
Bhabra and Huang (2013)	1997-2007	136	China	MM	[0,36]	Significant positive abnormal return

Note: MM indicates market model; MAM: indicates market-adjusted model; MAR indicates market-adjusted return; BHAR; Buy-and-hold-abnormal return; CAPM-Capital assets pricing model; B/M- Book value to market value

Methods

The total sample size of 383 listed firms has been considered for long-term market performance. The period of the study regarding the present objective has been taken as 2004-2014. We calculate the abnormal returns by using Buy-and-hold-abnormal-return (BHAR) methods for three years from the month following the mergers and acquisitions announcement month. We calculate the BHAR by using both the market index approach and the matching firm approach as proposed

by Barber and Lyon (1997). The matching firm has been matched to the acquiring firms based on the size and price-to-book value ratio.

Buy-and-hold-abnormal-return (BHAR)

Buy-and-hold-abnormal-return (BHAR) is considered the most common method for analysing long-term market performance. The Buy-and-hold-abnormal-return (BHAR) has been defined as the return on buy-and-hold investment in the acquiring firm less the return on a buy-and-hold investment in an asset/portfolio with an appropriate expected return.

$$BHAR_{i(T_1 T_2)} = \prod(1 + R_{i,t}) - \prod(1 + R_{benchmark,t}) \dots\dots\dots 1$$

The expected return is calculated by two benchmarks, i.e., by using market index return and matching firm approach. The matching firm has been selected based on size and price-to-book value ratio. Whereas the mean buy-and-hold abnormal return is

$$\overline{BHAR}_T = \frac{1}{N} \sum_{i=1}^N BHAR_{i,t} \dots\dots\dots 2$$

To test the null hypothesis that means cumulative abnormal returns are equal to zero for the sample firms, the parametric test statistics used is

$$t_{BHAR} = \frac{\overline{BHAR}_{it}}{(\sigma(BHAR_{(it)})/\sqrt{n})} \dots\dots\dots 3$$

Where \overline{BHAR}_{it} is the sample average and $\sigma(BHAR_{i,t})$ is the cross-sectional sample standard deviations of abnormal returns for the sample of 'N' firms.

Results and Discussion

Long-term-market Performance by using Buy-and-hold-abnormal-return (BHAR) with Equal Weighted Basis

The long-term market performance has been examined for the acquiring firm by using the buy-and-hold-abnormal return (BHAR) methodology for the sample firms after the event deal. This has been done for three years following the month in which the deal was announced. It has been calculated as the difference between the buy-hold return in acquiring firm of an investor less the return on the buy-hold return of an investor by using the market index. The significance of long-term abnormal return has been tested by using t-statistics and skewness adjusted t-statistics. The results are presented in Table 2.

Table 2: BHAR to the Acquiring Firms using Market Index with Equal Weighted Basis

Event window (Month)	BHAR	t-statistic	prob.	skewness-adj.	prob.
12	15.50%	1.9210	0.0547**	2.5051	0.0122*
24	16.20%	1.2890	0.1974	1.5899	0.1119
36	42.60%	1.5232	0.1277	1.9955	0.0460*

Note: *, ** denotes statistical significance at the 0.05 and 0.10 levels, respectively

We have found BHAR is 15.50%, which is positive and statistically significant in twelve months following the mergers and acquisitions with t-statistics of (1.92) and skewness adjusted t-statistics of (2.50). We have seen that 36 month after the mergers and acquisitions BHAR is 42.60% which is positive statistically significant with skewness adjusted t-statistics of (1.99). The results are also shown graphically in figure .1.

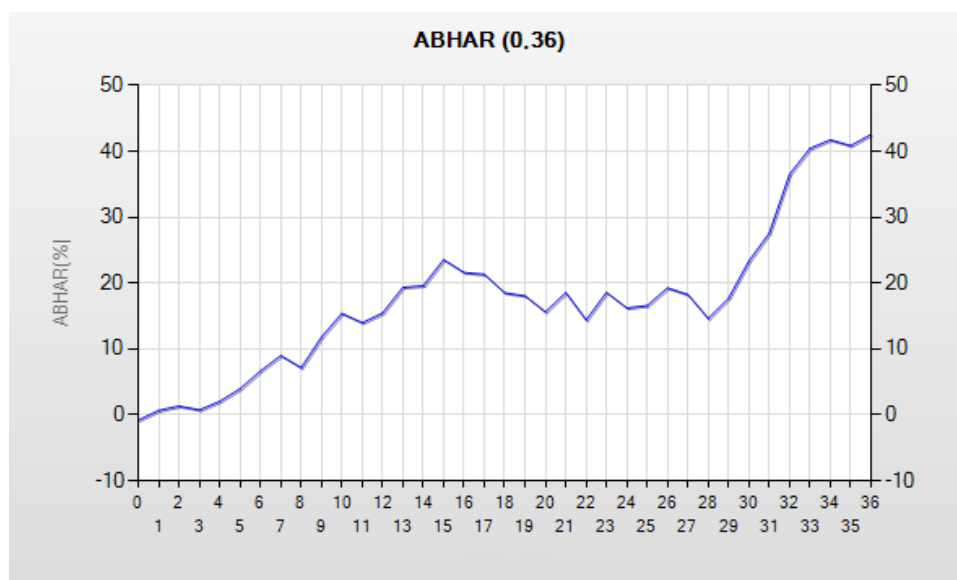


Figure 4.1: BHAR for the Acquiring Firms by using (Market Index)

Figure .1 shows that the BHAR for the [0, 36] months window period for the acquiring firm for post three years announcement effect using the market index as a benchmark. To sum up, we have noticed increasing BHAR in the post-merger period indicate the market has generated positive return to the acquiring firm shareholder in the long run.

The above findings are consistent with contemporary economies like China Bhabra and Huang (2013). This result contradicts earlier studies in developed economies like the US such as Loughran and Vjih (1997) and Laabs and Schiereck (2010). The possible explanation for the above results could be the characteristics of the study, sample period, and the different market conditions.

Long-term Market Performance by using buy-and-hold-abnormal-return (BHAR) with Value Weighted Basis

The long-term market performance is examined for the acquiring firm by using buy-and-hold abnormal return (BHAR) for the sample after the event deal. It has been calculated as returns on buy-hold investment in the sample firm less the return on buy hold investment by using a market index with a value-weighted basis. Value weighted basis has been used to capture the investor experience in a better way. Value weighted average is taken as the respective market value of the acquiring firm year

before the mergers and acquisitions announcement. The significance of long-term abnormal return has been tested by using t-statistics and skewness adjusted t-statistics. The results are reported in Table 3.

Table 3: BHAR to the Acquiring Firms of Full Sample by using Market Index with Value Weighted Basis

Event window (Month)	BHAR	t-statistic	prob.	skewness-adj.	prob.
12	12.29%	1.5260	0.1270	1.9220	0.0550**
24	-3.47%	-0.2740	0.7840	-0.1930	0.847
36	-11.39%	-0.4060	0.6850	-0.2930	0.770

Note: *, ** denotes statistical significance at the 0.05 and 0.10 levels, respectively

The twelve months after mergers and acquisitions BHAR is 12.29% which is positive and indicates statistically significant in skewness adjusted t-statistics of (1.92). However, we have observed that BHAR for 24 months following the mergers and acquisitions is -3.47% negative and indicates statistical insignificance in both the test t-statistics of (0.055) and skewness adjusted t-statistics (0.847). We have also noticed that 36 months after the mergers and acquisitions BHAR is -11.39% which is negative and indicates statistical insignificance in the t-statistics of (-0.274) and skewness adjusted t-statistics (-0.293). The results are also shown graphically in figure2.

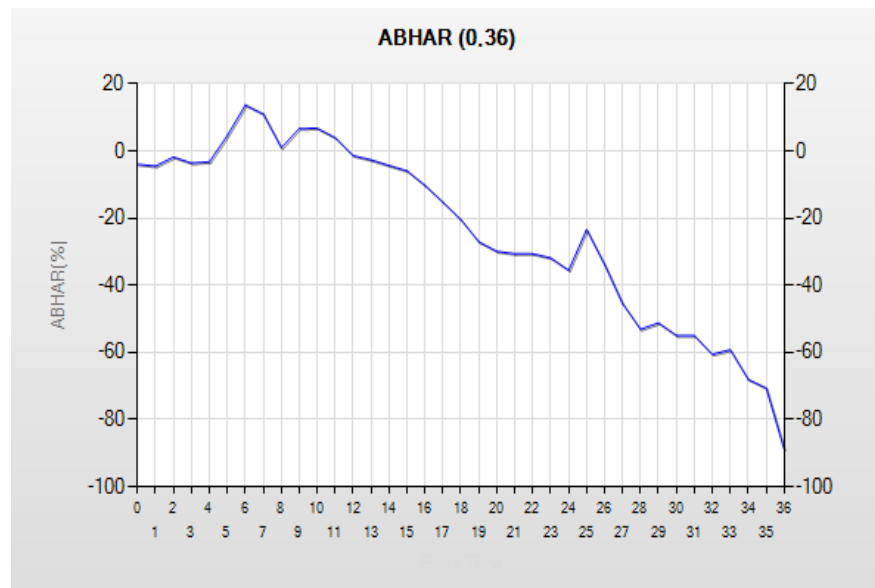


Figure 2: BHAR for the Acquiring Firms by using Market Index with Value Weighted Approach

This result of our study was found to be similar to earlier studies conducted on the long-term market performance such as Petitt (2000) and Dutta and Jog (2009). The returns seem to be negative in the long run to the acquiring firm but not statistically significant. This result shows that there is no indication of underperformance of acquiring firms in the long run.

Long-term Market Performance by using Buy-and-hold-abnormal-return (BHAR)
 Matching Firm
 Approach with Equal Weighted Basis

The long-term market performance has been examined for the acquiring firm by using the matching firm approach. We have primarily used the matching firm as the benchmark in this approach as this method considers the size and price-to-book value factor. The BHAR has been determined using a matching firm approach, which matches the non-acquiring firm based on size and price-to-book value ratio. The matching firm represents the benchmark in calculating the long-term abnormal return to the acquiring firm. The abnormal returns have been derived buy-hold-return in the sample firm less the return on buy-hold-return of match firm. The significance of long-term abnormal return has been tested by using t-statistics and skewness adjusted t-statistics.

Table 4 presents the results of BHAR of the acquiring firms for the 36 months following mergers and acquisitions from the period 2004 to 2011. We have primarily used the matching firm approach as the benchmark and equal-weighted average basis. The traditional t-statistics along with skewness-adjusted t-statistics of 36 months after the events to evaluate the significance of long-term abnormal returns is reported in Table 4.

Table 4: BHAR to the Acquiring Firms by using Matching Firm with Equal Weighted Basis

Event window (Month)	BHAR	t-statistic	prob.	skewness-adj	prob.
12	0.42%	0.0335	0.9733	0.0606	0.9517
24	-1.25%	-0.0645	0.9486	-0.0281	0.9776
36	15.13%	0.3813	0.7030	0.4593	0.6460

Note: *, ** denotes statistical significance at the 0.05 and 0.10 levels, respectively

The BHAR has found for the 24 months following the mergers and acquisitions is -1.25% which is negative and indicates statistical insignificance in t-statistics of (-0.064) and skewness adjusted t-statistics of (-0.028). We have also noticed 36 months after the mergers and acquisitions BHAR is 15.13% which is positive and statistically

insignificant in the test t-statistics of (0.3813) and skewness-adjusted t-statistics of (0.4593). The results are presented graphically in figure 3.

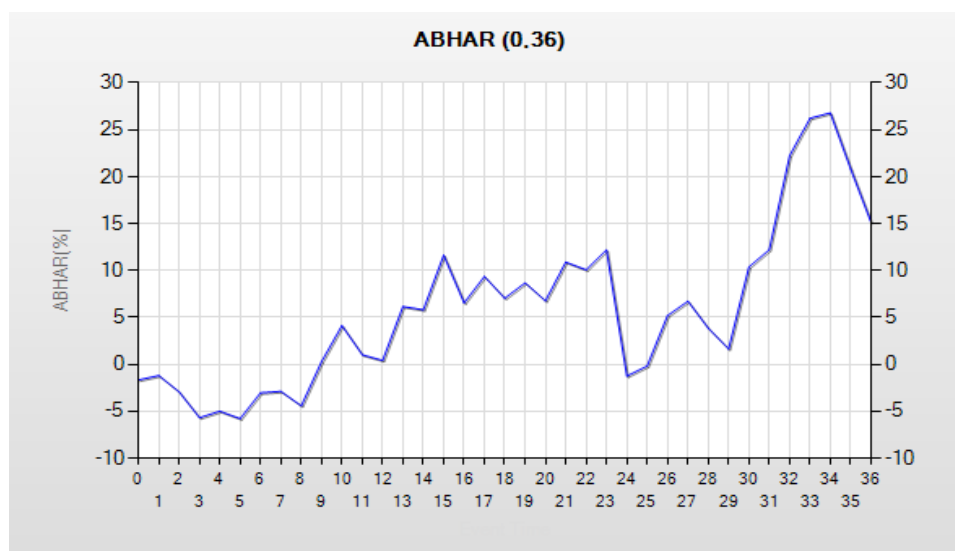


Figure 3: BHAR for the Acquiring Firms by using Matching Firm with Equal Weighted Approach

Figure 3 shows the BHAR for the [0, 36] month window period for the acquiring firm for post three years announcement effect using the matching firm approach as a benchmark. These results of our study are found to similar to earlier studies like Petitt (2000) and Dutta and Jog (2009). This result shows that there is no indication of underperformance of acquiring firm. Long-term Market Performance by using Buy-and-hold-abnormal-return (BHAR) Matching Firm Approach with Value Weighted Basis

The long-term market performance has been examined for the acquiring firm by using the matching firm approach with a value-weighted basis. The BHAR has been determined using a matching firm approach, which matches the non-acquiring firm based on market value and price-to-book value ratio. The matching firm represents the benchmark in calculating the long-term abnormal return to the acquiring firm. The abnormal returns have been derived buy-hold return in the sample firm less the return on buy hold return of matching firm. Value-weighted average is taken as the respective market value of the acquiring firms year before the mergers and acquisitions announcement. The significance of long-term abnormal return has been tested by using t-statistics and skewness adjusted t-statistics.

Table 5 presents the results of BHAR of the acquiring firms for the 36 months following mergers and acquisitions from the period 2004 to 2011. We have used the matching firm approach as a benchmark and value-weighted average basis. The t-statistics along with skewness adjusted t-statistics of 36 months after the events to evaluate the significance of long-term abnormal returns has been reported in Table 5.

We found that the BHAR is positive in the initial years after the event and thereafter negative for the following years after eleven months onward of the event.

Table 5: BHAR to the Acquiring Firms Matching Firm with Value Weighted Basis

Event window (Month)	BHAR	t-statistic	prob.	skewness-adj.	prob.
12	-1.33%	-0.1064	0.9153	-0.0785	0.9374
24	-35.51%	-1.8248	0.0680**	-1.5297	0.1261
36	-88.88%	-2.2136	0.0269*	-1.5362	0.1245

However, BHAR for the two-year following the mergers and acquisitions is -35.51% which is negative and indicates statistical insignificance in both the test t-statistics of (-1.8248) and skewness adjusted t-statistics of (-1.5297). We have also observed 36 months after the mergers and acquisitions BHAR is -88.88% which is negative and indicates statistical insignificance in the skewness adjusted t-statistics of (-1.5362). The results are presented graphically in figure 4.

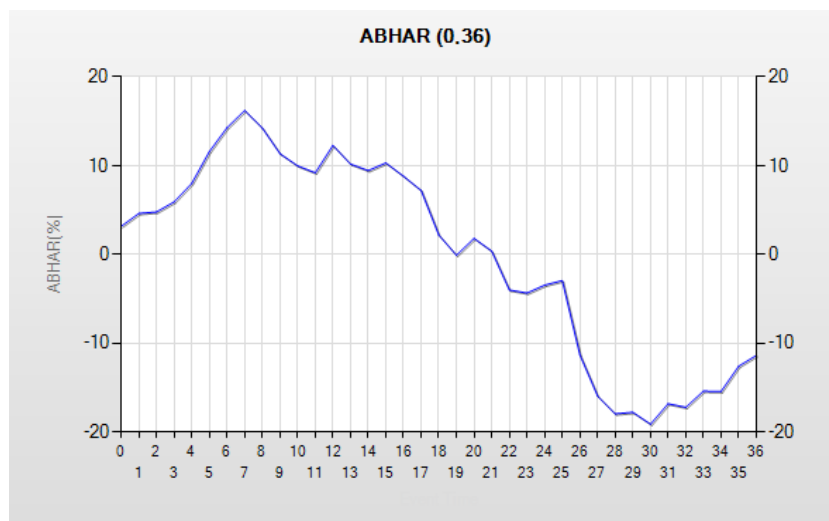


Figure 4.: BHAR for the Acquiring Firms by using Matching Firm with Value Weighted Approach

This result of our study was found to be similar to earlier studies like Laabs and Schiereck (2010). This result shows that there is no underperformance of acquiring a firm with a value-weighted basis in long run.

Conclusion

We found that acquiring companies generate a positive long-term abnormal return in 36 months after the mergers and acquisitions where the BHAR is 42.60% with an

equal-weighted approach basis by using market index benchmark. The acquiring companies BHAR is -11.39% which negative and statistically significant long-term abnormal return in 36 months after the mergers and acquisitions with a value-weighted approach basis by using the same market index as a benchmark. While the acquiring companies BHAR is -15.13% negative and statistically insignificant long-term abnormal return in 36 months after the mergers and acquisitions by using a matching firm with an equal-weighted approach basis. We have also found that acquiring companies BHAR is -88.88% which is negative and statistically insignificant in 36 months after the mergers and acquisitions by using a matching firm with a value-weighted approach basis. We have noticed that results differ quite significantly by changing the benchmark. Market Index benchmark ignores the size and price to book value ratio effect. While we are examining the long-term market performance with an equal-weighted basis and value-weighted basis our results are not similar.

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