



Acquisition pricing in India during 1995–2011: Have Indian acquirers really beaten the odds?



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ABSTRACT

We examine the announcement returns of acquisitions made by Indian firms during the period 1995–2011. Our results confirm that the announcement returns to Indian acquirers are on average significantly positive. However, we are first to document that the announcement returns to Indian acquirers decline over time and become, on average, negative towards the end of our sample period. We analyze several hypotheses for such decline and find that the decline, while robust to a variety of explanations, is related to the intensity of the market for corporate control in India. Finally, the post-acquisition long-run returns for acquirers are, on average, consistently positive, do not change over time, and are unrelated to the initial market reaction to the acquisition announcement.

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1. Introduction

Empirical evidence on mergers using datasets of firms in developed nations, the United States in particular, documents negative to zero average acquirer announcement returns.¹ Yet, the recent empirical evidence on Indian mergers shows that Indian acquirers realize, on average, positive announcement returns.² It appears puzzling that acquirers from India, a developing country, make on average profitable acquisitions, while acquirers from developed countries do not. We therefore analyze the acquirer announcement returns over the longest time sample period than has been analyzed so far and document that the returns to Indian acquirers decline over time. We examine the factors affecting the profitability of

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¹ For example, Jensen and Ruback (1983), Martynova and Renneboog (2008), Moeller et al. (2004, 2005), Fuller et al. (2002), Moeller and Schlingemann (2005), Cakici et al. (1996), Eckbo and Thorburn (2000), Morck et al. (1990), and Travlos (1987).

² Chakrabarti (2008), Zhu and Malhotra (2008), Gubbi et al. (2010), Dixit (2011), and Kohli and Mann (2012).

acquisitions for acquirers and provide an explanation for this declining trend in acquirer announcement returns.

In this research, we utilize a comprehensive sample of acquisitions by Indian firms during the period 1995–2011. While we find that the acquisition announcement returns for Indian acquirers are on average positive until 2007, they are, on average, negative for the years 2008 through 2011. We use three different econometric methods to verify the robustness of our finding that the announcement returns to Indian acquirers decline over time. Regardless of the methodology used, we note a steep decline and negative average abnormal returns in the years 2008–2011, a period for which no prior research has reported complete results so far. To better understand the decline in acquirer returns, we analyze several potential explanations which have been previously attributed in the literature as causes for low merger returns. Finally, to understand whether the declining acquirer announcement returns are a result of aggressive bidding and overpayment, we analyze post-merger long-run performance of acquiring firms and its relation to acquisition announcement returns.

We examine several explanations for the declining trend in the announcement returns to Indian acquirers. First, we analyze the effect of changing ownership structure of Indian acquiring firms on the announcement returns. We analyze the effect of the changing

ownership structure since in our sample, the promoter ownership (roughly equivalent to insider ownership in the U.S.) increases over time, while the ownership of Indian institutions declines. This shift in ownership structure may explain the declining returns to acquirers if the ownership of the promoters reached sufficient concentration to insulate them from monitoring by Indian institutional investors. In our analysis, we find no relation between promoter holdings or the holdings of other domestic institutions with acquisition period abnormal returns. Second, we examine whether repeat acquirers tend to destroy shareholder wealth in their subsequent acquisitions, as documented for U.S. acquirers by [Netter et al. \(2011\)](#). In our sample, the returns to serial acquirers decline with subsequent acquisition. However, such decline is neither statistically significant nor does it explain the declining profitability of acquisitions by Indian acquirers. Third, since prior literature documents higher acquirer announcement returns for Indian cross-border acquisition when compared to domestic acquisitions ([Kohli and Mann, 2012](#)), we analyze whether the change in mix of cross-border and domestic acquisitions by Indian firms explains the declining announcement returns to Indian acquirers over time. Overall, our results indicate that announcement returns to Indian acquirers in both cross-border and domestic acquisitions decline over time. Furthermore, the changing mix of the two types of acquisitions over time does not explain the declining trend in profitability of acquisitions for acquirers. Finally, we analyze how acquisition pricing is affected by the intensity of the market for corporate control in India. We document that the intensity of the market for corporate control in India increases during our sample period and affects the profitability of acquisitions negatively. We conclude that the increased intensity of the market for corporate control is related to the decline in the announcement returns to Indian acquirers over time.

In order to understand whether the declining acquirer announcement returns are a result of aggressive bidding which is then reflected in poor performance after the merger, we analyze the long-term performance of acquiring firms, as measured by stock and operating performance over one, two, and three years after the announcement of the mergers. The results show positive post-merger stock and operating performance. Furthermore, unlike the announcement returns, the long-run performance does not exhibit a declining trend over time. Our results are in stark contrast to earlier results reported in the literature for developed economies ([Agrawal and Jafee, 2000](#); [Andre et al., 2004](#); [Ismail et al., 2011](#)), which indicate that the long-run post-merger performance of acquiring firms is on average either negative or marginally positive. We also find that the long-run acquirer stock performance is not related to the acquisition announcement return. Overall, the results on the acquirer long-run performance combined with our findings of the role of the increased competition for corporate assets on the acquisition pricing in India indicate that the declining announcement returns to acquirers are a reflection of increased premiums paid, and are not a result of value destroying acquisitions.

The remainder of the paper is organized as follows. Section 2 is devoted to the review of the empirical evidence on M&A activity of Indian acquirers. Section 3 presents the data and the sample used for this study. Section 4 presents the analysis of the acquirer announcement returns. Section 5 develops and tests the hypotheses purporting to explain the declining returns. Section 6 analyzes the long-run performance of acquiring firms. Section 7 concludes.

2. M&A in India: the relevance and review of literature

For several reasons, we focus exclusively on acquisitions made by Indian firms. First, India is of particular interest since, like other

emerging countries, it has undergone rapid growth and development. Second, as a result of market reforms, the acquisitions by Indian firms have become more frequent over time ([Nayyar, 2008](#)). As a result Indian firms have emerged as prolific acquirers across a wide cross-section of industries and nations ([Nayyar, 2008](#); [Athreya and Kapur, 2009](#)). Finally, Indian firms make generally acquisitions with no assistance from the government, often finance such acquisitions by raising external funds, and face direct competition from other potential acquirers who have ability to acquire the same targets. While there are number of unique characteristics pertaining to mergers in the Indian context ([Khanna and Palepu, 2000](#)), compared to other emerging economies, Indian firms have become prolific acquirers and resemble in many ways acquirers from developed nations.

Existing empirical research pertaining to Indian acquirers finds that Indian firms have done well in terms of generating value for their shareholders when acquiring domestic firms. Indian acquirers have realized, on average, positive returns for their shareholders. [Chakrabarti \(2008\)](#) uses a market adjusted returns model to estimate abnormal returns to examine value creation for Indian acquirers for the period of 2000 to mid-2007 and finds that the average abnormal returns around the announcement day are significant 2.54%. [Dixit \(2011\)](#) uses a one factor market model to examine the effect of business group affiliation on value creation around merger announcements for the period of 1994–2009 and also reports that the returns to acquirers at the time of acquisitions are positive and significant. [Gubbi et al. \(2010\)](#) use a one factor market model to analyze cross-border acquisitions by Indian firms during the period 2000–2007. They show that the announcement period returns to Indian acquirers are positive and significant in cross-border acquisitions and the value created is higher when the target firms are located in countries with relatively advanced economic and institutional environment. [Kohli and Mann \(2012\)](#) use a one factor model and document that around the announcement of an acquisition, Indian acquiring firms, on average, realize increase in shareholder value ranging from 1.19% to 2.32%, contingent on the geographic location of the target. [Zhu and Malhotra \(2008\)](#) report positive and significant announcement period abnormal returns to Indian firms acquiring non-Indian targets during the period of 1999–2005. Overall, the literature documents that Indian acquirers create value for their shareholders.³

In our study, we provide detailed analysis of the characteristics of all Indian mergers through 2011, a time period not yet examined in the existing literature. We provide analyses of the factors that have the potential to contribute negatively to the announcement period returns. The factors we select have been previously examined with respect to M&A samples for developed nations and we provide the rationale for selecting each of the four factors when we develop each of the four hypotheses. Our large sample allows us to arrive at meaningful conclusions about the overall track record of Indian acquirers over time. Finally, our study contributes to the understanding of the acquirer announcement return differential between India and developed countries.

3. Data and sample

We compile a sample of completed Indian mergers and acquisitions announced between 1991 and 2011 from the mergers and acquisition database in Thomson One. The sample is then screened to satisfy the following criteria: acquisitions are made by publicly-

³ The evidence for Indian acquirers stands in stark contrast with existing research on profitability of acquisitions by firms in developed nations ([Cakici et al., 1996](#); [Jensen and Ruback, 1983](#); [Moeller and Schlingemann, 2005](#); [Moeller et al., 2005](#); and others). For example, [Moeller et al. \(2005\)](#) document average announcement returns to U.S. acquirers of U.S. public targets of –1%.

listed Indian firms; more than 50% of the target is acquired in the reported transaction; the value of the transaction was available in Thomson One; the announcement and completion dates are available; and the value of the transaction is \$1 million or more. Targets in each of these transactions can be public firms, private firms, subsidiaries, or assets sold by governments under a broader plan of privatization. We then require that stock price and financial data for the acquirers are available from the Prowess database of Centre for Monitoring the Indian Economy (CMIE). The final sample comprises 538 acquisitions, of which 286 were domestic acquisitions wherein the target was an Indian firm and 252 were foreign (cross-border) acquisitions, wherein the target was a foreign firm.⁴ Variable definitions and source of data for each variable are listed in the Appendix.

In our analysis we use three distinct approaches to measuring acquirer abnormal announcement returns. First, we follow the standard event study methodology (Brown and Warner, 1985) to calculate abnormal returns and cumulative abnormal returns (CARs). Specifically, the cumulative abnormal returns for the $(-2, +2)$ event window around the announcement date⁵ are calculated as:

$$CAR(-2, +2) = \sum_{t=-2}^{+2} (R_{i,t} - (\alpha_i + \beta_i R_{m,t}))$$

where α_i and β_i are estimated using a market model and the firm's i and market returns data starting 300 trading days prior to the announcement date and ending 30 trading days prior to the same date. $R_{i,t}$ and $R_{m,t}$ are the firm's i and market return on day t .

Second, we use a methodology developed by de Jong et al. (1992) who extend the standard event study model with AR(n) time-dependent beta and a GARCH(i, j) variance structure.⁶ de Jong et al. (1992) provide evidence that the AR(1)/GARCH(1, 1) results are robust to violations of the assumptions of homoscedastic normal distribution of the error process for 13 stocks traded on the Dutch stock market. Review of published research analyzing announcement returns to acquiring firms from India indicates that none of such studies uses AR(n)/GARCH(i, j) model of expected returns. In fact, the most common event study approach used by the published studies is the one factor market model (identical to our standard event study methodology). Nevertheless, we analyze the structure of the returns in our sample of Indian firms and in untabulated results we note that vast majority of returns show either no autocorrelation or AR(1) structure.⁷ We therefore follow de Jong et al. (1992) and estimate AR(1)/GARCH(1, 1) model of expected returns for each firm as follows:

$$R_t = \beta_t R_{m,t} + \gamma_0 + \gamma_1 R_{t-1} + e_t + \gamma_2 e_{t-1} \quad e_t \sim (0, h_t)$$

$$\beta_t - \beta = \varphi(\beta_{t-1} - \beta) + \zeta_t \quad \zeta_t \sim (0, \sigma_\zeta^2)$$

$$h_t - \sigma^2 = \alpha_1 (e_{t-1}^2 - h_{t-1}) + (\alpha_1 + \alpha_2)(h_{t-1} - \sigma^2)$$

⁴ Even though we impose a \$1 million transaction size cut off, the final sample is comparable to other studies on Indian acquirers.

⁵ We also calculate acquirer CARs for the $(-5, +5)$ window around the announcement date. Our conclusions are not materially affected when we use CAR $(-5, +5)$.

⁶ We thank the anonymous referee for suggesting this model of expected returns.

⁷ When we use the 5% significance cutoff in the Durbin-Watson test of autocorrelation, 478 out of 532 firms in our sample show either no positive autocorrelation (367 firms) or positive AR(1) autocorrelation (111 firms). In untabulated results, we estimate abnormal returns using the AR(2)/GARCH(1, 1), AR(3)/GARCH(1, 1), and AR(4)/GARCH(1, 1) models of expected returns and find that the correlations with abnormal returns based on the AR(1)/GARCH(1, 1) model are 0.97, 0.96, and 0.93, respectively. More importantly, when we replicate our tests using alternative specifications of the AR(n) processes, our conclusions are not affected. We discuss these sensitivities in the results section.

where the estimated parameters are $\beta, \gamma_0, \gamma_1, \gamma_2, \delta^2, \alpha_1, \alpha_2, \varphi$, and σ_ζ^2 . Again, we use data starting 300 trading days prior to the announcement date and ending 30 trading days prior to the same date to estimate the model.

Finally, we implement a model of expected returns based on Dimson (1979). This estimation is particularly applicable in situations characterized by infrequent trading. Since stock trading of some firms in some developing markets can be at times characterized as infrequent, we follow Dimson (1979) and estimate the following expected return model for each firm in our sample:

$$R_t = \alpha + \beta_{t-1} R_{m,t-1} + \beta_t R_{m,t} + \beta_{t+1} R_{m,t+1} + e_t$$

The parameters of the Dimson model are estimated over the same window as for the prior two models, namely $(-300, -30)$ relative to the announcement date of the acquisition.

Table 1 Panel A tabulates the sample characteristics. We note that 80% of the sample acquisitions, the targets are either private firms or subsidiaries. The mode of payment for the acquisitions is cash. Almost all mergers are friendly with no competing bidders coming into play. The mean acquirer characteristics indicate that the acquirers are profitable firms with substantial sales growth and relatively small investments in research and development.

Panel B shows the distribution of total number of acquisitions and mean and median of the market value of the equity of acquiring firms over time. Mergers and acquisitions became a dominant mode of corporate growth in the 2004–2007 era. The average value of acquiring firms' equity continues to rise during our sample period, with the 2008–2011 period showing the highest market value of acquirers' equity.

4. Announcement returns to Indian acquirers

Using the event study methodologies described above, we compute the average and median announcement period CARs for acquiring firms in our sample. Our main focus is on the evolution of acquirer announcement returns over time. For that purpose, in the regression analysis, we explore both linear and non-linear changes in the observed average acquirer announcement returns over time. For the purposes of our univariate analysis, we consider performance of such mergers during specific sub-periods. While we do not study the impact of a specific regulatory change on merger returns, on merger activity, or on a particular merger type, the sub-periods reflect distinct phases in India's M&A environment.

We consider 2004 to be a reasonable year to split our sample for the purposes of our univariate analysis for the following reasons. First, Nayar (2008) argues that the period "from 2004 onwards, can be described as the liberal" era in India as far as regulatory controls are concerned. Specifically, the Reserve Bank of India relinquished its strict control over M&A activity gradually and in 2004, firms were allowed to invest 100% of their net worth under the automatic route.⁸ Second, the first significant effort to reform the Companies Act of 1956, which had governed Indian corporations for almost fifty years, was launched in December 2004 when the JJ Irani Committee was first convened. While the Committee made several recommendations in May 2005 that affected the M&A environment in India, we propose that the recommendations likely reflect some factors in Indian M&A market that were important prior to May 2005. Hence, we use 2004 as the cut-off year in our univariate analysis. Finally, we consider the period 2008–2011 separately to capture the effects of the global financial crisis on the performance of Indian acquirers. To summarize, in our univariate tests we focus

⁸ In India, "automatic route" refers to the ability to engage in mergers without approval from the Reserve Bank of India, the Central Bank of India. We recognize that this particular development most likely affected cross-border acquisitions more directly and we thank the referee for raising this point.

Table 1
Sample characteristics.

	Mean	Median	Std. deviation	10th Percentile	90th Percentile
Panel A					
<i>Target/deal characteristics</i>					
Public Target Indicator	0.10				
Private Target Indicator	0.48				
Subsidiary Target Indicator	0.32				
Other Target Indicator	0.10				
Friendly	0.99				
Relative Size	0.46	0.07	2.41	0.01	0.66
Deal Value (INR)	4530	764	23422	100	9075
Competing Bidder Indicator	0.004				
Consideration = Cash	0.80				
Toehold	42.69	46.60	18.97	19.00	60.00
Acquirer SIC = Parent/Target SIC	0.33				
<i>Acquirer characteristics</i>					
Total Assets (INR)	82,470	9320	432,771	863	94,589
MV Equity ($q = -1$) (INR)	74,404	10,558	227,351	822	160,760
Q	2.23	1.42	2.96	0.53	4.40
PBIT/Total Assets	0.16	0.16	0.10	0.07	0.28
Leverage	0.24	0.22	0.19	0.00	0.51
Cash/Total Assets	0.09	0.04	0.11	0.01	0.23
R&D/Total Assets	0.003	0.000	0.011	0.000	0.007
Sales Growth	0.37	0.23	0.68	-0.06	0.77
Foreign-Listed Acquirer Indicator	0.20				
Firm Age	31.67	22.00	23.39	10.00	66.00
Acquisition Sequence Number	1.58	1.00	1.00	1.00	3.00
Owned by Group	0.58				
Year	Sample			MV equity ($q = -1$)	
				Ave	Med
Panel B					
All	532			85,298	11,980
1995–1999	37			42,291	6478
2000	29			36,765	9561
2001	18			10,634	6531
2002	21			59,148	9143
2003	30			60,088	7495
1995–2003	135			43,359	8633
2004	24			58,509	8631
2005	58			69,549	9632
2006	66			96,500	9582
2007	71			82,574	11,254
2004–2007	219			80,611	9,616
2008	64			82,645	26,605
2009	33			44,821	11,169
2010	55			216,128	30,028
2011	26			130,145	17,995
2008–2011	178			123,525	25,902

Unless otherwise indicated, all accounting variables are measured at the fiscal year end immediately preceding the announcement date.

on three distinct time periods: 1995–2003, 2004–2007, and 2008–2011.⁹ We provide univariate results in Table 2. In Panel A, we report the results based on performing the event study on individual firms while in Panel B, we form portfolios in event time to account for possible clustering of events.

As shown in Panel A, the average CARs using the standard event study methodology are significantly positive for the first two periods (2.96% and 2.80% respectively) and insignificantly negative for the third (-0.10%). Likewise, median CARs are significantly positive for the first two periods (1.62% and 2.25% respectively) and insignificantly negative for the third period (-0.39%). In Panel A, we compare the CARs for latter two periods with those of the first, and the respective differences are tested for statistical significance. Only the third period CARs are significantly lower than the CARs

reported for the first period. The results are comparable using the AR(1)/GARCH(1,1) and Dimson beta models. Specifically, the first two periods are characterized by significantly positive acquirer CARs, while the 2008–2011 period is characterized by insignificantly negative CARs. The decline of CARs for the third period is significant when compared to the 1995–2003 period for both models.

In Panel B, we repeat our analysis using event time portfolios to account for possible event clustering and potential cross-sectional correlation. The results in Panel B mirror the results reported in Panel A – first two periods in our sample are characterized by significantly positive announcement returns while for the 2008–2011 period the announcement returns to Indian acquirers are insignificantly negative. Compared to prior literature, for the pre-2007 periods, the CARs in our sample are comparable to those reported, for example, by Gubbi et al. (2010) who find an average announcement CARs of 2.77%. However, we are first to document

⁹ As noted earlier, we start our analysis in 1995 since there were very few acquisitions between 1991 and 1994.

Table 2
Univariate analysis of acquirer CAR (−2,+2).

		(1) 1995–2003	(2) 2004–2007	(2) 2008–2011
	N	135	219	178
<i>Panel A: Firm-specific</i>				
Standard Event Study	Ave (%)	2.96***	2.80***	−0.10 ^a
	Med (%)	1.62***	2.25***	−0.39 ^a
AR(1)/GARCH(1,1)	Ave (%)	2.90***	2.46***	−0.02 ^a
	Med (%)	1.27***	1.81***	−0.62 ^a
Dimson Beta	Ave (%)	3.06***	2.89***	0.06 ^a
	Med (%)	2.38***	2.30***	−0.53 ^a
<i>Panel B: Portfolio</i>				
Standard Event Study	Ave (%)	2.79***	2.80***	−0.25 ^a
	Med (%)	2.40***	2.47***	−0.12 ^a
AR(1)/GARCH(1,1)	Ave (%)	2.21***	2.85***	−0.59 ^a
	Med (%)	1.52***	1.23*	−0.13 ^a
Dimson Beta	Ave (%)	2.81***	2.80***	−0.24 ^a
	Med (%)	2.40***	2.45***	0.05 ^a
<i>Panel C: \$ (in million) and % negative CAR</i>				
Standard Event Study	Sum (\$)	1816	3216	−3410
	Ave (\$)	14	15	−19
	Med (\$)	1.30	2.10	−0.05 ^a
	% Neg	37.0	34.2	52.2 ^a
AR(1)/GARCH(1,1)	Sum (\$)	1760	302	−5347
	Ave (\$)	13	1	−31 ^a
	Med (\$)	2.18	1.35	−0.22 ^a
	% Neg	37.8	34.2	53.4 ^a
Dimson Beta	Sum (\$)	1733	3978	−3008
	Ave (\$)	13	19	−17
	Med (\$)	1.65	2.16	−0.08 ^a
	% Neg	38.5	33.8	51.1 ^a

CAR (−2,+2) is winsorized at the 1% and 99%. Note: ***, **, and * denotes statistical significance at 1%, 5%, and 10%, respectively, for tests of difference from zero. a, b, and c report significance levels of tests of differences in means and medians between 1995–2003 and the other two time periods using two-tailed tests at 1%, 5%, and 10%, respectively.

that the average announcement returns to acquirers during the 2008–2011 period are negative and significantly lower when compared to the earliest period in our sample.

In Panel C of Table 2, we present the total, average, and median abnormal dollar gains, as well as, the percentage of firms with negative returns using the three different event study methodologies. While there is value creation for acquirers' shareholders in periods one and two, a substantial destruction in shareholder wealth occurs during the third (2008–2011) period.

We next assess whether the univariate results in Table 2 could be explained by factors known to affect acquirer announcement returns. Table 3 reports the results of bi-variate analysis. Specifically, we report the average and median CARs for each of the three time periods, conditioned on characteristics previously shown to affect acquirer announcement returns. For example, Panel A of Table 3 divides the sample by the type of the target firm acquired: public, private, subsidiary and others. The category 'other' refers to assets acquired by firms when governments sold assets as part of a privatization plan. Prior literature (Fuller et al., 2002) documents that acquisitions of private and subsidiary targets lead to significantly positive acquirer returns while acquisitions of public targets lead to negative to zero acquirer returns. We find that CARs to acquirers of public, private, and subsidiary targets decline over time, although only for private and subsidiary targets the decline is significant. For example, acquirers of subsidiaries experience increase in value in the earlier two periods but experience a significant decline in the third period. Unlike Fuller et al. (2002), we find that during 2008–2011 period, the CARs to acquirers of subsidiaries are negative. Acquisition of assets from governments under privatization plans appear to be consistently profitable but statistically insignificant for acquiring firms. In fact, such acquisitions are even profitable in the third period when acquisitions of private firms

Table 3
Univariate analysis of acquirer CAR (−2,+2): standard event study.

		(1) 1995–2003	(2) 2004–2007	(2) 2008–2011
<i>Panel A: Target type</i>				
Public	Ave (%)	3.36	−0.61	1.22
	Med (%)	4.59	−0.67	0.64
	N	13	16	24
Private	Ave (%)	3.96***	2.98***	−0.35 ^a
	Med (%)	4.03***	3.18***	−0.50 ^a
	N	48	115	94
Subsidiary	Ave (%)	2.26***	3.29***	−2.12*** ^a
	Med (%)	1.09*	1.35***	−1.94*** ^a
	N	62	69	39
Other	Ave (%)	2.17	2.88	3.24
	Med (%)	0.97	1.03	1.74*
	N	12	19	21
<i>Panel B: Consideration</i>				
All Cash	Ave (%)	3.12***	3.18***	−0.28 ^a
	Med (%)	1.61***	2.62***	−0.44 ^a
	N	106	181	136
Some Stock	Ave (%)	2.38	1.00	0.47
	Med (%)	1.70	0.67	0.79
	N	29	38	42
<i>Panel C: Attitude</i>				
Friendly	Ave (%)	2.97***	2.99***	−0.04 ^a
	Med (%)	1.66***	2.28***	−0.43 ^a
	N	134	215	175
Hostile	Ave (%)	1.28	−7.16	−3.74
	Med (%)	1.28	−7.24	0.93
	N	1	4	3
<i>Panel D: Focused acq.</i>				
Acq. SIC = Tgt SIC	Ave (%)	3.02*	2.07**	0.85
	Med (%)	2.79*	1.32**	0.05 ^c
	N	37	77	62
Acq. SIC ≠ Tgt SIC	Ave (%)	2.94***	3.20***	−0.61 ^a
	Med (%)	1.42***	2.64***	−0.81 ^a
	N	98	142	116
<i>Panel E: Acquirer size</i>				
Q1 – Small	Ave (%)	4.85**	4.38***	1.85
	Med (%)	5.69**	3.39***	0.93
	N	32	68	29
Q2	Ave (%)	4.43***	3.11***	−0.76 ^a
	Med (%)	3.07***	2.59**	−0.45 ^a
	N	40	59	33
Q3	Ave (%)	0.34	1.92**	0.02
	Med (%)	0.88	1.97**	−0.60
	N	28	49	56
Q4 – Large	Ave (%)	1.87*	1.10	−0.68 ^c
	Med (%)	1.28	0.21	−0.16
	N	33	42	57

CAR (−2,+2) is winsorized at the 1% and 99%. Note: ***, **, and * denotes statistical significance at 1%, 5%, and 10%, respectively, for tests of difference from zero. a, b, and c report significance levels of tests of differences in means and medians between 1995–2003 and the other two time periods using two-tailed tests at 1%, 5%, and 10%, respectively.

and subsidiaries incur losses for the shareholders of the acquiring firms. Surprisingly, acquisitions of public targets have positive CARs in the third period while they have negative CARs in the second period. However, the returns are not statistically significant in any of the three periods, likely due to the small sample.

Acquisitions paid for by in cash and characterized by friendly attitude lead to significantly positive acquirer returns for U.S. firms (for example, Travlos, 1987). In Panels B and C we show that, similar to U.S. acquisitions, cash offers and friendly mergers yield better CARs for Indian mergers. However, even cash offers yield negative returns in the third period. Therefore, using cash to acquire adds value in the earlier two periods, but not in the third. The result that even cash acquisitions lead to negative CARs is in stark contrast to results reported by Travlos (1987) and others who find that cash offers lead to positive acquirer CARs. Acquirer

announcement returns in acquisitions using acquirers' stock are insignificantly positive in all three periods and show a declining trend over time. Consistent with Kohli and Mann (2012), Panel C shows that hostile mergers are a rarity in the Indian context, and when undertaken they lead to negative returns for the acquiring firms in our sample.

Based on the results for U.S. firms, mergers in which both the acquirer and the target are in the same industry tend to be more profitable for the acquiring firms than mergers in which the two parties are in different industries (Morck et al., 1990). Kohli and Mann (2012) show that when firms in the technology sector acquire firms that are also in the technology sector, the acquisitions create value. Results reported in Panel D of Table 3 demonstrate that both acquisitions of targets in different as well as in same industry as the acquirer lead to significantly positive announcement returns in the first two periods. The results also indicate that during the 2008–2011 period, the announcement CARs for both diversifying and focused acquisitions decline significantly compared to the 1995–2003 period. Moeller and Schlingemann (2005) find that U.S. acquirers pursuing diversifying acquisitions destroy value. Our results provide contrasting evidence for the first two periods but are consistent with their findings in the third period of our study.

Moeller et al. (2004) use a sample of U.S. acquirers and document that size of the acquiring firm affects the acquirer announcement returns negatively. We therefore assess whether acquirer size impacts announcement returns to Indian acquirers. We use total assets as a measure of acquirer size. Panel E in Table 3 report the CARs for four subsamples when we divide the sample into quartiles by acquirer size. The results show that smaller acquirers realize higher CARs than larger acquirers, a result consistent with Moeller et al. (2004). This size effect, which is present in all periods, seems only marginal in the third. This is an interesting result since as per Fig. 2, dollar value of deals were higher in the third period than in the prior two, and there was substantial value destruction in period three compared to periods one and two. So, we are inclined to infer that the losses in the third period were more widespread and not necessarily restricted to the larger firms. Hence, regardless of the acquirer size, the announcement returns exhibit a declining pattern, although the significance of the decline is mixed.

Overall, the univariate results for the first two periods in our sample corroborate the findings reported in the prior literature. However, the results reported for the third period (2008–2011) do not conform to the pattern of results reported either for the two earlier periods in our sample or in the prior literature.

In unreported results, we replicate the analysis in Table 3 using acquirer size to calculate value weighted average CARs and using alternate event study methodologies. Our conclusions are generally not affected by the choice of methodology or the weighting scheme. We do note slight differences in our results using the value-weighted CARs; however, our finding of declining acquirer announcement returns over time is not affected. Specifically, the returns are higher in the first period and lower in the second and third period when we calculate the value-weighted average CARs. The 1995–2003 period shows positive and significant CARs for all target types as well as for both cash and stock acquisitions. We also note, significant negative CARs for the 2004–2007 period for the full sample, for acquisitions involving both public and private targets, for acquisitions where cash is offered, and for friendly and focused acquisitions. Similarly, for the third period, significant negative CARs are observed for the full sample, for acquisitions involving both private and subsidiary targets, for cash, stock, friendly, and diversifying acquisitions. In general, size-weighted CARs lead to lower returns in the second period for larger firms and corroborate our finding of declining announcement returns to Indian acquirers over time.

We now examine the announcement returns to Indian acquirers in multivariate regression setting. In Table 4 we report the results when the $(-2, +2)$ event window CARs are regressed against target and acquirer deal characteristics used in prior literature. Specifically, for target characteristics we include indicators for whether the target was public or private, whether the acquisition was friendly, relative size of the target, deal value, indicator for whether there was a competing bidder, whether cash was the mode of payment for the acquisition, toehold, and whether the acquirer SIC was the same as that of the target. For acquirer characteristics, we include log of total assets (or log of market value of equity one quarter prior to the acquisition), Q, PBIT to total assets, leverage, cash to total assets, research and development expense to total assets, sales growth, indicator for whether the firm had foreign listing, firm age and whether the firm was owned by a business group. We also include 2001 crisis indicator and the subprime crisis indicator to separate the effects of crisis periods on our results. The variable of interest is the time since 1995 measured as a continuous variable and time period indicators for the period 2004–2007 and the period 2008–2011. In all regressions, we cluster the standard errors at the acquirer level. In Panel B we compare the coefficients on the variables of interest related to time using the CARs based on the standard event study with those based on AR(1)/GARCH(1, 1) and Dimson beta models.

In Panel A of Table 4, the time since 1995 is negative and significant at the 5% level in regression (1), indicating that CARs decline over time. Since our univariate results indicate a non-linear decline in acquirer CARs, we include time since 1995 squared in regressions (2) and (3). The coefficients on the time squared variable is significant at the 5% level as well. In regressions (4) and (5), we further explore this non-linearity by including indicators for acquisitions taking place during 2004–2007 and post-2007 periods. The post-2007 acquisition indicator is negative and significant at the 5% level, supporting our prior finding that CARs have been negative in the third period. From the control variables, whether the acquisition was friendly affects the CARs positively. With regard to the acquirer characteristics, log of the acquirer size, measured as total assets or market value of equity, is statistically significant with a negative sign, indicating that there is a size effect in acquirer announcement returns in Indian acquisitions. Univariate analysis (Table 3, Panel E) had earlier shown that the size effect, though significant in time periods one and two, was marginal in the 2008–2011 period.

In Panel B, we repeat the analysis in Panel A, utilizing alternate event study models for calculating CARs. The results with respect to the decline of acquirer announcement returns over time remain statistically significant at least at the 5% level.¹⁰ Therefore, our results documenting a decline of announcement returns to Indian acquirers over time are robust to the choice of a model of expected returns.

Overall, the results reported in Tables 2–4 demonstrate a decline in the profitability of acquisitions for shareholders of acquiring firms. The declining trend in acquirer announcement returns is robust to the inclusion of standard control variables used in the literature. Furthermore, the results are also robust to the choice of a model of expected returns.

5. Why do announcement returns to Indian acquirers decline over time?

In this section we analyze why announcement returns to Indian acquirers decline over time. We consider explanations related to

¹⁰ In untabulated results, we also estimate AR(n)/GARCH(1,1) models where n ranges from 2 to 4. We note that coefficients on all time-related variables remain significant, hence, our conclusions are not affected.

Table 4
Regression analysis of acquirer CAR (−2,+2).

	(1)	(2)	(3)	(4)	(5)				
Panel A: Standard event study									
Intercept	1.72 (0.722)	0.33 (0.946)	0.67 (0.886)	−0.14 (0.976)	−0.21 (0.963)				
Time since 1/1/1995 (years)	−0.27** (0.037)								
Time since 1/1/1995 (years) ²		−0.01** (0.017)	−0.01** (0.034)						
2004–2007 Acquisition Indicator				−0.24 (0.825)	−0.17 (0.876)				
Post-2007 Acquisition Indicator				−2.97** (0.017)	−2.85** (0.018)				
Crisis 2001 Indicator			−1.20 (0.685)	−0.92 (0.756)	−0.91 (0.757)				
Subprime Crisis Indicator			0.03 (0.974)	0.33 (0.751)					
<i>Target/deal characteristics</i>									
Public Target Indicator	0.05 (0.979)	0.10 (0.959)	−0.01 (0.996)	0.24 (0.901)	0.31 (0.872)				
Private Target Indicator	−0.85 (0.343)	−0.85 (0.339)	−0.97 (0.287)	−1.00 (0.269)	−0.97 (0.288)				
Friendly	8.44** (0.026)	8.58** (0.023)	8.80** (0.019)	8.69** (0.019)	8.70** (0.019)				
Relative Size	−0.28 (0.562)	−0.27 (0.577)	−0.36 (0.465)	−0.35 (0.470)	−0.35 (0.465)				
Deal Value	−0.57 (0.129)	−0.54 (0.154)	−0.42 (0.312)	−0.38 (0.357)	−0.38 (0.357)				
Competing Bidder Indicator	−5.10 (0.195)	−5.07 (0.183)	−4.55 (0.267)	−4.47 (0.237)	−4.61 (0.215)				
Consideration = Cash	1.63 (0.139)	1.60 (0.144)	1.66 (0.132)	1.50 (0.172)	1.53 (0.156)				
Toehold	−1.26 (0.763)	−1.46 (0.731)	−1.03 (0.810)	−1.41 (0.752)	−1.63 (0.711)				
Acquirer SIC = Parent/Target SIC	0.13 (0.891)	0.11 (0.907)	0.15 (0.870)	0.10 (0.913)	0.12 (0.896)				
<i>Acquirer characteristics</i>									
log(Total Assets)	−0.65** (0.040)	−0.62* (0.052)							
log(MV Equity ($q = -1$))			−0.77** (0.015)	−0.71** (0.023)	−0.71** (0.023)				
Q	−0.18 (0.383)	−0.19 (0.377)	0.03 (0.913)	−0.02 (0.931)	−0.01 (0.957)				
PBIT/Total Assets	4.18 (0.520)	4.05 (0.531)	5.74 (0.372)	6.46 (0.315)	6.30 (0.330)				
Leverage	0.40 (0.875)	0.27 (0.915)	−0.38 (0.877)	−0.90 (0.713)	−0.82 (0.738)				
Cash/Total Assets	4.16 (0.501)	4.01 (0.516)	4.29 (0.483)	3.75 (0.550)	3.81 (0.543)				
R&D/Total Assets	16.98 (0.561)	15.69 (0.591)	23.10 (0.431)	21.12 (0.482)	20.95 (0.480)				
Sales Growth	0.90 (0.354)	0.89 (0.364)	0.82 (0.403)	0.74 (0.455)	0.74 (0.455)				
Foreign-Listed Acquirer Indicator	−0.17 (0.883)	−0.23 (0.844)	−0.04 (0.970)	−0.05 (0.964)	−0.08 (0.944)				
Firm Age	−0.03 (0.170)	−0.03 (0.170)	−0.02 (0.239)	−0.02 (0.230)	−0.02 (0.241)				
Owned by Group	0.04 (0.963)	0.02 (0.985)	0.04 (0.962)	−0.03 (0.978)	−0.03 (0.975)				
Adjusted R-squared	0.079	0.081	0.086	0.097	0.097				
Observations	447	447	447	447	447				
	Standard Event Study			AR(1)/GARCH(1,1)			Dimson Beta		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Panel B									
Time since 1/1/1995 (years)	−0.27** (0.037)			−0.34** (0.013)			−0.29** (0.025)		
Time since 1/1/1995 (years) ²		−0.01** (0.017)			−0.02** (0.010)			−0.01** (0.012)	
2004–2007 Acquisition Indicator			−0.24 (0.825)			−1.16 (0.310)			−0.31 (0.782)
Post-2007 Acquisition Indicator			−2.97** (0.017)			−3.41*** (0.008)			−3.12** (0.012)

Crises Indicators	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Target/Deal Characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Acquirer Characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

CAR (-2,+2) is winsorized at the 1% and 99%. Unless otherwise indicated, all accounting variables are measured at the fiscal year end immediately preceding the announcement date. *, **, and *** denote statistical significance at 0.1, 0.05, and 0.01 level.

the ownership structure of the acquiring firm, the prevalence of repeat acquirers in the sample, the changing mix of cross-border vs. domestic acquisitions, and the intensity in the market for corporate control. We first develop each hypothesis and then test it empirically.

5.1. Acquirer ownership structure

To the extent that the ownership structure of firms in India has changed over the years, such ownership changes can affect the decisions firms undertake. Similar to firms in East Asia (Claessens et al., 2002), Indian firms are characterized by ownership concentration in the hands of few insiders, called “promoters” in India. In traditional agency theory (Jensen and Meckling, 1976; Jensen, 1986), conflicts arise between the managers and the shareholders. However, given the concentrated ownership in India, there are additional conflicts between promoters with concentrated ownership and atomistic outside investors (Bhaumik and Selarka, 2012; Dharwadkar et al., 2000; Douma et al., 2006; Pan and Pattanayak, 2007). Douma et al. (2006) study a large sample of Indian firms and argue that while the promoter ownership may align insiders’ interests with those of shareholders, beyond some threshold of ownership, such alignment effect is likely dominated by other considerations. Bhaumik and Selarka (2012) propose that “...strategic decisions such as M&As that divert a firm’s resources away from disbursement among shareholders would be expected to lead to (sometimes *unobservable*) benefits to the majority shareholders, without adding to firm performance that can benefit all shareholders in the long run.” (p. 718, emphasis added) and conclude that “ownership concentration in the hands of insiders may not necessarily improve [post-M&A outcomes.” (p. 725) In other words, concentrated ownership in the hands of few shareholders may be a reflection of (unobservable) private benefits of control which are not without a cost to the minority shareholders.

Counteracting the effect of concentration of ownership by insiders may be the potentially increased participation by foreign institutions in India. In the context of acquisitions, Bhaumik and Selarka (2012) show that ownership concentration of foreign promoters leads to enhanced post-merger accounting profitability during the 2001–2004 period.¹¹ Hence, declining merger profitability to acquirers may reflect the increase in insider ownership concentration, to the extent that it is not offset by the increase in foreign institutional ownership of the acquiring firms. To test this argument, we propose the following hypothesis:

H1. (Changing ownership structure hypothesis): The announcement period returns to acquiring firms have declined due to the increased ownership by insiders.

We propose this hypothesis to explore whether the changing concentration of ownership of insiders affects acquirer announcement returns. We note that the potentially increasing ownership by foreign institutions should affect the announcement period returns in a way that counteracts the hypothesized effect of the

¹¹ Douma et al. (2006) consider ownership structure and accounting performance of all Indian firms, not firms engaged in mergers, and report that increased domestic promoter ownership does not affect firm performance negatively while increased foreign ownership affects performance positively.

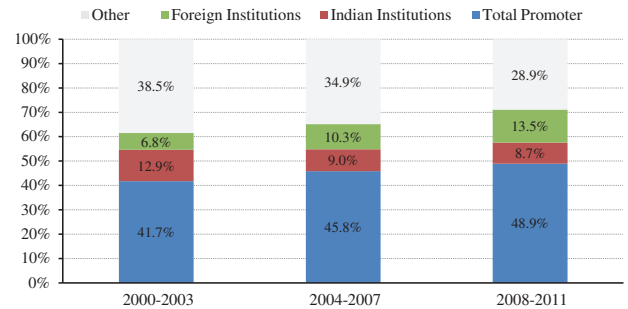


Fig. 1. Ownership structure over time.

increased promoter ownership. However, if foreign institutions are less effective monitors in our sample of India acquirers, we should not only observe a negative effect of promoter ownership but also a negative or zero effect of foreign institutional ownership on announcement returns to Indian acquirers.

We collect data on acquirer promoter ownership,¹² Indian institutional ownership,¹³ and foreign institutional ownership (“FII”)¹⁴ one quarter prior to the acquisition announcement. We note that for 63 acquisitions taking place prior to 2001 only limited ownership data is available. In order to have a consistent sample in our tests, we rely on ownership information reported by Prowess as of the earliest available date, first quarter of 2001, and, in untabulated results, we verify that this approach does not affect our conclusions.¹⁵ Fig. 1 shows the distribution of ownership in each of the three time periods. First, we note that the ownership of promoters increases from about 42% in the first period to 46% in the second period to 49% in the third period. If the increased ownership of promoters insulates them from the pressure by other shareholders and is a reflection of high private benefits of control (Bhaumik and Selarka, 2012), then the promoters may undertake acquisitions that are less profitable during the third period. Based on Fig. 1, we also note that the ownership by Indian institutional investors declines over time which would further magnify the effect of increased concentration of ownership of promoters. However, the ownership of non-Indian (foreign) institutional investors increases steadily over time. Furthermore, the increased ownership by foreign institutions exceeds the decreases in ownership by Indian institutions, which suggests that foreign

¹² In unreported results we also break out ownership of Indian and foreign promoters. These two variables do not have effect on either the announcement returns to acquirers or on our conclusions. We note that we are unable to find ownership information for 3 firms in our sample.

¹³ Indian Institutional ownership is the total percentage holding reported by mutual funds, banks, development financial institutions, and insurance companies.

¹⁴ The FII could be pension funds, mutual funds, investment trust, asset management company, nominee companies, institutional portfolio managers, and insurance companies. The Government of India issued the relevant guidelines for FII investment on September 14, 1992. In September 1995, Security and Exchange Board of India (SEBI) adopted the FII regulation along lines with the earlier 1992 guidelines. The regulation required the FIIs to get registered with SEBI and Reserve Bank of India.

¹⁵ We also collect ownership data from the annual reports filed prior to the acquisition in question. Consistent with Bhaumik and Selarka (2012), we note that such ownership data is less detailed. We note that relying on detailed data reported as of 2001, historical data from annual reports, or dropping the 63 observations with missing ownership data on Prowess from our sample does not affect our conclusion about the insignificant effect of the ownership structure on acquirer announcement returns.

Table 5
Regression analysis of acquirer CAR (−2,+2); acquirer ownership structure.

	Standard Event Study			AR(1)/GARCH(1,1)			Dimson Beta		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Intercept	3.65 (0.416)	2.35 (0.604)	1.54 (0.731)	6.62 (0.148)	4.93 (0.282)	4.49 (0.320)	2.50 (0.585)	1.10 (0.811)	0.27 (0.953)
Time since 1/1/1995 (years)	−0.26* (0.054)			−0.33** (0.016)			−0.28** (0.036)		
Time since 1/1/1995 (years) ²		−0.01** (0.024)			−0.02** (0.012)			−0.01** (0.016)	
2004–2007 Acquisition Indicator			−0.34 (0.736)			−1.23 (0.236)			−0.34 (0.737)
Post-2007 Acquisition Indicator			−3.12*** (0.005)			−3.39*** (0.004)			−3.19*** (0.005)
Total Promoter Ownership ($q = -1$)	0.003 (0.901)	0.004 (0.863)	0.004 (0.880)	−0.001 (0.973)	0.000 (0.993)	−0.001 (0.982)	0.014 (0.567)	0.015 (0.538)	0.015 (0.564)
Indian Inst. Ownership ($q = -1$)	0.010 (0.874)	0.012 (0.853)	0.014 (0.836)	0.002 (0.971)	0.008 (0.906)	0.010 (0.877)	0.021 (0.753)	0.023 (0.724)	0.025 (0.702)
Foreign Inst. Ownership ($q = -1$)	0.06 (0.147)	0.06 (0.133)	0.06 (0.115)	0.05 (0.255)	0.05 (0.249)	0.05 (0.228)	0.07* (0.085)	0.07* (0.077)	0.07* (0.067)
Crises Indicators	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Target/Deal Characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Acquirer Characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.091	0.093	0.105	0.111	0.110	0.117	0.088	0.089	0.101
Observations	444	444	444	444	444	444	444	444	444

CAR (−2,+2) is winsorized at the 1% and 99%. Ownership structure information is available after 2001. All other variables are defined in prior tables. *, **, and *** denote statistical significance at 0.1, 0.05, and 0.01 level.

institutions, if they are effective monitors, may be able to counteract the increased concentrated ownership by the promoters.

Table 5 presents the results of regression analyses testing the changing ownership structure hypothesis. The time since 1995, time since 1995 squared, and the post-2007 acquisition indicator variables continue to be statistically significant and retain the negative association with acquirer CARs. The coefficient on promoter ownership tends to be positive, close to zero, and insignificant in all regressions. Similar results hold for Indian institutional ownership. The ownership by foreign institutional investors shows stronger positive effect on the CARs of acquiring firms, although the significance is limited. This positive effect may be explained by the foreign institutions being effective monitors of current managers and of overseas investment (Bhaumik et al., 2010). However, in our sample, the positive effect of ownership by foreign institutions on CARs is not reliably significant and, furthermore, does not eliminate the negative effects of the time variables. Therefore, the results indicate that even though promoter ownership has increased over time and foreign ownership has generally increased over the years, the declining acquirer announcement returns trend is not related to the changes in ownership structure of Indian acquiring firms.

5.2. Returns to serial acquirers

Closely related to the declining profitability of acquisitions over time is the notion of repeat acquisitions made by acquirers. Recent empirical studies report that CARs of serial acquirers decline from deal to deal (Fuller et al., 2002; Billet and Qian, 2005; Conn et al., 2005; Croci, 2005; Ismail, 2005; Ahern, 2006). All of these studies report declining CARs across the deal sequence. While there is limited theoretical explanation why this empirical pattern holds for U.S. acquirers, we nevertheless examine whether (i) such result holds for Indian acquirers and (ii) whether it explains the declining acquirer announcement returns. Specifically, since many of the Indian acquirers in our sample engaged in multiple acquisitions, we propose that, similar to their counterparts from developed nations, they will post declining returns deal to deal and this decline will contribute to the overall decline in returns to Indian acquirers over time. Hence, we propose the following hypothesis.

H2. (Serial acquirers hypothesis): The acquisition announcement returns to serial acquirers decline over time.

Table 6 presents the univariate analysis of the Indian serial acquirers. Our sample includes firms which undertake multiple acquisitions during the time period under study. Of the 534 acquisitions in our sample, 354 acquirers make at least one acquisition, 99 acquirers make at least two acquisitions, 48 at least three, 20 at least four, 9 at least five, and 4 acquirers make six acquisitions. Table 6 reports the CARs for the sequence of acquisitions, ranging from the first to the sixth acquisition using three event study methodologies. Given that the number of a given acquisition and time from 1995 to the date of the acquisition are positively correlated, we would expect the declining trend in CARs to be repeated from deal to deal. Generally, the CARs do decline from deal to deal, with the CAR for the fifth acquisition being an exception.

Table 7 reports the results of regression analyses. When we regress the (−2,+2) acquisition CARs with the acquisition sequence indicator variables along with other indicators as independent variables, the coefficients for all the four acquisition indicators turn out to be insignificant whereas the time since 1995 variable and the post-2007 acquisition indicator retain their negative signs and continue to be statistically significant. Even though the declining trend for serial acquirers is observed to some extent in the univariate setting, the regressions do not confirm the statistical significance of the difference in CARs to serial acquirers. The findings are not consistent with the declining returns to serial acquisitions hypothesis as has been previously reported in the literature for U.S. acquirers. Furthermore, the repeat acquirer hypothesis does not explain the declining trend in acquirer abnormal returns over time.

5.3. Cross-border and domestic acquisitions

Another plausible explanation for the declining acquirer announcement returns is related to the mix of cross-border and domestic acquisitions that Indian acquirers undertake. Kohli and Mann (2012) report that Indian cross-border mergers yield higher acquirer returns than is the case for domestic Indian mergers. Meyer et al. (2009) find that the decision of a firm to acquire a tar-

Table 6
Univariate analysis of acquirer CAR (−2,+2) by acquisition sequence number.

		Standard Event Study	AR(1)/GARCH(1,1)	Dimson Beta
1st Acquisition	Ave (%)	2.24***	2.23***	2.45***
	Med (%)	1.35***	1.08***	1.83***
	N		353	
2nd Acquisition	Ave (%)	1.54**	0.92	1.33*
	Med (%)	0.37*	0.40	0.56*
	N		98	
3rd Acquisition	Ave (%)	0.51	0.91	0.57
	Med (%)	1.00	1.81**	1.17
	N		48	
4th Acquisition	Ave (%)	0.36	−0.02	0.53
	Med (%)	1.57	0.41	1.57
	N		20	
5th Acquisition	Ave (%)	2.41	1.02	2.44
	Med (%)	1.85	−0.54	1.87
	N		9	
6th Acquisition	Ave (%)	0.28	−0.95	0.47
	Med (%)	0.13	−0.62	−0.18
	N		4	

CAR (−2,+2) is winsorized at the 1% and 99%. Note: ***, **, and * denotes statistical significance at 1%, 5%, and 10%, respectively, for tests of difference from zero.

Table 7
Regression analysis of acquirer CAR (−2,+2): repeat acquirers.

	Standard Event Study			AR(1)/GARCH(1,1)			Dimson Beta		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Intercept	2.42 (0.599)	1.22 (0.790)	0.41 (0.928)	2.42 (0.599)	1.22 (0.790)	0.41 (0.928)	2.42 (0.599)	1.22 (0.790)	0.41 (0.928)
Time since 1/1/1995 (years)	−0.25* (0.058)			−0.25* (0.058)			−0.25* (0.058)		
Time since 1/1/1995 (years) ²		−0.01** (0.025)			−0.01** (0.025)			−0.01** (0.025)	
2004–2007 Acquisition Indicator			−0.26 (0.808)			−0.26 (0.808)			−0.26 (0.808)
Post-2007 Acquisition Indicator			−3.00** (0.014)			−3.00** (0.014)			−3.00** (0.014)
Acquisition Sequence Number	0.31 (0.300)	0.31 (0.294)	0.31 (0.282)	0.31 (0.300)	0.31 (0.294)	0.31 (0.282)	0.31 (0.300)	0.31 (0.294)	0.31 (0.282)
Crises Indicators	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Target/Deal Characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Acquirer Characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.087	0.089	0.100	0.087	0.089	0.100	0.087	0.089	0.100
Observations	447	447	447	447	447	447	447	447	447

CAR (−2,+2) is winsorized at the 1% and 99%. *, **, and *** denote statistical significance at 0.1, 0.05, and 0.01 level.

get in foreign country is positively related with the institutional development of that country. Therefore, if both the announcement return differential to acquirers involved in cross-border vs. domestic acquisitions and the mix of target countries are stable over time, the declining acquirer CARs could simply reflect the changing mix of such acquisitions. That is, if the Indian acquirers were more likely to pursue (more profitable) cross-border acquisitions in the early part of our sample period and were more likely to pursue (less profitable) domestic acquisitions in the latter part of our sample period, such changing mix in acquisition types may explain the declining acquirer CARs over time in our sample. Under this hypothesis, we also expect increasing number of domestic acquisitions, as well as potentially changing mix of targets' countries, taking place later in the sample period. We formalize this intuition in the following hypothesis:

H3. (Cross-border/domestic acquisition mix hypothesis): Acquirer announcement period returns posted by acquiring firms are affected by the mix of cross-border and domestic acquisitions made by Indian acquirers.

Hence, under the cross-border/domestic acquisition mix hypothesis, we expect that controlling for the country of the target should explain the declining acquirer CARs. The distribution of domestic and cross-border acquisitions for the entire sample is presented in Table 8. 286 (53.2%) of the targets are Indian firms whereas 46.8% are foreign firms. Considering the distribution of cross-border acquisitions of Indian firms, the United States is the most favored destination in terms of location of targets, followed by the United Kingdom. We first examine the hypothesis in univariate setting. Table 9 demonstrates that the number of domestic acquisitions in India remains stable over time, ranging from 92 to 95. We note that the number of cross-border acquisitions increases from 41 in the first period to 124 in the second and then declines to 86 in the third. Categorically, Indian firms do not engage in increasingly more domestic acquisitions over time but the surge in the number of cross-border acquisitions in the second period dissipates markedly in the third period. Furthermore, the results show that in the 1995–2003 and 2004–2007 periods, domestic and cross-border acquisitions add value for acquiring firm shareholders, with returns being higher and significant in

Table 8
Distribution of cross-border/domestic acquisitions.

Country	N	%
India	286	53.2
Argentina	1	0.2
Australia	10	1.9
Bangladesh	1	0.2
Belgium	4	0.7
Bosnia	1	0.2
Brazil	4	0.7
Bulgaria	1	0.2
Canada	7	1.3
Chile	1	0.2
China	1	0.2
Czech Republic	3	0.6
Denmark	3	0.6
Egypt	2	0.4
Finland	3	0.6
France	7	1.3
Germany	13	2.4
Hong Kong	1	0.2
Indonesia	8	1.5
Ireland-Rep	1	0.2
Israel	1	0.2
Italy	5	0.9
Kazakhstan	1	0.2
Kenya	1	0.2
Malaysia	2	0.4
Mexico	1	0.2
Mongolia	1	0.2
Namibia	1	0.2
Netherlands	4	0.7
Nigeria	1	0.2
Oman	1	0.2
Poland	1	0.2
Portugal	2	0.4
Romania	3	0.6
Russian Fed	1	0.2
Singapore	12	2.2
South Africa	3	0.6
South Korea	2	0.4
Spain	5	0.9
Sri Lanka	1	0.2
Switzerland	3	0.6
Thailand	2	0.4
United Kingdom	38	7.1
United States	83	15.4
Utd Arab Em	3	0.6
Uzbekistan	1	0.2
Zambia	1	0.2
Total	538	46.8

Table 9
Univariate analysis of acquirer CAR (−2,+2) by country of target.

		(1) 1995–2003	(2) 2004–2007	(3) 2008–2011
India	Ave (%)	2.88***	1.78**	0.02 ^b
	Med (%)	1.31**	0.88*	−0.17 ^b
	N	94	95	92
Foreign	Ave (%)	3.15***	3.59***	−0.23 ^b
	Med (%)	2.94***	3.33***	−0.44 ^a
	N	41	124	86
Foreign – OECD	Ave (%)	3.82***	4.11***	−0.55 ^a
	Med (%)	4.08***	3.60***	−0.61 ^a
	N	31	95	65
Foreign – Non-OECD	Ave (%)	1.08	1.87*	0.76
	Med (%)	0.57	1.23*	0.65
	N	10	29	21

CAR (−2,+2) is winsorized at the 1% and 99%. ***, **, and * denotes statistical significance at 1%, 5%, and 10%, respectively, for tests of difference from zero. a, b, and c report significance levels of tests of differences in means and medians between 1995–2003 and the other two time periods using two-tailed tests at 1%, 5%, and 10%, respectively.

the second period for cross-border acquisitions. However, the profitability of both domestic and cross-border acquisitions declines significantly in the 2008–2011 period. In particular, the average returns to domestic acquisitions decline from 1.78% in the 2004–2007 period and to 0.02% in the third period; correspondingly returns to cross-border acquisitions decline from 3.59% in the 2004–2007 period to −0.23% in the 2008–2011 period.

In Table 9, we also provide detailed analysis of the announcement period returns controlling for whether the target firm is from a developed (OECD) or developing (non-OECD) country. Even though the number of cross-border acquisitions decline in the third period compared to the second, the proportions of acquisitions in developed and developing nations remain stable at around 76% in all the three time periods. Therefore, there is no evidence that Indian firms favor targets from developing vs. developed nations over time. The average returns from acquisitions in developed nations are markedly higher than those in developing nations in the first two periods (3.82% vs. 1.08% in the first period and 4.11% vs. 1.87% in the second period). However, in the third period, the returns to the acquirers of targets in developed nations turn negative (−0.55% and statistically significant) while the returns to the acquirers of targets in developing nations remain positive (0.76%) and are statistically insignificant and smaller than in prior periods. We do not find evidence of increasing number of domestic acquisitions over time but the surge in cross-border acquisitions during the second period dissipates markedly in the third period under study. The results are generally consistent with our prior conclusions in that acquisitions taking place during the last period in our sample are the least profitable. We note that for acquisitions of targets in developing countries, the decline in profitability is not significant, likely due to the small number of observations and lower profitability of such acquisitions in the early period. Overall, the univariate results indicate that the returns to both domestic and cross-border acquisitions decline significantly in the third period.

In Table 10 we examine this mix of acquisition hypothesis in regression setting. We include indicator variables for domestic acquisitions and acquisitions of targets from OECD countries. Under the cross-border/domestic acquisition mix hypothesis, the coefficient on domestic target indicator should be negative and significant. In fact, the coefficient on domestic target indicator has mixed signs and is never statistically significant. In regressions (2) and (4), we also include indicator for targets from OECD countries. The OECD target indicator enters consistently with positive sign; however, it is never statistically significant. Furthermore, the coefficients on the time since 1995 as well as on the post-2007 acquisition indicator remain negative and statistically significant. Therefore, we conclude that while cross-border acquisitions have higher acquirer CARs than is the case for acquisitions of Indian targets, the differences do not explain the declining trend in acquirer returns over time in our sample. Thus, we reject the cross-border/domestic acquisition mix hypothesis.

5.4. Intensity of the market for corporate control

We next examine the role that increased activity of acquisitions in India has on acquirer CARs. The increasing intensity of the market for corporate control may lead to declining acquirer CARs for several reasons. For example, the increased number of acquisitions may be a proxy for increased competition among acquirers for corporate assets. To the extent that such competition and negotiation takes place prior to the actual announcement of the acquisition as documented by Boon and Mulherin (2007), intensity of acquisitions made by Indian acquirers is likely to be correlated with the true competition among potential bidders. Alternatively, increased number or increased total value of acquisitions may make financing of mergers more costly which may lead to lower acquirer CARs

Table 10
Regression analysis of acquirer CAR (−2,+2): target country.

	Standard Event Study			AR(1)/GARCH(1,1)			Dimson Beta		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Intercept	1.80 (0.695)	0.57 (0.901)	−0.61 (0.894)	5.88 (0.193)	4.11 (0.362)	3.57 (0.423)	1.45 (0.756)	0.08 (0.987)	−1.10 (0.813)
Time since 1/1/1995 (years)	−0.24* (0.063)			−0.32** (0.010)			−0.26** (0.035)		
Time since 1/1/1995 (years) ²		−0.01** (0.029)			−0.02*** (0.007)			−0.01** (0.017)	
2004–2007 Acquisition Indicator			−0.19 (0.859)			−1.19 (0.283)			−0.28 (0.794)
Post-2007 Acquisition Indicator			−2.90** (0.016)			−3.39*** (0.006)			−3.03** (0.011)
Domestic Target Indicator	0.25 (0.799)	0.30 (0.766)	0.57 (0.568)	−0.34 (0.745)	−0.24 (0.815)	−0.04 (0.966)	−0.08 (0.941)	−0.02 (0.984)	0.25 (0.802)
Foreign OECD Target Indicator	0.76 (0.441)	0.75 (0.441)	0.84 (0.383)	0.07 (0.942)	0.07 (0.947)	0.18 (0.858)	0.47 (0.639)	0.47 (0.639)	0.56 (0.569)
Crises indicators	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Target/Deal Characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Acquirer Characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.087	0.089	0.100	0.108	0.107	0.113	0.084	0.085	0.096
Observations	447	447	447	447	447	447	447	447	447

CAR (−2,+2) is winsorized at the 1% and 99%. Unless otherwise indicated, all accounting variables are measured at the fiscal year end immediately preceding the announcement date. *, **, and *** denote statistical significance at 0.1, 0.05, and 0.01 level.

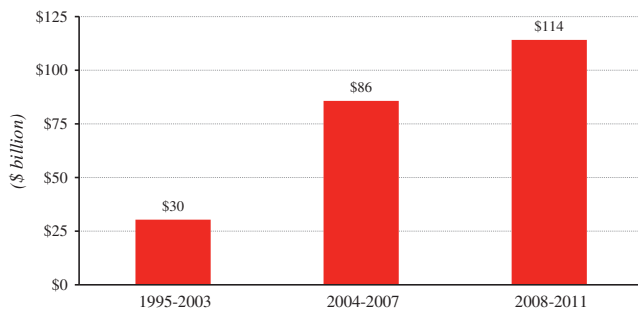


Fig. 2. Total value of Indian M&A transactions over time.

if liquidity is limited, ceteris paribus. We therefore propose the following hypothesis:

H4. (Intensity of market for corporate control hypothesis): Announcement period returns posted by Indian acquirers decline in time due to increased intensity of the market for corporate control in India.

In Fig. 2 we show the total value of all M&A transactions undertaken by Indian acquirers during the three periods studied. We note that during the first 9-year period, total of \$30 billion of M&A transactions takes place. This figure increases by \$50 billion to \$86 billion for the 4-year period 2004–2007. Finally, the value of Indian M&A transactions increases to \$114 billion for the 4-year period 2008–2011. Therefore, based on a univariate analysis, we note an increase in M&A intensity in India.

To analyze whether the changing intensity of the market for corporate control in India affects the acquirer CARs, we construct a variable to capture such intensity. The measure is calculated as the number of Indian acquisitions announced during a particular month. We refer to this measure as *M&A Activity Index*. The number of the acquisitions announced is a reasonable proxy for the unobservable true competition among bidders who are interested in buying a shrinking number of available corporate assets.¹⁶ We

¹⁶ We also calculate an alternative measure as the sum of the deal values of all Indian acquisitions announced during a particular month. The total value of the acquisitions announced directly captures large deals which are likely to exhaust the supply of liquidity to acquirers. The conclusions are generally not affected by using this alternative measure, albeit, the statistical significance is slightly lowered.

include the variable in our regression models, mimicking our prior specifications.

Table 11 reports the results of the regressions. In all regressions we observe a negative coefficient on the acquisition intensity variable which indicates that increasing intensity of acquisitions leads to lower acquirer returns. The coefficients are significant at the 10% level or better in 7 out of 9 regression specifications. The time since 1995 variable in regressions (1), (4), and (7) continues to have a negative coefficients but none of them is significant. With one exception, the coefficients on time since 1995 squared as well as the post-2007 acquisition indicator are no longer statistical significant. For example, in regression (9), the coefficient on the post-2007 indicator is negative but no longer significant, while the M&A intensity index enters with negative coefficient that is significant at the 5% level. The results for other regressions are similar and indicate that increased merger intensity in India explains the decline in merger profitability for acquirers.¹⁷

Overall, our results indicate that the increasing intensity of the market for corporate control in India affects the acquirer announcement returns. It appears that greater intensity in M&A activity as measured by an increase in the number of participants in merger activity better explains the decline in acquirer CARs than time alone. It is plausible that with greater market participation in merger activity, acquisition valuations compared to the earlier phases of M&As in India. Furthermore, in regressions that control for the intensity in acquisitions in India, the decline of acquirer CARs over time is no longer significant. Hence, we are inclined to conclude that the intensity of the market for corporate control in India explains why acquirer announcement returns decline over time.

6. Post-merger long-run performance of acquiring firms

Finally, in order to understand whether the declining acquirer announcement returns are a result of aggressive bidding and overpayment which is then reflected in poor performance after the merger, we analyze the buy-and-hold abnormal returns (“BHARs”)

¹⁷ In untabulated results, we also estimate AR(n)/GARCH(1,1) models where n ranges from 2 to 4. We note that coefficients on all time-related variables are insignificant and all coefficients on M&A intensity index are significant, hence, our conclusions are not affected.

Table 11
Regression analysis of acquirer CAR (−2,+2): M&A activity.

	Standard Event Study			AR(1)/GARCH(1,1)			Dimson Beta		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Intercept	2.26 (0.617)	1.58 (0.729)	0.31 (0.944)	6.44 (0.149)	5.47 (0.223)	4.64 (0.293)	1.90 (0.679)	1.10 (0.812)	−0.16 (0.972)
Time since 1/1/1995 (years)	−0.14 (0.340)			−0.20 (0.158)			−0.16 (0.253)		
Time since 1/1/1995 (years) ²		−0.01 (0.158)			−0.01* (0.100)			−0.01 (0.123)	
2004–2007 Acquisition Indicator			0.85 (0.501)			−0.01 (0.991)			0.77 (0.541)
Post-2007 Acquisition Indicator			−1.76 (0.199)			−2.09 (0.146)			−1.88 (0.170)
M&A Intensity Index	−0.05 (0.105)	−0.05* (0.096)	−0.06* (0.057)	−0.06* (0.054)	−0.06** (0.030)	−0.07** (0.041)	−0.05 (0.109)	−0.05* (0.089)	−0.06** (0.048)
Crises Indicators	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Target/Deal Characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Acquirer Characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.091	0.093	0.106	0.114	0.114	0.120	0.088	0.089	0.103
Observations	447	447	447	447	447	447	447	447	447

CAR (−2,+2) is winsorized at the 1% and 99%. Unless otherwise indicated, all accounting variables are measured at the fiscal year end immediately preceding the announcement date. *, **, and *** denote statistical significance at 0.1, 0.05, and 0.01 level.

of acquiring firms for one, two and three years after the acquisitions for the entire sample period and for the three sub periods constructed for this study. To the extent that the declining trend in the acquisition announcement returns reflects the overpayment for targets and low expected synergies, we expect that BHARs to be positively related to the announcement returns.

We calculate the BHAR for period starting after the merger completion and ending T years thereafter as:

$$BHAR(0, T) = \sum_{t=0}^T (R_{i,t}) - \sum_{t=0}^T (\beta_i R_{m,t})$$

where β_i are estimated using a market model and the firm's i and market returns data starting 300 days prior to the announcement date through 30 days prior to the announcement date. $R_{i,t}$ and $R_{m,t}$ are the firm's i and market return on day t .

We also compute important financial characteristics of acquiring firms for the entire sample period and the three sub periods for the study. The results are reported in Panel A of Table 12. The BHAR for one, two and three years after the announcement period increase steadily from 14.29% for the first year to 22.88% for the three years when we consider the entire sample period. But when we consider the three time periods separately, the corresponding returns are 12.80% and 56.39% for the 1995–2003 period, 11.65% and 1.2% for the 2004–2007 period, and 19.10% and 26.34% for the 2008–2011 period. The three-year BHAR is largest for the 1995–2003 period which may be related to the bullish market of the late 1990s. The steep decline in the 2004–2007 era is attributable to the fact that many of the acquisitions undertaken during 2006 and 2007 posted their BHAR for two and three years during the recent financial crisis period. The results for the 2008–2011 period reflects an improvement over the previous period, pointing to the possibility that the improved situation in 2010 and 2011 may have contributed to the superior performance of mergers undertaken a year or two years prior to that period. The returns for the 2004–2007 period are not significantly different from those of 1995–2003 period whereas the returns for the 2008–2011 period are significantly different from those of the 1995–2003 period.

Relevant financial characteristics of acquiring firms that are considered in the analysis are reported in Panel B of Table 12. The variables we considered are: profits before interest and taxes to total assets, sales growth, Q , cash to total assets, book leverage, and R&D expenses to total assets. All variables have been defined in

Appendix A. We report the values of financial characteristics one, two and three years after the announcement of the acquisitions for all variables save for the sales growth variable for which we report growth in year one, growth year one to two, and growth year two to three. Profits before interest and taxes to total assets, Q and cash to total assets for acquiring firms appear to be stable over time whereas sales growth appears to be tapering off with time and leverage increased appreciably during the 2004–2007 period but retracted in 2008–2011 to levels comparable to those of 1995–2003. The high but statistically insignificant BHARs reported earlier are not supported by increased profitability or higher rates of growth in sales.

To examine a possible over-reaction to merger announcements, we regress the BHAR for one, two, and three years after the announcement against the announcement period (−2,+2) CARs, controlling for target, deal, and acquirer characteristics (Table 13). The coefficients on the acquirer CAR are generally negative, consistent with the possibility of over-reaction to merger announcements. However, with only one coefficient out of 12 being statistically significant at the 10% level, we do not find statistically consistent support for over-reaction to acquisition announcements.

Overall, the long-run performance of mergers, as measured by BHAR, is positive and statistically significant for only two of the three time periods we analyze in this study. We find that announcement period returns do not predict post-merger performance. Even though announcement period returns are declining with time, the long-run performances of the mergers appear to be improving with time.

7. Conclusion

In this study, we examine gains to Indian acquirers during the period 1995–2011. We find that the positive gains accruing to Indian acquirers that have previously been reported for samples of firms until March 2008, have declined during the 2008–2011 period. We are the first to find empirical evidence for this decline in announcement period returns for Indian acquirers. Specifically, we find that for our sample of acquisitions, the gains to acquiring firms are even greater than those previously reported for earlier time periods but are on average negative for the 2008–2011 period, which has not been studied before. We note that while the pattern

Table 12
Acquirer post-acquisition stock performance and financial characteristics.

		(1)	(2)	(3)	(4)
		Whole Sample	1995–2003	2004–2007	2008–2011
<i>Panel A: BHAR</i>					
BHAR (0,+1)	Ave (%)	14.29***	12.80	11.65*	19.10***
	Med (%)	9.15***	16.78	5.45	9.06***
	N	438	116	185	137
BHAR (0,+2)	Ave (%)	18.23***	41.37**	0.85	23.06*** ^b
	Med (%)	0.36***	32.30	−16.30*	12.80*** ^c
	N	414	114	184	116
BHAR (0,+3)	Ave (%)	22.88**	56.39**	1.20	26.34 ^b
	Med (%)	−5.08	21.89	−12.48*	−4.38 ^c
	N	364	112	184	68
<i>Panel B: Financial characteristics</i>					
PBIT/Total Assets (+1)	Ave (%)	13.96	15.15	13.44	13.60
	Med (%)	13.28	15.10	12.30	12.27 ^a
	N	409	116	194	99
PBIT/Total Assets (+2)	Ave (%)	13.23	12.91	12.86	14.91
	Med (%)	12.10	13.70	11.92	11.49
	N	373	116	193	64
PBIT/Total Assets (+3)	Ave (%)	11.67	11.96	11.48	11.76
	Med (%)	11.93	12.83	11.61	10.88 ^c
	N	332	116	192	24
Sales Growth (0,+1)	Ave (%)	15.64	13.65	18.25	12.83
	Med (%)	14.96	14.14	18.38	12.75 ^b
Sales Growth (+1,+2)	Ave (%)	11.84	9.84	11.75	15.74
	Med (%)	13.92	11.56	13.96	16.73
Sales Growth (+2,+3)	Ave (%)	8.28	4.35	9.58 ^c	16.40
	Med (%)	13.59	8.85	14.09 ^b	22.15
Q (+1)	Ave (%)	1.70	1.70	1.73	1.63
	Med (%)	1.14	1.00	1.20	1.20 ^a
Q (+2)	Ave (%)	1.60	1.87	1.46	1.54
	Med (%)	1.06	0.91	1.08	1.17
Q (+3)	Ave (%)	1.57	1.91	1.38	1.49 ^b
	Med (%)	0.96	1.02	0.93	1.18
Cash/Total Assets (+1)	Ave (%)	6.33	5.27	6.73	6.78
	Med (%)	2.98	2.66	2.80	3.66
Cash/Total Assets (+2)	Ave (%)	6.09	6.16	6.01	6.20
	Med (%)	2.87	2.41	2.90	3.91
Cash/Total Assets (+3)	Ave (%)	5.66	5.87	5.38	6.83
	Med (%)	2.49	2.37	2.43	4.41
Leverage (+1)	Ave (%)	27.27	23.06	31.51	23.90 ^a
	Med (%)	26.29	19.07	32.18	23.31 ^a
Leverage (+2)	Ave (%)	27.52	23.05	31.46	23.71 ^a
	Med (%)	26.28	21.54	31.91	25.15 ^a
Leverage (+3)	Ave (%)	27.85	23.01	31.50	22.01 ^a
	Med (%)	28.02	20.45	32.66	19.87 ^a
R&D/Total Assets (+1)	Ave (%)	0.35	0.19	0.42	0.38 ^b
R&D/Total Assets (+2)	Ave (%)	0.36	0.22	0.44	0.36 ^c
R&D/Total Assets (+3)	Ave (%)	0.39	0.26	0.47	0.47

BHAR is winsorized at the 1% and 99%. Sales growth exceeding 100% is omitted from calculations. In Panel A, ***, **, and * denotes statistical significance at 1%, 5%, and 10%, respectively, for tests of difference from zero. a, b, and c report significance levels of tests of differences in means and medians between 1995–2003 and the other two time periods using two-tailed tests at 1%, 5%, and 10%, respectively.

Table 13
Regression analysis of acquirer BHAR (0,+3 years).

	Whole sample			1995–2003			2004–2007			2008–2011		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Intercept	−0.02 (0.983)	−0.01 (0.988)	−0.06 (0.953)	0.05 (0.976)	0.91 (0.649)	0.82 (0.686)	−0.96 (0.559)	−1.44 (0.436)	−1.50 (0.416)	0.09 (0.946)	1.44 (0.278)	1.56 (0.231)
Acquirer CAR (−2,+2) Standard Event Study	−0.01 (0.255)			−0.04 (0.139)			−0.01 (0.356)			−0.02 (0.186)		
AR(1)/GARCH(1,1)		−1.26 (0.324)			−2.95 (0.221)			−2.20* (0.074)			−2.52 (0.115)	
Dimson Beta			−1.18 (0.363)			−3.58 (0.196)			−1.00 (0.459)			−2.47 (0.171)
Target/Deal Characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Acquirer Characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.120	0.119	0.119	0.415	0.413	0.414	0.060	0.074	0.063	0.328	0.393	0.390
Observations	352	352	352	106	106	106	179	179	179	67	67	67

CAR (−2,+2) and BHAR are winsorized at the 1% and 99%. *, **, and *** denote statistical significance at 0.1, 0.05, and 0.01 level.

of declining announcement returns to Indian acquirers over time is robust to various explanations based on ownership patterns, repeat acquisitions, and the changing mix between cross-border and domestic acquisitions, it is the intensity of the market for corporate control that best explains the declining trend. The intensity of M&A activity as measured by the number of deals is negatively related to the merger returns.

This finding leads us to explore whether the declining announcement period returns were able to predict declining post-merger performance. We find that long-run performances of Indian acquirers are on average overwhelmingly positive but they are of limited statistical significance. Gains during the announce-

ment of mergers do not accurately predict the long-run performance of Indian acquirers. Indian acquirers post higher post-merger buy and hold returns even though announcement period returns gradually decline over the years.

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Appendix A. Definitions and sources of variables used.

Variable	Definition	Source
2004–2007 Acquisition Indicator	Equal to 1 if acquisition was announced between 1/1/2004 and 12/31/2007 and to 0 otherwise	ThomsonOne
Acquirer SIC = Parent/Target SIC	Equal to 1 if the SIC code of the acquirer and the target are the same and to 0 otherwise	ThomsonOne
Acquisition Sequence Number	Sequence number of the current acquisition for a particular acquirer since 1/1/1995	ThomsonOne
CAR(–2,+2): AR(1)/GARCH(1,1)	Cumulative abnormal return during a 5-day period centered on the announcement date of the acquisition. The model of expected returns is based on de Jong et al. (1992) . We require at least 30 daily returns to be available during the estimation window. Returns on the Indian Sensex Index are used as the market return	CMIE Prowess
CAR (–2,+2): Dimson Beta	Cumulative abnormal return during a 5-day period centered on the announcement date of the acquisition. The model of expected returns is based on Dimson (1979) . We require at least 30 daily returns to be available during the estimation window. Returns on the Indian Sensex Index are used as the market return	CMIE Prowess
CAR (–2,+2): Standard Event Study	Cumulative abnormal return during a 5-day period centered on the announcement date of the acquisition. The 200 trading day estimation window ends 6 days before the announcement of the merger. We use one-factor market model to estimate the stock-specific event study parameters. We require at least 30 daily returns to be available during the estimation window. Returns on the Indian Sensex Index are used as the market return	CMIE Prowess
Cash/Total Assets	Cash and bank balances divided by total assets	CMIE Prowess
Competing Bidder Indicator	Equal to 1 if there is more than 1 bidder making a bid for the target and to 0 otherwise	ThomsonOne
Consideration = Cash	Equal to 1 if 100% of the consideration offered is cash and to 0 otherwise	ThomsonOne
Crisis 2001 Indicator	Equal to 1 if acquisition was announced in 2001 and to 0 otherwise	ThomsonOne
Deal Value	The value of the target as reported by ThomsonOne	ThomsonOne
Domestic Target Indicator	Equal to 1 if target is an Indian company and to 0 otherwise	ThomsonOne
Firm Age	Age of firm in years from incorporation to the acquisition announcement	CMIE Prowess
Foreign OECD Target Indicator	Equal to 1 if target is a company from OECD countries	ThomsonOne
Foreign-Listed Acquirer Indicator	Equal to 1 if the acquirer is also listed on a foreign (non-Indian) stock exchange and to 0 otherwise	CMIE Prowess
Friendly	Equal to 1 if ThomsonOne describes the attitude as friendly and to 0 otherwise	ThomsonOne
Indian Non-Promoters DII Ownership ($q = -1$)	% ownership of domestic institutional investors (MF, Banks, insurance companies, etc.) in the company at the quarter end preceding the acquisition announcement	CMIE Prowess
Indian Non-Promoters FII Ownership ($q = -1$)	% ownership of Foreign Institutional investors in the company at the quarter end preceding the acquisition announcement	CMIE Prowess

Definitions and sources of variables used. (continued)

Variable	Definition	Source
Indian Promoters Ownership ($q = -1$)	Promoter's% ownership in the company at the quarter end preceding the acquisition announcement	CMIE Prowess
Leverage	Total debt divided by total assets	CMIE Prowess
M&A Intensity Index (Number/Value of Deals)	Equal to the number/sum of all deal values reported for all acquisitions in India announced in the month corresponding to the month of the acquisition analyzed	ThomsonOne
MV Equity ($q = -1$)	Market value of equity measured at the quarter end immediately preceding the acquisition announcement	CMIE Prowess
n th Acquisition Indicator	Equal to 1 if the acquisition is the n th acquisition for a particular acquirer since 1/1/1995 and to 0 otherwise	ThomsonOne
PBIT/Total Assets	Profit before interest and taxes scaled by total assets	CMIE Prowess
Post-2007 Acquisition Indicator	Equal to 1 if acquisition was announced after 12/31/2007 and to 0 otherwise	ThomsonOne
Private Target Indicator	Equal to 1 if target is a private standalone company and to 0 otherwise	ThomsonOne
Public Target Indicator	Equal to 1 if target is publicly listed and to 0 otherwise	ThomsonOne
Q	Sum of MV equity measure at the year end immediately preceding the acquisition announcement and total debt divided by total assets	CMIE Prowess
R&D/Total Assets	Research and development expense divided by total assets	CMIE Prowess
Relative Size	The product of Deal Value and the Rupee-to-USD exchange rate divided by acquirer MV Equity ($q = -1$)	ThomsonOne, RBI, and CMIE Prowess
Sales Growth	Percentage growth in sales.	CMIE Prowess
Subprime Crisis Indicator	Equal to 1 if acquisition was announced between 3/31/2007 and 6/1/2009 and to 0 otherwise	ThomsonOne
Time since 1/1/1995 (years)	Number of days between 1/1/1995 and acquisition announcement divided by 365	ThomsonOne
Toehold	% of shares held by the acquirer at the time of the announcement	ThomsonOne
Total Assets	Total assets measured at the quarter end immediately preceding the acquisition announcement	CMIE Prowess

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