

Short-term and Long-Term Market Reaction to M&A: Evidence from India*

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Abstract

We examine the long-term performance of domestic and cross-border acquisition decision of Indian firms in the sixteen-year period from 2001 to 2016, a period encompassing the early liberalization period in India, the years of the financial crisis, and a post crisis recovery period. Acquisition activity, both domestic and cross-border increased over the period. We find that markets react positively to M&A announcements both domestic and cross-border. We also present some of the first evidence on long-term returns for acquisitions by Indian firms. We find that the long-term buy and hold returns (BHAR) are not significant. These results suggest that Indian markets are efficient and are accurately able to judge the benefits of M&A transactions without a subsequent market correction. We also find that the operating performance of Indian acquirers are not abnormal. Cross-sectionally, firms with a long-term view, as proxied by their better governance gain from acquisitions over the long-term.

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1. Introduction

Mergers and Acquisitions (M&A) are an important avenue by which firms invest and grow. Firms argue that combining the acquiring and target firms results in synergies that enhances shareholder value. It is however hard to gauge value gains and it is natural to ask whether markets are able to accurately value these transactions. This is especially true in developing markets in which M&A activity transitions from being a relatively new phenomenon with rapidly changing regulatory environments to a more mature market with respect to M&A activity. In this paper, we examine the short-term and long-term market reaction to acquisitions by Indian firms over the period from 2001 to 2016, a period that encompasses the initial growth years in the M&A market in India, the years of the global financial crisis and the latter years during which presumably, Indian financial markets built up sufficient exposure and experience to M&A activity.

The Indian market during the high growth decade of 2000s represents a period of increasing M&A activity. On the international front, the passage of the Foreign Exchange Management Act in 1999 started the process by increasing the limits for the automatic route for overseas investments imposed earlier. In 2001 firms were allowed to invest up to \$50 million annually through the automatic channel, a limit which was further raised to \$100 million in 2002. Firms were also allowed to invest 100 per cent of the proceeds of their American Depository Receipts/Global Depository Receipt issues for acquisitions of foreign companies and for direct investments in joint ventures and wholly owned subsidiaries. In terms of investment size, the allowable expansion overseas was increased in steps, from 100% of net-worth in 2002 to 400% of net-worth in 2010. Backed by the liberalization of outward investment policies, cross-border acquisitions by Indian firms rose from a meager \$23 million in 1990 to \$29 billion in 2007 (UNCTAD, 2013). A number of acquisitions by Indian firms made the headlines; not only in the Indian press but also internationally; including the acquisition of Tetley Tea, Jaguar and Corus by the Tata group; acquisition of Novelis by Hindalco; acquisition of Zain Telecom by Bharti Telecom. These acquisitions announced the entry of India into the global acquisition market place.

Deal activity where both the acquiring and target firms are from India, i.e. *domestic* deals, have also been growing during the period from 2001-2016. The strong economic conditions and the need to consolidate drove much of the activity in the domestic market. Indian acquirers perceived synergies arising from market access, technology transfers, and need to improve their competitiveness in the domestic market.

Stock markets react to announcements of deal activity, passing their judgement on whether the acquiring firms gained in the transaction. If the acquiring firms capture any benefit of the synergies of the transaction, markets will react positively with a boost in the stock price of the acquirers. On the other hand, if the acquiring firms got what they paid for, or indeed overpaid for the target, we would expect an insignificant to negative market reaction. We therefore measure the market's reaction to deal announcement, i.e. the *announcement effect*, by calculating the short-term Cumulative Abnormal Return (CAR) around the announcement date, to gauge the market's reaction to transaction and infer how the market received the transaction.

In the absence of an independent valuation of the target firm and acquisition synergies, a complexity arises in interpretation the market reaction to the announcement of an acquisition. If markets react positively, does it signal a euphoric response to the acquisition or does it signal an accurate valuation of expected positive synergies? To disentangle these effects we examine the subsequent long-term buy and hold abnormal returns in conjunction with the short-term announcement effect. If the long-term BHAR is significantly positive or negative following the acquisition, it would imply that all information was not captured in the CAR at the time of the announcement. We confirm the long-term BHAR results by examining the operating performance for indication of any synergetic effects as well.

Our data is from SDC Platinum and CMIE's Prowess database. We are able to identify complete data for 1,059 deals over the period from 2001 to November 2016, which constitutes our data sample. The data include deals where the target firm is a domestic firm, which we refer to as *Domestic* deals, and where the target firm is non-Indian firm, which we refer to as a *Crossborder* deal. There are 676 Domestic and 439 Crossborder deals in our sample.

We examine both the short-term and long-term market reaction. The short-term market reaction represents the markets estimate of the value impact of an announced corporate event and is measured by the Cumulative Abnormal Return (CAR) over a short period, e.g. 3 days or 11 days. A market model is used as a benchmark to assess whether the observed returns are above below expected returns based on the model. We expect the short-term market reaction to be positive if M&A deals are value enhancing. We also examine the long-term market reaction to M&A announcements using a 24-month buy-and-hold returns (BHAR) subsequent to the announcement. If acquiring firms are able to gain from synergies, but the gains accrue over the long-term with the market needing confirmation over the 2-year period, say conditional on good governance practices, we expect the long-term BHAR to be positive.

We find that the 3-Day CAR is positive and statistically significant for the full sample. The results hold for both Domestic and Crossborder acquisitions. Clearly, the equity markets infer a positive valuation to M&A activity by Indian acquirers. We find that the 24-month BHAR is also positive, but not significant. We see that over a 24-month window there is no reversal of the initial positive market reaction. As much as a measure of the value impact of the deal, the short-term and long-term market reactions suggest that the Indian capital markets are efficient in that there is no overshooting in the short-term with reversals in the long-term. However, when we look at the long term reaction for different time periods, we find that 24-month and 36 month BHARs are negative and significant for all deals during 2008-2009.

We also examine the impact of firm and governance characteristics on CARs. Crossborder CARs are higher than Domestic CARs in our sample period. This perhaps represents the effect of liberalization when Indian firms were able to take advantage of synergetic possibilities in foreign markets for the first time. It is also plausible that the media attention on what may be perceived as high profile transaction leads to a euphoric reaction in Indian markets. We also find that firms with high leverage have higher CARs suggesting that debt in the capital structure could lead to better managerial decisions.

Cross-sectionally, BHARs do not differ for Domestic and Crossborder deals. BHARs are higher for smaller firms. Investors perhaps need to make sure that the firm is adhering to its strategy and are reluctant to accrue all the value gains at the time of the deal announcement. Indeed, we do find that firms that have better governance, as evidenced by their group membership and level of promoter holdings similarly have positive and significant BHARs.

The rest of the paper is as follows. Section 2 presents a review of the relevant literature. Section 3 presents the data and methodology and Section 4 presents our empirical results. Section 5 concludes.

2. Literature Review

In this section, we present the relevant literature that has examined M&A activity in India and other emerging market countries and the literature on the short-term and long-term value impact of M&A in developed and emerging markets.

While reasons vary across firms, mergers and acquisitions take place when managers perceive synergistic gains arising from production efficiencies, enhanced market power, tax savings, or other agency considerations (Erel, Liao, & Weisbach (2012)). In emerging markets, strong economic growth conditions, structural reforms and buoyant capital markets

can also lead to increased deal activity. A main motives for a firm in emerging market to do a domestic acquisition is to gain access and control over a continuous supply of natural resources from the target company (see Nicholson and Salaber (2013) and Deng and Yang (2015)). In India several industrial sectors were also in a consolidation mode in the 2000s.² Corporations with stronger balance sheets saw an opportunity to consolidate market positions (see Goddard, Molyneux and Zhou (2011)).³ As opposed to a domestic deal, a *crossborder* deal that involves crossing national boundaries is often seen as enhancing the prestige of an emerging market firm and is especially scrutinized in the markets and in the media. Chidambaran, Krishnakumar and Sethi (2018) document the trend in M&A activity post the liberalization phase in the Indian economy and show that both domestic and cross border acquisitions by Indian firms have increased over the period from 2000 to 2007.

Literature has examined the performance gains and losses of acquisitions. Most M&A research has adopted stock market event study based metrics to measure short term acquisition performance (King & Dalton, 2004; Krishnakumar & Sethi, 2012; Zollo & Meier, 2007). Studies have typically found that acquisitions are value enhancing when computing combined cumulative abnormal returns (CARs) for acquirer and target firm shareholders. However, most of the value gain has been found to accrue to target shareholders. A large number of studies have found that acquisition announcements are either value destructive for acquirers or result in no significant gain for acquiring firms (Jensen & Ruback, 1983; Andrade et al., 2001). Jensen & Ruback (1983) and Jarrell, Brickley, and Netter (1988) provide a review of studies on abnormal returns to acquirers in tender offers and mergers. They observe that returns to bidders in mergers are close to zero on an average.

Eckbo and Thorburn (2000) find that the domestic acquisitions significantly outperform the foreign ones. They attribute lower wealth gains accruing to foreign acquirers to their larger size. Campa and Hernando (2004) suggest that cross border acquisitions generate lesser wealth gains as compared to domestic ones when such acquisitions are pursued in highly regulated industries. In lesser regulated industries, cross border acquisitions create higher returns than the domestic ones. Moeller and Schlingemann (2005) also find that cross border acquisitions

² As reported by the PWC report, <https://www.pwc.in/assets/pdfs/trs/mergers-and-acquisitions-tax/mergers-and-acquisitions-the-evolving-indian-landscape.pdf>, examples include the renewable energy sector (Tata Power's acquisition of Welspun's assets in a deal valued at over 9,000 crore INR, the banking sector (Kotak Mahindra acquired ING VysyaBank in November 2014 in an all-stock deal valued at over 15,000 crore INR), the telecom sector (Reliance Communications announced the acquisition of MTSIndia)

³ (<https://www.livemint.com/Companies/gT7tWrZZGfbLzrm5OTvfLO/MA-activity-at-a-record-high-of-6975-billion.html>). "There is a strong self belief in India, and credit is more available than in the past," said Matthew Hanning, joint head of investment banking for Asia at UBS in Hong Kong (<https://www.ft.com/content/7cc6916a-353b-11e0-aa6c-00144feabdc0>).

significantly underperform the domestic acquisitions. Goergen and Renneboog (2004) find that cross border acquisitions create insignificant higher wealth than the domestic acquisitions. On the other hand, Chari, Ouimet, & Tesar (2009) find that firms from developed markets earn significant positive abnormal returns when they acquire majority stakes in targets from emerging markets. Mateev & Andonov (2018), in their study on European bidders in acquisitions, find evidence for shareholders in target firms earning substantially higher premiums when a deal is cross border compared to when it is a domestic deal.

Studies have similarly examined the performance of acquisitions in India. Researchers have found that cross border acquisitions earn positive abnormal returns in the short run (Barai and Mohant,y 2010; Chakrabarti, 2008; Gubbi et al., 2009; Kale & Khanna, 2009; Kohli & Mann, 2012). Acquiring company shareholders have attained higher wealth gains in cross border acquisitions as compared to domestic acquisitions. Kohli & Mann (2012) do not find any evidence of positive returns to shareholders of domestic acquirers. Supporting these results, Gubbi et al., (2009) do not find any evidence of positive abnormal returns in domestic acquisitions. Banerjee et. al. (2014) find positive significant announcement returns for Indian acquirers over a period of 1995-2011. However, they also find that these returns become negative later. For both domestic and cross border deals, returns are positive initially and decline for later part of the sample period. An interesting finding highlighted in the study is that, wealth creating acquisitions are usually ones where the acquirers are small and mid-sized companies. They argue that the negative returns to large sized acquirers is consistent with managerial hubris.

Studies have also examined the longer-term impact of acquisitions by using long term stock market performance or long term operating performance. Studies on long term stock market returns have either reported significant losses to shareholders of acquiring firms or have reported insignificant underperformance. Firth (1980) in a study of acquisitions by UK acquirers during 1969 to 1975 report long term losses to bidders over a 36-month period. Agrawal et al., (1992) report a significant loss to bidders of merging firms for a period of 5 years post acquisition period on the basis of 937 mergers from 1995 to 1987 between US domestic firms. While they report that bidders in tender offers earn significantly positive abnormal returns of 5%. Loughran and Vjih (1997) observe insignificant negative abnormal returns of -6.5% by acquiring firm shareholders over a five-year time period. Bouwman, Fuller, and Nain (2009) find that overall acquiring firms earn significantly negative buy and hold returns of -7.22% over two years post acquisition. Andrade, Mitchell, and Stafford (2001) in their review of literature on long term post acquisition performance, conclude that most

studies have reported long run underperformance of bidders, except in the case of tender offers, where they have received positive returns. Dutta and Jog (2009) find that when methodological issues are taken care of in computing returns, the results do not point to negative long term returns to acquirers.

A few researchers have examined long term stock market returns of Indian cross border acquisitions. Chakrabarti (2008) studies the long term stock market reaction for three years post acquisition for 24 acquisitions announced between 2000 and 2007. He finds that the long run performance is significantly positive, however when Industry adjustments are made the positive returns are not significant. Singh (2012) researched 91 deals between 2004 and 2009; and concludes that shareholders of cross border acquirers earn negative 12 month Buy and Hold returns. Mohanty and Mishra (2014) used a sample of Indian mergers and acquisitions in the period 1998-2010 and observed that acquirers had negative buy and hold returns while firms which that merged had positive returns.

Literature on the operating performance in the developed market have not been conclusive. Healy et al., (1992); Guest et al., (2010), find that operating performance has improved on the basis of the measures of performance that they have used in their analysis. Zollo & Singh (2004) observe that mean performance is not different from zero. Methodological issues have been raised with respect to the process of determining long term abnormal return (Lyon, Barber, & Tsai, 1999; M. Mitchell & Stafford, 2000). Lyon et al., (1999) list biases associated with commonly used methods that compare sample firm performance with an Index and have suggested mechanisms to deal with the biases.

In the emerging market context, Bertrand & Betschinger (2012) explore the operating performance of cross border acquisitions by firms from Russia and find that mergers and acquisitions destroy value. They attribute the poor performance of acquisition to lack experience and capability in cross border acquisitions. Long term operating performance of mergers and acquisitions in ASEAN countries was analyzed in a study by Rao & Salabar (2016) using data for the 2001-2012 time period. The study found a decline in performance of firms post acquisition. They also found that cross border deals underperformed compared to domestic deals during the financial crisis period 2007-08.

Saboo & Gopi (2009) examine a combined sample of 54 domestic and cross border deals that took place during 2001 to 2007 and find that there is an insignificant decline in operating performance of cross border acquirers. Shukla & Gekara (2010) used a case-based analysis to study the Tata Steel – Corus acquisition and found that there is an insignificant decline in accounting returns. Based on a sample of 15 cross border acquisitions by Indian

firms between 2005 and 2008, Singla et al. (2012) observe that firms do not experience any significant change in financial performance as compared with their pre-acquisition performance. Studies on long term operating performance on Indian cross border acquisitions, thus, have either been case based or with limited sample sizes.

Our study examines the short-term market reaction, long-term stock performance and operating performance of Indian acquirers and augments the rather sparse literature on this topic. We also do a cross sectional analysis to determine how deal, target and the economic cycle impact long term performance of Indian cross border deals.

3. Data and Methodology

In this section, we present details of our data sample and sources and our empirical methodology. Data on acquisitions by public Indian firms is obtained from the Thomson Internationals Securities Data Corporation's (SDC) Mergers and Acquisitions database. SDC sources its information on acquisitions from English and foreign language sources, statutory filings, trade publications, newswire reports and proprietary surveys. Data on firm characteristics are obtained from the Center for Monitoring Indian Economy (CMIE) Prowess database.

3.1 Deal Data and Dependent Variable

Our base data on acquisitions by Indian firms is the set of all completed deals, for both private and public target firms, where the *Ultimate Acquirer Nation* is Indian. We use the *Ultimate Acquirer Nation* rather than when the *Immediate Acquirer* is Indian, as Indian firms often use Special Purpose Vehicles established off shore when pursuing non-Indian targets. We include all completed deals irrespective of the percentage stake acquired, as the focus of our paper is to analyze the acquisition decision of firms and we therefore examine all transactions irrespective of stake acquired. We supplement the acquisition data with financial information and firm characteristics from CMIE (Center for Monitoring Indian Economy) Prowess database, for all publicly listed Indian firms. We match the name of the *Ultimate Acquirer Parent* from SDC Platinum to the names of publicly listed firms in India in the CMIE Prowess database.

Our sample consists of completed deals over the sixteen-year period from 2001 to 2016. We extract data on completed merger and acquisition deals during the period January 2000 to 30th November 2016 from SDC Platinum. The announcement date reported by SDC Platinum

is used to define the year in which a deal is considered. We restrict the sample to those where the acquiring firm is an Indian firm, therefore, we require that the Ultimate Acquirer is an Indian Publicly listed firm. The total number of deals in SDC Platinum for our data period is 3,889, of which 1,712 are cases where the target firm is non-Indian and the deal is classified as Crossborder deal and 2,162 are cases where the target firm is an Indian firm and the deal is classified as Domestic deals.

We drop all cases where the acquirer is in the finance industry, which includes deals by firms in the following industry groups: Auto Finance Services, Banking Services, Housing Finance Services, Infrastructure Finance Services, Infrastructure Finance Services, Other asset financing services, Other fee based financial services, Other fund based financial services and securities broking. We also drop deals where the deal value is not disclosed. This brings our data set down to 3104 deals.

We only consider deals where the percent stake acquired is more than 50%. In case of firms with multiple deals in a year, the deal with the largest deal value is selected for our study. In case of multiple deals for the same acquirer and target pair in a year, we consider the first deal in the calendar year. Further in case of firms with multiple deals, we consider deals where the difference in announcement dates is more than 255 days.

We next compute data on several sets of variables of interest. The first set comprises a list of lagged variables based on firm financials including log of total assets, Tobins Q, cash ratio, leverage, promoter holding, HHI. All deals for which firm financials are not available on Prowess are dropped. The second set of variables include the 3-day, 11-day cumulative abnormal returns and 24 months Buy and Hold Abnormal Returns. Deals for which we do not have stock price data 250 days before the deal announcement date and 5 days daily price data after the deal announcement date are dropped. We also drop deals for which stock price data is not available for 24 months after the month of deal announcement. Our final data set comprises 1,115 deals over the period from 2001 to November 2016.

Table 1 shows the distribution of domestic and cross-border acquisitions by year in our sample. The table also shows whether the transactions were Domestic or Crossborder. As shown in the table, there are a total of 676 Domestic and 439 Crossborder acquisitions in our sample. The pattern of transactions by year is also interesting. The number of M&A transactions increased from 14 transactions in 2001 to 109 transactions in 2008. The growth of acquisitions during the initial sample period representing the years following liberalization is consistent with Gubbi et al. (2010), who argue that firms from emerging markets are compelled to undertake cross-border acquisitions in order to survive the process of

liberalization. Deals fell in 2009 the period from 2009 to 2015 shows a declining trend.⁴ The drop in deals is particularly sharp from 47 deals in 2008 to 25 deals in 2009 for Crossborder deals. The number of deals somewhat recovered in 2010, but the fell over the subsequent years. The trend reflects the crisis in global financial markets in 2008-2009, and the drop in M&A activity in 2009 through 2016 shows that the global financial market crisis had an impact of M&A activity.

(Insert Table 1 here)

Table 2 shows the industry wise distribution of the acquiring firm for all the acquisitions. The industry classification is based on the Prowess Industry Group codes obtained from the CMIE Prowess database. The table also shows whether the transactions were within the same industry (Focused) or across industries (Diversified), using the target and acquirer Industry Groups as reported by SDC Platinum. As shown in the table, the industries that account for the largest number of transactions are, Computer Software, Drugs & Pharmaceuticals, and Trading. The table also shows that the do more focused transactions as compared to diversifying transactions. Of the 676 domestic transactions, 375 are focused transactions and of the 439 Crossborder transactions, 240 are focused transactions. The remaining cases represent acquisitions with targets in different industries.

(Insert Table 2 here)

Table 3 also shows firm characteristics. As shown in the table, the median Indian acquirer making a Crossborder acquisition is larger, has more cash, is less levered, is in more competitive industries, has lower promoter holdings and is likely to be member of a business group. The impact of HHI, the average level of industry-competitiveness in the industries using the lagged normalized Herfindahl-Hirschman index (*HHI*), as in Cremers, Nair and Peyer (2007), is particularly interesting and suggests the competitiveness of the domestic industry has plays a role in the M&A activity of Indian firms.

⁴ The number of deals reported for 2016 is only through November 30, 2016 and is therefore only for part of fiscal 2016.

3.2 Cumulative Abnormal Returns

Our measure of the short-term valuation impact of M&A activity is the 3-day and 11-day cumulative abnormal return. The event study method having its origins in the 1930's has been described by (Mackinlay, 1997). The first step is to determine the sensitivity of a firm's stock price to the market using a market model.

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it} \quad [1]$$

where,

R_{it} is the expected return on the firm

R_{mt} is the return on the market portfolio

α_i is the intercept term

β_i is the sensitivity of the return on the firm to market returns

ε_{it} is the zero mean disturbance term

We use an estimation window of -265 to -50 days before acquisition announcement date and event windows of 3 (-1 to +1) days window and 11 (-5 to + 5) days for computing abnormal returns. Data on daily stock returns for individual firms and the market is from the CMIE Prowess Database.

3.3 Buy And Hold Returns

Our proxy for the long-term valuation impact of M&A transactions is the 24-month buy and hold returns representing stock performance in the 24 months following the month of the M&A announcement.

Long term abnormal returns are computed by calculating the difference between returns obtained by an investor in the acquiring firm vis-à-vis investing in a reference portfolio, with the reference portfolio used usually being the market index. Several methodological issues have been raised with respect to the process of determining long term abnormal return. (see e.g. Mitchell and Stafford, 2000; Lyon et al., 1999). Lyon et al., (1999) list three biases associated with commonly used methods that compare sample firm performance with an Index; these are the bias caused by inclusion of new firms in the index, rebalancing of the index and positive skewness in the long-run abnormal returns. Lyon et al., (1999) suggest two approaches for dealing with these biases, which we implement.

We construct the reference portfolio following Loughran and Ritter, (2000) and Lyon et al., (1999). We exclude all firms that have done a deal in the year of the event and in the

previous year. We then calculate the market value of equity using market price data at the end of the financial year, i.e. on 31st March of each year. Firms are then divided into size deciles based on a ranking according to their market value of equity. Further each of the deciles is divided into quintiles on the basis of the firms' lagged book to market ratio. Each acquiring firm is then matched with the appropriate decile/quintile reference portfolio for computing the abnormal returns.

Compounded returns for the period of study (24 months) for all the firms in the reference portfolio are computed and then averaged across securities.

The reference portfolio returns are computed as follows:

$$R_{pT} = \sum_{j=1}^{n_s} \left[\frac{\prod_{t=s}^{s+T} (1+R_{jt})}{n_s} \right] - 1 \quad [2]$$

where,

R_{jt} - returns on firm j

n_s - number of securities traded in the month s

T - Investment horizon in months.

The BHAR for an acquiring firm is then computed as per the following equation,

$$BHAR_{it} = \prod_{t=s}^{s+T} (1 + R_{it}) - 1 - R_{pT} \quad [3]$$

R_{it} - month t return for firm i,

R_{pT} - reference portfolio re-turn as calculated in Equation (5)

T - The horizon in months over which returns are calculated.

We test for statistical significance using two approaches. The first uses the standard p -values following a normal distribution. In the second approach a skewness adjusted t statistic is computed using the following equation suggested by Lyon et al., (1999).

$$t = \sqrt{n} \left[S + \frac{1}{3} \gamma S^2 + \frac{1}{6n} \gamma \right] \quad [4]$$

where,

$$S = \frac{\overline{BHAR}}{\sigma(BHAR)} \quad \text{And } \gamma = \frac{\sum_{i=1}^n (BHAR_i - \overline{BHAR})^3}{n\sigma(BHAR)^3}$$

The null hypothesis is that is no significant long term gains to shareholders of acquiring firms and the t -test and skewness adjusted t -statistic test whether the null hypothesis holds.

We also examine the long-term operating performance of the acquirers to test for synergy effects. Following Barber & Lyon (1996), we compute the industry-adjusted operating performance for determining the abnormal operating performance. Our metric for operating

performance is Return on Assets (ROA), which is computed as Profit Before Depreciation Interest and Tax divided by the Average Total Assets for the year $((\text{Beginning Assets} + \text{Ending Assets})/2)$. The benchmark performance, i.e. the expected ROA is determined by the change in the ROA for a set of match firms for the sample firms. Acquiring firms are matched with a set of firms in the same industry that have a ROA in the range of 90% to 110% of the ROA ratio for the acquiring firm in the year of deal announcement. The expected level of ROA for the acquiring firms is defined as the Actual ROA in the deal year plus the change in performance for the matched set of firms in the industry two years after the deal announcement. The difference between actual ROA for the acquiring firm minus expected ROA is the abnormal return. We test for the significance of abnormal returns using a t-test and the non-parametric Wilcoxon signed rank test as suggested by Barber, Lyon (1996). Data for calculating the buy and hold returns and determining the operating performance is from CMIE Prowess database.

4. Empirical Results

The results for both tests do not show any significant improvement in performance, except in the case of second year after the deal.

4.1 Short term Market Reaction to M&A

Table 4 presents data on the 3-Day CAR and 11-Day CAR, for our full sample of M&As by Indian acquirers, for the sample of Crossborder transactions and for the sample of Domestic transactions. As shown in Panel A, the market reaction is positive and statistically significant. Indian acquirers clearly benefit from the M&A activities. Panel B and Panel C show that the results for 3-Day CAR and 11-Day CAR hold for the sub-samples of Domestic and Crossborder deals as well. Our results are consistent with Indian acquirers being able to benefit from acquisitions activity and that Indian markets do not err in inferring positive synergy effects for acquiring firms.

4.2 Cross Sectional Analysis of CAR

Table 5 presents the results on the determinants of the 3-day CAR. Model 1 shows the results comparing CARs for Domestic and Crossborder mergers. The coefficient on the dummy variable Crossborder is positive and significant, suggesting that the markets view Crossborder as having a larger positive valuation impact. In the 2000s, markets reacted

positively to acquisition announcements by Indian firms, perhaps to reflect the value gains of accessing synergy opportunity in new markets. Our results are consistent with literature that has shown that acquirers have been shown to have significant positive returns on announcement of cross-border acquisitions (Bhagat, Malhotra and Zhu, 2011; Gubbi et al., 2010; Rani, Yadav and Jain, 2015). Rao-Nicholson and Ayton (2016) argue that Indian firms establish legitimacy by engaging in cross-border acquisitions and attribute the positive abnormal returns to euphoria associated with establishing legitimacy.⁵

Model 2 adds several firm characteristics as controls. The coefficient on LASSETS is negative but not significant. Smaller firms benefit more from the inorganic growth through acquisitions, perhaps because their acquisitions are more focused and strategic. Leverage is positive and significant establishing that high leveraged firms benefit from acquisitions. The coefficient on other control variables are not significant suggesting that firm characteristics such as domestic competition and liquidity are not important factors in determining the synergetic benefits of acquisitions. Model 3 adds governance variables as control variables. Firm governance as captured by membership in business groups and promoter holdings are also not significant in determining the value effects of an acquisition. Model 4 adds the variable called focused and relative deal value. Both are not coming significant but have a positive sign.

In summary, we find that small firms, high leveraged firms and firms that do crossborder deals benefit more from M&A activity.

4.3 Long term Market Reaction to M&A

Table 6 presents the results of the 24-month and 36-month BHAR analysis of the deals. The BHAR is positive for the deals but is insignificant.

4.4 Cross Section Analysis of BHAR

We next turn to an analysis of long term 24-month BHAR. Table 7 reports results for four models. Model 1 compares the BHARs of Domestic and Crossborder transactions. The coefficient on CROSSBORDER is insignificant. The result clearly shows that Domestic and

⁵ Other studies have also examined market reaction to acquisition announcements, both domestic and cross-border. Studies focusing on within-country domestic acquisitions in mature economies find that acquirers do not earn significant positive abnormal returns while target shareholders enjoy positive abnormal returns (Andrade, Mitchell, and Stafford, 2001; Jarrell, Brickley, and Netter, 1988; Jensen and Ruback, 1983). In contrast, studies focusing on cross-border acquisitions, (Aybar and Ficici, 2009; Chari, Ouimet, and Tesar, 2010; Gubbi et al., 2010; Uddin and Boateng, 2009; Rao-Nicholson and Ayton, 2016) find that firms from developed markets earn significant positive abnormal returns.

Crossborder transactions do not differ in their long-term value impact. We conclude therefore, that the higher CAR we find for Crossborder transactions is not an anomaly as there is no reversal of value impact in the long-term.

Model 2 adds several firm characteristics to the regression. We find that the coefficient on LASSETS is negative and significant, suggesting that smaller firms have more gains from acquisitions. Model 3 adds several governance variables. We find that firms that have a larger promoter shareholding have higher BHARs. These governance measures signal good governance. Clearly, firms that are better governed are better able to realize synergy gains from M&A activities. In conjunction with the results that these variables do not affect the short-term market reaction, we conclude that benefits of better governance accrue over the long term. Model 4 adds focused and relative deal value and the significance of assets and governance variables still holds.

4.5 Operating performance

Our BHAR results suggest that Indian acquirers have non-significant BHAR. We therefore examine the operating performance of the acquiring firms as well. Table 8 presents the operating performance of Indian acquirers for the two and three year periods (denoted by Abnormal ROA2 for years and Abnormal ROA3 for 3 years) following the acquisition. We find that the operating performance is not significant over the time periods. The performance of domestic deals' firms is negative but not significant.

4.6 Cross Section Analysis of Operating Performance

We next analyze the operating performance and its determinants for the acquirers. Table 9 reports results for four models. The variables coming significant for BHAR are not showing significance in these models.

5. Financial Crisis Effects

We extend our analysis by examining the short-term and long-term market reaction for sub-periods of our data sample. We divide our observations into three periods: a PRECRISIS period from 2000 to 2007, a CRISIS period from 2008-2009, and a POSTCRISIS period from 2010 to 2016. We compare CAR3, BHAR24, and ROA24 across subperiod and also include a PRECRISIS dummy in cross-sectional regressions.

Table 10 represents the results of CARs when we divide the sample into time periods. Panel A of Table 10 provides the results of the deals in the PRECRISIS period. We find that 3-day and 11-day CARs are significant and positive for the PRECRISIS period for all deals. The gain is more for cross border deals than the domestic deals. Panel B provides the results for the CRISIS period. We find that the CARs are insignificant during this period. When we see Panel C, we find that in the POSTCRISIS period, the CARs are positive and significant for all deals. Cross border deals have positive and significant 3 day and 11 day CARs. This reflects the short term effects of crisis period on the returns for M&A announcements in the Indian markets.

Table 11 represents the long term market reaction of the M&A activity for the different time periods. While BHAR is insignificant for the PRECRISIS period (Panel A), we find that BHAR is coming negative and significant for deals during the CRISIS period for all deals and specifically, for domestic deals. Cross border BHARs are negative but not significant. POSTCRISIS BHARs are positive but not significant. This shows that the financial crisis had an impact on the long term performance of M&A deals.

Table 12 provides the long term performance in terms of ROA for the three time periods. Abnormal ROAs for 24 month and 36 months after the deal announcement are not coming significant for the sub periods. We find that for all deals, abnormal ROA is positive PRECRISIS and negative in CRISIS period but these are not significant.

Finally, Table 13 provides the comparison of determinants for market reaction for the short term and long term. By adding the Pre-Crisis dummy to the model, we find that crisis has an impact on the CARs while no impact on BHARs or ROA.

6. Summary and Conclusions

Indian firms have been active in the M&A market over our sample period from 2001 to 2016, with both domestic and cross-border acquisitions. Evaluating acquisitions is inherently difficult as it involves both the level of any synergies and how the benefits from synergies are shared between the target and acquirer shareholders. In addition, in newly liberalized emerging markets, market reactions can be euphoric, which also clouds the results. In this paper, we use three measures in conjunction to infer the value effects of acquisitions by Indian firms.

We find that acquisitions by Indian firms result in a positive cumulative abnormal return on the day of the announcement, for both domestic and cross-border deals. These results are consistent with either Indian acquirers being able to retain some of the upside generated by the transaction or an euphoric reaction to capital market activity in an emerging markets. To resolve this issue, we examine the long-term buy and hold returns following the announcement. We find that the 24-month and 36-month returns are not significant suggesting there is no reversal of short-term value gains. In contrast to transactions in developed capital markets, Indian acquirers are able to retain some of the synergy values. It is plausible that capital constraints faced by small firms in emerging markets such as in India reduce their bargaining power in the acquisition market.

We also check the returns to long-term operating performance for acquirers and find that there are no abnormal returns. This suggests that acquisitions made by Indian firms are a way to offset potential declines rather than for firms to grow.

Overall, our results indicate that Indian capital markets accurately value acquisitions by Indian firms.

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Table 1: M&A Deals by Year

This table shows the number of deal in the study by the year of M&A deal announcement. The table also shows the number of Domestic deals, where the acquiring firm and the target firm are both Indian, and Cross Border deals, where the acquiring firm is Indian, and the target firm is not an Indian firm.

Deal Announcement Year	Domestic	Cross Border	Total
2001	11	3	14
2002	19	4	23
2003	15	17	32
2004	22	17	39
2005	56	32	88
2006	53	37	90
2007	50	49	99
2008	62	47	109
2009	61	25	86
2010	60	52	112
2011	47	32	79
2012	56	23	79
2013	45	27	72
2014	40	20	60
2015	46	29	75
2016	33	25	58
Total	676	439	1115

Table 2: M&A Deals by Industry

This table lists the number of Domestic and Cross Border Deals by Prowess Industry Groups. Focused deals are deals where the industry as per SDC classification for the Acquirer and the Target is the same

Industry Group	Domestic Deals		Cross Border Deals		Total
	Diversified	Focused	Diversified	Focused	
Computer software	16	27	34	47	124
Drugs & pharmaceuticals	7	33	13	41	94
Trading	16	17	8	9	50
Other automobile ancillaries	8	8	16	13	45
Diversified	19	8	6	3	36
Steel	6	8	10	7	31
Other chemical products	8	11	4	6	29
Other construction & Allied Activities	12	14	1	0	27
Business services & consultancy	8	9	5	0	22
Other ferrous metal products	6	5	7	4	22
Other textiles	5	9	1	6	21
Sugar	6	14	1	0	21
Cosmetics, toiletries	3	8	6	3	20
Infrastructural construction	8	7	4	1	20
Telecommunication services	6	3	6	5	20
Others	167	194	77	95	533
Total	301	375	199	240	1115

Table 3: Firm Characteristics of Acquirers

This table shows the characteristics of Indian firms that have made any deal. Panel A provides characteristics with respect to all deals (1115 deals), Domestic deals (676 deals) are in Panel B and a Crossborder Deals (439 deals) in Panel C.

Panel A

All Deals (1115 deals)

VARIABLE	Mean	Median	Std Dev	Min	Max
LASSETS	9.357	9.276	1.983	3.804	15.448
CASHRATIO	0.082	0.045	0.093	0.000	0.795
LEVRATIO	0.287	0.293	0.176	0.000	0.814
HHI	0.114	0.075	0.121	0.012	0.990
AGE	32.103	24.000	22.054	3.000	143.000
INDADJQ	0.119	-0.048	1.620	-11.405	23.034
PHLDG	50.186	50.880	16.796	-	89.970

Panel B

Domestic Deals (676 deals)

VARIABLE	Mean	Median	Std Dev	Min	Max
LASSETS	9.166	9.095	2.003	3.804	15.448
CASHRATIO	0.073	0.040	0.085	0.000	0.538
LEVRATIO	0.299	0.305	0.178	0.000	0.814
HHI	0.115	0.073	0.119	0.013	0.920
AGE	32.262	24.000	22.555	3.000	143.000
INDADJQ	-0.025	-0.128	1.506	-11.405	10.696
PHLDG	51.575	52.480	16.599	-	89.970

Panel C

Crossborder Deals (439 deals)

VARIABLE	Mean	Median	Std Dev	Min	Max
LASSETS	9.651	9.437	1.918	4.475	14.913
CASHRATIO	0.096	0.060	0.103	0.001	0.795
LEVRATIO	0.267	0.260	0.172	0.000	0.745
HHI	0.112	0.076	0.123	0.012	0.990
AGE	31.859	24.000	21.283	3.000	108.000
INDADJQ	0.340	0.036	1.760	-7.817	23.034
PHLDG(%)	48.046	46.980	16.891	4.490	86.110

Table 4: Short-term Market reaction to M&A Activity

This table shows the magnitude and significance of short term market impact measured by Cumulative Abnormal Returns(CARs) of M&A activity for Indian deal announcements in our full sample over the period from 2001-2016. Panel A (1115 deals), Domestic acquisitions (676 deals) in Panel B or a Crossborder Acquisition (439 deals in Panel C Superscripts *, **, *** represent statistical significance at the 10%, 5%, and 1% levels respectively.

Panel A All Deals**T-test results All Deals 3 day and 11 day CARs: H1: mean = 0**

	#Obs	Mean	StdErr	<i>t</i> -val	<i>p</i> -val
3-Day CAR	1115	0.01***	0.002	5.800	0.000
11-Day CAR	1115	0.013***	0.003	4.650	0.000

Panel B Domestic Deals**T-test results Domestic Deals: H1: mean = 0**

	#Obs	Mean	StdErr	<i>t</i> -val
3-Day CAR	676	0.007***	0.003	3.150
11-Day CAR	676	0.012***	0.004	3.100

Panel C Crossborder Deals**T-test results cross border Deals: H1: mean = 0**

	#Obs	Mean	StdErr	<i>t</i> -val
3-Day CAR	439	0.014***	0.003	5.650
11-Day CAR	439	0.015***	0.004	3.750

Table 5: Determinants of Short-term Market Reaction

This table shows the results of linear regression models for the 3-day CARs, i.e. the short-term market reaction. Model 1 shows the results only controlling for whether the deal is Domestic or Crossborder. Model 2 adds firm characteristics as control variables. Model 3 adds governance variables Group (1/0), percentage holding of promoters and percentage of independent directors. Model 4 adds deal characteristics on whether the deal is focused or diversified (1/0) and the relative deal value measured by deal value divided by Market Cap of the acquiring firm in USD values. NUM_OBSERVATIONS reports the sample size for each regression. Standard errors are shown in parentheses. Superscripts *, **, *** represent statistical significance at the 10%, 5%, and 1% level respectively.

VARIABLES	Model 1	Model 2	Model 3	Model 4
XBORDER	0.007* (0.004)	0.008** (0.004)	0.009** (0.004)	0.010*** (0.004)
LASSETS		-0.001 (0.001)	-0.002* (0.001)	-0.001 (0.001)
CASHRATIO		0.009 (0.020)	0.012 (0.020)	0.007 (0.021)
LEVRATIO		0.023** (0.011)	0.024** (0.011)	0.020* (0.011)
HHI		0.001 (0.015)	0.000 (0.015)	-0.003 (0.015)
AGE		0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
INDADJQ		-0.001 (0.001)	0.000 (0.001)	0.000 (0.001)
GROUP			-0.003 (0.004)	-0.002 (0.004)
PHLDG			0.000 (0.000)	0.000 (0.000)
PCTINDP			0.018 (0.017)	0.015 (0.017)
FOCUSED				0.004 (0.004)
RELVAL				0.003 (0.002)
Constant	0.007*** (0.002)	0.015* (0.009)	0.008 (0.014)	0.001 (0.014)
Observations	1,115	1115	1053	972
R-squared	0.003	0.011	0.017	0.02

Table 6: Long-term Market reaction to M&A Activity

This table displays the results of long term Buy and Hold Results for acquiring firms in comparison to a portfolio of matched firms for a period of 24 month and 36 months after the announcement month. Bootstrapped t values have been used in the analysis. Panel A displays the results for the full sample. Panel B displays the results for Domestic deals and Panel C for Cross Border deals. Superscripts *, **, *** represent statistical significance at the 10%, 5%, and 1% level respectively.

Panel A All Deals

Bootstrapped T-test results All Deals 24 Month and 36 Month BHARs

	obs	Mean	Std.Err.	t_value	p_value
24 Month BHAR	1115	0.638	0.994	0.640	0.521
36 Month BHAR	1115	1.010	0.912	1.110	0.268

Panel B Domestic Deals

Bootstrapped T-test results All Deals 24 Month and 36 Month BHARs

	obs	Mean	Std.Err.	t_value	p_value
24 Month BHAR	676	0.530	1.035	0.510	0.608
36 Month BHAR	676	1.078	0.896	1.200	0.229

Panel C Crossborder Deals

Bootstrapped T-test results All Deals 24 Month and 36 Month BHARs

	obs	Mean	Std.Err.	t_value	p_value
24 Month BHAR	439	0.355	0.993	0.360	0.720
36 Month BHAR	439	0.149	1.079	0.140	0.890

Table 7: Determinants of Long-term Market Reaction

This table shows the results of linear regression models for the 24-month BHAR, i.e. the long-term market reaction. Model 1 shows the results only controlling for whether the deal is Domestic or Cross border. Model 2 adds firm characteristics as control variables. Model 3 adds governance variables as control variables. Model 4 adds deal characteristics. NUM_OBSERVATIONS reports the sample size for each regression. Standard errors are shown in parentheses. Superscripts *, **, *** represent statistical significance at the 10%, 5%, and 1% levels respectively.

VARIABLES	Model 1	Model 2	Model 3	Model 4
XBORDER	-0.008 (0.098)	0.032 (0.100)	0.144* (0.085)	0.118 (0.088)
LOG_ASSETS		-0.064** (0.026)	-0.059** (0.024)	-0.064** (0.025)
CASHRATIO		-0.293 (0.550)	0.024 (0.465)	0.148 (0.484)
LEVRATIO		0.049 (0.292)	0.006 (0.245)	-0.058 (0.256)
HHI		-0.241 (0.412)	-0.094 (0.351)	-0.177 (0.357)
AGE		-0.001 (0.002)	-0.001 (0.002)	-0.002 (0.002)
INDADJQ		-0.004 (0.030)	-0.012 (0.026)	-0.009 (0.030)
GROUP			0.153 (0.093)	0.149 (0.097)
PROMOTER_HLDG			0.008*** (0.002)	0.007*** (0.003)
PCT_IND_DIRS			-0.601 (0.395)	-0.608 (0.406)
FOCUSED				-0.080 (0.085)
REL DEAL VAL				-0.039 (0.051)
Constant	0.034 (0.061)	0.692*** (0.238)	0.329 (0.319)	0.532 (0.332)
Observations	1,115	1115	1053	972
R-squared	0	0.009	0.021	0.022

Table 8: Long-Term Operating Performance

This table shows the magnitude and significance of the long-term operating performance of Indian firms making an acquisition in the period from 2001-2016. Panel A presents the data for the full sample, Panel B presents the data for firms making Domestic deals and Panel C presents the data for firms making Cross Border deals.

Panel A Full Sample

T-test results All Deals ROA Results: H1: mean = 0

	obs	Mean	St_Err	t_value	p_value
Abnormal ROA2	896	0.140	0.404	0.350	0.729
Abnormal ROA3	845	1.275	0.990	1.300	0.198

Panel B: Domestic Deals

T-test results ROA Domestic Deals: H1: mean = 0

	obs	Mean	St_Err	t_value	p_value
Abnormal ROA2	534	0.248	0.195	1.250	0.203
Abnormal ROA3	503	0.087	0.146	0.600	0.550

Panel C: Cross Border Deals

T-test results ROA Cross Border Deals: H1: mean = 0

	obs	Mean	St_Err	t_value	p_value
Abnormal ROA2	362	0.713	0.957	0.750	0.457
Abnormal ROA3	342	3.279	2.434	1.350	0.179

Table 9: Determinants of Long-term Operating Performance

This table shows the results of linear regression models for the long term operating performance measured by abnormal return on assets as compared with a portfolio of firms matched by one year industry and performance before the deal year. Model 1 shows the results only controlling for whether the deal is Domestic or Cross border. Model 2 adds firm characteristics as control variables. Model 3 adds governance variables as control variables. Model 4 adds deal characteristics. NUM_OBSERVATIONS reports the sample size for each regression. Standard errors are shown in parentheses. Superscripts *, **, *** represent statistical significance at the 10%, 5%, and 1% levels respectively.

VARIABLES	Model 1	Model 2	Model 3	Model 4
XBORDER	0.960 (0.822)	0.820 (0.846)	-0.106 (0.296)	0.022 (0.285)
LASSETS		0.169 (0.227)	0.125 (0.085)	0.100 (0.082)
CASHRATIO		2.643 (4.723)	-0.992 (1.625)	0.524 (1.572)
LEVRATIO		-1.499 (2.481)	-0.606 (0.851)	-0.644 (0.825)
HHI		-0.866 (4.742)	0.262 (1.646)	0.156 (1.567)
AGE		-0.022 (0.019)	-0.005 (0.007)	-0.002 (0.007)
INDADJQ		-0.134 (0.265)	0.069 (0.093)	0.045 (0.102)
GROUP			-0.268 (0.321)	-0.141 (0.307)
PHLDG			-0.005 (0.009)	-0.002 (0.008)
PCTINDP			-1.767 (1.371)	-1.003 (1.310)
FOCUSED				0.023 (0.275)
RELVAL				0.049 (0.147)
Constant	-0.248 (0.523)	-0.774 (2.079)	0.328 (1.137)	-0.245 (1.104)
Observations	896	896	844	773
R-squared	0.002	0.004	0.007	0.005

Table 10: Short-term Market reaction to M&A Activity by sub periods

This table shows market impact of M&A activity for Indian firms in our sample broken up by sub periods. Panel A provides the CAR results for the period 2001 to 2008. Panel B provides the CAR results during the years 2008 and 2009. Panel C provides CAR results after 2010. Superscripts *, **, *** represent statistical significance at the 10%, 5%, and 1% levels.

Panel A

T-test results Deals before 2008 - 3 day and 11 day CARS: H1: mean = 0

	obs	Mean	St_Err	t_value	p_value
3-Day CAR	385	0.018***	0.003	5.800	0.000
11-Day CAR	385	0.021***	0.005	4.300	0.000
T-test results cross border Deals: H1: mean = 0					
	obs	Mean	St_Err	t_value	p_value
3-Day CAR	159	0.025***	0.004	5.550	0.000
11-Day CAR	159	0.028***	0.006	4.300	0.000
T-test results Domestic Deals: H1: mean = 0					
	obs	Mean	St_Err	t_value	p_value
3-Day CAR	226	0.013***	0.004	3.050	0.003
11-Day CAR	226	0.016**	0.007	2.300	0.022

Panel B

T-test results Deals during 2008 and 2009 - 3 day and 11 day CARS: H1: mean = 0

	obs	Mean	St_Err	t_value	p_value
3-Day CAR	195	0.002	0.004	0.400	0.672
11-Day CAR	195	-0.001	0.007	-0.150	0.877
T-test results cross border Deals: H1: mean = 0					
	obs	Mean	St_Err	t_value	p_value
3-Day CAR	72	-0.001	0.006	-0.050	0.952
11-Day CAR	72	-0.014	0.010	-1.350	0.187
T-test results Domestic Deals: H1: mean = 0					
	obs	Mean	St_Err	t_value	p_value
3-Day CAR	123	0.003	0.005	0.550	0.580
11-Day CAR	123	0.006	0.009	0.700	0.499

Panel C

T-test results Deals from 2010 to 2016 - 3 day and 11 day CARS: H1: mean = 0

	obs	Mean	St_Err	t_value	p_value
3-Day CAR	535	0.007***	0.003	3.150	0.002
11-Day CAR	535	0.013***	0.004	3.200	0.002
T-test results cross border Deals: H1: mean = 0					
	obs	Mean	St_Err	t_value	p_value
3-Day CAR	208	0.011***	0.003	3.350	0.001
11-Day CAR	208	0.015**	0.005	2.550	0.011
T-test results Domestic Deals: H1: mean = 0					
	obs	Mean	St_Err	t_value	p_value
3-Day CAR	327	0.005	0.004	1.600	0.108
11-Day CAR	327	0.011**	0.005	2.100	0.037

Table 11: Long term Market reaction to M&A Activity by sub period

This table shows the long term Buy and Hold Results for acquiring firms for a period of 24 month and 36 months after the announcement month.

Panel A**Bootstrapped T-test results Deals before 2008; 24 Month and 36 Month BHARs**

All Deals	obs	Mean	Std.Err.	t_value	p_value
24 Month BHAR	385	0.994	0.940	1.060	0.290
36 Month BHAR	385	1.050	0.886	1.190	0.236
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Domestic Deals	obs	Mean	Std.Err.	t_value	p_value
24 Month BHAR	226	1.238	0.886	1.400	0.162
36 Month BHAR	226	1.530	0.760	2.010	0.044
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Cross Border Deals	obs	Mean	Std.Err.	t_value	p_value
24 Month BHAR	159	-0.239	0.989	-0.240	0.809
36 Month BHAR	159	-0.992	1.082	-0.920	0.359

Panel B**Bootstrapped T-test results Deals during 2008 and 2009; 24 Month and 36 Month BHARs**

All Deals	obs	Mean	Std.Err.	t_value	p_value
24 Month BHAR	195	-3.061***	1.121	-2.730	0.006
36 Month BHAR	195	-2.444***	1.201	-2.040	0.042
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Domestic Deals	obs	Mean	Std.Err.	t_value	p_value
24 Month BHAR	123	-2.939***	1.206	-2.440	0.015
36 Month BHAR	123	-2.630***	1.313	-2.000	0.045

T-test results cross border Deals: H1: mean = 0

Cross Border Deals	obs	Mean	Std.Err.	t_value	p_value
24 Month BHAR	72	-1.088	1.041	-1.040	0.296
36 Month BHAR	72	-0.488	1.122	-0.440	0.663

Panel C**Bootstrapped T-test results Deals from 2010 to 2016 ; 24 Month and 36 Month BHARs**

All Deals	obs	Mean	Std.Err.	t_value	p_value
24 Month BHAR	535	0.930	0.944	0.990	0.324
36 Month BHAR	535	0.948	0.918	1.030	0.302
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Domestic Deals	obs	Mean	Std.Err.	t_value	p_value
24 Month BHAR	327	0.324	0.990	0.330	0.744
36 Month BHAR	327	0.302	1.061	0.280	0.776
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Cross Border Deals	obs	Mean	Std.Err.	t_value	p_value
24 Month BHAR	208	0.919	0.926	0.990	0.321
36 Month BHAR	208	1.070	0.945	1.130	0.257

Table 12: Long term Operating Performance after deal announcement by sub period

This table shows the long term operating performance for acquiring firms for a period of 24 month and 36 months after the announcement month.

Panel A**T-test results All Deals ROA Results Deals before 2008: H1: mean = 0**

	obs	Mean	St_Err	t_value	p_value
Abnormal ROA24	303	1.030	1.128	0.900	0.362
Abnormal ROA35	298	1.897	2.023	0.950	0.349

T-test results ROA Domestic Deals: H1: mean = 0

	obs	Mean	St_Err	t_value	p_value
Abnormal ROA24	170	-0.178	0.186	-0.950	0.339
Abnormal ROA36	167	-0.199	0.265	-0.750	0.455

T-test results ROA Cross Border Deals: H1: mean = 0

	obs	Mean	St_Err	t_value	p_value
Abnormal ROA24	133	2.575	2.558	1.000	0.316
Abnormal ROA36	131	4.567	4.589	1.000	0.322

Panel B**T-test results All Deals ROA Results Deals in 2008 and 2009 : H1: mean = 0**

	obs	Mean	St_Err	t_value	p_value
Abnormal ROA24	163	-0.623	0.595	-1.050	0.297
Abnormal ROA36	159	-0.229	0.333	-0.700	0.493

T-test results ROA Domestic Deals: H1: mean = 0

	obs	Mean	St_Err	t_value	p_value
Abnormal ROA24	102	-1.124	0.937	-1.200	0.233
Abnormal ROA36	98	-0.547	0.513	-1.050	0.288

T-test results ROA Cross Border Deals: H1: mean = 0

	obs	Mean	St_Err	t_value	p_value
Abnormal ROA24	61	0.217	0.254	0.850	0.396
Abnormal ROA36	61	0.282	0.265	1.050	0.290

Panel C**T-test results All Deals ROA Results Deals after 2009 : H1: mean = 0**

	obs	Mean	St_Err	t_value	p_value
Abnormal ROA24	430	-0.198	0.155	-1.300	0.203
Abnormal ROA36	388	1.414	1.490	0.950	0.344

T-test results ROA Domestic Deals: H1: mean = 0

	obs	Mean	St_Err	t_value	p_value
Abnormal ROA24	262	0.048	0.100	0.500	0.630
Abnormal ROA36	238	0.179	0.128	1.400	0.161

T-test results ROA Cross Border Deals: H1: mean = 0

	obs	Mean	St_Err	t_value	p_value
Abnormal ROA24	168	-0.582	0.364	-1.600	0.113
Abnormal ROA36	150	3.371	3.852	0.900	0.383

Table 13: Determinants of Returns – Effect of Financial Crisis

This table shows the impact of the financial crisis on the returns to acquiring firms. Model 1 uses the 3-day CAR as the dependent variable and deal and firm level control and governance characteristics as independent variables. A pre-crisis dummy variable is added as an independent variable and defined as 1/0 to indicate whether the deal was announced prior to 2008 or later. Model 2 uses 24 month BHAR as the dependent variable and Model 3 uses 24 month ROA as the dependent variable. Standard errors are shown in parentheses. Superscripts *, **, *** represent statistical significance at the 10%, 5%, and 1% level respectively.

VARIABLES	Model 1 CAR3	Model 2 BHAR24	Model 3 ROA24
XBORDER	0.010*** (0.004)	0.124 (0.089)	-0.011 (0.286)
PRE_CRISIS	0.011*** (0.004)	-0.096 (0.098)	0.473 (0.319)
LASSETS	0.000 (0.001)	-0.073*** (0.027)	0.143* (0.087)
CASHRATIO	0.009 (0.021)	0.134 (0.485)	0.528 (1.570)
LEVRATIO	0.017 (0.011)	-0.038 (0.257)	-0.774 (0.830)
HHI	-0.005 (0.015)	-0.161 (0.357)	0.021 (1.568)
AGE	0.000 (0.000)	-0.002 (0.002)	-0.002 (0.007)
INDADJQ	-0.001 (0.001)	-0.004 (0.030)	0.019 (0.104)
GROUP	-0.004 (0.004)	0.166* (0.098)	-0.238 (0.314)
PHLDG	0.000 (0.000)	0.007*** (0.003)	-0.002 (0.008)
PCTINDP	0.012 (0.017)	-0.583 (0.407)	-1.112 (1.311)
FOCUSED	0.004 (0.004)	-0.079 (0.085)	0.019 (0.275)
RELVAL	0.004 (0.002)	-0.041 (0.051)	0.057 (0.147)
Constant	-0.009 (0.015)	0.619* (0.344)	-0.639 (1.135)
Observations	972	972	773
R-squared	0.027	0.023	0.008

Appendix 1 Variable Definitions

LASSETS	Lagged ratio of log of assets for the acquiring firm prior to deal announcement
CASHRATIO	Lagged ratio of cash and short term investments to total assets for the acquiring firm prior to deal announcement
LEVRATIO	Lagged ratio of Borrowings to total assets for the acquiring firm prior to deal announcement
HHI	<p>Normalized HHI</p> $H = \sum_{i=0}^n S_i^2$ <p>Where S_i the market share of the firm i in the market and N is the number of firms in the industry</p> $\text{Normalized HHI} = \frac{N*(H-1)}{N-1}$
AGE	Number of years since incorporation acquiring for firm until year of deal announcement
ROA	Lagged ratio of Profit Before Interest Tax and Depreciation to Total Assets prior to deal announcement
GROUP	1/0 to indicate if the firm belongs to an ownership group as defined in CMIE Prowess
PHLDG	Lagged percentage holding of promoters
PCTINDP	Lagged Percentage of Independent Directors in the total board
FOCUSED	1/0 to indicate if the acquirer and target firm belong to the same industry as defined by SDC
RELVAL	Ratio of Deal value in Rupees to Market Cap of Acquiring Firms in the year of announcement
INDADJQ	<p>Industry Adjusted Tobins q for deal firm</p> <p>= (Value of Equity + Book value of Total Borrowings)Divided by Total Assets Minus Average Tobins Q for the same Prowess Industry Group</p>