
Analyzing determinants of value creation in domestic and cross border acquisitions in India

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ABSTRACT

The present study seeks to assess the acquiring company announcement gains, and determinants thereof, in domestic and cross border acquisitions in India. For this purpose, 268 acquisitions comprising of 202 cross border acquisitions and 66 domestic acquisitions constitute the sample set. Standard event study methodology has been employed for computing the announcement returns. Further, regression analysis has been conducted to assess the sources of wealth gains in domestic and cross border acquisition. The results of event study indicate that cross border acquisitions have created significantly higher wealth gains than the domestic ones. Further, the results of regression analysis highlight that cross border acquisitions, pursued by the acquiring companies in technology intensive sector, for the target companies also in technology intensive sector, create superior wealth gains. The reason being, such cross border acquisitions provide an opportunity to the acquiring company to combine and judiciously utilize intangible resources of both the companies on a broader scale across new geographies. Thus, the study contributes to the existing literature on internalization theory by extending it to an emerging market like India.

1. Introduction

Plethora of research has been conducted on assessing the effect of domestic and cross border acquisitions on the acquiring company shareholders wealth. As regards the acquiring company wealth gains in domestic acquisitions, researchers suggest that such acquisitions either yield normal returns on the announcement (Asquith, Burner, & Mullins, 1983; Bradely, Desai, & Kim, 1983; Dodd & Ruback, 1977; Langeteig, 1978; Mandelker, 1974) or result in significant wealth destruction for the shareholders (Doukas & Travlos, 1988; Jensen & Ruback, 1983; Kiyamaz, 2004; Kiyamaz & Mukherjee, 2000; Markides & Ittner, 1994; Marr, Mohta, & Spivey, 1993; Morck & Yeung, 1991; Mueller, 1969; Roll, 1986). However, researchers (Conn, Cosh, Guest, & Alan, 2005; Seth, Song, & Pettit, 2002) evaluating shareholders gains in cross border acquisitions opine that cross border acquisitions create substantial wealth gains for the acquiring company shareholders as these acquisitions, besides conferring the general benefits of an acquisition, like economies of scale and economies of scope, also enable the acquiring companies take advantage of various market imperfections. However, this notion cannot be generalized to all cross border acquisitions. The reason being, the researchers (Campa & Hernando, 2004; Conn et al., 2005; Donohoe, 2006; Eckbo &

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Thorburn, 2000; Goergen & Renneboog, 2004; Lowinski, Schiereck, & Thomas, 2004; Moeller & Schlingemann, 2005; Tebourbi, 2005) who actually compare the acquiring company wealth gains in domestic versus cross border acquisitions, argue that cross border acquisitions may not always outperform the domestic acquisitions. As an explanation to their findings this class of researchers opine that the acquiring company wealth gains are not solely driven by the nationality of the target, that is, whether the acquisition is for a foreign target company or for a domestic one, rather, value creation is influenced by an amalgam of bid related and company related factors.

Thus, two viewpoints relating to value creation in cross border acquisitions emerge from the extant literature. The first viewpoint highlights the role of market imperfections in value creation, while the second viewpoint underlines the influence of various deal and company specific factors on value creation. A detailed explanation of the role of market imperfections, and bid and company specific factors on the acquiring company wealth gains is given in the following sections.

1.1. Market imperfection theory as a driver of value creation

The proponents of market imperfection school of thought offer three competing theories namely international diversification theory, internalization theory and exchange rate theory as the drivers of value creation in cross border acquisitions. These theories explain how multinational corporations (MNCs) take advantage of various market distortions to earn monopoly rent in cross border acquisitions which enable these organizations to maximize wealth of their shareholders. An explanation of these theories is detailed as follows:

International diversification hypothesis: This hypothesis states that the main motive of MNCs for expanding their operations in different countries is to take advantage of imperfections in the financial markets (Hymer, 1976; Kindleberger, 1969). When financial markets are not properly integrated across boundaries, the rate of return on securities, for a given level of risk, is not similar in different financial markets. Hence, it gives an individual investor an opportunity to maximize his returns by diversifying his portfolio internationally. However, due to various governmental restrictions on the individual portfolio investment and because of information asymmetry on the part of the individual investor, he is not able to optimally diversify his portfolio. Hence, corporate diversification is favored over individual diversification.

Accordingly, MNCs invest abroad directly in the form of Foreign Direct Investment (FDI) and take over firms in different countries and help individual investors in reducing the variability in their earnings. Therefore, an MNC involved in international operations is able to enjoy larger monopolistic rents when barriers to capital flows are higher (Errunza & Senbet, 1981). This, in turn, enables these enterprises to create higher wealth for their shareholders compared to un-national corporations. As diversifying operations via taking over companies in different locations is a source of additional value to the foreign acquirer (MNC), hence, the acquiring company shareholders are able to gain substantial returns on the announcement of such foreign acquisitions.

Various studies have found the results in corroboration with the said hypothesis. Doukas and Travlos (1988) study the impact of corporate multi-nationalism via foreign acquisitions on the acquiring company shareholders wealth. They suggest that those acquiring companies that diversify their operations in different geographies through cross border acquisitions are able to exploit unique international distortions in the capital markets and thus create greater wealth for their shareholders. Kiyamaz and Mukherjee (2000) also attribute significant positive announcement gains in cross border acquisitions to international diversification hypothesis. They suggest that benefits to the acquiring companies in cross border acquisitions are inversely related to the extent of co-movement in the economies of the bidder and the target countries. Rieck and Doan (2007) propose that cross border acquisitions create higher wealth gains for acquiring company shareholders than the domestic ones as these enable the acquiring companies overcome entry barriers. However, Conn and Connell (1990) do not find any support to international diversification hypothesis.

Internalization hypothesis: According to this hypothesis the main motivation for MNCs expanding globally is to internalize its intangible assets.² The reason being these assets are based on the proprietary information and are difficult to organize externally (Morck & Yeung, 1991). However, the value of these assets enhances in direct proportion to the scale of the company's operations that in turn depends upon the number of markets in which it operates. Hence, MNCs create internal avenues for optimum utilization of such assets by expanding abroad and taking over companies across the geographies. Magee (1981) opines that one of the reasons for MNCs engaging in cross border takeovers is to facilitate the intra firm transfer of information as it can be transferred more efficiently via internal channels than by the market means. Dunning (1973) and Buckley and Casson (1998) support the internalization theory and state that firms possessing superior resources expand internationally to properly utilize them. Morck and Yeung (1991) also suggest that investors do not value multinationality as a diversification strategy rather they value internalization as it gives the company an opportunity to judiciously utilize its intangible assets.

² Intangible assets as defined by Morck and Yeung (1992) include technology related intangible assets (measured by ratio of research and development expenditure to sales), marketing related intangible assets (measured by ratio of advertising expenditure to sales) and also include the managerial skills and expertise. Markides and Iltner (1994) have also given a similar definition and include R&D technology, brand names, managerial know how as part of intangible assets.

Morck and Yeung (1992) conduct the pioneering study to examine the relationship between stock price reaction to announcement of foreign acquisitions and possession of intangible assets by the acquiring companies. They conclude that foreign acquisitions yield significant announcement returns when firms with intangible assets expand abroad. On the other hand, in cases where the firms lack intangible assets, international expansion via acquisitions is at best a wash out and are viewed by investors as liabilities. Thus, they support forward internalization as the source of value creation in cross border acquisitions. Marr et al. (1993) also support forward internalization hypothesis and state that foreign acquisitions lead to value creation as a result of the synergies that accrue from the use of intangible assets.

However, Eun, Kolodny, and Scheraga (1996) propose that cross border acquisitions create substantial wealth gains for those acquiring companies that are able to redeploy the target company's intangible assets. Hence, they support the reverse internalization hypothesis. Seth et al. (2002) also suggest that MNCs that go for cross border acquisitions derive most of the value from asset sharing and reverse internalization of valuable intangible assets of the target company. They further state that when expertise of a target firm is combined with that of the bidding firm, it leads to valuable new production and investment opportunities for the combined firm. However, Markides and Ittner (1994) find partial support to the internalization hypothesis as a source of value creation in cross border acquisitions.

Exchange rate hypothesis: The exchange rate hypothesis states that the value creation in cross border acquisitions is influenced by frictions in the exchange rate markets. As per this hypothesis, gains in cross border acquisitions for the acquirer are inversely related to the target country's currency valuations. The reason being when the currency of the target's country is cheap, it is less expensive for the foreign acquirer to acquire a company in the target's country. Thus, the cheaper the target's currency, the higher is the value gains for the acquiring company shareholders. Froot and Stein (1991) develop a model to study the relationship between exchange rates and FDI. They suggest that a depreciated currency of the target's country gives the foreign acquirer an edge in buying control of a company as it makes the buy inexpensive for the acquirer. Markides and Ittner (1994) opine that wealth gains in cross border acquisitions are positively related to the strength of the buyer's currency. However, Cakici, Hessel, and Tondon (1996) and Eun et al. (1996), McCorriston and Sheldon (1998) do not find any support for the exchange rate hypothesis as an explanation of acquiring companies' wealth gains in cross border acquisitions.

Based on the discussion of the above stated hypotheses it can be deduced that the announcement of a foreign acquisition generates significant wealth gains for the acquiring company shareholders because firstly, it gives the acquirer an opportunity to diversify its operations across the geographies and thus spread its risk, secondly, it helps the acquirer to utilize its intangible assets and finally, it gives an opportunity for the acquirer to acquire target company's valuable assets at a cheaper price, thus, taking advantage of a weak currency. Hence, geographic diversification, exploitation of firm specific advantages and exchange rate fluctuations are the main motivations for international expansion of the firms (Calvet, 1981; Shimizu, Hitt, Vaidyanath, & Pisano, 2004).

1.2. Bid specific factors theory as the driver of value creation

Contrary to the above stated hypotheses, researchers like Campa and Hernando (2004), Donohoe (2006), Eckbo and Thorburn (2000), Goergen and Renneboog (2004), Moeller and Schlingemann (2005) who compare wealth gains in domestic and cross border acquisitions and further assess the determinants thereof, propose bid specific factor theory as an alternative explanation to value creation in acquisitions. The bid specific theory states that wealth gains in acquisitions are a function of deal specific factors and company related factors, but not a function of the market imperfections arising as a result of difference in nationality of the target company. However, research related to comparing the wealth gains of cross border acquisitions with those of domestic acquisitions, using bid specific factor theory, is relatively scanty and ambiguous. Researchers like Campa and Hernando (2004), Donohoe (2006), Eckbo and Thorburn (2000) argue that domestic acquisitions outperform the cross border acquisitions. However, researchers like Goergen and Renneboog (2004), Cummins and Weiss (2004) find that cross border acquisitions create higher wealth gains than the domestic ones. Furthermore, these researchers have identified various deal specific and company specific factors contributing to value creation in such acquisitions.

Eckbo and Thorburn (2000) find that the domestic acquisitions significantly outperform the foreign ones. They attribute lower wealth gains accruing to foreign acquirers to the larger size of the acquirers. 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, while in lesser regulated industries, cross border acquisitions create higher returns than the domestic ones. Besides regulatory environment, they also find that hostile acquisitions create significantly higher wealth gains for the acquirer, irrespective of the nationality of the target company. Moeller and Schlingemann (2005) also find that cross border acquisitions significantly underperform the domestic acquisitions. They propose that the acquiring company shareholders gain significant positive returns in those cases where the acquiring companies acquire privately held target companies and also in those cases where these acquirers acquire relatively large sized targets, irrespective of the nationality of the target companies. Donohoe (2006) finds that domestic acquisitions insignificantly outperform cross border acquisitions. He further finds that, R&D intensity of the target, profitability of the target in the pre acquisition period, relatedness, and competition among the bidders are the factors that adversely affect the announcement gains of acquiring companies in acquisitions. Hence, he concludes that the acquiring company wealth gains are driven by a mix of target's financial characteristics and bid features.

Higher value creation in domestic acquisitions than the cross border ones is not universal and the researchers have found results contrary to it. Goergen and Renneboog (2004) find that cross border acquisitions create insignificant higher wealth than the domestic acquisitions. They attribute wealth gains in domestic and cross border acquisitions to two bid characteristics namely, the extent of hostility in an acquisition and the mode of payment employed in the acquisition. They opine that the bidding firm shareholders lose significantly in hostile acquisitions and cash financed acquisitions irrespective of the nationality of the target company. Cummins and Weiss (2004) also propose that acquisitions that bestow an opportunity of geographic diversification to the acquirers are value neutral while geography focusing transactions are value destroying. However, Lowinski et al. (2004) and Tebourbi (2005) do not find any support for the bid specific factor theory.

Thus, a review of the above stated studies highlights that outcomes regarding comparison of the acquiring company wealth gains in cross border acquisitions with those of domestic acquisitions are still ambiguous. However, the studies stated above underline the role of various bid specific and company specific variables in influencing the announcement gains in domestic and cross border acquisitions. The bid specific factors identified are mode of payment, relatedness, hostility, competition among bidders, and, the company specific variables are, technology intensity of the target, relative size of the target company, and the size of the acquiring company.

Thus, the existing literature provides differing viewpoints regarding wealth creation in domestic and cross border acquisitions. One the one hand, market imperfection theory states that cross border acquisitions create higher wealth gains than the domestic ones, as these acquisitions enable the acquiring companies earn monopoly rents by taking advantage of frictions in various markets. While on the other hand, bid specific factor theory refutes the claim of market imperfection theorists and states that cross border acquisitions may or may not yield higher wealth gains than the domestic acquisitions. The reason being, they relate value creation, in domestic and cross border acquisitions, to the underlying deal specific and company specific factors.

1.3. Research question

From the above discussion it is evident that there is ambiguity in the existing literature regarding wealth gains in domestic and cross border acquisitions and also regarding the sources of value creation in such acquisitions. There is a need to resolve the enigma in extant research regarding value creation in domestic and cross border acquisitions and the determinants thereof.

Further, most of the *a priori* research is restricted to developed economies, viz., the US (Eun et al., 1996; Kiyamaz & Mukherjee, 2000; Markides & Ittner, 1994; Moeller & Schlingemann, 2005; Rieck & Doan, 2007), Canada (Eckbo & Thorburn, 2000; Tebourbi, 2005) and European nations (Campa & Hernando, 2004; Conn & Connell, 1990; Cummins & Weiss, 2004; Donohoe, 2006; Goergen & Renneboog, 2004; Lowinski et al., 2004) and the results of these studies may or may not be extendible to an emerging market like India. Moreover, a dramatic rise has been witnessed in outbound cross border acquisitions by Indian companies since the year 2004. As per the disclosure of World Investment Report on mergers and acquisitions by UNCTAD the value of outbound acquisitions by Indian companies rose from \$2648.55 million in the year 2005 to \$30,414 million in the year 2007 which is the highest value of outbound acquisitions among the emerging economies represented by BRIC countries. Furthermore, large sized outbound cross border acquisitions by Indian companies are becoming order of the day. However, research on cross border acquisitions by Indian companies is sparse (Chakrabarti, 2008; Kale, 2009; Zhu & Malhotra, 2008) and no study has comprehensively analyzed the acquiring company wealth gains in domestic and cross border acquisitions and the determinants thereof in India.

Thus, the present study has been conducted with the following corresponding objectives:

1. To ascertain and compare the acquiring company wealth gains in domestic and cross border acquisitions in India.
2. To assess the source of wealth gains in domestic and cross border acquisitions in India.

The first objective aims to test two issues. One, whether there are any differences in the acquiring company wealth gains in domestic and cross border acquisitions, in India. Two, the magnitude and direction of such differences, if any (that is, whether the cross border acquisitions have outperformed the domestic ones, else, whether the inverse holds true). The second objective aims to evaluate the determinants of wealth gains in the two sets of acquisitions, in India.

Thus, the study contributes to the existing literature as, to the best of our knowledge; this is the first study to analyze the acquiring company shareholders wealth gains in domestic and cross border acquisitions and determinants thereof in India. Hence, the present study extends the existing literature on mergers and acquisitions to an emerging market like India.

2. Database and sample selection

For achieving the aforementioned objectives, acquisitions announced during the period 1st January 1997 till 31st March 2008 are considered. Information regarding announcement date, outcome date and bid specific factors like mode of financing, relatedness and competition among acquirers has been obtained by scanning two leading Indian financial dailies namely, The Economic Times and The Financial Express/World for the above stated period. Moreover to cross check the

Table 1
Year wise distribution of domestic and cross border acquisitions.

Year	Domestic acquisitions	Cross border acquisitions	Total
1997	2	1	3
1998	5	1	6
1999	6	3	9
2000	5	10	15
2001	9	5	14
2002	9	7	16
2003	7	17	24
2004	4	19	23
2005	8	39	47
2006	4	48	52
2007	6	43	49
2008 (till March 08)	1	9	10
Total	66	202	268

announcement and outcome dates of mergers and takeovers, official websites of the Securities Exchange Board of India (SEBI) and the Bombay Stock Exchange (BSE) have also been consulted. Data regarding exchange rate of Indian Rupee vis-à-vis foreign currency is obtained from the official website of Reserve Bank of India (RBI). Further on, data regarding market value of acquiring companies and the daily returns of individual stock of acquiring companies is obtained from PROWESS, the database software developed by Centre for Monitoring Indian Economy.

Taking cue from Dessyllas and Hughes (2005) and Pyykko (2009), the study uses the industrial sector to which the acquiring and the target companies belong as a proxy for intangible resources possessed by these companies. Thus, using SDC Thompson Financial database the sample is classified into two sectors, viz., technology intensive (possessing intangible resources) and non-technology intensive sector. The SDC Thompson Financial database classifies the companies into various industrial sectors based on US SIC codes. As per the US SIC codes, SDC Thompson Financial database classifies companies in telecommunication sector having primary business activities like providing telecommunication services or manufacturing telecom equipment; pharmaceutical sector dealing in vaccines, specialty drugs, companies engaged in drug research and development, as companies in technology intensive sector. Besides, companies whose primary business activity involves computer related services, viz., development of application software, computer consulting services, data processing services, internet and BPO services are also classified as companies in technology intensive sector. Companies not engaged in the business activities defined earlier, are classified as companies in non-technology intensive sector.

The sample is restricted to only those acquisitions that are successful and where the objective of the acquirer is to acquire a majority control of the target company. Such acquisitions have been deleted where the mode of payment and the type of diversification (whether related or unrelated) are not clear. Deletions have also been made for those companies where data regarding daily returns of the acquiring companies is not available. Yearly distribution of the sample acquisitions as well as distribution according to different bid characteristics is detailed in Tables 1 and 2, respectively.

Year wise distribution of acquisitions from Table 1 makes it evident that the trend of domestic acquisitions has been fluctuating over the sample period. On the other hand, the trend of outbound acquisitions has picked up from the year 2003, with highest number of acquisitions reported in the year 2006.

Distribution of acquisitions according to bid specific factors in Table 2 depicts that cash is the most frequently used form of financing in both the sets of acquisitions. Hostile acquisitions are rare in the domestic market which may be attributed to the phenomenon of concentrated ownership in the hands of promoters. On the other hand, lack of hostile acquisitions in cross border acquisitions shows the reluctance of Indian companies in pursuing such acquisitions. Further, lesser number of unrelated acquisitions implies that Indian companies are also reluctant to enter into new areas of operations via acquisitions. Moreover, contrary to the trend of domestic acquisitions, a large proportion of outbound acquisitions (119 out of 202) are in the technology intensive sector while a lesser number are in the non technology oriented sector. Likewise, a larger proportion of the acquiring (125 out of 202) and the target companies (131 out of 202) fall in technology intensive sector in case of cross border acquisitions compared to those of the domestic ones.

3. Methodology

To appraise the aforementioned objectives the analysis has been conducted in two parts. Firstly, the standard event study methodology has been employed to assess the announcement returns of the acquiring companies in domestic and cross border acquisitions separately. Further, cross border effect is calculated to compare the value creation in domestic and foreign acquisitions and to evaluate which of these two sets of acquisitions is creating more value for the shareholders on announcement. Secondly, cross-sectional regression analysis is employed on the entire sample of domestic and cross border acquisitions to identify the determinants of value creation in these acquisitions.³

³ Appendix 1 provides the detailed description of the methodologies being used by the researchers in the related research area.

Table 2
Distribution of domestic and cross border acquisitions according to bid features.

Bid Features	Domestic acquisitions ^a	Cross border acquisitions ^b	Total
Cash financed acquisitions	65	189	254
Stock financed acquisitions	–	05	5
Acquisitions with mixed financing	01	08	09
Acquisitions with competitive bidders	05	11	16
Acquisitions with single bidder	61	191	252
Hostile acquisition	01	–	01
Friendly acquisition	65	202	267
Related acquisition	65	200	264
Unrelated acquisition	01	02	04
Acquisitions in technology intensive sector ^c	14	119	133
Acquisitions in non-technology intensive sector	52	83	135
Acquiring companies in technology intensive sector	15	125	140
Acquiring companies in non- technology intensive sector	51	77	128
Target companies in technology intensive sector	26	131	157
Target companies in non-technology intensive sector	40	71	111

^a Domestic acquisition means an acquisition by an Indian acquiring company of a target company situated in India.

^b Outbound cross border acquisition means acquisition by an Indian acquiring company of a target company operating outside the geographic territory of India.

^c Acquisitions in technology intensive sector means the acquisitions where both the target and the acquiring companies are defined as companies in technology intensive sector as per the definition of SDC Thompson Financial database.

3.1. Event study

Standard event study methodology as propounded by Fama and MacBeth (1973) and Fama (1976) has been employed for assessing the impact of cross border acquisition announcement on the wealth of the acquiring company shareholders. Further, the risk and market adjusted variant of standard event study methodology which is better known as the market model has been used. The rationale for applying event study is that it measures the impact of a specific unanticipated event related to a company on the wealth of its shareholders by analyzing the abnormal returns around that event period (Brown & Warner, 1980, 1985). The sign (either positive or negative) and the magnitude of the abnormal returns reflect the market's assessment of the impact of such a decision on the long term future prospects of the company.

To calculate the abnormal returns for examining the market reaction to the announcement of cross border acquisition, firstly, an estimation period is selected for computing the parameters (α and β) of the market model. The estimation period used here is $t = -251$ to $t = -51$, relative to the first public announcement date of an acquisition ($t = 0$). Daily abnormal return on a particular day t is the excess of the actual return on day t over the expected return on that day. The expected return for a particular day t is computed as follows:

$$\hat{R}_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it}$$

where α_i presents the normal return of the security i when R_{mt} is zero, β_i measures the risk of security i that is, the sensitivity of R_{it} to the market wide factors. R_{mt} is the return on market index (BSE Sensex in this case). Thus, $\beta_i R_{mt}$ collectively capture the effect of variables that affect the return on all securities or at least most of the securities while ε_{it} captures the effect of variables more specific to the prospects of a security i .

The abnormal return (AR) for a security i on day t is calculated as follows:

$$AR_{it} = R_{it} - \hat{R}_{it}$$

where R_{it} is the actual return of a particular company's security i on day t and \hat{R}_{it} is the expected return on the same day.

Daily abnormal returns for each company are calculated over the interval $t = -50$ to $t = +50$.

Further, daily abnormal returns (ARs) have been averaged over N companies for each day t and are computed as follows:

$$AAR_t = \sum \frac{AR_{it}}{N}$$

where AAR_t is the average abnormal daily return on day t and N is the number of companies.

Further, cumulative average abnormal returns (CAARs) are derived by summing the AARs over various time intervals. For example, CAARs for a particular time interval t_1 to t_n are derived as follows:

$$CAARs = \sum_{t_1}^{t_n} AAR$$

To comment upon the significance of CAARs the following test statistics has been employed:

Test of significance of cumulative average abnormal returns = $\left(\sum_{t_1}^{t_n} (AAR/\delta_{AAR_t}) \times \sqrt{N}\right)$, where AAR is average abnormal return of all securities from day t_1 to t_n and N is the number of days over which AARs are cumulated. δ_{AAR_t} is the standard deviation of AAR over the estimation period ($t = -251$ to $t = -51$).

After finding the impact of domestic transactions and foreign transactions individually, the cross border effect for various event periods is also ascertained. Cross border effect measures the difference between the abnormal returns generated to the acquiring company shareholders in foreign and domestic acquisitions and helps in comparing the value creation for the two sets of acquisitions. Independent sample t -test is also applied to comment upon the significant difference in abnormal returns of cross border and domestic transactions.

3.2. Regression analysis

Cross sectional regression analysis is conducted in the second part of analysis to identify the sources of value creation in domestic and cross border acquisitions. *A priori* research has identified various bid related factors and company related factors like mode of payment, relatedness, hostility, competition among bidders, technology intensity of the target, relative size of the target company and the size of the acquiring company as the determinants of wealth gains in domestic and cross border acquisitions. Hence, these variables, except for the variable hostility,⁴ are taken as explanatory variables in the various regression models to assess their influence on wealth gains in domestic and cross border acquisitions in India. Further, CAARs of the three days ranging from day -1 to day $+1$ (CAAR3) are taken as the dependent variable⁵ for regression analysis. The result of the three day window is used as it captures a major portion of the stock price effect on the announcement of an acquisition and is usually employed by the researchers in regression models (Andrade, Mitchell, & Stafford, 2001; Cakici et al., 1996; Cebenoyan, Papaioannou, & Travlos, 1992; Chari, Ouimet, & Tesar, 2004; Cheng & Chan, 1995; Conn et al., 2005; Danbolt, 2004; Goergen & Renneboog, 2004; Lowinski et al., 2004; Rieck & Doan, 2007; Wiegerinck & Eije, 2007). Moreover, feasible generalized least squares (FGLS)⁶ weighted least square (WLS) regression analysis has been applied to control for the problem of heteroscedasticity. An explanation of the various independent variables used in the regression models is given as follows:

Foreign: This variable highlights the national identity of the target that is, whether the target company is from a foreign country or from within the geographic boundaries of the acquirer's country itself. The variable 'foreign' is used to measure the impact of nationality of the target on the acquiring company shareholders' wealth and takes value = 1 when the target is from a foreign country; and = 0 if the target is a domestic company.

Mode of payment: In order to make a distinction between cash and stock offers, transactions financed by preference shares, or by convertible warrants, or else, by swapping the common stock of the acquiring companies, are taken as stock financed transactions, while, others are classified as the cash financed ones. Following Dewenter (1995), those acquisitions which are financed partly with cash and partly with stock, are categorized as mixed transactions. The variable 'mode' is used to measure the impact of mode of payment on the announcement returns of the acquiring company shareholders. It takes value = 1 if an acquisition is financed with cash; and = 0 if it is financed with stock and also in cases where mixed financing is employed.

Relatedness: Entire product lines of the target and the acquirer have been matched to decide whether the acquisition is in related or unrelated areas. The transaction is defined as a related one if both the acquiring and the target companies have similar product lines, as well as, similar areas of operations and unrelated otherwise (Chatterjee, 1986). The variable 'related' is used as a measure of relatedness and it takes value = 1 for those acquisitions where the target and the acquirer have same areas of operations; and = 0 for unrelated acquisitions.

⁴ Since there is only one hostile acquisition, hence hostility has not been introduced as an independent variable.

⁵ In order to test the robustness of the results, cross sectional regression analysis has also been conducted taking CAARs of other event windows viz., day -1 to day 0, day zero, day 0 to day $+1$, day -5 to day $+1$ as dependent variables and similar results have been found. These event windows (day -1 to day 0, day zero, day 0 to day $+1$, day -5 to day $+1$) have been extensively used in a priori research for communicating similar findings (Cakici et al., 1996; Cebenoyan et al., 1992; Conn et al., 2005; Danbolt, 2004; Goergen and Renneboog, 2004; Lowinski et al., 2004; Moeller and Schlingemann, 2005). For the sake of brevity, the result of the three day window (day -1 to day $+1$) has only been reported here. The results of other event windows are available from authors on request.

⁶ The technique is named as FGLS weighted least square by Harvey (1976) and Greene (2000) (as cited in Ramanathan, 2008). FGLS is applied to obtain consistent and asymptotically more efficient estimates of parameters, if heteroscedasticity is found. In fact, the technique is applicable for ascertaining the weights in cases where source of heteroscedasticity cannot be determined precisely (Ramanathan, 2008). In *a priori* research, researchers have employed weighted least square regression model using standard deviation of the market model residual (from which CAARs are obtained) as weights. However, in the present study even after using standard deviation of the market model residual as weights, the problem of heteroscedasticity persisted. Hence, to control for the problem of heteroscedasticity, FGLS weighted least square methodology (following Breusch Pagan specification) is adopted to assess weights and to obtain FGLS weighted least square estimates of parameters. In this methodology, firstly, OLS regression is run on all independent variables and the residuals are saved. Secondly, auxiliary regression is run whereby residuals (saved in the first step) are squared and squared residuals are then regressed on all independent variables (including the constant term) and the 'fitted' values of the dependent variable (which are squares of residuals of original OLS model) are saved (as pre_1). If there are any negative values these are replaced with the original residual square values. Thirdly, weights are computed (weight = $1/\text{square root pre}_1$). Fourthly, weights so computed are used to transform both dependent variable and independent variables. Finally, regression is conducted on the transformed variables to obtain FGLS weighted least square estimates of coefficients (Ramanathan, 2008). The final regression does not have any constant term as it has also been transformed; hence, regression model is run through origin.

Table 3
Definitions and expected signs of the independent variables for the acquiring companies.

Variables	Definition of variables	Expected signs
Foreign Mode	Foreign acquisition = 1 and = 0 for domestic acquisition	+
Related	Cash acquisition = 1 and = 0 for stock financed and mixed acquisition	+
Multiple	Related acquisition = 1 and = 0 for unrelated acquisition	+
Relative size of the target (Relsizer)	Competitive bidding = 1 and = 0 for single bidder	-
Size of the acquirer (Logmv _A)	<small>Deal value as a proxy of target company's assets</small> Deal value ÷ Market value of acquiring company	-
Technology	Measured by log of market value of the acquiring company	-
	Acquisitions in technology intensive sector = 1 and = 0 otherwise	+

Competitive acquisitions: Competitive acquisitions have been defined as those acquisitions where more than one acquirer is bidding for acquiring the controlling stake in a target company. The variable multiple takes value = 1 if there are more than one bidders in an acquisition; and = 0 when a single bidder is there.

Relative size of the target company: Relative size of the target company ('relsize_t') is computed for examining the impact of size of the target company on shareholders' announcement returns in cross border acquisitions. Deal values have been taken as a proxy of value of the target company's assets for computing relative size. Since, target companies belonged to different countries, the deal value is given in different currencies. These are converted into Indian rupees by multiplying the deal value with the prevailing exchange rate⁷ of the respective currency on the date of actual announcement. Further, following Martin (1996) and Kohers and Ang (2000), relative size is defined as follows:

$$\text{Relative size of target company} = \frac{\text{Deal value as a proxy of target company's assets}}{\text{Deal value} + \text{Market value of acquiring company}}$$

Market value of the acquiring companies is considered for the financial year ending immediately before the year of acquisition announcement.

Size of the acquirer: A variable 'logmv_A' has been introduced to measure the impact of size of the acquiring company on the announcement wealth gains. Size of the acquiring company has been measured by taking the log of market value of the acquiring company for the financial year ending immediately before the year of acquisition announcement.

Technology intensity of the target company: A variable 'technology' has been introduced to measure the impact of the target company operating in technology intensive sector on the announcement returns to the acquirer. It takes value = 1 if the target company is in technology intensive sector; and = 0 otherwise.

The definitions and the expected signs of the independent variables for acquiring companies engaged in cross border acquisitions are summarized in Table 3.

4. Analysis and interpretation

4.1. Acquiring shareholders' announcement gains in cross border and domestic acquisitions

This section details the announcement returns of the acquiring company shareholders in domestic and cross border acquisitions. Firstly, the announcement returns of the acquiring companies in domestic acquisitions have been detailed followed by the analysis and interpretation of announcement gains in cross border acquisitions. Finally, the cross border effect measuring the difference in domestic and cross border acquisitions has been explained.

Acquiring companies' returns in domestic acquisitions: The CAARs availed of by the acquiring company shareholders in domestic acquisitions during various event periods are given in Table 4.

From the trend it is clear that during the pre acquisition period the CAARs have been fluctuating till the sub period -20 to -11. The CAARs have picked up during the sub period -10 to -1 (2.57, 1.84) when statistically significant positive returns have been availed of by the acquiring company shareholders compared to those of negative CAARs of the sub period -20 to -11 (-2.68, -1.92). During the sub period -5 to 0 (1.57, 1.45) some decline is visible in the CAARs. On actual announcement day (-0.02, -0.04) the CAARs have turned slightly negative. However, the three day window (1.19, 1.57) depicts positive, but, statistically insignificant returns. In the post acquisition period, the trend of CAARs has again picked up and the acquirer has gained positive returns during the sub period 0 to +5 (1.57, 1.60), followed by a decline in the trend of CAARs for the sub period 0 to +10 (0.45, 0.31). However, from the sub period 0 to +20 the CAARs have recovered (0.47, 0.23) and the recovery is visible till the sub period 0 to +40 (3.02, 1.07).

⁷ Exchange rates are taken from the web site of Reserve Bank of India and are available at <http://www.rbi.org.in/scripts/ReferenceRateArchive.aspx>.

Table 4

CAARs measuring announcement effect and cross border effect for acquiring company shareholders in domestic and cross border acquisitions.

Days	CAARs in domestic acquisitions		CAARs in cross border acquisitions		Cross border effect	
	CAAR _D	t-Test	CAAR _F	t-Test	CAAR _F – CAAR _D	t-Test
–50 to –41	1.16	0.83	–0.56	–0.90	–1.72	–1.11
–40 to –31	–1.65	–1.19	0.21	0.33	1.86	1.14
–30 to –21	–0.32	–0.23	0.46	0.73	0.78	0.50
–20 to –11	–2.68	–1.92 [*]	1.10	1.74 [*]	3.78	2.71 [*]
–10 to –1	2.57	1.84 [*]	0.41	0.64	–2.16	–1.33
–5 to 0	1.57	1.45	2.07	4.23 [*]	0.50	0.47
Day 0	–0.02	–0.04	1.41	7.05 [*]	1.43	2.94 [*]
–1 to +1	1.19	1.57	2.32	6.71 ^{***}	1.13	1.42
0 to +5	1.57	1.60	1.44	3.21 ^{***}	–0.13	–0.12
0 to +10	0.45	0.31	1.46	2.20 ^{**}	1.01	0.65
0 to +20	0.47	0.23	0.91	1.00	0.44	0.22
0 to +30	1.06	0.43	–0.04	–0.04	–1.10	–0.42
0 to +40	3.02	1.07	1.52	1.19	–1.50	–0.31
0 to +50	2.63	0.84	0.65	0.45	–1.98	–0.40

^{*} p-Value < 0.10.^{**} p-Value < 0.05.^{***} p-Value < 0.01.

Thus, from the above discussion it is evident that, except for the event window –10 to –1, the trend of CAARs has been random across various event periods. Thus, we can deduce that domestic acquisitions have not generated substantial positive announcement gains for the shareholders.

Acquiring companies' returns in cross border acquisitions: The trend of CAARs to the acquiring companies engaged in cross border acquisitions is also detailed in Table 4.

From the trend of CAARs attained by the acquiring company shareholders in cross border acquisitions, it is apparent that during the pre acquisition announcement period the CAARs have shown the rising trend from 40th day before the announcement of the acquisition that has sustained in the immediate announcement window, as well as, in the post acquisition period. During the pre acquisition period, the CAARs have shown a consistent rise from the sub period –50 to –41 (–0.56, –0.90) to the sub period –5 to 0 (2.07, 4.23), excepting for a decline in CAARs for the sub period –10 to –1 (0.41, 0.64). On actual announcement day (1.41, 7.05), and the three day window (2.32, 6.71), highly significant returns have been attained by the acquiring company shareholders. The rising trend has continued in the post acquisition period till the sub period 0 to +10 (1.46, 2.20). However, from the sub period 0 to +20 (0.91, 1.00) declining trend in CAARs is visible that continued till the sub period 0 to +50 (0.64, 0.45), except for the sub period 0 to +40.

Overall, the announcement of foreign acquisitions has yielded highly significant wealth for the acquiring company shareholders that started from 40th day before announcement and continued till 10th day after the acquisition announcement. Maximum returns have been enjoyed by the acquiring company shareholders during the three day window.

Comparison of acquirer returns in domestic and cross border acquisitions: The cross border effect, measuring the difference in abnormal returns of the acquiring companies in domestic and cross border acquisitions as illustrated in Table 4, shows that foreign acquisitions have created higher returns for the shareholders during the pre acquisition period till the sub period –20 to –11 (3.78, 2.71). However, during the sub period –10 to –1 (–2.16, –1.33), the cross border effect has turned insignificantly negative and has again turned positive during the sub period –5 to 0 (0.50, 0.47). Thus, during the pre acquisition period, except for the sub period –10 to –1 (–2.16, –1.33), the wealth gains in foreign acquisition have been higher than those of domestic acquisitions, hence generating a positive cross border effect. Foreign acquisitions have created highly positive returns on day zero (1.43, 2.94), whereas, the domestic ones have created slightly negative returns (–0.02, –0.04), resulting in substantial cross border effect (1.43, 2.94) on that day. During the three day window also, the cross border effect is positive (1.13, 1.42), though not statistically significant. In the post acquisition period, the positive cross border effect has prevailed till the sub period 0 to +20 (0.44, 0.22), except for the sub period 0 to +5 (–0.13, –0.12). The reason being, in the post acquisition period the rising trend of CAARs for domestic acquisitions has sustained till the 5th day after announcement, while, in case of foreign ones it has sustained till the sub period 0 to +10. Nevertheless, during the sub period 0 to +5, the rise in CAARs for domestic acquisitions is greater than those for the foreign acquisitions.

Beyond the sub period 0 to +10, the CAARs have turned random for both the sets of acquisitions. However, starting from the sub period 0 to +20, the cross border effect has turned insignificantly negative, thus highlighting recovery in the CAARs for domestic acquisitions.

Thus, an analysis of the announcement returns of foreign and domestic acquisitions and a comparison of the returns through cross border effect reveals that the shareholders of the acquiring companies have earned higher wealth gains on the announcement of foreign acquisitions as compared to those of the domestic acquisitions. These results are in consonance with the market imperfection theory that states that cross border acquisitions create substantial wealth gains for the acquiring company shareholders as these acquisitions provide the acquirers unique opportunities to take advantage of imperfections in financial, factor and foreign exchange markets.

Table 5

FGLS weighted least square regression analysis describing the impact of various bid specific factors on the acquiring company shareholders wealth in domestic and cross border acquisitions with CAAR3 (day -1 day +1) as the dependent variable.

Independent variables	Model 1		Model 2		Model 3		Model 4		Model 5	
	Std. coefficient	t-Value	Std. coefficient	t-Value	Std. coefficient	t-Value	Std. coefficient	t-Value	Std. coefficient	t-Value
Intercept	1.27	0.06	3.16	0.03	2.25	0.01	1.90	0.02	1.27	0.03
Foreign	0.08	0.67	-0.05	0.89	-	-	-	-	0.025	0.88
Mode	0.17	0.57	0.39	0.56	0.41	0.55	0.18	0.69	0.14	0.61
Related	-0.85	0.12	-1.80	0.12	-0.72	0.58	-1.06	0.11	-0.84	0.07
Multiple	-0.04	0.46	-0.03	0.57	-0.03	0.59	-0.03	0.59	-	-
Resize _T	0.001	0.98	-0.003	0.96	-0.007	0.92	-0.003	0.96	0.006	0.93
Logmv _A	-0.44	0.09	-1.78	0.00	-1.96	0.00	-0.94	0.002	-0.42	0.10
Technology	0.20	0.01	-	-	-	-	-	-	-	-
Foreign × technology	-	-	0.26	0.00	0.27	0.00	0.26	0.00	0.25	0.00
Foreign × related	-	-	-	-	-0.18	0.68	-	-	-	-
Foreign × mode	-	-	-	-	-	-	-0.01	0.96	-	-
Foreign × multiple	-	-	-	-	-	-	-	-	-0.004	0.95
F-Value, p value	7.24	0.00	8.54	0.00	9.81	0.00	7.77	0.00	7.58	0.00
R ²	0.18	-	0.21	-	0.23	-	0.19	-	0.19	-
Adjusted R ²	0.16	-	0.18	-	0.21	-	0.17	-	0.16	-
White's heteroscedasticity ^a F statistics (p value)	1.21 (0.21)	-	0.96 (0.52)	-	0.95 (0.55)	-	1.01 (0.46)	-	1.13 (0.30)	-
White's heteroscedasticity ^a chi square statistics (p value)	38.96 (0.21)	-	31.20 (0.51)	-	30.74 (0.53)	-	30.32 (0.45)	-	33.47 (0.30)	-

^a Heteroscedasticity test with cross terms.

4.2. Analyzing determinants of wealth gains

In second part of analysis, regression analysis has been conducted to explore the sources of value creation for the whole sample set. For conducting regression analysis, 'CAAR3' is taken as the dependent variable and the variables 'foreign', 'mode', 'related', 'multiple', 'resize_T', 'logmv_A', 'technology' are taken as independent variables. Further, interaction variables like 'foreign × technology', 'foreign × related', 'foreign × mode', 'foreign × multiple' have also been introduced as explanatory variables. The interaction variables are introduced to ascertain whether these variables impact the relationship between the nationality of the target and the announcement returns. The results of various regression models employing different independent variables are explained in Table 5.

Model 1 is the base model that employs all explanatory variables ('foreign', 'mode', 'related', 'multiple', 'resize_T', 'logmv_A', 'technology') that have been found to have a significant influence on the announcement returns of the acquiring company shareholders, as per the proponents of bid specific factor theory (Campa & Hernando, 2004; Donohoe, 2006; Eckbo & Thorburn, 2000; Goergen & Renneboog, 2004; Moeller & Schlingemann, 2005). The results of model 1 as detailed in Table 5 show that the variable 'foreign' has insignificant positive coefficient which implies that value creation in foreign acquisitions is not substantially greater than those for domestic acquisitions, which is contrary to the result of event study. The only variable that is statistically significant is 'technology', though; the variable 'logmv_A' is also significant at 10% level of significance. The statistically significant coefficient of the variable 'technology' makes it evident that the acquisitions for target companies operating in technology intensive sector outperform acquisitions for the target companies in non technology sector. It implies that technology intensity of the target company is an important variable affecting the announcement gains in domestic and cross border acquisitions. All other variables have expected signs except for the variable 'resize' and the variable 'related'. However, these variables are not statistically significant, meaning thereby that these have lesser influence on the announcement returns accruing to the acquiring companies.

As the proportion of target companies falling in technology intensive sector is higher in case of cross border acquisitions (131 out of 202) as compared to those of domestic acquisitions (26 out of 66), interaction variable 'foreign × technology' has been introduced in model 2,⁸ to ascertain whether cross border acquisitions for technology intensive target company has created any superior wealth gains.

⁸ In order to test the impact of technology intensity of the target company on the announcement returns of the acquiring companies, besides the introduction of interaction variable 'foreign × technology', independent sample t-test has also been conducted on the sample sets of domestic and cross border acquisitions separately. For this, the acquisitions for technology intensive target companies have been defined as acquisitions in technology oriented sector (taking value = 1) and the acquisitions for non-technology intensive target companies have been defined as acquisition in non-technology oriented sectors (taking value = 0). It is found that across the various event windows, cross border acquisitions for technology oriented target companies have substantially outperformed those for the target companies in nontechnology sector. However, there is no significant difference in value creation of the acquisitions for technology and non-technology oriented target companies for the sample set of domestic acquisitions. Thus, it again reinforces our results that cross border acquisitions for target companies in technology.

From the results of model 2,⁹ it is clear that the interaction variable 'foreign × technology' has got a significant effect on the three day announcement returns accruing to the acquiring company shareholders. However, with the introduction of this interaction variable, the coefficient of the variable 'foreign' has turned negative. The results of model 2 provide two insights. First, those foreign acquisitions that are directed towards the target companies in technology intensive sector have created significantly higher value than those in the non technology sector. Second, the negative sign of the variable 'foreign' with the introduction of the interaction variable 'foreign × technology' implies that foreign acquisitions create superior returns so long as these are directed towards acquisitions of a target companies in technology oriented sector otherwise there is no statistical difference in value creation between foreign and domestic acquisitions. Rather, foreign acquisitions generate negative wealth gains if these are pursued for target companies in the non-technology sector.

Besides the interaction variable 'foreign × technology', the variable 'logmv_A' has also turned significant in model 2. The significant negative coefficient of the variable 'logmv_A' implies that those acquisitions which are initiated by larger acquiring companies create negative wealth gains. *A priori* research gives two reasons for this. Firstly, managers of such firms may be suffering from hubris that may leave them overpaying the target company (Aw & Chatterjee, 2004; Roll, 1986). Secondly, managers of such companies may be pursuing acquisitions just to maximize the size of the acquiring company, to derive personal benefits related to the size of the company (Mandelker, 1974; Roman & Michael, 2006).

Further, other interaction variables like 'foreign × related', 'foreign × mode' and 'foreign × multiple' have also been introduced. However, these variables are introduced one by one, and after omitting the variable foreign, due to the problem of multi-collinearity.¹⁰ In model 3, interaction variable 'foreign × related' is introduced along with other explanatory variables. However, it is found that the interaction variable 'foreign × related' does not have much explanatory power. Similar results are found when interaction variables 'foreign × mode' and 'foreign × multiple' are introduced in model 4 and model 5, respectively.

The R^2 and the adjusted R^2 , which explain the proportion of variation in the dependent variable being explained by all the independent variables in case of regression through origin model, are low (R^2 ranges from 0.18 to 0.23 while adjusted R^2 varies from 0.16 to 0.21 in all regression models). However, these are in consonance with the results of researchers like Cebenoyan et al. (1992), Danbolt (2004), Dewenter (1995), Harris and Ravenscraft (1991), Lowinski et al. (2004), Moeller and Schlingemann (2005), Pettway, Sicherman, and Spiess (1993). The R^2 in the regression models of these researchers has varied from 1% to 12%.

Thus, the results of the above stated models give us insights that cross border acquisitions have created higher wealth gains for the acquiring company shareholders only when these are pursued for acquiring target companies in technology oriented sector. In other cases, cross border acquisitions do not outperform the domestic ones. Our results are consistent with Eun et al. (1996) and Seth et al. (2002) who propose reverse internalization as the motive for cross border acquisitions and a source of gain in such acquisitions.

Conn et al. (2005) find that only those cross border acquisitions where both the acquiring and the target companies are in hi-tech sector, create higher returns than the domestic acquisitions. They conclude that relative returns to bidders in cross border acquisitions compared to those of domestic acquisitions depend upon the extent to which the acquirer and the target are able to realize synergies by sharing and internalizing the information based assets of the two companies taken together. Pyykko (2009) while further elaborating the internalization theory, opine that cross border acquisitions create positive value for the acquiring company shareholders only when one technology intensive acquiring company acquires another technology intensive target company and fully exploit the technological resources of both the companies. Thus, these two studies highlight that cross border acquisitions would create greater value when the target and the acquiring companies are in the technology intensive sector.

A glance at the distribution of cross border acquisitions in Table 2 makes it evident that a majority of the acquirers (125 out of 202) in the cross border acquisitions sample belong to technology intensive sector. Hence, it is interesting to know whether the source of value creation in cross border acquisitions in India can be attributed to the ability of the acquiring companies to judiciously deploy the target company's intangible resources (reverse internalization), or the source of value creation lies in the ability of the acquirer to employ its own intangible resources in foreign markets (forward internalization). Alternatively, the source of value creation may lie in optimal utilization of unique firm specific intangible resources of both the acquiring and the target companies across new geographies on a broader scale (full internalization).

4.3. Internalization hypothesis re-examined

In this section, the study tries to re-examine the internalization hypothesis to evaluate the source of value creation in cross border acquisitions. More specifically, the study tries to evaluate whether the source of wealth gains in cross border

⁹ Variable 'technology' and interaction variable 'foreign × technology' could not be introduced together in one regression model as these two variables are highly collinear (correlation = 0.88) leading to problem of multi-collinearity.

¹⁰ Correlation_{foreign × mode} and correlation_{foreign × related} = 0.82, correlation_{foreign × mode} and correlation_{foreign} = 0.84, correlation_{foreign × related} and correlation_{foreign} = 0.98.

Table 6

Regressions of acquiring company shareholders gains based on technology intensity of acquiring companies, target companies, the acquiring and target companies taken together and size of the acquirer.^a

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Intercept	1.26 (0.01)	1.26 (0.02)	1.46 (0.00)	4.49 (0.00)	1.66 (0.00)	3.80 (0.00)	3.77 (0.00)	3.98 (0.00)
Ttech	0.12 (0.05)					0.12 (0.04)		
Atech		0.13 (0.03)					0.14 (0.02)	
Ctech			0.10 (0.08)					0.11 (0.07)
Logmv _A				-0.82 (0.03)		-0.13 (0.03)	-0.14 (0.02)	-0.13 (0.02)
Logmv _A × atech					0.07 (0.24)			
F-Value (p value)	4.73 (0.03)	3.66 (0.05)	2.87 (0.09)	4.48 (0.03)	1.39 (0.24)	4.93 (0.01)	4.31 (0.01)	3.93 (0.02)
R ² , adjusted R ²	0.02, 0.014	0.014, 0.010	0.011, 0.007	0.017, 0.013	0.005, 0.001	0.036, 0.029	0.030, 0.024	0.029, 0.021

^aThis table represents the cross-sectional regression estimates from regressing the acquiring companies standardized three days (day -1 to day +1) cumulative abnormal returns on selected variables (p-values in parentheses).

acquisitions lies in the intangible resources of the target company alone; or, it only depends upon the resources of the acquiring company; or else, it is realized when synergies accrue by combining and optimally utilizing the intangible assets of the target and the acquiring company on a larger scale across new geographies.

Another variable found to be significant, in the regression analysis conducted in the previous section of the study, is the size of the acquiring company having a negative sign ('logmv_A'). Morck and Yeung (1992) also find a negative relationship between announcement returns to acquirers in cross border acquisitions and the size of the acquiring companies. They opine that the reason for the small companies outperforming the large companies in cross border acquisitions is that small companies are usually rapidly growing companies with substantial intangible assets. The small companies are able to capitalize their intangible assets and hence create greater wealth than the larger ones by accessing foreign markets via cross border acquisitions.

Hence, cross sectional regression analysis is conducted on the sample of cross border acquisitions only to study the relationship between the technology intensity of the target and the acquiring companies and the size of the acquiring companies on the announcement returns in cross border acquisitions. The three day CAARs¹¹ (day -1 to day +1) are again taken as dependent variable while the independent variables are acquirer's technology intensity (atech), target's technology intensity (ttech), combined technology intensity (ctech), and the size of the acquiring company (logmv_A). Moreover, one interaction variable 'logmv_A × atech' is also introduced in the regression analysis to know whether the size of the acquiring company is a proxy for intangible resources possessed by these companies. Due to the high multicollinearity¹² between the variables 'atech', 'ttech', 'ctech' and 'atechsize', these variables have been introduced one by one in the various regression models. Besides, to avoid the problem of heteroscedasticity, regressions are estimated using the standardized CAARs. The results of the various regression models are given in Table 6 and are explained as follows.

Significant positive coefficient of the variable 'ttech' in model 1 confirms the previous findings that cross border acquisitions for technology intensive target companies create significant positive announcement gains. Further, in model 2, the significant positive coefficient of the variable 'atech' highlights that, besides the target's technology intensity, the acquirer's technology intensity equally affects the announcement gains in cross border acquisitions. The findings are further substantiated when, in model 3, the variable 'ctech' turns out to be significant. It implies that cross border acquisitions generate significant positive wealth gains when one technology intensive acquiring company acquires another technology intensive target company and employ the intangible resources of both the companies at a broader scale in the new markets.

In model 4, the variable 'logmv_A' again turns out to be significantly negative, which further validates the notion that the stock market reacts positively to the cross border acquisitions pursued by small companies. However, insignificant positive coefficient of interaction variable logmv_A × technology in model 5, highlights that size is not a proxy for intangible assets of the acquiring companies. Hence, negative announcement returns to the shareholders of large companies may be supported by either size maximization or hubris (Aw & Chatterjee, 2004; Jensen & Ruback, 1983; Mandelker, 1974; Morck, Shleifer, & Vishny, 1990; Roll, 1986; Roman & Michael, 2006) and does not relate to the intangible resources possessed by these companies as suggested by Morck and Yeung (1992). The results remain robust when we combine the variables 'atech', 'ttech' and 'ctech' with the size variable (logmv_A) in models 6, 7 and 8, respectively.

Thus, from the above discussion, it is clear that those cross border acquisitions create significant positive wealth for the shareholders that enable the acquiring companies generate synergies by deploying their strategic intangible resources at a

¹¹ Similar results are found when regression analyses are conducted taking CAARs of other event windows viz., day -1 to day 0, day zero, day 0 to day +1 (except for the event window, day -5 to day +1) as dependent variables. For the sake of brevity, the result of the three day window (day -1 to day +1) are reported here. The results of other event windows are available from authors on request.

¹² Correlation_{atech×ttech} = 0.77, correlation_{atech×ctech} = 0.95, correlation_{atech×atechsize} = 0.91, correlation_{ttech×ctech} = 0.83, correlation_{ttech×atechsize} = 0.71, correlation_{ctech×atechsize} = 0.87.

broader scale in new geographic markets. The results of the study support full internalization hypothesis encompassing both reverse and forward internalization and are in consonance with the recently conducted studies of Conn et al. (2005) and Pyykko (2009).

Over the years, Indian companies in technology intensive sectors (telecommunications, IT/ITES, and pharmaceutical sector) had established themselves as low cost service or product providers. However, these companies still lacked necessary technological or management expertise to compete with the foreign rivals in foreign markets (Kale, 2009). Hence, to fill in the resource gap, these companies started acquiring target companies with strategic intangible assets like brand names, state-of-art technologies and management expertise.

Thus, the market has welcomed cross border acquisitions pursued by Indian companies, recognizing the fact that the major driver of such acquisitions is to combine and deploy their low cost service delivery model and low cost manufacturing skills with the intangible resources of the target companies, across new geographies. This, in turn, has yielded substantial wealth gains to the shareholders of the acquiring companies in cross border acquisitions, thus surpassing the announcement gains of domestic acquisitions.

5. Conclusion and implications

From the above discussion it can be concluded that, as per the results of the event study, the acquiring company shareholders have attained higher wealth gains in cross border acquisitions as compared to the domestic ones. However, the results of the regression analyses emphasize that superior wealth gains accrue to those cross border acquisitions where both the acquiring and the target companies are in technology intensive sector. The reason being such acquisitions provide an opportunity to the acquiring companies to share and utilize the strategic intangible resources of both the companies on a broader scale.

Another interesting finding highlighted in the study is that, those acquisitions are usually wealth creating which are pursued by small and mid-sized acquiring companies. In the present study, size is not found to be a proxy for intangible resources of the acquiring companies. Hence, negative returns to large sized acquiring companies are probably supported by either the phenomenon of managerialism or hubris on the part of the managers of the acquiring companies pursuing cross border acquisitions. This finding is inconsistent with the notion of Morck and Yeung (1992) who opine that small sized acquiring companies represent significant intangible assets that these companies try to combine with those of the target companies for generating higher productivity gains.

The results offer important implications for the managers. Firstly, only those cross border acquisitions that are designed to exploit intangible resources and capabilities of the acquiring and the target companies have created substantial wealth gains. Secondly, acquisitions by the large sized acquirers are viewed skeptically by the investors, as they fear that the acquiring company managers are suffering either from managerialism or hubris, and, as a result, may end up overpaying the target companies. Similar investor reaction was observed in case of the widely publicized acquisitions by large corporate houses in India (Corus Plc. by Tata Steel Limited, Novelis Plc. by Hindalco, Whyte and Mackay Limited by United Spirits, to name a few) which led to substantial shareholders' wealth destruction on the announcement of these acquisitions.

The study adds value to the existing literature by extending the internalization theory to an emerging market like India. In fact, this is one of the fewer studies that has analyzed and compared the acquiring company shareholders gains in domestic and cross border acquisitions for India. The results depict that the cross border acquisitions create value only when an acquiring company is able to realize synergies by blending together its own intangible resources and capabilities with those of the target company. Thus, the study tries to resolve the enigma of cross border acquisitions outperforming the domestic acquisitions. The study goes a long way in assisting managers in designing their mergers and acquisitions strategies by highlighting the source of value creation in cross border acquisitions for an emerging economy like India.

Appendix 1

See Table 7.

Table 7

Summary of the studies comparing wealth gains of acquirers in domestic and cross border acquisitions/summary of techniques being used in extant literature relating to domestic and cross border acquisitions.

Researcher	Objective	Database and study period	Statistical tool	Factors studied in regression analysis	Results
<i>Researchers studying acquiring company wealth gains in domestic and cross border acquisitions</i>					
Donohoe (2006)	Examine the magnitude and determinants of wealth gains for domestic (UK acquirers) and foreign acquirers (US/ Canada, European acquirers, Australian/Japanese acquirers) in the UK market	219 acquisitions announced and completed in the UK market during the period 1990–1998	Event study to assess price reaction OLS regression analysis to assess determinants of wealth gains with standardized CARs of the event window –5 to +5 as dependent variable	Country of target, Role of exchange rates, Role of industrial diversification (relatedness), Target company's market to book ratio, Sales growth, Target company's R&D intensity, Relative size of target, Competition among bidders, Form of payment	Domestic acquirers gain insignificantly higher returns than foreign acquirers with acquirers from US/Canada losing the most. As per regression results acquiring companies gain significantly higher returns in non-competing offers, when target firm's R&D intensity and return on shareholders' funds is lower in pre acquisition period and also in unrelated offers.
Campa and Hernando (2004)	Analyze European acquiring company wealth gains in domestic and cross border acquisitions and determinants thereof	262 acquisitions announced during the period 1998–2000	Event study to assess shareholder's returns OLS Regression analysis to assess determinants of wealth gains with CARs of event windows –1 +1, –30 +1, –90 –1, –30 +30 as dependent variables	Hostility, Relatedness, Relative size of target, Nationality of the target, Industry regulation, Sectoral effect, Different interaction variables	Cross border acquisition yield lesser wealth gains than national acquisitions Regression result shows that cross border acquisitions in highly regulated industries creates lesser wealth gains while in lesser regulated industries cross border deals yield higher returns than domestic ones. Also find that hostile acquisitions create significantly higher wealth gains irrespective of the nationality of the target company.
Eckbo and Thorburn (2000)	Analyze difference in returns of domestic (Canadian) and foreign (US) acquirers for their acquisitions in Canada	1846 mergers successfully completed during the period 1964–1982	Event study to assess abnormal returns	Role of foreign direct investment controls, Relatedness, Mode of payment, Relative size of bidder	Domestic acquirers earn significant higher wealth gains than foreign acquirers. Also domestic acquirers gain significant returns in stock offers and in cases where acquirers and targets have equal sizes. Foreign acquirers lost due to their larger size as compared to that of target firms. Conclude that the relatively larger size of acquirer cause attenuation bias and make it difficult to measure the gains for foreign acquirers.
Moeller and Schlingemann (2005)	Assess and compare announcement returns of Canadian bidders across domestic and cross border acquisitions	4430 completed acquisitions between 1985 and 1995	Event study for assessing wealth gains OLS Regression analysis with White's adjusted standard errors (to deal with the problem of heteroscedasticity) to assess determinants of wealth gains with CARs of event windows –1 to +1 as dependent variables	Type of offer, Relative size of target, Industrial diversification, Geographic diversification, Hostility, competition among acquirers, Mode of payment, Status of target (subsidiary or private firm)	Cross border transactions create significantly lesser wealth than the domestic acquisitions. As per regression analysis the above results remain robust even after controlling for various bid and company related factors. However, they also find that acquiring company gain significant announcement returns in cases where they acquire a privately held target company, a subsidiary company and in cases where the acquirer acquires a relatively larger target company.

Table 7 (Continued)

Researcher	Objective	Database and study period	Statistical tool	Factors studied in regression analysis	Results
Aw and Chatterjee (2004)	Examine and compare the post takeover performance of the UK acquirers for their domestic (in UK) and cross border acquisitions (in US and Continental Europe)	79 completed acquisitions during the period 1990–1996	Event study to assess post acquisition announcement returns	Compared gains to UK acquirers for their acquisition in the UK, the US and continental Europe	Find that the UK acquirers experience significant negative returns over two years period after announcement in all acquisitions. However, they find that post takeover performance of the UK acquirers is superior in domestic acquisitions compared to those of foreign acquisitions. They also find that post takeover performance of the UK acquirers is superior while acquiring the US targets compared to the target firms from Continental Europe.
Cummins and Weiss (2004)	Evaluate wealth gains to European acquirers in domestic and cross border acquisitions	256 completed acquisitions during the period 1990–2002	Event study to assess shareholder's returns	–	Find that the acquirers gain small negative returns in the overall sample. However, after breaking down the transaction into domestic and cross border ones, they find that cross border acquisitions create substantial wealth gains for shareholders around immediate event windows while domestic acquisition destroy wealth significantly.
Tebourbi (2005)	Assessed wealth gains of Canadian acquirers in domestic and cross border acquisitions and determinants thereof	462 completed acquisitions during the period 1988–2002	Event study for assessing wealth gains OLS regression analysis to assess determinants of wealth gains with CARs of event windows –5 to +5 as dependent variables	Type of offer (merger or tender offer), Nationality, Listing status of target, Relatedness, Mode of payment, Size of bidder, Role of investor protection.	Cross border acquisitions significantly outperform domestic acquisitions. As per regression results cross border acquisitions continue to outperform domestic acquisitions even after controlling for various bid related factors. He attribute the results to internalization hypothesis and concludes that cross border acquisitions generate superior returns to the acquirer as these acquisitions enable acquirers to employ their intangible assets abroad.
Conn et al. (2005)	Examine announcement returns of the UK acquirers in domestic and cross border acquisitions	4344 completed acquisitions between 1984 and 1998	Event study to assess shareholder's returns OLS regression analysis to assess determinants of wealth gains with three day CARs (day –1 to day +1) as dependent variable	Nationality of target, Mode of payment, Relative size of target, Market to book ratio of target, Technology intensity of target and acquirer, Size of acquirer, Hostility, Competition among acquirers, Listing status of target.	They find that for overall sample cross border acquisitions create lesser value than the domestic acquisitions. As per regression results, cross border acquisitions by the companies in hi-tech sector create higher returns than the domestic acquisitions.

Lowinski et al. (2004)	Examined wealth gains in domestic and cross border acquisitions for Swiss corporations	114 completed acquisitions during the period 1990–2001	Event study to assess shareholder's returns OLS Regression analysis to assess determinants of wealth gains with standardized CARs of event windows -1 , $+1$, -10 , $+10$ as dependent variables	Nationality of target, Target size, Relatedness	Cross border acquisitions create slightly higher wealth for the shareholders than the domestic acquisitions. Regression analysis does not find effect of any variables on announcement gains. Conclude that Swiss markets are highly integrated with international markets thus yielding no benefit of imperfections and hence no superior gains in cross border acquisitions.
Goergen and Renneboog (2004)	Analyze European acquirers' wealth gains in domestic and cross border acquisitions and factors affecting such wealth gains.	142 mergers and acquisitions announced during the period 1993–2000	Event study for assessing wealth gains OLS Regression analysis to assess determinants of wealth gains with CARs of event windows -1 to 0 , -10 to 0 as dependent variables	Mode of payment, Hostility, Competition among acquirers, Nationality of target, Relative size of target, Relatedness, Target and bidder characteristics viz. performance of target, interest coverage of target, growth potential of target measured in terms of market to book ratio	Cross border acquisitions create insignificant higher returns than domestic acquisitions. Regression results highlight that hostility and mode of payment are the key determinants of wealth gains for acquirers irrespective of the nationality of the target.
Cakici et al. (1996)	Analyze wealth gains of the US acquirers for their cross border acquisitions and those of foreign acquirers for acquisition of the US targets	195 acquisitions of the US firms by foreign acquirers 112 foreign acquisitions by the US acquirers.	Event study to assess shareholder's returns OLS Regression analysis to assess determinants of wealth gains with standardized CARs of event windows 0 $+1$ as dependent variables	Relatedness, Relative size, Extent of overseas exposure, Competition among acquirers, Exchange rate effect, R&D intensity of target firm	Foreign acquirers gain significant announcement returns for their acquisitions of the US targets. However, the US acquirers experience negative or zero returns from their cross border acquisitions. Regression analysis does not highlight any factor that can explain the determinants of wealth gains for acquirers. Hence, they conclude that US acquirers lose in cross border acquisitions primarily due to higher competition among the bidders.
<i>Researchers studying target shareholder wealth gains in domestic and cross border acquisitions</i>					
Cebenoyan et al. (1992)	Study wealth gains of the US target companies in foreign and domestic acquisitions and assessed the determinants of such wealth gains	207 completed acquisitions during the period 1978–1987	Event study to assess shareholder's returns OLS Regression analysis to assess determinants of wealth gains with standardized CARs of event window -1 to 0 as dependent variables	Nationality of acquirer, Mode of payment, Competition among acquirers, Technology intensity of target, Sectoral effect, Tax regulation, Foreign exchange variable, Interaction variables Tax \times Nationality, Technology \times Nationality, Sector \times Nationality, Competition \times Nationality	Results of event study state that foreign acquisitions create lesser value than the domestic ones. As per regression result they find that target firms are able to earn significantly higher abnormal return in the foreign acquisitions compared to the domestic acquisitions only when the competition among the bidders is very high.

Table 7 (Continued)

Researcher	Objective	Database and study period	Statistical tool	Factors studied in regression analysis	Results
Danbolt (2004)	Assesses and compares the magnitude of target shareholders' announcement returns in domestic and cross border acquisitions in the US market	630 completed acquisitions during 1986–1991	Event study to assess shareholder's returns OLS Regression analysis with White's adjusted standard errors (to deal with the problem of heteroscedasticity) to assess determinants of wealth gains with CARs of event windows zero, 0 to +1, –2 to +1 as dependent variables	Nationality of acquirer, Mode of payment, Relatedness, Bid outcome, Industry impact, Target size, Percentage of stake acquired	He finds that target companies gain positive abnormal returns in both domestic and cross border acquisitions and that there is no significant difference in the announcement returns of these two sets of acquisitions. As per the results of regression analysis he finds that the target returns are related to the bid related features viz. bid outcome, competition among acquirers and more specifically to the mode of payment.
Dewenter (1995)	Compares the US target shareholders announcement gains in domestic and foreign takeovers and assessed the determinants thereof	384 completed acquisitions during the period 1978–1989	Event study to assess announcement returns WLS regression analysis to assess the impact of various bid related factors on announcement returns with CARs of event window –20 +10 as dependent variable	Nationality of the acquirer, Hostility, Mode of payment, Competition among acquirers, Interaction variables viz. Foreign × Hostility, Foreign × Equity, Foreign × Competition	Finds no significant difference in the announcement gains in domestic and cross border acquisitions. Concludes that wealth gains to the target shareholders are sensitive to the standard transaction variables and not to the nationality of the acquirer per se.

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